January 17, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N033613

RE: PG&E Topock - PMP

Attention: Dan Bush

Enclosed are the results for sample(s) received on January 03, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

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# CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling;sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) is outside recovery criteria for Calcium in QC sample N033613-001D-MS1 since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N033613-002D-MS2 and N033613-002D-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - PMP
**Lab Order:** N033613
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N033613-001A | PE-01-0119 | Groundwater | 1/3/2019 11:40:00 AM | 1/3/2019 | 1/17/2019 |
| N033613-001B | PE-01-0119 | Groundwater | 1/3/2019 11:40:00 AM | 1/3/2019 | 1/17/2019 |
| N033613-001C | PE-01-0119 | Groundwater | 1/3/2019 11:40:00 AM | 1/3/2019 | 1/17/2019 |
| N033613-001D | PE-01-0119 | Groundwater | 1/3/2019 11:40:00 AM | 1/3/2019 | 1/17/2019 |
| N033613-002A | TW-03D-0119 | Groundwater | 1/3/2019 11:30:00 AM | 1/3/2019 | 1/17/2019 |
| N033613-002B | TW-03D-0119 | Groundwater | 1/3/2019 11:30:00 AM | 1/3/2019 | 1/17/2019 |
| N033613-002C | TW-03D-0119 | Groundwater | 1/3/2019 11:30:00 AM | 1/3/2019 | 1/17/2019 |
| N033613-002D | TW-03D-0119 | Groundwater | 1/3/2019 11:30:00 AM | 1/3/2019 | 1/17/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0119 |
| **Lab Order:** | N033613 | **Collection Date:** | 1/3/2019 11:40:00 AM |
| **Project:** | PG&E Topock - PMP | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N033613-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190104B** | QC Batch: **R130976** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 2200 | 0.10 | 0.10 | | umhos/cm | 1 | 1/4/2019 10:30 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0119 |
| **Lab Order:** | N033613 | **Collection Date:** | 1/3/2019 11:30:00 AM |
| **Project:** | PG&E Topock - PMP | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N033613-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190104B** | QC Batch: **R130976** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 7800 | 0.10 | 0.10 | | umhos/cm | 1 | 1/4/2019 10:30 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

Sample ID **N033613-002BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **130976**
Client ID: **ZZZZZZ** Batch ID: **R130976** TestNo: **EPA 120.1** Analysis Date: **1/4/2019** SeqNo: **3249457**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 7850.000 | 0.10 | | | | | | 7830 | 0.255 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N033613
**Project:** PG&E Topock - PMP
**Lab ID:** N033613-001

**Client Sample ID:** PE-01-0119
**Collection Date:** 1/3/2019 11:40:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190104A** | QC Batch: **R130975** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.4 | 0.10 | 0.10 | H | pH Units | 1 | 1/4/2019 10:50 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 1/4/2019 10:50 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0119 |
| **Lab Order:** | N033613 | **Collection Date:** | 1/3/2019 11:30:00 AM |
| **Project:** | PG&E Topock - PMP | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N033613-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190104A** | QC Batch: **R130975** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.1 | 0.10 | 0.10 | H | pH Units | 1 | 1/4/2019 10:50 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 1/4/2019 10:50 AM |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 150.1_4500H+B_W**

Sample ID **N033613-001BDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **130975**
Client ID: **ZZZZZZ** Batch ID: **R130975** TestNo: **SM4500-H+B** Analysis Date: **1/4/2019** SeqNo: **3249453**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 7.440 | 0.10 | | | | | | 7.420 | 0.269 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0119 |
| **Lab Order:** | N033613 | **Collection Date:** | 1/3/2019 11:40:00 AM |
| **Project:** | PG&E Topock - PMP | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N033613-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190107D** | QC Batch: **72004** | | | PrepDate | **1/7/2019** | | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 1300 | 17 | 17 | | mg/L | 1 | 1/7/2019 01:13 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0119 |
| **Lab Order:** | N033613 | **Collection Date:** | 1/3/2019 11:30:00 AM |
| **Project:** | PG&E Topock - PMP | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N033613-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190107D** | QC Batch: **72004** | | | PrepDate | **1/7/2019** | | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 4200 | 50 | 50 | | mg/L | 1 | 1/7/2019 01:13 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.1_2540C_W**

| Sample ID | LCS-72004 | SampType: | LCS | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 1/7/2019 | RunNo: | 131018 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72004 | TestNo: | SM2540C | | | Analysis Date: | 1/7/2019 | SeqNo: | 3251070 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 956.000 | 10 | 1000 | 0 | 95.6 | 80 | 120 | | | | |

| Sample ID | MB-72004 | SampType: | MBLK | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 1/7/2019 | RunNo: | 131018 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72004 | TestNo: | SM2540C | | | Analysis Date: | 1/7/2019 | SeqNo: | 3251071 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | ND | 10 | | | | | | | | | |

| Sample ID | N033613-002BDUP | SampType: | DUP | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 1/7/2019 | RunNo: | 131018 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72004 | TestNo: | SM2540C | | | Analysis Date: | 1/7/2019 | SeqNo: | 3251074 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 4285.000 | 50 | | | | | | 4195 | 2.12 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N033613
**Project:** PG&E Topock - PMP
**Lab ID:** N033613-001

**Client Sample ID:** PE-01-0119
**Collection Date:** 1/3/2019 11:40:00 AM
**Matrix:** GROUNDWATER

## DISSOLVED METALS BY ICP

**EPA 200.7**

RunID: **NV00922-ICP2_190116A** QC Batch: **71993** PrepDate **1/7/2019** Analyst: **CEI**

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| Calcium | 160000 | 85 | 500 | | µg/L | 1 | 1/16/2019 11:58 AM |
| Iron | ND | 18 | 20 | | µg/L | 1 | 1/16/2019 11:58 AM |
| Magnesium | 38000 | 48 | 100 | | µg/L | 1 | 1/16/2019 11:58 AM |
| Sodium | 480000 | 2400 | 12000 | | µg/L | 25 | 1/16/2019 09:36 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0119 |
| **Lab Order:** | N033613 | **Collection Date:** | 1/3/2019 11:30:00 AM |
| **Project:** | PG&E Topock - PMP | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N033613-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | | | **EPA 200.7** | | | | |
| RunID: **NV00922-ICP2_190116A** | QC Batch: **71993** | | | | PrepDate | **1/7/2019** | Analyst: **CEI** |
| Calcium | 220000 | 85 | 500 | | µg/L | 1 | 1/16/2019 12:32 PM |
| Iron | ND | 18 | 20 | | µg/L | 1 | 1/16/2019 12:32 PM |
| Magnesium | 29000 | 48 | 100 | | µg/L | 1 | 1/16/2019 12:32 PM |
| Sodium | 1600000 | 4800 | 25000 | | µg/L | 50 | 1/16/2019 09:39 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **MB-71993** | SampType: **MBLK** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: **1/7/2019** | RunNo: **131178** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **71993** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3259135** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | ND | 500 | | | | | | | | | |
| Iron | ND | 20 | | | | | | | | | |
| Magnesium | ND | 100 | | | | | | | | | |

| Sample ID **LCS1-71993** | SampType: **LCS** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: **1/7/2019** | RunNo: **131178** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **71993** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3259136** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 4788.350 | 500 | 5000 | 0 | 95.8 | 85 | 115 | | | | |
| Iron | 101.535 | 20 | 100.0 | 0 | 102 | 85 | 115 | | | | |
| Magnesium | 4819.326 | 100 | 5000 | 0 | 96.4 | 85 | 115 | | | | |

| Sample ID **N033613-001D-MS1** | SampType: **MS** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: **1/7/2019** | RunNo: **131178** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **71993** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3259142** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 169813.326 | 500 | 5000 | 158900 | 219 | 75 | 125 | | | | S |
| Iron | 105.698 | 20 | 100.0 | 0 | 106 | 75 | 125 | | | | |
| Magnesium | 43862.498 | 100 | 5000 | 38060 | 116 | 75 | 125 | | | | |

| Sample ID **N033613-001D-MSD** | SampType: **MSD** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: **1/7/2019** | RunNo: **131178** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **71993** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3259143** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 163061.941 | 500 | 5000 | 158900 | 83.5 | 75 | 125 | 169800 | 4.06 | 20 | |
| Iron | 102.070 | 20 | 100.0 | 0 | 102 | 75 | 125 | 105.7 | 3.49 | 20 | |
| Magnesium | 42842.165 | 100 | 5000 | 38060 | 95.7 | 75 | 125 | 43860 | 2.35 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID | MB-71993 | SampType: | MBLK | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 1/7/2019 | RunNo: | 131206 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 71993 | TestNo: | EPA 200.7 | | | Analysis Date: | 1/16/2019 | SeqNo: | 3260452 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | ND | 500 | | | | | | | | | |

| Sample ID | LCS2-71993 | SampType: | LCS | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 1/7/2019 | RunNo: | 131206 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 71993 | TestNo: | EPA 200.7 | | | Analysis Date: | 1/16/2019 | SeqNo: | 3260453 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 20406.195 | 500 | 20000 | 0 | 102 | 85 | 115 | | | | |

| Sample ID | N033613-002D-MS2 | SampType: | MS | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 1/7/2019 | RunNo: | 131206 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 71993 | TestNo: | EPA 200.7 | | | Analysis Date: | 1/16/2019 | SeqNo: | 3260458 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 1497977.533 | 25000 | 20000 | 1551000 | -264 | 75 | 125 | | | | S |

| Sample ID | N033613-002D-MSD | SampType: | MSD | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 1/7/2019 | RunNo: | 131206 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 71993 | TestNo: | EPA 200.7 | | | Analysis Date: | 1/16/2019 | SeqNo: | 3260459 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 1501582.209 | 25000 | 20000 | 1551000 | -246 | 75 | 125 | 1498000 | 0.240 | 20 | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0119 |
| **Lab Order:** | N033613 | **Collection Date:** | 1/3/2019 11:40:00 AM |
| **Project:** | PG&E Topock - PMP | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N033613-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICPMS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_190110B** | QC Batch: **72029** | | | PrepDate | **1/9/2019** | | Analyst: **CEI** |
| Manganese | 630 | 1.3 | 2.5 | | µg/L | 5 | 1/10/2019 04:27 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0119 |
| **Lab Order:** | N033613 | **Collection Date:** | 1/3/2019 11:30:00 AM |
| **Project:** | PG&E Topock - PMP | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N033613-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICPMS** | | | | | | | |
| **EPA 200.8** | | | | | | | |
| RunID: **NV00922-ICP7_190110B** QC Batch: **72029** | | | | PrepDate | | **1/9/2019** | Analyst: **CEI** |
| Manganese | 16 | 0.26 | 0.50 | | µg/L | 1 | 1/10/2019 05:22 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

| Sample ID **MB-72029** | SampType: **MBLK** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **1/9/2019** | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72029** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254583** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **LCS-72029** | SampType: **LCS** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **1/9/2019** | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72029** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254584** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 105.308 | 0.50 | 100.0 | 0 | 105 | 85 | 115 | | | | |

| Sample ID **N033613-001D-MS** | SampType: **MS** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **1/9/2019** | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72029** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254591** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 716.986 | 2.5 | 100.0 | 634.4 | 82.6 | 75 | 125 | | | | |

| Sample ID **N033613-001D-MSD** | SampType: **MSD** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **1/9/2019** | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72029** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254595** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 720.653 | 2.5 | 100.0 | 634.4 | 86.2 | 75 | 125 | 717.0 | 0.510 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N033613
**Project:** PG&E Topock - PMP
**Lab ID:** N033613-001

**Client Sample ID:** PE-01-0119
**Collection Date:** 1/3/2019 11:40:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190104A** | QC Batch: **R130983** | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 1/4/2019 01:09 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_190110B** | QC Batch: **72029** | | | PrepDate | **1/9/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 1/10/2019 04:22 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N033613
**Project:** PG&E Topock - PMP
**Lab ID:** N033613-002

**Client Sample ID:** TW-03D-0119
**Collection Date:** 1/3/2019 11:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190104A** QC Batch: **R130983** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | 500 | 3.3 | 20 | | µg/L | 100 | 1/4/2019 01:28 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_190110B** QC Batch: **72029** | | | | PrepDate | **1/9/2019** | | Analyst: **CEI** |
| Chromium | 480 | 0.65 | 5.0 | | µg/L | 5 | 1/10/2019 05:28 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID | MB-72029 | SampType: | MBLK | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | 1/9/2019 | RunNo: | 131109 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72029 | TestNo: | EPA 200.8 | | | Analysis Date: | 1/10/2019 | SeqNo: | 3254660 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-72029 | SampType: | LCS | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | 1/9/2019 | RunNo: | 131109 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72029 | TestNo: | EPA 200.8 | | | Analysis Date: | 1/10/2019 | SeqNo: | 3254661 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.976 | 1.0 | 10.00 | 0 | 99.8 | 85 | 115 | | | | |

| Sample ID | N033613-001D-MS | SampType: | MS | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | 1/9/2019 | RunNo: | 131109 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72029 | TestNo: | EPA 200.8 | | | Analysis Date: | 1/10/2019 | SeqNo: | 3254667 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.692 | 1.0 | 10.00 | 0 | 96.9 | 75 | 125 | | | | |

| Sample ID | N033613-001D-MSD | SampType: | MSD | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | 1/9/2019 | RunNo: | 131109 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72029 | TestNo: | EPA 200.8 | | | Analysis Date: | 1/10/2019 | SeqNo: | 3254669 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.631 | 1.0 | 10.00 | 0 | 96.3 | 75 | 125 | 9.692 | 0.630 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **MB-R130983** | SampType: **MBLK** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **130983** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R130983** | TestNo: **EPA 218.6** | | Analysis Date: **1/4/2019** | SeqNo: **3249708** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **LCS-R130983** | SampType: **LCS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **130983** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R130983** | TestNo: **EPA 218.6** | | Analysis Date: **1/4/2019** | SeqNo: **3249709** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.058 | 0.20 | 5.000 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **N033613-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **130983** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R130983** | TestNo: **EPA 218.6** | | Analysis Date: **1/4/2019** | SeqNo: **3249713** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.084 | 0.20 | 1.000 | 0.08290 | 100 | 90 | 110 | | | | |

| Sample ID **N033613-002AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **130983** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R130983** | TestNo: **EPA 218.6** | | Analysis Date: **1/4/2019** | SeqNo: **3249715** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 988.820 | 20 | 500.0 | 496.0 | 98.6 | 90 | 110 | | | | |

| Sample ID **N033613-002AMSD** | SampType: **MSD** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **130983** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R130983** | TestNo: **EPA 218.6** | | Analysis Date: **1/4/2019** | SeqNo: **3249716** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 996.600 | 20 | 500.0 | 496.0 | 100 | 90 | 110 | 988.8 | 0.784 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID **N033613-002ADUP** | SampType: **DUP** | TestCode: **218.6_WPGE** | Units: **µg/L** | | Prep Date: | | | | RunNo: **130983** | | |
| Client ID: **ZZZZZZ** | Batch ID: **R130983** | TestNo: **EPA 218.6** | | | Analysis Date: **1/4/2019** | | | | SeqNo: **3249717** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Hexavalent Chromium | 483.930 | 20 | | | | | | 496.0 | 2.46 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0119 |
| **Lab Order:** | N033613 | **Collection Date:** | 1/3/2019 11:40:00 AM |
| **Project:** | PG&E Topock - PMP | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N033613-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190107E** | QC Batch: **R131214** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 220 | 1.2 | 5.0 | | mg/L | 1 | 1/7/2019 02:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0119 |
| **Lab Order:** | N033613 | **Collection Date:** | 1/3/2019 11:30:00 AM |
| **Project:** | PG&E Topock - PMP | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N033613-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190107E** | QC Batch: **R131214** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 160 | 1.2 | 5.0 | | mg/L | 1 | 1/7/2019 02:00 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 2320_W_SP**

| Sample ID **LCS-R131214** | SampType: **LCS** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | RunNo: **131214** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R131214** | TestNo: **SM 2320 B** | | Analysis Date: **1/7/2019** | SeqNo: **3260760** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 100.427 | 5.0 | 100.0 | 0 | 100 | 85 | 115 | | | | |

| Sample ID **MB-R131214** | SampType: **MBLK** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | RunNo: **131214** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R131214** | TestNo: **SM 2320 B** | | Analysis Date: **1/7/2019** | SeqNo: **3260761** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | ND | 5.0 | | | | | | | | | |

| Sample ID **N033613-002BDUP** | SampType: **DUP** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | RunNo: **131214** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131214** | TestNo: **SM 2320 B** | | Analysis Date: **1/7/2019** | SeqNo: **3260769** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 153.846 | 5.0 | | | | | | 156.0 | 1.38 | 30 | |

| Sample ID **N033613-002BMS** | SampType: **MS** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | RunNo: **131214** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131214** | TestNo: **SM 2320 B** | | Analysis Date: **1/7/2019** | SeqNo: **3260770** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 254.274 | 5.0 | 100.0 | 156.0 | 98.3 | 75 | 125 | | | | |

| Sample ID **N033613-002BMSD** | SampType: **MSD** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | RunNo: **131214** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131214** | TestNo: **SM 2320 B** | | Analysis Date: **1/7/2019** | SeqNo: **3260771** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 250.000 | 5.0 | 100.0 | 156.0 | 94.0 | 75 | 125 | 254.3 | 1.69 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N033613
**Project:** PG&E Topock - PMP
**Lab ID:** N033613-001

**Client Sample ID:** PE-01-0119
**Collection Date:** 1/3/2019 11:40:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190104A** QC Batch: **R130996** | | | | PrepDate | | | Analyst: **RAB** |
| Chloride | 450 | 1.8 | 100 | | mg/L | 200 | 1/4/2019 10:42 AM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190104A** QC Batch: **R130996** | | | | PrepDate | | | Analyst: **RAB** |
| Sulfate | 250 | 1.1 | 25 | | mg/L | 50 | 1/4/2019 11:13 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0119 |
| **Lab Order:** | N033613 | **Collection Date:** | 1/3/2019 11:30:00 AM |
| **Project:** | PG&E Topock - PMP | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N033613-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| **EPA 300.0** | | | | | | | |
| RunID: **NV00922-IC8_190104A** QC Batch: **R130996** | | | | PrepDate | | | Analyst: **RAB** |
| Chloride | 2200 | 4.6 | 250 | | mg/L | 500 | 1/4/2019 10:57 AM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| **EPA 300.0** | | | | | | | |
| RunID: **NV00922-IC8_190104A** QC Batch: **R130996** | | | | PrepDate | | | Analyst: **RAB** |
| Sulfate | 500 | 1.1 | 25 | | mg/L | 50 | 1/4/2019 11:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID | MB-R130996_CL | SampType: | MBLK | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 130996 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R130996 | TestNo: | EPA 300.0 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3250171 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | 0.50 | | | | | | | | | |

| Sample ID | LCS-R130996_CL | SampType: | LCS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 130996 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R130996 | TestNo: | EPA 300.0 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3250172 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.990 | 0.50 | 2.000 | 0 | 99.5 | 90 | 110 | | | | |

| Sample ID | N033613-001BMS | SampType: | MS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 130996 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R130996 | TestNo: | EPA 300.0 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3250175 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 840.540 | 100 | 400.0 | 453.4 | 96.8 | 80 | 120 | | | | |

| Sample ID | N033613-001BMSD | SampType: | MSD | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 130996 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R130996 | TestNo: | EPA 300.0 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3250176 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 828.440 | 100 | 400.0 | 453.4 | 93.8 | 80 | 120 | 840.5 | 1.45 | 20 | |

| Sample ID | N033613-002BDUP | SampType: | DUP | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 130996 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R130996 | TestNo: | EPA 300.0 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3250177 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 2179.700 | 250 | | | | | | 2157 | 1.04 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID | MB-R130996_SO4 | SampType: | MBLK | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 130996 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R130996 | TestNo: | EPA 300.0 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3250186 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | ND | 0.50 | | | | | | | | | |

| Sample ID | LCS-R130996_SO4 | SampType: | LCS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 130996 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R130996 | TestNo: | EPA 300.0 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3250187 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.854 | 0.50 | 4.000 | 0 | 96.3 | 90 | 110 | | | | |

| Sample ID | N033613-001BMS | SampType: | MS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 130996 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R130996 | TestNo: | EPA 300.0 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3250192 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 447.560 | 25 | 200.0 | 248.4 | 99.6 | 80 | 120 | | | | |

| Sample ID | N033613-001BMSD | SampType: | MSD | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 130996 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R130996 | TestNo: | EPA 300.0 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3250193 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 446.905 | 25 | 200.0 | 248.4 | 99.3 | 80 | 120 | 447.6 | 0.146 | 20 | |

| Sample ID | N033613-002BDUP | SampType: | DUP | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 130996 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R130996 | TestNo: | EPA 300.0 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3250194 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 504.655 | 25 | | | | | | 503.4 | 0.253 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0119 |
| **Lab Order:** | N033613 | **Collection Date:** | 1/3/2019 11:40:00 AM |
| **Project:** | PG&E Topock - PMP | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N033613-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190108A** | QC Batch: **R131021** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | ND | 0.032 | 0.050 | | mg/L | 1 | 1/8/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0119 |
| **Lab Order:** | N033613 | **Collection Date:** | 1/3/2019 11:30:00 AM |
| **Project:** | PG&E Topock - PMP | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N033613-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190108A** | QC Batch: **R131021** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 2.7 | 0.16 | 0.25 | | mg/L | 5 | 1/8/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | MB-R131021 | SampType: | MBLK | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 131021 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R131021 | TestNo: | SM4500-NO3 | | | Analysis Date: | 1/8/2019 | SeqNo: | 3251204 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID | LCS-R131021 | SampType: | LCS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 131021 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R131021 | TestNo: | SM4500-NO3 | | | Analysis Date: | 1/8/2019 | SeqNo: | 3251205 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.432 | 0.050 | 0.5000 | 0 | 86.3 | 85 | 115 | | | | |

| Sample ID | N033613-001CDUP | SampType: | DUP | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 131021 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131021 | TestNo: | SM4500-NO3 | | | Analysis Date: | 1/8/2019 | SeqNo: | 3251209 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | 0 | 0 | 20 | |

| Sample ID | N033613-002CMS | SampType: | MS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 131021 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131021 | TestNo: | SM4500-NO3 | | | Analysis Date: | 1/8/2019 | SeqNo: | 3251211 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 5.110 | 0.25 | 2.500 | 2.687 | 96.9 | 75 | 125 | | | | |

| Sample ID | N033613-002CMSD | SampType: | MSD | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 131021 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131021 | TestNo: | SM4500-NO3 | | | Analysis Date: | 1/8/2019 | SeqNo: | 3251212 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 5.583 | 0.25 | 2.500 | 2.687 | 116 | 75 | 125 | 5.110 | 8.86 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**ASSET LABORATORIES**
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.3072691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **Client:** Arcadis | **Report to:** Dan Bush | **Bill to:** Lisa Kellog | **EDD Requirement** |
| **Address:** 1410 Rocky Ridge Dr. #330 | **Company:** Arcadis | **Address:** 2999 Oak Road, Suite 300 | Excel EDD ☐ |
| **Address:** Roseville, CA 95661 | **Email:** dan.bush@arcadis.com; daniel.moore@critigen.com | Walnut Creek, CA 94597 | Geotracker ☐ |
| **Phone:** 916.786.3302 **Fax:** | **Address:** 1410 Rocky Ridge Dr. #330 | **Email to:** lisa.kellog@arcadis.com **PO#** | Labspec ☐ |
| **Submitted By:** | Roseville, CA 95661 | **Phone:** 951.677.0577 **Fax:** | Others ☐ |
| **Title:** | **Phone:** 916.786.3302 **Fax:** | | Specify: |
| **Signature:** **Date:** | **Sampled By:** Spencer Daulitle | | Global ID: |

*I hereby authorize ASSET Labs to perform the tests indicated below:*

*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.*

**Project Name:** PG&E Topock - PMP
**Project Number:**

*Signature:* SD *Date* 1/3/19

**Matrix**

| | | | |
|---|---|---|---|
| Ground | ☑ | Sediment | ☐ |
| Potable | ☐ | Soil | ☐ |
| NPDES | ☐ | Other Solid | ☐ |
| Surface | ☐ | | |

**QA/QC**

| | |
|---|---|
| RTNE | ☐ |
| RWQCB | ☐ |
| CalTrans | ☐ |
| Level III | ☐ |
| LEVEL IV | ☑ |
| Regulatory | ☐ |
| Specify State: | |

**Sampe Receipt Condition**

| | Y | N |
|---|---|---|
| 1. Chilled | ☑ | ☐ |
| 2. Headspace | ☐ | ☐ |
| 3. Container Intact | ☐ | ☐ |
| 4. Seal Present | ☐ | ☐ |
| 5. IR number | ~ | |
| 6. Method of Cooling | ice | |

Sample Temp: 2.9°C

**Analyses Requested**

| Item No. | Laboratory Work Order No. | Sample ID/Location | Date | Time | Water | Solid | Others | Cr+6 by SM3500 | Alkalinity | pH | Chloride | Specific Conductance | Sulfate | TDS | NO2/NO3 by SM 4500 | Ca, Fe, Mg, Na by EPA 200.7 | Cr, Mn by 200.8 | Turn Around Time | No. of container | Container Type | PRESERVATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N033613-01 | PE-01-010319 | 1/3/19 | 1140 | X | | | X | X | X | X | X | X | X | X | X | X | E | 4 | P | N/S |
| 2 | -02 | TW-03D-010319 | 1/3/19 | 1130 | X | | | X | X | X | X | X | X | X | X | X | X | E | 4 | P | N/S |
| 3 | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | |

Courier:
Tracking No.

**Remarks**

| | | |
|---|---|---|
| Relinquished by (Signature and Printed Name): SD | Date / Time: 1/3/19 1500 | Received by (Signature and Printed Name): | Date / Time: 1/3/19 1500 |
| Relinquished by (Signature and Printed Name): | Date / Time: 1/3/19 1705 | Received by (Signature and Printed Name): | Date / Time: 1/3/19 1705 |
| Relinquished by (Signature and Printed Name): | Date / Time: | Received by (Signature and Printed Name): | Date / Time: |

**Turn Around Time (TAT)**
- ☐ A < 24 Hrs or Same Day TAT
- ☐ B = Next Workday
- ☐ C = 2 Workdays
- ☐ D = 3 Workdays
- ☑ E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00 PM.

**Special Instruction:**

**Terms**
1. All samples will be disposed in 45 days upon receipt and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
   Less than 24 Hrs = 200% Next Day = 100% 2 Workdays = 50% 3 Workdays = 35% 4 Workdays = 20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. ASSET Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 Days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratrories if hard copy of report is needed.
9. For subcontract analysis. TAT and Surcharges will vary.

**Preservatives:**

| | | | |
|---|---|---|---|
| H = HCl | N = $HNO_3$ | S = $H_2SO_4$ | C = 4°C |
| Z = $Zn(AC)_2$ | O = NaOH | T = $Na_2S_2O_3$ | |
| Others/Specify: | | | |

**Container Type:**

| | | |
|---|---|---|
| T = Tube | V = VOA | P = Pint |
| J = Jar | B = Tedlar | G = Glass |
| M = Metal | P = Plastic | C = Can |

White = Laboratory Copy
Yellow = Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 1/3/2019 | Workorder: | N033613 |
| Rep sample Temp (Deg C): | 2.9 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | NA | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☐ | No ☑ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☑ | No ☐ | NA ☐ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments: Sample for pH was past holding time upon receipt.

Checklist Completed By: YR 1/4/2019

Reviewed By: LG 010919

**Subject:** Client Sample ID Update Request - N033613
**From:** Tina Rice <Tina.Rice@critigen.com>
**Date:** 1/4/2019 1:03 PM
**To:** Yoandra Rodriguez <yoandra@assetlaboratories.com>
**CC:** "Madsen, Laura" <Laura.Madsen@arcadis.com>

Hi Yoandra,

Could you please update the sample IDs as shown below in the highlighted column?

| ProjectName | WorkOrder | ClientSampID | NewClientSampID | Date |
|---|---|---|---|---|
| PG&E Topock - PMP | N033613 | PE-01-010319 | PE-01-0119 | 1/3/2019 1 |
| PG&E Topock - PMP | N033613 | TW-03D-010319 | TW-03D-0119 | 1/3/2019 1 |

Thank you!
Tina

**Tina Rice**
**Database Analyst**

CRITIGEN

Tina.Rice@critigen.com
1 360 600 3562 Direct
1 360 600 3562 Mobile

critigen.com
critigen.co.uk

**Subject:** RE: PG&E Topock - PMP (Asset Labs No. N031976)
**From:** "Madsen, Laura" <Laura.Madsen@arcadis.com>
**Date:** 9/11/2018 3:34 PM
**To:** Yoandra Rodriguez <yoandra@assetlaboratories.com>
**CC:** "Madsen, Laura" <Laura.Madsen@arcadis.com>

Hi Yoandra,

Cr6 is acceptable to be analyzed by method 218.6. We have the lab prepare the COCs for us, maybe you can talk to them about the method? I think this happens every month lol.

Thanks,
Laura

---

**From:** Yoandra Rodriguez <yoandra@assetlaboratories.com>
**Sent:** Tuesday, September 11, 2018 2:42 PM
**To:** Madsen, Laura <Laura.Madsen@arcadis.com>
**Subject:** Fwd: PG&E Topock - PMP (Asset Labs No. N031976)

Hi Laura,

Please follow up.

Thanks!

-------- Forwarded Message --------
**Subject:**PG&E Topock - PMP (Asset Labs No. N031976)
**Date:**Fri, 7 Sep 2018 12:56:26 -0700
**From:**Yoandra Rodriguez <yoandra@assetlaboratories.com>
**To:**Madsen, Laura <Laura.Madsen@arcadis.com>
**CC:**maryann.balilu@assetlaboratoriesph.com <maryann.balilu@assetlaboratoriesph.com>, 'Andreafe. Gallardo' <andrea.gallardo@assetlaboratories.com>, 'Sonny. Lorenzo' <sonny.lorenzo@assetlaboratories.com>

Hi Laura,

Please be informed that Cr+6 will be analyzed by 218.6. Please confirm.

COC is attached for reference.

Thanks,

--
Yoandra Rodriguez
Sample Control Officer
Asset Laboratories

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# ASSET Laboratories

## WORK ORDER Summary

*07-Jan-19*

**WorkOrder:** N033613

**Client ID:** ARCUS02

**Project:** PG&E Topock - PMP **QC Level:** Level IV **Date Received:** 1/3/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N033613-001A | PE-01-0119 | 1/3/2019 11:40:00 AM | 1/17/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N033613-001B | | | 1/17/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | WW |
| N033613-001C | | | 1/17/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N033613-001D | | | 1/17/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | EPA 200.7 | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | EPA 200.8 | DISSOLVED METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | EPA 200.8 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N033613-002A | TW-03D-0119 | 1/3/2019 11:30:00 AM | 1/17/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N033613-002B | | | 1/17/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*07-Jan-19*

**WorkOrder:** N033613

**Client ID:** ARCUS02

**Project:** PG&E Topock - PMP **QC Level:** Level IV **Date Received:** 1/3/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N033613-002B | TW-03D-0119 | 1/3/2019 11:30:00 AM | 1/17/2019 | Groundwater | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | WW |
| N033613-002C | | | 1/17/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N033613-002D | | | 1/17/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | EPA 200.7 | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | EPA 200.8 | DISSOLVED METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | EPA 200.8 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N033613-003A | FOLDER | 1/17/2019 | 1/17/2019 | | EDD | Client specific project | ☐ | ☐ | ☐ | LAB |
| | | | 1/17/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 1/17/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# *ARCADIS*

Project: PG&E Topock - PMP

ASSET Laboratories Work Order:
N033613

## *ANALYTICAL and QC RESULTS*
## *SAMPLE RECEIVING ITEMS*

*PRIVILEGED AND CONFIDENTIAL*

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## ASSET Laboratories Work Order: N033613


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January 17, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N033613

RE: PG&E Topock - PMP

Attention: Dan Bush

Enclosed are the results for sample(s) received on January 03, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - PMP
**Lab Order:** N033613

# CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling;sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) is outside recovery criteria for Calcium in QC sample N033613-001D-MS1 since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N033613-002D-MS2 and N033613-002D-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

## ASSET Laboratories

**Date:** *17-Jan-19*

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - PMP
**Lab Order:** N033613
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N033613-001A | PE-01-0119 | Groundwater | 1/3/2019 11:40:00 AM | 1/3/2019 | 1/17/2019 |
| N033613-001B | PE-01-0119 | Groundwater | 1/3/2019 11:40:00 AM | 1/3/2019 | 1/17/2019 |
| N033613-001C | PE-01-0119 | Groundwater | 1/3/2019 11:40:00 AM | 1/3/2019 | 1/17/2019 |
| N033613-001D | PE-01-0119 | Groundwater | 1/3/2019 11:40:00 AM | 1/3/2019 | 1/17/2019 |
| N033613-002A | TW-03D-0119 | Groundwater | 1/3/2019 11:30:00 AM | 1/3/2019 | 1/17/2019 |
| N033613-002B | TW-03D-0119 | Groundwater | 1/3/2019 11:30:00 AM | 1/3/2019 | 1/17/2019 |
| N033613-002C | TW-03D-0119 | Groundwater | 1/3/2019 11:30:00 AM | 1/3/2019 | 1/17/2019 |
| N033613-002D | TW-03D-0119 | Groundwater | 1/3/2019 11:30:00 AM | 1/3/2019 | 1/17/2019 |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N033613
**Project:** PG&E Topock - PMP
**Lab ID:** N033613-001

**Client Sample ID:** PE-01-0119
**Collection Date:** 1/3/2019 11:40:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190104B** | QC Batch: **R130976** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 2200 | 0.10 | 0.10 | | umhos/cm | 1 | 1/4/2019 10:30 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0119 |
| **Lab Order:** | N033613 | **Collection Date:** | 1/3/2019 11:30:00 AM |
| **Project:** | PG&E Topock - PMP | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N033613-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190104B** | QC Batch: **R130976** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 7800 | 0.10 | 0.10 | | umhos/cm | 1 | 1/4/2019 10:30 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID | **N033613-002BDUP** | SampType: | **DUP** | TestCode: | **120.1_WPGE** | Units: | **umhos/cm** | Prep Date: | | RunNo: | **130976** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: | **R130976** | TestNo: | **EPA 120.1** | | | Analysis Date: | **1/4/2019** | SeqNo: | **3249457** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 7850.000 | 0.10 | | | | | | 7830 | 0.255 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N033613
**Project:** PG&E Topock - PMP
**Lab ID:** N033613-001

**Client Sample ID:** PE-01-0119
**Collection Date:** 1/3/2019 11:40:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190104A** | QC Batch: **R130975** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.4 | 0.10 | 0.10 | H | pH Units | 1 | 1/4/2019 10:50 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 1/4/2019 10:50 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0119 |
| **Lab Order:** | N033613 | **Collection Date:** | 1/3/2019 11:30:00 AM |
| **Project:** | PG&E Topock - PMP | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N033613-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190104A** | QC Batch: **R130975** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.1 | 0.10 | 0.10 | H | pH Units | 1 | 1/4/2019 10:50 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 1/4/2019 10:50 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 150.1_4500H+B_W**

Sample ID **N033613-001BDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **130975**
Client ID: **ZZZZZZ** Batch ID: **R130975** TestNo: **SM4500-H+B** Analysis Date: **1/4/2019** SeqNo: **3249453**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 7.440 | 0.10 | | | | | | 7.420 | 0.269 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0119 |
| **Lab Order:** | N033613 | **Collection Date:** | 1/3/2019 11:40:00 AM |
| **Project:** | PG&E Topock - PMP | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N033613-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190107D** | QC Batch: **72004** | | | PrepDate | **1/7/2019** | | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 1300 | 17 | 17 | | mg/L | 1 | 1/7/2019 01:13 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N033613
**Project:** PG&E Topock - PMP
**Lab ID:** N033613-002

**Client Sample ID:** TW-03D-0119
**Collection Date:** 1/3/2019 11:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190107D** | QC Batch: **72004** | | | | PrepDate | **1/7/2019** | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 4200 | 50 | 50 | | mg/L | 1 | 1/7/2019 01:13 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.1_2540C_W**

| Sample ID **LCS-72004** | SampType: **LCS** | TestCode: **160.1_2540C** | Units: **mg/L** | Prep Date: **1/7/2019** | RunNo: **131018** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72004** | TestNo: **SM2540C** | | Analysis Date: **1/7/2019** | SeqNo: **3251070** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 956.000 | 10 | 1000 | 0 | 95.6 | 80 | 120 | | | | |

| Sample ID **MB-72004** | SampType: **MBLK** | TestCode: **160.1_2540C** | Units: **mg/L** | Prep Date: **1/7/2019** | RunNo: **131018** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72004** | TestNo: **SM2540C** | | Analysis Date: **1/7/2019** | SeqNo: **3251071** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | ND | 10 | | | | | | | | | |

| Sample ID **N033613-002BDUP** | SampType: **DUP** | TestCode: **160.1_2540C** | Units: **mg/L** | Prep Date: **1/7/2019** | RunNo: **131018** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72004** | TestNo: **SM2540C** | | Analysis Date: **1/7/2019** | SeqNo: **3251074** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 4285.000 | 50 | | | | | | 4195 | 2.12 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N033613
**Project:** PG&E Topock - PMP
**Lab ID:** N033613-001

**Client Sample ID:** PE-01-0119
**Collection Date:** 1/3/2019 11:40:00 AM
**Matrix:** GROUNDWATER

## DISSOLVED METALS BY ICP

**EPA 200.7**

RunID: **NV00922-ICP2_190116A** QC Batch: **71993** PrepDate **1/7/2019** Analyst: **CEI**

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| Calcium | 160000 | 85 | 500 | | µg/L | 1 | 1/16/2019 11:58 AM |
| Iron | ND | 18 | 20 | | µg/L | 1 | 1/16/2019 11:58 AM |
| Magnesium | 38000 | 48 | 100 | | µg/L | 1 | 1/16/2019 11:58 AM |
| Sodium | 480000 | 2400 | 12000 | | µg/L | 25 | 1/16/2019 09:36 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N033613
**Project:** PG&E Topock - PMP
**Lab ID:** N033613-002

**Client Sample ID:** TW-03D-0119
**Collection Date:** 1/3/2019 11:30:00 AM
**Matrix:** GROUNDWATER

## DISSOLVED METALS BY ICP

**EPA 200.7**

RunID: **NV00922-ICP2_190116A** QC Batch: **71993** PrepDate **1/7/2019** Analyst: **CEI**

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| Calcium | 220000 | 85 | 500 | | µg/L | 1 | 1/16/2019 12:32 PM |
| Iron | ND | 18 | 20 | | µg/L | 1 | 1/16/2019 12:32 PM |
| Magnesium | 29000 | 48 | 100 | | µg/L | 1 | 1/16/2019 12:32 PM |
| Sodium | 1600000 | 4800 | 25000 | | µg/L | 50 | 1/16/2019 09:39 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID | MB-71993 | SampType: | MBLK | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 1/7/2019 | RunNo: | 131178 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 71993 | TestNo: | EPA 200.7 | | | Analysis Date: | 1/16/2019 | SeqNo: | 3259135 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | ND | 500 | | | | | | | | | |
| Iron | ND | 20 | | | | | | | | | |
| Magnesium | ND | 100 | | | | | | | | | |

| Sample ID | LCS1-71993 | SampType: | LCS | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 1/7/2019 | RunNo: | 131178 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 71993 | TestNo: | EPA 200.7 | | | Analysis Date: | 1/16/2019 | SeqNo: | 3259136 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 4788.350 | 500 | 5000 | 0 | 95.8 | 85 | 115 | | | | |
| Iron | 101.535 | 20 | 100.0 | 0 | 102 | 85 | 115 | | | | |
| Magnesium | 4819.326 | 100 | 5000 | 0 | 96.4 | 85 | 115 | | | | |

| Sample ID | N033613-001D-MS1 | SampType: | MS | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 1/7/2019 | RunNo: | 131178 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 71993 | TestNo: | EPA 200.7 | | | Analysis Date: | 1/16/2019 | SeqNo: | 3259142 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 169813.326 | 500 | 5000 | 158900 | 219 | 75 | 125 | | | | S |
| Iron | 105.698 | 20 | 100.0 | 0 | 106 | 75 | 125 | | | | |
| Magnesium | 43862.498 | 100 | 5000 | 38060 | 116 | 75 | 125 | | | | |

| Sample ID | N033613-001D-MSD | SampType: | MSD | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 1/7/2019 | RunNo: | 131178 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 71993 | TestNo: | EPA 200.7 | | | Analysis Date: | 1/16/2019 | SeqNo: | 3259143 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 163061.941 | 500 | 5000 | 158900 | 83.5 | 75 | 125 | 169800 | 4.06 | 20 | |
| Iron | 102.070 | 20 | 100.0 | 0 | 102 | 75 | 125 | 105.7 | 3.49 | 20 | |
| Magnesium | 42842.165 | 100 | 5000 | 38060 | 95.7 | 75 | 125 | 43860 | 2.35 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID | MB-71993 | SampType: | MBLK | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 1/7/2019 | RunNo: | 131206 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 71993 | TestNo: | EPA 200.7 | | | Analysis Date: | 1/16/2019 | SeqNo: | 3260452 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Sodium | | ND | 500 | | | | | | | | | | |

| Sample ID | LCS2-71993 | SampType: | LCS | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 1/7/2019 | RunNo: | 131206 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 71993 | TestNo: | EPA 200.7 | | | Analysis Date: | 1/16/2019 | SeqNo: | 3260453 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Sodium | | 20406.195 | 500 | 20000 | 0 | 102 | 85 | 115 | | | | | |

| Sample ID | N033613-002D-MS2 | SampType: | MS | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 1/7/2019 | RunNo: | 131206 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 71993 | TestNo: | EPA 200.7 | | | Analysis Date: | 1/16/2019 | SeqNo: | 3260458 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Sodium | | 1497977.533 | 25000 | 20000 | 1551000 | -264 | 75 | 125 | | | | S | |

| Sample ID | N033613-002D-MSD | SampType: | MSD | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 1/7/2019 | RunNo: | 131206 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 71993 | TestNo: | EPA 200.7 | | | Analysis Date: | 1/16/2019 | SeqNo: | 3260459 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Sodium | | 1501582.209 | 25000 | 20000 | 1551000 | -246 | 75 | 125 | 1498000 | 0.240 | 20 | S | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N033613
**Project:** PG&E Topock - PMP
**Lab ID:** N033613-001

**Client Sample ID:** PE-01-0119
**Collection Date:** 1/3/2019 11:40:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICPMS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_190110B** | QC Batch: **72029** | | | PrepDate | **1/9/2019** | | Analyst: **CEI** |
| Manganese | 630 | 1.3 | 2.5 | | µg/L | 5 | 1/10/2019 04:27 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0119 |
| **Lab Order:** | N033613 | **Collection Date:** | 1/3/2019 11:30:00 AM |
| **Project:** | PG&E Topock - PMP | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N033613-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICPMS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_190110B** | QC Batch: **72029** | | | PrepDate | **1/9/2019** | | Analyst: **CEI** |
| Manganese | 16 | 0.26 | 0.50 | | µg/L | 1 | 1/10/2019 05:22 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

| Sample ID **MB-72029** | SampType: **MBLK** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **1/9/2019** | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72029** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254583** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **LCS-72029** | SampType: **LCS** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **1/9/2019** | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72029** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254584** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 105.308 | 0.50 | 100.0 | 0 | 105 | 85 | 115 | | | | |

| Sample ID **N033613-001D-MS** | SampType: **MS** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **1/9/2019** | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72029** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254591** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 716.986 | 2.5 | 100.0 | 634.4 | 82.6 | 75 | 125 | | | | |

| Sample ID **N033613-001D-MSD** | SampType: **MSD** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **1/9/2019** | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72029** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254595** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 720.653 | 2.5 | 100.0 | 634.4 | 86.2 | 75 | 125 | 717.0 | 0.510 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N033613
**Project:** PG&E Topock - PMP
**Lab ID:** N033613-001

**Client Sample ID:** PE-01-0119
**Collection Date:** 1/3/2019 11:40:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190104A** | QC Batch: **R130983** | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 1/4/2019 01:09 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_190110B** | QC Batch: **72029** | | | PrepDate | **1/9/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 1/10/2019 04:22 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N033613
**Project:** PG&E Topock - PMP
**Lab ID:** N033613-002

**Client Sample ID:** TW-03D-0119
**Collection Date:** 1/3/2019 11:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190104A** QC Batch: **R130983** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | 500 | 3.3 | 20 | | µg/L | 100 | 1/4/2019 01:28 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_190110B** QC Batch: **72029** | | | | PrepDate | **1/9/2019** | | Analyst: **CEI** |
| Chromium | 480 | 0.65 | 5.0 | | µg/L | 5 | 1/10/2019 05:28 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID | MB-72029 | SampType: | MBLK | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | 1/9/2019 | RunNo: | 131109 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72029 | TestNo: | EPA 200.8 | | | Analysis Date: | 1/10/2019 | SeqNo: | 3254660 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-72029 | SampType: | LCS | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | 1/9/2019 | RunNo: | 131109 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72029 | TestNo: | EPA 200.8 | | | Analysis Date: | 1/10/2019 | SeqNo: | 3254661 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.976 | 1.0 | 10.00 | 0 | 99.8 | 85 | 115 | | | | |

| Sample ID | N033613-001D-MS | SampType: | MS | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | 1/9/2019 | RunNo: | 131109 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72029 | TestNo: | EPA 200.8 | | | Analysis Date: | 1/10/2019 | SeqNo: | 3254667 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.692 | 1.0 | 10.00 | 0 | 96.9 | 75 | 125 | | | | |

| Sample ID | N033613-001D-MSD | SampType: | MSD | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | 1/9/2019 | RunNo: | 131109 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72029 | TestNo: | EPA 200.8 | | | Analysis Date: | 1/10/2019 | SeqNo: | 3254669 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.631 | 1.0 | 10.00 | 0 | 96.3 | 75 | 125 | 9.692 | 0.630 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | MB-R130983 | SampType: | MBLK | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 130983 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R130983 | TestNo: | EPA 218.6 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3249708 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Hexavalent Chromium | | ND | 0.20 | | | | | | | | | | |

| Sample ID | LCS-R130983 | SampType: | LCS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 130983 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R130983 | TestNo: | EPA 218.6 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3249709 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Hexavalent Chromium | | 5.058 | 0.20 | 5.000 | 0 | 101 | 90 | 110 | | | | | |

| Sample ID | N033613-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 130983 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R130983 | TestNo: | EPA 218.6 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3249713 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Hexavalent Chromium | | 1.084 | 0.20 | 1.000 | 0.08290 | 100 | 90 | 110 | | | | | |

| Sample ID | N033613-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 130983 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R130983 | TestNo: | EPA 218.6 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3249715 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Hexavalent Chromium | | 988.820 | 20 | 500.0 | 496.0 | 98.6 | 90 | 110 | | | | | |

| Sample ID | N033613-002AMSD | SampType: | MSD | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 130983 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R130983 | TestNo: | EPA 218.6 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3249716 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Hexavalent Chromium | | 996.600 | 20 | 500.0 | 496.0 | 100 | 90 | 110 | 988.8 | 0.784 | 20 | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N033613-002ADUP | SampType: | DUP | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 130983 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R130983 | TestNo: | EPA 218.6 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3249717 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 483.930 | 20 | | | | | | 496.0 | 2.46 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N033613
**Project:** PG&E Topock - PMP
**Lab ID:** N033613-001

**Client Sample ID:** PE-01-0119
**Collection Date:** 1/3/2019 11:40:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190107E** | QC Batch: **R131214** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 220 | 1.2 | 5.0 | | mg/L | 1 | 1/7/2019 02:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0119 |
| **Lab Order:** | N033613 | **Collection Date:** | 1/3/2019 11:30:00 AM |
| **Project:** | PG&E Topock - PMP | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N033613-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190107E** | QC Batch: **R131214** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 160 | 1.2 | 5.0 | | mg/L | 1 | 1/7/2019 02:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 2320_W_SP**

| Sample ID **LCS-R131214** | SampType: **LCS** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | | | RunNo: **131214** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R131214** | TestNo: **SM 2320 B** | | Analysis Date: **1/7/2019** | | | SeqNo: **3260760** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Alkalinity, Total (As CaCO3) | 100.427 | 5.0 | 100.0 | 0 | 100 | 85 | 115 | | | | |

| Sample ID **MB-R131214** | SampType: **MBLK** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | | | RunNo: **131214** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R131214** | TestNo: **SM 2320 B** | | Analysis Date: **1/7/2019** | | | SeqNo: **3260761** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Alkalinity, Total (As CaCO3) | ND | 5.0 | | | | | | | | | |

| Sample ID **N033613-002BDUP** | SampType: **DUP** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | | | RunNo: **131214** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131214** | TestNo: **SM 2320 B** | | Analysis Date: **1/7/2019** | | | SeqNo: **3260769** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Alkalinity, Total (As CaCO3) | 153.846 | 5.0 | | | | | | 156.0 | 1.38 | 30 | |

| Sample ID **N033613-002BMS** | SampType: **MS** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | | | RunNo: **131214** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131214** | TestNo: **SM 2320 B** | | Analysis Date: **1/7/2019** | | | SeqNo: **3260770** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Alkalinity, Total (As CaCO3) | 254.274 | 5.0 | 100.0 | 156.0 | 98.3 | 75 | 125 | | | | |

| Sample ID **N033613-002BMSD** | SampType: **MSD** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | | | RunNo: **131214** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131214** | TestNo: **SM 2320 B** | | Analysis Date: **1/7/2019** | | | SeqNo: **3260771** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Alkalinity, Total (As CaCO3) | 250.000 | 5.0 | 100.0 | 156.0 | 94.0 | 75 | 125 | 254.3 | 1.69 | 20 | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N033613
**Project:** PG&E Topock - PMP
**Lab ID:** N033613-001

**Client Sample ID:** PE-01-0119
**Collection Date:** 1/3/2019 11:40:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190104A** QC Batch: **R130996** | | | | PrepDate | | | Analyst: **RAB** |
| Chloride | 450 | 1.8 | 100 | | mg/L | 200 | 1/4/2019 10:42 AM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190104A** QC Batch: **R130996** | | | | PrepDate | | | Analyst: **RAB** |
| Sulfate | 250 | 1.1 | 25 | | mg/L | 50 | 1/4/2019 11:13 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0119 |
| **Lab Order:** | N033613 | **Collection Date:** | 1/3/2019 11:30:00 AM |
| **Project:** | PG&E Topock - PMP | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N033613-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| **EPA 300.0** | | | | | | | |
| RunID: **NV00922-IC8_190104A** QC Batch: **R130996** | | | | PrepDate | | | Analyst: **RAB** |
| Chloride | 2200 | 4.6 | 250 | | mg/L | 500 | 1/4/2019 10:57 AM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| **EPA 300.0** | | | | | | | |
| RunID: **NV00922-IC8_190104A** QC Batch: **R130996** | | | | PrepDate | | | Analyst: **RAB** |
| Sulfate | 500 | 1.1 | 25 | | mg/L | 50 | 1/4/2019 11:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID | MB-R130996_CL | SampType: | MBLK | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 130996 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R130996 | TestNo: | EPA 300.0 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3250171 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | 0.50 | | | | | | | | | |

| Sample ID | LCS-R130996_CL | SampType: | LCS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 130996 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R130996 | TestNo: | EPA 300.0 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3250172 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.990 | 0.50 | 2.000 | 0 | 99.5 | 90 | 110 | | | | |

| Sample ID | N033613-001BMS | SampType: | MS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 130996 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R130996 | TestNo: | EPA 300.0 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3250175 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 840.540 | 100 | 400.0 | 453.4 | 96.8 | 80 | 120 | | | | |

| Sample ID | N033613-001BMSD | SampType: | MSD | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 130996 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R130996 | TestNo: | EPA 300.0 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3250176 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 828.440 | 100 | 400.0 | 453.4 | 93.8 | 80 | 120 | 840.5 | 1.45 | 20 | |

| Sample ID | N033613-002BDUP | SampType: | DUP | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 130996 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R130996 | TestNo: | EPA 300.0 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3250177 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 2179.700 | 250 | | | | | | 2157 | 1.04 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID | MB-R130996_SO4 | SampType: | MBLK | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 130996 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R130996 | TestNo: | EPA 300.0 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3250186 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | ND | 0.50 | | | | | | | | | |

| Sample ID | LCS-R130996_SO4 | SampType: | LCS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 130996 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R130996 | TestNo: | EPA 300.0 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3250187 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.854 | 0.50 | 4.000 | 0 | 96.3 | 90 | 110 | | | | |

| Sample ID | N033613-001BMS | SampType: | MS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 130996 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R130996 | TestNo: | EPA 300.0 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3250192 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 447.560 | 25 | 200.0 | 248.4 | 99.6 | 80 | 120 | | | | |

| Sample ID | N033613-001BMSD | SampType: | MSD | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 130996 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R130996 | TestNo: | EPA 300.0 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3250193 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 446.905 | 25 | 200.0 | 248.4 | 99.3 | 80 | 120 | 447.6 | 0.146 | 20 | |

| Sample ID | N033613-002BDUP | SampType: | DUP | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 130996 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R130996 | TestNo: | EPA 300.0 | | | Analysis Date: | 1/4/2019 | SeqNo: | 3250194 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 504.655 | 25 | | | | | | 503.4 | 0.253 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N033613
**Project:** PG&E Topock - PMP
**Lab ID:** N033613-001

**Client Sample ID:** PE-01-0119
**Collection Date:** 1/3/2019 11:40:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190108A** | QC Batch: **R131021** | | | PrepDate | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | ND | 0.032 | 0.050 | | mg/L | 1 | 1/8/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0119 |
| **Lab Order:** | N033613 | **Collection Date:** | 1/3/2019 11:30:00 AM |
| **Project:** | PG&E Topock - PMP | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N033613-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190108A** | QC Batch: **R131021** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 2.7 | 0.16 | 0.25 | | mg/L | 5 | 1/8/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | MB-R131021 | SampType: | MBLK | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 131021 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R131021 | TestNo: | SM4500-NO3 | | | Analysis Date: | 1/8/2019 | SeqNo: | 3251204 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID | LCS-R131021 | SampType: | LCS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 131021 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R131021 | TestNo: | SM4500-NO3 | | | Analysis Date: | 1/8/2019 | SeqNo: | 3251205 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.432 | 0.050 | 0.5000 | 0 | 86.3 | 85 | 115 | | | | |

| Sample ID | N033613-001CDUP | SampType: | DUP | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 131021 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131021 | TestNo: | SM4500-NO3 | | | Analysis Date: | 1/8/2019 | SeqNo: | 3251209 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | 0 | 0 | 20 | |

| Sample ID | N033613-002CMS | SampType: | MS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 131021 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131021 | TestNo: | SM4500-NO3 | | | Analysis Date: | 1/8/2019 | SeqNo: | 3251211 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 5.110 | 0.25 | 2.500 | 2.687 | 96.9 | 75 | 125 | | | | |

| Sample ID | N033613-002CMSD | SampType: | MSD | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 131021 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131021 | TestNo: | SM4500-NO3 | | | Analysis Date: | 1/8/2019 | SeqNo: | 3251212 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 5.583 | 0.25 | 2.500 | 2.687 | 116 | 75 | 125 | 5.110 | 8.86 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SAMPLE RECEIVING ITEMS

**ASSET LABORATORIES**
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

**Contact us:**
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.3072691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **Client:** Arcadis | **Report to:** Dan Bush | **Bill to:** Lisa Kellog | **EDD Requirement** |
| **Address:** 1410 Rocky Ridge Dr. #330 | **Company:** Arcadis | **Address:** 2999 Oak Road, Suite 300 | Excel EDD ☐ |
| **Address:** Roseville, CA 95661 | **Email:** dan.bush@arcadis.com; daniel.moore@critigen.com | Walnut Creek, CA 94597 | Geotracker ☐ |
| **Phone:** 916.786.3302 **Fax:** | **Address:** 1410 Rocky Ridge Dr. #330 | **Email to:** lisa.kellog@arcadis.com **PO#** | Labspec ☐ |
| **Submitted By:** | Roseville, CA 95661 | **Phone:** 951.677.0577 **Fax:** | Others ☐ |
| **Title:** | **Phone:** 916.786.3302 **Fax:** | | Specify: |
| **Signature:** **Date:** | **Sampled By:** Spencer Daulitle | | Global ID: |

*I hereby authorize ASSET Labs to perform the tests indicated below:*

*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.*

**Project Name:** PG&E Topock - PMP
**Project Number:**

*Signature:* SD *Date* 1/3/19

**Matrix**

| | | | |
|---|---|---|---|
| Ground | ☑ | Sediment | ☐ |
| Potable | ☐ | Soil | ☐ |
| NPDES | ☐ | Other Solid | ☐ |
| Surface | ☐ | | |

**QA/QC**

| | |
|---|---|
| RTNE | ☐ |
| RWQCB | ☐ |
| CalTrans | ☐ |
| Level III | ☐ |
| LEVEL IV | ☑ |
| Regulatory | ☐ |
| Specify State: | |

**Sampe Receipt Condition**

| | Y | N |
|---|---|---|
| 1. Chilled | ☑ | ☐ |
| 2. Headspace | ☐ | ☐ |
| 3. Container Intact | ☐ | ☐ |
| 4. Seal Present | ☐ | ☐ |
| 5. IR number | ~ | |
| 6. Method of Cooling | ice | |

Sample Temp: 2.9°C

**Analyses Requested**

| Item No. | Laboratory Work Order No. | Sample ID/Location | Date | Time | Water | Solid | Others | Cr+6 by SM3500 | Alkalinity | pH | Chloride | Specific Conductance | Sulfate | TDS | NO2/NO3 by SM 4500 | Ca, Fe, Mg, Na by EPA 200.7 | Cr, Mn by 200.8 | Turn Around Time | No. of container | Container Type | PRESERVATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N033613-01 | PE-01-010319 | 1/3/19 | 1140 | X | | | X | X | X | X | X | X | X | X | X | X | E | 4 | P | N/S |
| 2 | -02 | TW-03D-010319 | 1/3/19 | 1130 | X | | | X | X | X | X | X | X | X | X | X | X | E | 4 | P | N/S |
| 3 | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | |

Courier:
Tracking No.

**Remarks**

| | | |
|---|---|---|
| Relinquished by (Signature and Printed Name): SD | Date / Time: 1/3/19 1500 | Received by (Signature and Printed Name): | Date / Time: 1/3/19 1500 |
| Relinquished by (Signature and Printed Name): | Date / Time: 1/3/19 1705 | Received by (Signature and Printed Name): | Date / Time: 1/3/19 1705 |
| Relinquished by (Signature and Printed Name): | Date / Time: | Received by (Signature and Printed Name): | Date / Time: |

**Turn Around Time (TAT)**

- ☐ A < 24 Hrs or Same Day TAT
- ☐ B = Next Workday
- ☐ C = 2 Workdays
- ☐ D = 3 Workdays
- ☑ E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00 PM.

**Special Instruction:**

**Terms**

1. All samples will be disposed in 45 days upon receipt and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
   Less than 24 Hrs = 200% Next Day = 100% 2 Workdays = 50% 3 Workdays = 35% 4 Workdays = 20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. ASSET Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 Days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratrories if hard copy of report is needed.
9. For subcontract analysis. TAT and Surcharges will vary.

**Preservatives:**

| | | | |
|---|---|---|---|
| H = HCl | N = $HNO_3$ | S = $H_2SO_4$ | C = 4°C |
| Z = $Zn(AC)_2$ | O = NaOH | T = $Na_2S_2O_3$ | |
| Others/Specify: | | | |

**Container Type:**

| | | |
|---|---|---|
| T = Tube | V = VOA | P = Pint |
| J = Jar | B = Tedlar | G = Glass |
| M = Metal | P = Plastic | C = Can |

White = Laboratory Copy
Yellow = Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 1/3/2019 | Workorder: | N033613 |
| Rep sample Temp (Deg C): | 2.9 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | NA | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☐ | No ☑ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☑ | No ☐ | NA ☐ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments: Sample for pH was past holding time upon receipt.

Checklist Completed By: YR 1/4/2019

Reviewed By: LG 010919

**Subject:** Client Sample ID Update Request - N033613
**From:** Tina Rice <Tina.Rice@critigen.com>
**Date:** 1/4/2019 1:03 PM
**To:** Yoandra Rodriguez <yoandra@assetlaboratories.com>
**CC:** "Madsen, Laura" <Laura.Madsen@arcadis.com>

Hi Yoandra,

Could you please update the sample IDs as shown below in the highlighted column?

| ProjectName | WorkOrder | ClientSampID | NewClientSampID | Date |
|---|---|---|---|---|
| PG&E Topock - PMP | N033613 | PE-01-010319 | PE-01-0119 | 1/3/2019 1 |
| PG&E Topock - PMP | N033613 | TW-03D-010319 | TW-03D-0119 | 1/3/2019 1 |

Thank you!
Tina

**Tina Rice**
**Database Analyst**

CRITIGEN

Tina.Rice@critigen.com
1 360 600 3562 Direct
1 360 600 3562 Mobile

critigen.com
critigen.co.uk

**Subject:** RE: PG&E Topock - PMP (Asset Labs No. N031976)
**From:** "Madsen, Laura" <Laura.Madsen@arcadis.com>
**Date:** 9/11/2018 3:34 PM
**To:** Yoandra Rodriguez <yoandra@assetlaboratories.com>
**CC:** "Madsen, Laura" <Laura.Madsen@arcadis.com>

Hi Yoandra,

Cr6 is acceptable to be analyzed by method 218.6. We have the lab prepare the COCs for us, maybe you can talk to them about the method? I think this happens every month lol.

Thanks,
Laura

---

**From:** Yoandra Rodriguez <yoandra@assetlaboratories.com>
**Sent:** Tuesday, September 11, 2018 2:42 PM
**To:** Madsen, Laura <Laura.Madsen@arcadis.com>
**Subject:** Fwd: PG&E Topock - PMP (Asset Labs No. N031976)

Hi Laura,

Please follow up.

Thanks!

-------- Forwarded Message --------
**Subject:**PG&E Topock - PMP (Asset Labs No. N031976)
**Date:**Fri, 7 Sep 2018 12:56:26 -0700
**From:**Yoandra Rodriguez <yoandra@assetlaboratories.com>
**To:**Madsen, Laura <Laura.Madsen@arcadis.com>
**CC:**maryann.balilu@assetlaboratoriesph.com <maryann.balilu@assetlaboratoriesph.com>, 'Andreafe. Gallardo' <andrea.gallardo@assetlaboratories.com>, 'Sonny. Lorenzo' <sonny.lorenzo@assetlaboratories.com>

Hi Laura,

Please be informed that Cr+6 will be analyzed by 218.6. Please confirm.

COC is attached for reference.

Thanks,

--
Yoandra Rodriguez
Sample Control Officer
Asset Laboratories

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# ASSET Laboratories

## WORK ORDER Summary

*07-Jan-19*

**WorkOrder:** N033613

**Client ID:** ARCUS02

**Project:** PG&E Topock - PMP **QC Level:** Level IV **Date Received:** 1/3/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N033613-001A | PE-01-0119 | 1/3/2019 11:40:00 AM | 1/17/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N033613-001B | | | 1/17/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | WW |
| N033613-001C | | | 1/17/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N033613-001D | | | 1/17/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | EPA 200.7 | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | EPA 200.8 | DISSOLVED METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | EPA 200.8 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N033613-002A | TW-03D-0119 | 1/3/2019 11:30:00 AM | 1/17/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N033613-002B | | | 1/17/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*07-Jan-19*

**WorkOrder:** N033613

**Client ID:** ARCUS02

**Project:** PG&E Topock - PMP **QC Level:** Level IV **Date Received:** 1/3/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N033613-002B | TW-03D-0119 | 1/3/2019 11:30:00 AM | 1/17/2019 | Groundwater | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | WW |
| N033613-002C | | | 1/17/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N033613-002D | | | 1/17/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | EPA 200.7 | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | EPA 200.8 | DISSOLVED METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| | | | 1/17/2019 | | EPA 200.8 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N033613-003A | FOLDER | 1/17/2019 | 1/17/2019 | | EDD | Client specific project | ☐ | ☐ | ☐ | LAB |
| | | | 1/17/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 1/17/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# List of Analysts

## ASSET Laboratories Work Order: N033613

| NAME | TEST METHOD |
|---|---|
| Quennie Manimtim | SM 4500-NO3F |
| Claire Ignacio | EPA 200.7_Dissolved, EPA 200.8_Dissolved |
| Ria Abes | EPA 218.6, EPA 300.0 |
| Lilia Ramit | EPA 120.1, SM 4500-H+B, SM 2540C, SM 2320 B |

# EPA 120.1

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R130976 **Analyst:** LSR

**ASSET #:** N033613 **Date Analyzed:** 4-Jan

**Method:** EPA 120.1

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | | | X | | | |
| 11. LCS compounds within control limits. | | | X | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 1/8/2019

2nd Level Reviewer: 1/17/2019 Date:

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

# Conductivity Logbook

**Date:** 12/20/18 935

**Analyst:** LSR

| | Standard | Std ID | Reading | Comments |
|---|---|---|---|---|
| | 9.56 uS/cm | CMW - 181121A | 1443 @19.3°C | % Rec: (90-110%) |
| | 1413 \| | 180914A | 9930 1432 @19.4°C | |
| | 9988 \| | 180731I | 10100 @19.5°C | |
| | 99661 ↓ | 181121B | 101700 @19.5°C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | N033813-002A | Soil | 10180 @20.9°C | |
| 2 | \| 2ADUP | \| | 10210 @21.0°C | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | 1413 uS/cm | CMW - 181022A | 1449 @20.7°C | |
| 9 | 10000 \| | 180516A | 10090 @20.8°C | |
| 10 | 99922 ↓ | 181022C | 98500 @20.5°C | |
| Dup | | | | Accept: 10% water, 20% soil |
| | Std Chk: | | | % Rec: (90-110%) |

**Date:** 1/4/19 1030

**Analyst:** LSR

| | Standard | Std ID | Reading | Comments |
|---|---|---|---|---|
| | 9.56 uS/cm | CMW - 181121A | 9.73 @18.3°C | % Rec: (90-110%) |
| | 1413 \| | 180914A | 1410 @17.8°C | |
| | 9988 \| | 180731I | 10090 @17.9°C | |
| | 99661 ↓ | 181121B | 103160 @18.1°C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | N033613-001B | Soil | 2240 @17.5°C | |
| 2 | \| 2B | \| | 7830 @17.7°C | |
| 3 | \| 2BDUP | \| | 7850 @17.8°C | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | Julia Ramit |
| 8 | 1413 uS/cm | CMW - 181022A | 1457 @17.5°C | 1/8/2019 |
| 9 | 10006 \| | 180516A | 9980 @17.7°C | |
| 10 | 99923 ↓ | 181022C | 97200 @17.7°C | |
| Dup | | | | Accept: 10% water, 20% soil |
| | Std Chk: | | | % Rec: (90-110%) |

# SM 4500-H+B

# pH Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R130975 **Instrument ID:** pH meter

**ASSET #:** N033613 **Analyst:** LSR

**Date Analyzed:** 4-Jan

**Method:** EPA 150.1

| pH Meter Calibration | 1st Level Review Y | 1st Level Review N | 1st Level Review N/A | 2nd Level Review Y | 2nd Level Review N | 2nd Level Review N/A |
|---|---|---|---|---|---|---|
| 1. Was the meter calibrated using 3 buffers (4,7 and 10)? | X | | | | | |
| 2. Was a closing buffer used at the end of analysis? | X | | | | | |
| 3. Was the meter checked every 10 samples? | | | X | | | |
| **Sample Information** | | | | | | |
| 4. Are all samples analyzed within hold time. | | X | | | | |
| **QC Items** | | | | | | |
| 5. Was a duplicate sample analyzed? | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 6. Are Non-Conformances documented | | | X | | | |
| 7. Runlog complete and included in package. | X | | | | | |
| **Preliminary Report** | | | | | | |
| 8. Does the raw data match the preliminary report? | X | | | | | |
| 9. Are analytical results correct? | X | | | | | |
| 10. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 1/14/2019

2nd Level Reviewer: 1/17/2019 Date:

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

# pH Logbook

**Date:** 1/4/19 1050
**Analyst:** LSR

| Standard | Std ID | pH | Comments |
|---|---|---|---|
| Buffer 7 | CIW – 180914C | 7.00 @ 25°C | |
| Buffer 4 | 〃 180914D | 4.03 @ 25°C | |
| Buffer 10 | 〃 180914C | 10.02 @ 25°C | |
| Slope | | 95.3% | Acceptance Criteria: 95%-105% |

| | Sample ID | Matrix | pH | Comments |
|---|---|---|---|---|
| 1 | NOB3613-001B | H2O | 7.42 @ 25°C | |
| 2 | 〃 1BDUP | 〃 | 7.44 @ 25°C | |
| 3 | 〃 2B | 〃 | 7.10 @ 25°C | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | Julia Ramit | 1/14/2019 |
| 10 | | | | |
| Dup | | | | Accept: 10% water, 20% soil |
| | Buffer 7, 4, 10 (Circle one) | CIW – 180802E | 7.00 @ 25°C | Accept: +/-0.05 pH units from expected value |

**Date:** 1/10/19 1550
**Analyst:** LSR

| Standard | Std ID | pH | Comments |
|---|---|---|---|
| Buffer 7 | CIW – 180914C | 7.02 @ 25°C | |
| Buffer 4 | 〃 180914D | 4.01 @ 25°C | |
| Buffer 10 | 〃 180914L | 9.99 @ 25°C | |
| Slope | | 95.8% | Acceptance Criteria: 95%-105% |

| | Sample ID | Matrix | pH | Comments |
|---|---|---|---|---|
| 1 | NOB3698-001B | Other | 8.64 @ 25°C | |
| 2 | 〃 1BDUP | 〃 | 8.58 @ 25°C | |
| 3 | 〃 2D | H2O | 6.72 @ 25°C | |
| 4 | 〃 2DDUP | 〃 | 6.68 @ 25°C | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | Buffer 7 CIW 180802E |
| 9 | | | | = 7.05 @ 25°C |
| 10 | | | | |
| Dup | | | | Accept: 10% water, 20% soil |
| | Buffer 7, 4, 10 | | | |

# SM 2540C

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72004 **Analyst:** LSR

**ASSET #:** N033613 **Date Analyzed:** 7-Jan

**Method:** EPA 160.1 / SM 2540C

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | | | |
| 11. LCS compounds within control limits. | X | | | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer Julia Ramit Date: 1/8/2019

2nd Level Reviewer 1/17/2019 Date:

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** SM 2540C
**TEST NAME:** Total Filterable Residue
**MATRIX:** Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N033613-001B,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(60.6725-60.5935)*1000000}{60}$$
$$= 1316.6667 \text{ mg/L}$$

Reporting result in two significant figures,

TDS= 1300 mg/L

Shilpa Ramit 1/8/2019

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **1/7/2019 1:13:42 P**
Prep End Date: **1/8/2019 10:35:00 A**

Reviewed/ Date: 1/17/2019

Initials/ Date: Lilia Ramit 1/8/2019

Prep Batch **72004** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Temp. (°C): **180**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72004 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-72004 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N033613-001B | Groundwater | | 60 | ☐ | 0 | 0 | 100 | 1.667 | | |
| N033613-002B | Groundwater | | 20 | ☐ | 0 | 0 | 100 | 5.000 | | |
| N033613-002B-DU | Groundwater | | 20 | ☐ | 0 | 0 | 100 | 5.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10402 | Glass Fiber Filter, 47mm |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| IWST190107C | 1000 ppm NaCl | LCS | 100 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **1/7/2019 1:13:42 P**
Prep End Date:

Reviewed/ Date: _____

Initials/ Date: Lilia Ramit 1/8/2019

Prep Batch **72004** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units
**mL / mL**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72004 | Water | lws1190107C | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-72004 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N033613-001B | Groundwater | 2240 | 100 / 60 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N033613-002B | Groundwater | 7830 | 100 / 20 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N033613-002B-DU | Groundwater | 1 | 100 / 20 | ☐ | 0 | 0 | 100 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10402

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

## SOLIDS RAW DATA

TEST :TSS/(TDS)/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 1/7/19 1313 KC | MB 72004 | 100 | 70.6587<br>70.6591 | 70.6591<br>70.6590 | |
| CC | LCS 72004 | 100 | 69.8017<br>69.8020 | 69.8978<br>69.8976 | |
| IF2 | N033613-001B | 60 | 60.5935<br>60.5935 | 60.6725<br>60.6725 | |
| V | 2B | 20 | 48.6661<br>48.8663 | 48.9501<br>48.9502 | |
| E | 2B DUP | 20 | 49.3237<br>49.3240 | 49.4099<br>49.4097 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | Julia Ramit 1/8/2019 | | | | |
| | 49.9997 @ | 1035 | 1/8/19 KR | | |



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ORELAP/NELAP Cert 40

# TOTAL DISSOLVED SOLIDS, TDS

## TDS, mg/L = (A-B) X 10000*PF

where:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
PF = 100/volume of sample used in mL

| Date Finished: | vol of sample (mL) | weight of dish in grams (B) | weight in grams of dish + residue after drying (A) | (A-B)*10000 | prep fact (PF) | TDS, mg/L | CONDUCTIVITY | RATIO | Sample Type |
|---|---|---|---|---|---|---|---|---|---|
| 1/8/2019 | | | | | | | | | |
| MB-72004 | 100 | 70.6591 | 70.659 | -1 | 1 | -1 | | | MBLK |
| LCS-72004 | 100 | 69.802 | 69.8976 | 956 | 1 | 956 | | | LCS |
| N033613-001B | 60 | 60.5935 | 60.6725 | 790 | 1.66666667 | 1316.66667 | 2240 | 0.588 | SAMP |
| N033613-002B | 20 | 48.8663 | 48.9502 | 839 | 5 | 4195 | 7830 | 0.536 | SAMP |
| N033613-002BDUP | 20 | 49.324 | 49.4097 | 857 | 5 | 4285 | 7830 | 0.547 | DUP |

Julia Ramit 1/8/2019

# EPA 200.7
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 71993
**ASSET #:** N033613

**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 1/16/2019

**Method:**

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | X | | | X | | |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | X | | | X | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:** -MS1/MSD1
% Rec of Ca in N00316-001D failed, high bias. However, LCS passed criteria,.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: 1/18/19
2nd Level Reviewer 1/19/2019 Date: ~

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 71993
**ASSET #:** N033613

**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 1/16/2019

**Method:**

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | X | | | X | | |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | X | | | X | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

Na run -MS2/MSD2
% Rec of Na in N00316-002D failed, low bias. However, LCS passed criteria,.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: 1/18/19
2nd Level Reviewer 1/19/2019 Date: —

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA ~~6010B~~ 200.7
**TEST NAME:** Heavy Metals by ICP
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Magnesium concentration, in ug/L , in the original sample as follows:

Magnesium , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N033613-001D** , the concentration ir ug/L is calculated as follows:

Magnesium , ug/L = 38.0588 * 1 * (25/25) * 1000

Magnesium , ug/L = 38058.8

Reporting results in two significant figures,

**Magnesium , ug/L = 38000**

# % RSD SUMMARY

**RSD SUMMARY: 190116A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Ca | 0 | 3.35 | 15 | PASS |
| Standard1 | ICAL | 1 | Ca | 0.2 | 24.59 | 15 | <PQL |
| Standard2 | ICAL | 1 | Ca | 1 | 1.89 | 15 | PASS |
| Standard3 | ICAL | 1 | Ca | 2 | 1.18 | 15 | PASS |
| Standard4 | ICAL | 1 | Ca | 5 | 1.67 | 15 | PASS |
| Standard5 | ICAL | 1 | Ca | 7.5 | 0.25 | 15 | PASS |
| Standard6 | ICAL | 1 | Ca | 10 | 0.7 | 15 | PASS |
| Standard7 | ICAL | 1 | Ca | 20 | 0.39 | 15 | PASS |
| ICV | ICV | 1 | Ca | 9.93 | 0.35 | 15 | PASS |
| ICB | ICB | 1 | Ca | 0.072 | 72.84 | 15 | <PQL |
| LLICV1 | CCV1 | 1 | Ca | 0.23 | 14.099 | 20 | PASS |
| ICSA1 | ICSA | 1 | Ca | 505.33 | 0.63 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Ca | 538.26 | 0.3 | 15 | PASS |
| CCV1 | CCV | 1 | Ca | 10.056 | 0.47 | 15 | PASS |
| CCB1 | CCB | 1 | Ca | 0.099 | 75.41 | 15 | <PQL |
| MB-71993 | MBLK | 1 | Ca | 0.083 | 80.75 | 15 | <PQL |
| LCS1-71993 | LCS | 1 | Ca | 4.79 | 1.91 | 15 | PASS |
| N033613-001D | SAMP | 1 | Ca | 158.89 | 0.75 | 15 | PASS |
| N033613-001D | SAMP | 5 | Ca | 33.34 | 0.92 | 15 | PASS |
| N033613-001D-PS | PS | 1 | Ca | 167.4 | 0.75 | 15 | PASS |
| CCV2 | CCV | 1 | Ca | 10.011 | 0.52 | 15 | PASS |
| CCB2 | CCB | 1 | Ca | 0.072 | 23.67 | 15 | <PQL |
| N033613-001D-MS1 | MS | 1 | Ca | 169.81 | 4.55 | 15 | PASS |
| N033613-001D-MSD1 | MSD | 1 | Ca | 163.06 | 9.1 | 15 | PASS |
| N033613-002D | SAMP | 1 | Ca | 215.85 | 1.45 | 15 | PASS |
| CCV3 | CCV | 1 | Ca | 10.2 | 0.72 | 15 | PASS |
| CCB3 | CCB | 1 | Ca | 0.11 | 10.84 | 15 | PASS |
| ICSA2 | ICSA | 1 | Ca | 518.98 | 0.47 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Ca | 546.64 | 0.84 | 15 | PASS |
| CalBlk | IBLK | 1 | Fe | 0 | 16.37 | 15 | <PQL |
| Standard1 | ICAL | 1 | Fe | 0.02 | 1.33 | 15 | PASS |
| Standard2 | ICAL | 1 | Fe | 0.05 | 1.34 | 15 | PASS |
| Standard3 | ICAL | 1 | Fe | 2 | 0.33 | 15 | PASS |
| Standard4 | ICAL | 1 | Fe | 5 | 0.68 | 15 | PASS |
| Standard5 | ICAL | 1 | Fe | 7.5 | 0.44 | 15 | PASS |
| Standard6 | ICAL | 1 | Fe | 10 | 0.64 | 15 | PASS |
| Standard7 | ICAL | 1 | Fe | 20 | 0.16 | 15 | PASS |
| ICV | ICV | 1 | Fe | 9.96 | 0.39 | 15 | PASS |
| ICB | ICB | 1 | Fe | 0.0011 | 161.34 | 15 | <PQL |
| LLICV1 | CCV1 | 1 | Fe | 0.019 | 5.2 | 20 | PASS |
| ICSA1 | ICSA | 1 | Fe | 184.66 | 0.061 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Fe | 183.32 | 0.2 | 15 | PASS |

**RSD SUMMARY: 190116A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CCV1 | CCV | 1 | Fe | 9.94 | 0.29 | 15 | PASS |
| CCB1 | CCB | 1 | Fe | 0.0029 | 40.73 | 15 | <PQL |
| MB-71993 | MBLK | 1 | Fe | -0.0023 | 33.11 | 15 | <PQL |
| LCS1-71993 | LCS | 1 | Fe | 0.1 | 1.15 | 15 | PASS |
| N033613-001D | SAMP | 1 | Fe | 0.006 | 27.66 | 15 | <PQL |
| N033613-001D | SAMP | 5 | Fe | -0.0011 | 27.44 | 15 | <PQL |
| N033613-001D-PS | PS | 1 | Fe | 0.11 | 2.18 | 15 | PASS |
| CCV2 | CCV | 1 | Fe | 9.92 | 0.88 | 15 | PASS |
| CCB2 | CCB | 1 | Fe | 0.0017 | 32.67 | 15 | <PQL |
| N033613-001D-MS1 | MS | 1 | Fe | 0.11 | 8.85 | 15 | PASS |
| N033613-001D-MSD1 | MSD | 1 | Fe | 0.1 | 12.18 | 15 | PASS |
| N033613-002D | SAMP | 1 | Fe | 0.013 | 2.89 | 15 | PASS |
| CCV3 | CCV | 1 | Fe | 9.88 | 1.045 | 15 | PASS |
| CCB3 | CCB | 1 | Fe | 0.0023 | 36.7 | 15 | <PQL |
| ICSA2 | ICSA | 1 | Fe | 183.57 | 0.065 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Fe | 181.84 | 0.05 | 15 | PASS |
| CalBlk | IBLK | 1 | Mg | 0 | 6.7 | 15 | PASS |
| Standard1 | ICAL | 1 | Mg | 0.1 | 1.09 | 15 | PASS |
| Standard2 | ICAL | 1 | Mg | 1 | 0.45 | 15 | PASS |
| Standard3 | ICAL | 1 | Mg | 2 | 0.14 | 15 | PASS |
| Standard4 | ICAL | 1 | Mg | 5 | 0.65 | 15 | PASS |
| Standard5 | ICAL | 1 | Mg | 7.5 | 0.44 | 15 | PASS |
| Standard6 | ICAL | 1 | Mg | 10 | 0.76 | 15 | PASS |
| Standard7 | ICAL | 1 | Mg | 20 | 0.18 | 15 | PASS |
| ICV | ICV | 1 | Mg | 9.94 | 0.5 | 15 | PASS |
| ICB | ICB | 1 | Mg | 0.00084 | 108.35 | 15 | <PQL |
| LLICV1 | CCV1 | 1 | Mg | 0.087 | 1.16 | 20 | PASS |
| ICSA1 | ICSA | 1 | Mg | 474.2 | 0.074 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Mg | 501.22 | 0.28 | 15 | PASS |
| CCV1 | CCV | 1 | Mg | 9.83 | 0.34 | 15 | PASS |
| CCB1 | CCB | 1 | Mg | 0.0081 | 31.85 | 15 | <PQL |
| MB-71993 | MBLK | 1 | Mg | 0.0021 | 58 | 15 | <PQL |
| LCS1-71993 | LCS | 1 | Mg | 4.82 | 0.36 | 15 | PASS |
| N033613-001D | SAMP | 1 | Mg | 38.059 | 0.11 | 15 | PASS |
| N033613-001D | SAMP | 5 | Mg | 8.39 | 0.81 | 15 | PASS |
| N033613-001D-PS | PS | 1 | Mg | 43.91 | 0.29 | 15 | PASS |
| CCV2 | CCV | 1 | Mg | 9.7 | 1.052 | 15 | PASS |
| CCB2 | CCB | 1 | Mg | 0.00055 | 107.41 | 15 | <PQL |
| N033613-001D-MS1 | MS | 1 | Mg | 43.86 | 1.66 | 15 | PASS |
| N033613-001D-MSD1 | MSD | 1 | Mg | 42.84 | 1.83 | 15 | PASS |
| N033613-002D | SAMP | 1 | Mg | 29.26 | 0.33 | 15 | PASS |
| CCV3 | CCV | 1 | Mg | 9.73 | 0.98 | 15 | PASS |

**RSD SUMMARY: 190116A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CCB3 | CCB | 1 | Mg | 0.0014 | 102.94 | 15 | <PQL |
| ICSA2 | ICSA | 1 | Mg | 476.07 | 0.083 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Mg | 501.75 | 0.062 | 15 | PASS |

**RSD SUMMARY: ~~SEQ~~** 190116D

**Instrument ID: ~~ICP-01-190116~~D** ICP-02

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Na | 0 | 13.76 | 15 | PASS |
| Standard1 | ICAL | 1 | Na | 0.1 | 8.81 | 15 | PASS |
| Standard2 | ICAL | 1 | Na | 1 | 0.49 | 15 | PASS |
| Standard3 | ICAL | 1 | Na | 5 | 0.091 | 15 | PASS |
| Standard4 | ICAL | 1 | Na | 10 | 0.16 | 15 | PASS |
| Standard5 | ICAL | 1 | Na | 20 | 0.045 | 15 | PASS |
| Standard6 | ICAL | 1 | Na | 40 | 0.17 | 15 | PASS |
| ICV | ICV | 1 | Na | 10.3 | 0.1 | 15 | PASS |
| ICB | ICB | 1 | Na | -0.001 | 486.4 | 15 | <PQL |
| LLICV | CCV | 1 | Na | 0.13 | 6.55 | 20 | PASS |
| LLICV | CCV | 1 | Na | 0.1 | 7.84 | 20 | PASS |
| ICSA1 | ICSA | 1 | Na | -0.005 | 48.87 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | Na | 10.19 | 0.15 | 15 | PASS |
| MB-71993 | MBLK | 1 | Na | 0.0051 | 143.79 | 15 | <PQL |
| LCS2-71993 | LCS | 1 | Na | 20.41 | 0.18 | 15 | PASS |
| N033613-001D | SAMP | 25 | Na | 19.2 | 0.24 | 15 | PASS |
| N033613-002D | SAMP | 50 | Na | 31.016 | 0.27 | 15 | PASS |
| N033613-002D | SAMP | 250 | Na | 6.23 | 0.21 | 15 | PASS |
| N033613-002D-PS | PS | 50 | Na | 29.97 | 0.14 | 15 | PASS |
| N033613-002D-MS2 | MS | 50 | Na | 29.96 | 0.19 | 15 | PASS |
| N033613-002D-MSD2 | MSD | 50 | Na | 30.032 | 0.082 | 15 | PASS |
| CCV1 | CCV | 1 | Na | 10.13 | 0.21 | 15 | PASS |
| CCB1 | CCB | 1 | Na | 0.002 | 331.044 | 15 | <PQL |
| ICSA2 | ICSA | 1 | Na | -0.0016 | 165.21 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | Na | 10.18 | 0.1 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190116A**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-181001A,0.5<50mL |
| Standard2 | MWST-181001E |
| Standard3 | MWST-181001J,5<50mL |
| Standard4 | MWST-181001J,12.5<50mL |
| Standard5 | MWST-181001J,15<40mL |
| Standard6 | MWST-181001J,25<50mL |
| Standard7 | MWST-181001J |
| ICV | MWST-181001O |
| CCV | MWST-181001J,25<50mL |
| ICSA/ICSAB | MWST-181001R/MWST-180730A |
| Int. Std. (Y) | MSST-180926A/B |
| PS Spike | MWST-180930D/E/F |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CalBlk | IBLK | 1 | 01/16/2019 | 09:30:57 AM |
| 2 | Standard1 | ICAL | 1 | 01/16/2019 | 09:34:39 AM |
| 3 | Standard2 | ICAL | 1 | 01/16/2019 | 09:38:51 AM |
| 4 | Standard3 | ICAL | 1 | 01/16/2019 | 09:43:04 AM |
| 5 | Standard4 | ICAL | 1 | 01/16/2019 | 09:47:18 AM |
| 6 | Standard5 | ICAL | 1 | 01/16/2019 | 09:51:33 AM |
| 7 | Standard6 | ICAL | 1 | 01/16/2019 | 09:55:47 AM |
| 8 | Standard7 | ICAL | 1 | 01/16/2019 | 10:00:02 AM |
| 250 | ICV | ICV | 1 | 01/16/2019 | 10:05:20 AM |
| 1 | ICB | ICB | 1 | 01/16/2019 | 10:10:38 AM |
| 2 | LLICV1 | CCV1 | 1 | 01/16/2019 | 10:14:20 AM |
| 9 | ICSA1 | ICSA | 1 | 01/16/2019 | 10:18:31 AM |
| 10 | ICSAB1 | ICSAB | 1 | 01/16/2019 | 10:23:52 AM |
| 11 | MB-72111 | MBLK | 1 | 01/16/2019 | 10:29:16 AM |
| 11 | MB-72111 | MBLK | 1 | 01/16/2019 | 10:35:34 AM |
| 12 | LCS-72111 | LCS | 1 | 01/16/2019 | 10:39:16 AM |
| 13 | N033744-001B | SAMP | 1 | 01/16/2019 | 10:43:29 AM |
| 14 | N033744-001B | SAMP | 5 | 01/16/2019 | 10:48:41 AM |
| 15 | N033744-001B-PS | PS | 1 | 01/16/2019 | 10:52:54 AM |
| 16 | N033744-001B-MS | MS | 1 | 01/16/2019 | 10:58:07 AM |
| 17 | N033744-001B-MSD | MSD | 1 | 01/16/2019 | 11:03:21 AM |
| 18 | N033744-002B | SAMP | 1 | 01/16/2019 | 11:08:35 AM |
| 19 | N033702-022B | SAMP | 1 | 01/16/2019 | 11:13:49 AM |
| 7 | CCV1 | CCV | 1 | 01/16/2019 | 11:19:03 AM |
| 1 | CCB1 | CCB | 1 | 01/16/2019 | 11:23:20 AM |
| 20 | N033703-002B | SAMP | 1 | 01/16/2019 | 11:27:01 AM |
| 21 | N033703-003B | SAMP | 1 | 01/16/2019 | 11:32:16 AM |
| 22 | N033716-001B | SAMP | 1 | 01/16/2019 | 11:37:02 AM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 23 | N033716-002B | SAMP | 1 | 01/16/2019 | 11:41:17 AM |
| 24 | N033702-023B | SAMP | 1 | 01/16/2019 | 11:45:28 AM |
| 25 | MB-71993 | MBLK | 1 | 01/16/2019 | 11:50:40 AM |
| 26 | LCS1-71993 | LCS | 1 | 01/16/2019 | 11:54:22 AM |
| 27 | N033613-001D | SAMP | 1 | 01/16/2019 | 11:58:33 AM |
| 28 | N033613-001D | SAMP | 5 | 01/16/2019 | 12:03:46 PM |
| 29 | N033613-001D-PS | PS | 1 | 01/16/2019 | 12:08:00 PM |
| 7 | CCV2 | CCV | 1 | 01/16/2019 | 12:13:13 PM |
| 1 | CCB2 | CCB | 1 | 01/16/2019 | 12:18:30 PM |
| 30 | N033613-001D-MS1 | MS | 1 | 01/16/2019 | 12:22:12 PM |
| 31 | N033613-001D-MSD1 | MSD | 1 | 01/16/2019 | 12:27:27 PM |
| 32 | N033613-002D | SAMP | 1 | 01/16/2019 | 12:32:42 PM |
| 7 | CCV3 | CCV | 1 | 01/16/2019 | 12:37:58 PM |
| 1 | CCB3 | CCB | 1 | 01/16/2019 | 12:42:15 PM |
| 9 | ICSA2 | ICSA | 1 | 01/16/2019 | 12:45:56 PM |
| 10 | ICSAB2 | ICSAB | 1 | 01/16/2019 | 12:51:19 PM |

**INJECTION LOG: ~~SEQ~~** 190116D

**Instrument ID: ~~ICP-01-190116D~~** ICP-02

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-181001A,0.5<50mL |
| Standard2 | MWST-181001E |
| Standard3 | MWST-181001J,5<50mL |
| Standard4 | MWST-181001J,12.5<50mL |
| Standard5 | MWST-181001J,15<40mL |
| Standard6 | MWST-181001J,25<50mL |
| Standard7 | MWST-181001J |
| ICV | MWST-181001O |
| CCV | MWST-181001J,25<50mL |
| ICSA/ICSAB | MWST-181001R/MWST-180730A |
| Int. Std. (Y) | MSST-180926A/B |
| PS Spike | MWST-180930D/E/F |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CalBlk | IBLK | 1 | 01/16/2019 | 08:44:08 PM |
| 11 | Standard1 | ICAL | 1 | 01/16/2019 | 08:47:20 PM |
| 12 | Standard2 | ICAL | 1 | 01/16/2019 | 08:50:30 PM |
| 13 | Standard3 | ICAL | 1 | 01/16/2019 | 08:54:10 PM |
| 14 | Standard4 | ICAL | 1 | 01/16/2019 | 08:57:52 PM |
| 15 | Standard5 | ICAL | 1 | 01/16/2019 | 09:01:37 PM |
| 16 | Standard6 | ICAL | 1 | 01/16/2019 | 09:05:24 PM |
| 17 | ICV | ICV | 1 | 01/16/2019 | 09:09:23 PM |
| 1 | ICB | ICB | 1 | 01/16/2019 | 09:13:08 PM |
| 11 | LLICV | CCV | 1 | 01/16/2019 | 09:16:19 PM |
| 11 | LLICV | CCV | 1 | 01/16/2019 | 09:19:40 PM |
| 18 | ICSA1 | ICSA | 1 | 01/16/2019 | 09:22:50 PM |
| 19 | ICSAB1 | ICSAB | 1 | 01/16/2019 | 09:26:03 PM |
| 23 | MB-71993 | MBLK | 1 | 01/16/2019 | 09:29:49 PM |
| 24 | LCS2-71993 | LCS | 1 | 01/16/2019 | 09:32:59 PM |
| 25 | N033613-001D | SAMP | 25 | 01/16/2019 | 09:36:46 PM |
| 26 | N033613-002D | SAMP | 50 | 01/16/2019 | 09:39:57 PM |
| 27 | N033613-002D | SAMP | 250 | 01/16/2019 | 09:43:08 PM |
| 28 | N033613-002D-PS | PS | 50 | 01/16/2019 | 09:46:19 PM |
| 29 | N033613-002D-MS2 | MS | 50 | 01/16/2019 | 09:49:31 PM |
| 30 | N033613-002D-MSD2 | MSD | 50 | 01/16/2019 | 09:52:44 PM |
| 14 | CCV1 | CCV | 1 | 01/16/2019 | 09:55:57 PM |
| 1 | CCB1 | CCB | 1 | 01/16/2019 | 09:59:41 PM |
| 18 | ICSA2 | ICSA | 1 | 01/16/2019 | 10:02:52 PM |
| 19 | ICSAB2 | ICSAB | 1 | 01/16/2019 | 10:06:04 PM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **1/7/2019 7:51:36 A**
Prep End Date: **1/7/2019 11:00:00**
Prep Batch **71993** Prep Code: **200.7_PR**

Reviewed/ Date: 1/19/2019
Initials/ Date: for
Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **DB-2-43** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS1-71993 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| LCS2-71993 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-71993 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033613-001D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033613-001D-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033613-001D-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033613-002D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033613-002D-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033613-002D-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10132 | NITRIC ACID |
| 10136 | HYDROCHLORIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MSST-140120B | Sodium | LCS,MS,MSD | 0.05 |
| MSST-180608A | Strontium | LCS,MS,MSD | 0.125 |
| MSST-180608B | Potassium | LCS,MS,MSD | 0.05 |
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190116A**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Magnesium** | | | | | | | | |
| CalBlk | 01/16/2019 | 09:30:57 AM | Mg | 279.079 | 143 | 0.00 | mg/L | |
| Standard1 | 01/16/2019 | 09:34:39 AM | Mg | 279.079 | 851 | 0.1000 | mg/L | |
| Standard2 | 01/16/2019 | 09:38:51 AM | Mg | 279.079 | 8986 | 1.000 | mg/L | |
| Standard3 | 01/16/2019 | 09:43:04 AM | Mg | 279.079 | 18315 | 2.000 | mg/L | |
| Standard4 | 01/16/2019 | 09:47:18 AM | Mg | 279.079 | 47138 | 5.000 | mg/L | |
| Standard5 | 01/16/2019 | 09:51:33 AM | Mg | 279.079 | 70090 | 7.500 | mg/L | |
| Standard6 | 01/16/2019 | 09:55:47 AM | Mg | 279.079 | 94524 | 10.000 | mg/L | |
| Standard7 | 01/16/2019 | 10:00:02 AM | Mg | 279.079 | 191244 | 20.000 | mg/L | 1.0000 |
| **Calcium** | | | | | | | | |
| CalBlk | 01/16/2019 | 09:30:57 AM | Ca | 227.546 | -107 | 0.00 | mg/L | |
| Standard1 | 01/16/2019 | 09:34:39 AM | Ca | 227.546 | 39 | 0.2000 | mg/L | |
| Standard2 | 01/16/2019 | 09:38:51 AM | Ca | 227.546 | 162 | 1.000 | mg/L | |
| Standard3 | 01/16/2019 | 09:43:04 AM | Ca | 227.546 | 327 | 2.000 | mg/L | |
| Standard4 | 01/16/2019 | 09:47:18 AM | Ca | 227.546 | 821 | 5.000 | mg/L | |
| Standard5 | 01/16/2019 | 09:51:33 AM | Ca | 227.546 | 1216 | 7.500 | mg/L | |
| Standard6 | 01/16/2019 | 09:55:47 AM | Ca | 227.546 | 1642 | 10.000 | mg/L | |
| Standard7 | 01/16/2019 | 10:00:02 AM | Ca | 227.546 | 3306 | 20.000 | mg/L | 1.0000 |
| **Iron** | | | | | | | | |
| CalBlk | 01/16/2019 | 09:30:57 AM | Fe | 273.953 | -109 | 0.00 | mg/L | |
| Standard1 | 01/16/2019 | 09:34:39 AM | Fe | 273.953 | 260 | 0.0200 | mg/L | |
| Standard2 | 01/16/2019 | 09:38:51 AM | Fe | 273.953 | 952 | 0.050 | mg/L | |
| Standard3 | 01/16/2019 | 09:43:04 AM | Fe | 273.953 | 28061 | 2.000 | mg/L | |
| Standard4 | 01/16/2019 | 09:47:18 AM | Fe | 273.953 | 71780 | 5.000 | mg/L | |
| Standard5 | 01/16/2019 | 09:51:33 AM | Fe | 273.953 | 106966 | 7.500 | mg/L | |
| Standard6 | 01/16/2019 | 09:55:47 AM | Fe | 273.953 | 143768 | 10.000 | mg/L | |
| Standard7 | 01/16/2019 | 10:00:02 AM | Fe | 273.953 | 289390 | 20.000 | mg/L | 1.0000 |

**INITIAL CALIBRATION SUMMARY: ~~SEQ~~** 190116D

**Instrument ID: ~~ICP-01-1:~~** ICP-02

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Sodium** | | | | | | | | |
| CalBlk | 01/16/2019 | 08:44:08 PM | Na | 589.594 | 135 | 0.00 | mg/L | |
| Standard1 | 01/16/2019 | 08:47:20 PM | Na | 589.594 | 260 | 0.1000 | mg/L | |
| Standard2 | 01/16/2019 | 08:50:30 PM | Na | 589.594 | 2177 | 1.000 | mg/L | |
| Standard3 | 01/16/2019 | 08:54:10 PM | Na | 589.594 | 10797 | 5.000 | mg/L | |
| Standard4 | 01/16/2019 | 08:57:52 PM | Na | 589.594 | 21168 | 10.000 | mg/L | |
| Standard5 | 01/16/2019 | 09:01:37 PM | Na | 589.594 | 41944 | 20.000 | mg/L | |
| Standard6 | 01/16/2019 | 09:05:24 PM | Na | 589.594 | 83276 | 40.000 | mg/L | 1.0000 |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

Sample ID **ICV** SampType: **ICV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **131178**
Client ID: **ICV** Batch ID: **R131178** TestNo: **EPA 200.7** Analysis Date: **1/16/2019** SeqNo: **3259113**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 9928.496 | 500 | 10000 | 0 | 99.3 | 90 | 110 | | | | |
| Iron | 9963.755 | 20 | 10000 | 0 | 99.6 | 90 | 110 | | | | |
| Magnesium | 9938.379 | 100 | 10000 | 0 | 99.4 | 90 | 110 | | | | |

Sample ID **LLICV1** SampType: **CCV1** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **131178**
Client ID: **ZZZZZZ** Batch ID: **R131178** TestNo: **EPA 200.7** Analysis Date: **1/16/2019** SeqNo: **3259115**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 225.497 | 500 | 200.0 | 0 | 113 | 80 | 120 | | | | |
| Iron | 18.768 | 20 | 20.00 | 0 | 93.8 | 80 | 120 | | | | |
| Magnesium | 87.389 | 100 | 100.0 | 0 | 87.4 | 80 | 120 | | | | |

Sample ID **CCV1** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **131178**
Client ID: **CCV** Batch ID: **R131178** TestNo: **EPA 200.7** Analysis Date: **1/16/2019** SeqNo: **3259128**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 10056.335 | 500 | 10000 | 0 | 101 | 90 | 110 | | | | |
| Iron | 9942.239 | 20 | 10000 | 0 | 99.4 | 90 | 110 | | | | |
| Magnesium | 9834.870 | 100 | 10000 | 0 | 98.3 | 90 | 110 | | | | |

Sample ID **CCV2** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **131178**
Client ID: **CCV** Batch ID: **R131178** TestNo: **EPA 200.7** Analysis Date: **1/16/2019** SeqNo: **3259140**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 10011.446 | 500 | 10000 | 0 | 100 | 90 | 110 | | | | |
| Iron | 9920.196 | 20 | 10000 | 0 | 99.2 | 90 | 110 | | | | |
| Magnesium | 9703.202 | 100 | 10000 | 0 | 97.0 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **131178** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131178** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3259145** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 10204.268 | 500 | 10000 | 0 | 102 | 90 | 110 | | | | |
| Iron | 9880.368 | 20 | 10000 | 0 | 98.8 | 90 | 110 | | | | |
| Magnesium | 9734.741 | 100 | 10000 | 0 | 97.3 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **131206** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131206** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3260446** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10305.044 | 500 | 10000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **131206** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131206** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3260449** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 101.139 | 500 | 100.0 | 0 | 101 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **131206** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131206** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3260460** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10131.908 | 500 | 10000 | 0 | 101 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **131178** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131178** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3259114** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 72.468 | 500 | | | | | | | | | |
| Iron | 1.083 | 20 | | | | | | | | | |
| Magnesium | 0.844 | 100 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **131178** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131178** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3259129** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 98.521 | 500 | | | | | | | | | |
| Iron | 2.930 | 20 | | | | | | | | | |
| Magnesium | 8.098 | 100 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **131178** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131178** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3259141** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 72.266 | 500 | | | | | | | | | |
| Iron | 1.738 | 20 | | | | | | | | | |
| Magnesium | 0.552 | 100 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **131178** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131178** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3259146** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 109.313 | 500 | | | | | | | | | |
| Iron | 2.277 | 20 | | | | | | | | | |
| Magnesium | 1.434 | 100 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **131206** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131206** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3260447** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | -1.014436 | 500 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **131206** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131206** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3260461** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 1.977 | 500 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **131178** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131178** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3259116** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 499135.026 | 50 | 500000 | 0 | 99.8 | 80 | 120 | | | | |
| Calcium | 505333.460 | 500 | 500000 | 0 | 101 | 80 | 120 | | | | |
| Iron | 184659.176 | 20 | 200000 | 0 | 92.3 | 80 | 120 | | | | |
| Magnesium | 474195.549 | 100 | 500000 | 0 | 94.8 | 80 | 120 | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **131178** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131178** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3259117** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 529807.522 | 50 | 500000 | 0 | 106 | 80 | 120 | | | | |
| Calcium | 538259.782 | 500 | 500000 | 0 | 108 | 80 | 120 | | | | |
| Iron | 183323.501 | 20 | 200000 | 0 | 91.7 | 80 | 120 | | | | |
| Magnesium | 501215.996 | 100 | 500000 | 0 | 100 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **131178** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131178** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3259147** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 505074.159 | 50 | 500000 | 0 | 101 | 80 | 120 | | | | |
| Calcium | 518983.469 | 500 | 500000 | 0 | 104 | 80 | 120 | | | | |
| Iron | 183572.216 | 20 | 200000 | 0 | 91.8 | 80 | 120 | | | | |
| Magnesium | 476068.484 | 100 | 500000 | 0 | 95.2 | 80 | 120 | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **131178** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131178** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3259148** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 535075.988 | 50 | 500000 | 0 | 107 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **131178** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131178** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3259148** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 546644.310 | 500 | 500000 | 0 | 109 | 80 | 120 | | | | |
| Iron | 181843.931 | 20 | 200000 | 0 | 90.9 | 80 | 120 | | | | |
| Magnesium | 501752.459 | 100 | 500000 | 0 | 100 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID | **ICSA1** | SampType: | **ICSA** | TestCode: | **200.7_WDPG** | Units: | **µg/L** | Prep Date: | | RunNo: | **131206** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ICSA** | Batch ID: | **R131206** | TestNo: | **EPA 200.7** | | | Analysis Date: | **1/16/2019** | SeqNo: | **3260450** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | -5.008174 | 500 | | | | | | | | | |

| Sample ID | **ICSAB1** | SampType: | **ICSAB** | TestCode: | **200.7_WDPG** | Units: | **µg/L** | Prep Date: | | RunNo: | **131206** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ICSAB** | Batch ID: | **R131206** | TestNo: | **EPA 200.7** | | | Analysis Date: | **1/16/2019** | SeqNo: | **3260451** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10187.587 | 500 | 10000 | 0 | 102 | 80 | 120 | | | | |

| Sample ID | **ICSA2** | SampType: | **ICSA** | TestCode: | **200.7_WDPG** | Units: | **µg/L** | Prep Date: | | RunNo: | **131206** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ICSA** | Batch ID: | **R131206** | TestNo: | **EPA 200.7** | | | Analysis Date: | **1/16/2019** | SeqNo: | **3260462** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | -1.592969 | 500 | | | | | | | | | |

| Sample ID | **ICSAB2** | SampType: | **ICSAB** | TestCode: | **200.7_WDPG** | Units: | **µg/L** | Prep Date: | | RunNo: | **131206** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ICSAB** | Batch ID: | **R131206** | TestNo: | **EPA 200.7** | | | Analysis Date: | **1/16/2019** | SeqNo: | **3260463** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10181.045 | 500 | 10000 | 0 | 102 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190116A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 1.0057 | 100.57 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1.016 | 101.64 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 1.023 | 102.29 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 1.012 | 101.2 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 1.015 | 101.48 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 0.98 | 98.42 | 65-125 | PASS |
| Standard7 | ICAL | 1 | 0.97 | 96.89 | 65-125 | PASS |
| ICV | ICV | 1 | 0.98 | 98.47 | 65-125 | PASS |
| ICB | ICB | 1 | 1.004 | 100.4 | 65-125 | PASS |
| LLICV1 | CCV1 | 1 | 1.0088 | 100.88 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 0.93 | 93.36 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 0.87 | 87.46 | 65-125 | PASS |
| CCV1 | CCV | 1 | 1.0014 | 100.14 | 65-125 | PASS |
| CCB1 | CCB | 1 | 1.029 | 102.92 | 65-125 | PASS |
| MB-71993 | MBLK | 1 | 1.031 | 103.08 | 65-125 | PASS |
| LCS1-71993 | LCS | 1 | 0.97 | 97.29 | 65-125 | PASS |
| N033613-001D | SAMP | 1 | 0.99 | 98.87 | 65-125 | PASS |
| N033613-001D | SAMP | 5 | 1.014 | 101.35 | 65-125 | PASS |
| N033613-001D-PS | PS | 1 | 1.034 | 103.42 | 65-125 | PASS |
| CCV2 | CCV | 1 | 1.032 | 103.17 | 65-125 | PASS |
| CCB2 | CCB | 1 | 1.055 | 105.46 | 65-125 | PASS |
| N033613-001D-MS1 | MS | 1 | 1.0078 | 100.78 | 65-125 | PASS |
| N033613-001D-MSD1 | MSD | 1 | 0.95 | 94.84 | 65-125 | PASS |
| N033613-002D | SAMP | 1 | 0.96 | 95.72 | 65-125 | PASS |
| CCV3 | CCV | 1 | 1.07 | 106.97 | 65-125 | PASS |
| CCB3 | CCB | 1 | 1.089 | 108.89 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 1.0009 | 100.09 | 65-125 | PASS |
| ICSAB2 | ICSAB | 1 | 0.92 | 92.28 | 65-125 | PASS |

**INTERNAL STANDARD: ~~SEQ~~** 190116D

**Instrument ID: ~~ICP-01-190116I~~** ICP-02

| Sample Name | Type | DF | Scandium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 0.99 | 99.49 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 0.99 | 99.031 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 0.99 | 99.37 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 0.97 | 96.86 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 0.96 | 96.33 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 0.96 | 96.31 | 65-125 | PASS |
| ICV | ICV | 1 | 0.98 | 98.5 | 65-125 | PASS |
| ICB | ICB | 1 | 1 | 99.55 | 65-125 | PASS |
| LLICV | CCV | 1 | 1.0003 | 100.03 | 65-125 | PASS |
| LLICV | CCV | 1 | 1 | 99.52 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 1.0024 | 100.24 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 0.99 | 98.5 | 65-125 | PASS |
| MB-71993 | MBLK | 1 | 1 | 99.61 | 65-125 | PASS |
| LCS2-71993 | LCS | 1 | 1.049 | 104.92 | 65-125 | PASS |
| N033613-001D | SAMP | 25 | 0.99 | 99.38 | 65-125 | PASS |
| N033613-002D | SAMP | 50 | 0.99 | 98.76 | 65-125 | PASS |
| N033613-002D | SAMP | 250 | 0.99 | 99.18 | 65-125 | PASS |
| N033613-002D-PS | PS | 50 | 0.99 | 98.59 | 65-125 | PASS |
| N033613-002D-MS2 | MS | 50 | 0.98 | 98.1 | 65-125 | PASS |
| N033613-002D-MSD2 | MSD | 50 | 0.99 | 98.6 | 65-125 | PASS |
| CCV1 | CCV | 1 | 0.97 | 97.33 | 65-125 | PASS |
| CCB1 | CCB | 1 | 0.99 | 98.52 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 0.98 | 98.28 | 65-125 | PASS |
| ICSAB2 | ICSAB | 1 | 0.98 | 97.87 | 65-125 | PASS |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-Metals in Water**

**Dilution Test Summary**

Work Order No.: N033613
Test Method: EPA 200.7
Analysis Date: 1/16/2019

Matrix: Groundwater
Batch No.: 71993

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test failed for Mg. However, PS passed criteria.
Dilution test is not applicable to Fe. The calculated concentration is <25RL.

| Sample ID | Analyte | Units | Calc Val | OQual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|
| N033613-001D DT 5X | Calcium | ug/L | 166712.8 | PASS | 158886.1 | 4.93% | 10 |
| N033613-001D DT 5X | Iron | ug/L | 0 | | 0 | | 10 |
| N033613-001D DT 5X | Magnesium | ug/L | 41938.56 | FAIL | 38058.81 | 10.19% | 10 |
| N033613-002D DT 250X | Sodium | ug/L | 1556422 | PASS | 1550795 | 0.36% | 10 |

Note: NA - Not applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **N033613-001D-PS** | SampType: **PS** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **131178** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **71993** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3259139** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 167401.753 | 500 | 5000 | 158900 | 170 | 80 | 120 | | | | S |
| Iron | 113.065 | 20 | 100.0 | 0 | 113 | 80 | 120 | | | | |
| Magnesium | 43914.668 | 100 | 5000 | 38060 | 117 | 80 | 120 | | | | |

| Sample ID **N033613-002D-PS** | SampType: **PS** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **131206** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **71993** | TestNo: **EPA 200.7** | | Analysis Date: **1/16/2019** | SeqNo: **3260457** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 1498543.542 | 25000 | 20000 | 1551000 | -261 | 80 | 120 | | | | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

**Acceptance Criteria:** MDL < spike < 10XMDL

| Analyte | Wavelength | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Spike Conc., mg/L | SD | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ag | 328.069 | 0.0033 | 0.0031 | 0.0033 | 0.0033 | 0.0031 | 0.0030 | 0.0047 | 0.003 | 0.00061604 | **0.001936** | 0.003 |
| Al | 237.312 | 0.0664 | 0.0603 | 0.0656 | 0.0650 | 0.0658 | 0.0660 | 0.0946 | 0.050 | 0.01254823 | **0.039439** | 0.050 |
| As | 188.983 | 0.0131 | 0.0089 | 0.0120 | 0.0089 | 0.0060 | 0.0102 | 0.0080 | 0.010 | 0.00223806 | **0.007034** | 0.010 |
| B | 249.679 | 0.1491 | 0.1267 | 0.1281 | 0.1467 | 0.1261 | 0.1195 | 0.1015 | 0.100 | 0.01801843 | **0.056632** | 0.100 |
| Ba | 233.529 | 0.0033 | 0.0031 | 0.0033 | 0.0031 | 0.0032 | 0.0030 | 0.0024 | 0.003 | 0.00033070 | **0.001039** | 0.003 |
| Be | 313.104 | 0.0012 | 0.0011 | 0.0012 | 0.0012 | 0.0011 | 0.0011 | 0.0011 | 0.001 | 0.00006873 | **0.000216** | 0.001 |
| Ca | 227.546 | 0.2381 | 0.2231 | 0.2559 | 0.2299 | 0.2194 | 0.2473 | 0.2691 | 0.200 | 0.02202408 | **0.069222** | 0.200 |
| Cd | 214.437 | 0.0031 | 0.0029 | 0.0031 | 0.0032 | 0.0031 | 0.0031 | 0.0025 | 0.003 | 0.00027049 | **0.000850** | 0.003 |
| Co | 228.614 | 0.0030 | 0.0028 | 0.0030 | 0.0031 | 0.0031 | 0.0031 | 0.0027 | 0.003 | 0.00014491 | **0.000455** | 0.003 |
| Cr | 267.719 | 0.0009 | 0.0008 | 0.0009 | 0.0012 | 0.0012 | 0.0013 | 0.0009 | 0.001 | 0.00017120 | **0.000538** | 0.001 |
| Fe | 273.953 | 0.0255 | 0.0226 | 0.0242 | 0.0255 | 0.0252 | 0.0248 | 0.0387 | 0.020 | 0.00552308 | **0.017359** | 0.020 |
| Mg | 279.079 | 0.1124 | 0.1052 | 0.1129 | 0.1315 | 0.1305 | 0.1314 | 0.1435 | 0.100 | 0.01532024 | **0.048152** | 0.100 |
| Mn | 257.607 | 0.0119 | 0.0111 | 0.0120 | 0.0122 | 0.0121 | 0.0122 | 0.0099 | 0.010 | 0.00098403 | **0.003093** | 0.010 |
| Mo | 202.03 | 0.0079 | 0.0068 | 0.0067 | 0.0065 | 0.0065 | 0.0062 | 0.0057 | 0.005 | 0.00083918 | **0.002638** | 0.005 |
| Ni | 231.604 | 0.0061 | 0.0056 | 0.0062 | 0.0060 | 0.0060 | 0.0062 | 0.0045 | 0.005 | 0.00062690 | **0.001970** | 0.005 |
| Pb | 220.351 | 0.0124 | 0.0117 | 0.0127 | 0.0115 | 0.0120 | 0.0118 | 0.0090 | 0.010 | 0.00126325 | **0.003970** | 0.010 |
| Sb | 206.836 | 0.0102 | 0.0095 | 0.0104 | 0.0112 | 0.0117 | 0.0111 | 0.0080 | 0.010 | 0.00117407 | **0.003690** | 0.010 |
| Se | 196.025 | 0.0102 | 0.0087 | 0.0114 | 0.0136 | 0.0144 | 0.0136 | 0.0075 | 0.010 | 0.00251341 | **0.007900** | 0.010 |
| Sn | 189.927 | 0.0095 | 0.0084 | 0.0090 | 0.0124 | 0.0126 | 0.0129 | 0.0099 | 0.010 | 0.00175765 | **0.005524** | 0.010 |
| Ti | 334.943 | 0.0114 | 0.0106 | 0.0115 | 0.0115 | 0.0115 | 0.0115 | 0.0098 | 0.010 | 0.00074093 | **0.002329** | 0.010 |
| Tl | 190.794 | 0.0170 | 0.0150 | 0.0165 | 0.0171 | 0.0180 | 0.0168 | 0.0151 | 0.015 | 0.00116288 | **0.003655** | 0.015 |
| V | 292.404 | 0.0025 | 0.0024 | 0.0025 | 0.0032 | 0.0032 | 0.0032 | 0.0027 | 0.003 | 0.00038496 | **0.001210** | 0.003 |
| Zn | 206.201 | 0.0109 | 0.0100 | 0.0107 | 0.0125 | 0.0124 | 0.0124 | 0.0095 | 0.010 | 0.00123731 | **0.003889** | 0.010 |

## METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

| Analyte | ICP-02 MDL | MDL Blank | Higher MDL | LOD | PQL |
|---|---|---|---|---|---|
| Ag | 0.001936 | 0.002362 | 0.002362 | 0.002 | 0.003 |
| Al | 0.039439 | 0.039859 | 0.039859 | 0.04 | 0.5 |
| As | 0.007034 | 0.007672 | 0.007672 | 0.0075 | 0.01 |
| B | 0.056632 | 0.074419 | 0.074419 | 0.075 | 0.1 |
| Ba | 0.001039 | 0.000433 | 0.001039 | 0.001 | 0.003 |
| Be | 0.000216 | 0.000311 | 0.000311 | 0.0005 | 0.003 |
| Ca | 0.069222 | 0.084832 | 0.084832 | 0.1 | 0.5 |
| Cd | 0.000850 | 0.000592 | 0.000850 | 0.001 | 0.003 |
| Co | 0.000455 | 0.001902 | 0.001902 | 0.001 | 0.003 |
| Cr | 0.000538 | 0.000527 | 0.000538 | 0.001 | 0.003 |
| Fe | 0.017359 | 0.017751 | 0.017751 | 0.018 | 0.1 |
| Mg | 0.048152 | 0.043017 | 0.048152 | 0.05 | 0.1 |
| Mn | 0.003093 | 0.000782 | 0.003093 | 0.005 | 0.5 |
| Mo | 0.002638 | 0.002482 | 0.002638 | 0.0025 | 0.005 |
| Ni | 0.001970 | 0.000822 | 0.001970 | 0.0025 | 0.005 |
| Pb | 0.003970 | 0.002762 | 0.003970 | 0.005 | 0.005 |
| Sb | 0.003690 | 0.004504 | 0.004504 | 0.005 | 0.01 |
| Se | 0.007900 | 0.008549 | 0.008549 | 0.008 | 0.01 |
| Sn | 0.005524 | 0.003415 | 0.005524 | 0.0075 | 0.05 |
| Ti | 0.002329 | 0.001493 | 0.002329 | 0.005 | 0.05 |
| Tl | 0.003655 | 0.005987 | 0.005987 | 0.005 | 0.015 |
| V | 0.001210 | 0.000749 | 0.001210 | 0.002 | 0.003 |
| Zn | 0.003889 | 0.007683 | 0.007683 | 0.008 | 0.01 |

## LOD & PQL VERIFICATION

**Analytical Method:** EPA 6010B / 200.7
**Date of Analysis:** 4/30/2018
**Instrument Name:** ICP2
**Analyst:** MI

**Matrix:** Water
**Units:** mg/L

| Compound | MDL | LOD | | PQL | | |
|---|---|---|---|---|---|---|
| | | Spike | Recovered | Spike | Recovered | % Recovery |
| Potassium | 0.08509 | 0.250 | 0.304 | 0.500 | 0.544 | 108.9 |
| Sodium | 0.09611 | 0.250 | 0.274 | 0.500 | 0.521 | 104.1 |
| Strontium | 0.00220 | 0.025 | 0.027 | 0.050 | 0.054 | 108.0 |

**Method Detection Limit**

**Analytical Method:** EPA 6010B / 200.7
**Digestion Method:** EPA 200.7
**Date of Analysis:** 4/26/2018,4/27/18, 4/28/18
**Instrument Name:** ICP2
**Analysts:** MEI

**Matrix:** Water
**Amount of Sample:** 25 mL
**Units:** mg/L

| Analyte | 1 | 2 | 3 | 4 | 5 | 6 | 7 | SD | Ave | AMT SPIKED | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | 0.52047 | 0.51468 | 0.50982 | 0.46507 | 0.46016 | 0.45873 | 0.49093 | 0.02710 | 0.48855 | 0.5000 | 0.08509 | 0.5 |
| Sodium | 0.55314 | 0.5464 | 0.5354 | 0.4861 | 0.49466 | 0.48423 | 0.49053 | 0.03061 | 0.51292 | 0.5000 | 0.09611 | 0.5 |
| Strontium | 0.0543 | 0.05418 | 0.05429 | 0.05295 | 0.05353 | 0.05251 | 0.05341 | 0.00070 | 0.05360 | 0.0250 | 0.00220 | 0.05 |

MBLK

| Analyte | 1 | 2 | 3 | 4 | 5 | 6 | 7 | SD | Ave | MDL |
|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | 0.046 | 0.02365 | 0.01213 | -0.00541 | -0.0022 | -0.00535 | 0.03047 | 0.02002 | 0.01418 | 0.0771 |
| Sodium | 0.04731 | 0.03661 | 0.02294 | -0.0006 | -0.00135 | -0.00646 | -0.00911 | 0.02270 | 0.01276 | 0.0841 |
| Strontium | 0.00006 | -0.0006 | -0.0002 | 0.00003 | -0.00002 | 0.00001 | 0.00035 | 0.00029 | -0.00005 | 0.0009 |

Note: MDL spike is used since its value is greater than the MDL blank.

# EPA 200.8
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72029
**ASSET #:** N033613

**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 1/10/2019

**Method:**

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | X | | | X | | |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | X | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | X | | | X | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

% Rec of Mn in N033613-001D PS failed, low bias. However, LCS passed criteria.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: 1/17/19

2nd Level Reviewer 1/17/2019 Date: _____

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA 6020
**TEST NAME:** Heavy Metals by ICP-MS
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Manganese concentration, in ug/L , in the original sample as follows:

Manganese , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N033613-001D** , the concentration in ug/L is calculated as follows:

Manganese , ug/L = 126.884 * 5 *(25/25)

Manganese , ug/L = 634.42

Reporting results in two significant figures,

**Manganese , ug/L = 630**

# % RSD SUMMARY

**PERCENT RSD SUMMARY: 190110B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 52 Cr [2] | | | | 55 Mn [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.088 | 10.97 | 15 | PASS | 0.1 | 14.9 | 15 | PASS |
| Std2-0.5/5 ppb | ICAL | 1 | 0.5 | 1.54 | 15 | PASS | 0.53 | 6.94 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 5.079 | 1.31 | 15 | PASS | 4.94 | 2.47 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.013 | 0.38 | 15 | PASS | 10.18 | 3.34 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.051 | 1.36 | 15 | PASS | 19.99 | 0.78 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.38 | 0.96 | 15 | PASS | 40.5 | 0.62 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.51 | 1.74 | 15 | PASS | 100.71 | 1.45 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.66 | 1.3 | 15 | PASS | 199.54 | 1.049 | 15 | PASS |
| ICV | ICV | 1 | 10.44 | 1.65 | 15 | PASS | 105.5 | 0.27 | 15 | PASS |
| ICB | ICB | 1 | 0.0077 | 26.98 | 15 | <PQL | 0.01 | 30.8 | 15 | <PQL |
| LLICV | CCV1 | 1 | 1.037 | 3.78 | 20 | PASS | 0.58 | 5.3 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 20.27 | 0.84 | 15 | PASS | 16.4 | 4.81 | 15 | PASS |
| MB-72029 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | 0.052 | 45.97 | 15 | <PQL |
| LCS-72029 | LCS | 1 | 9.98 | 3.35 | 15 | PASS | 105.31 | 2.39 | 15 | PASS |
| N033613-001D | SAMP | 1 | 0.048 | 69.71 | 15 | <PQL | 607.94 | 1.28 | 15 | PASS |
| N033613-001D | SAMP | 5 | 0.013 | 139.52 | 15 | <PQL | 126.88 | 0.097 | 15 | PASS |
| N033613-001D | SAMP | 25 | 0.0041 | 81.74 | 15 | <PQL | 26.58 | 0.75 | 15 | PASS |
| N033613-001D-PS | PS | 1 | 9.75 | 1.86 | 15 | PASS | 665.45 | 0.88 | 15 | PASS |
| N033613-001D-PS | PS | 5 | 2.051 | 3.83 | 15 | PASS | 138.69 | 1.032 | 15 | PASS |
| N033613-001D-MS | MS | 1 | 9.69 | 0.8 | 15 | PASS | 678.59 | 0.58 | 15 | PASS |
| N033613-001D-MS | MS | 5 | 2.076 | 3.033 | 15 | PASS | 143.4 | 1.14 | 15 | PASS |
| N033613-001D-MSD | MSD | 1 | 9.63 | 0.24 | 15 | PASS | 677.43 | 0.86 | 15 | PASS |
| CCV1 | CCV | 1 | 19.44 | 0.65 | 15 | PASS | 20.25 | 0.82 | 15 | PASS |
| CCB1 | CCB | 1 | 0.013 | 54.15 | 15 | <PQL | 0.048 | 13.14 | 15 | PASS |
| N033613-001D-MSD | MSD | 5 | 2.095 | 3.96 | 15 | PASS | 144.13 | 1.23 | 15 | PASS |
| N033613-002D | SAMP | 1 | 462.6 | 0.47 | 15 | PASS | 15.91 | 0.57 | 15 | PASS |
| N033613-002D | SAMP | 5 | 95.76 | 0.24 | 15 | PASS | 3.42 | 7.55 | 15 | PASS |
| N033651-003A | SAMP | 1 | 1.36 | 2.096 | 15 | PASS | 23.56 | 1.12 | 15 | PASS |
| N033651-004A | SAMP | 1 | 1.6 | 4.25 | 15 | PASS | 25.025 | 0.6 | 15 | PASS |
| N033651-005A | SAMP | 1 | 3.56 | 2.56 | 15 | PASS | 1.77 | 4.77 | 15 | PASS |
| N033651-006A | SAMP | 1 | 2.021 | 0.73 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N033651-007A | SAMP | 1 | 2.073 | 2.05 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N033651-008A | SAMP | 1 | 6.23 | 7.91 | 15 | PASS | 37.96 | 1.55 | 15 | PASS |
| N033651-009A | SAMP | 1 | 3.66 | 0.67 | 15 | PASS | 38.55 | 1.04 | 15 | PASS |
| CCV2 | CCV | 1 | 19.31 | 0.98 | 15 | PASS | 20.57 | 1.18 | 15 | PASS |
| CCB2 | CCB | 1 | 0.008 | 135.36 | 15 | <PQL | 0.0077 | 125.26 | 15 | <PQL |
| N033651-010A | SAMP | 1 | 2.43 | 4.029 | 15 | PASS | 0.42 | 16.47 | 15 | <PQL |
| N033651-010A-MS | MS | 1 | 11.89 | 0.13 | 15 | PASS | 104.53 | 0.87 | 15 | PASS |
| N033651-011A | SAMP | 1 | 2.38 | 5.44 | 15 | PASS | 9.12 | 4.11 | 15 | PASS |

**PERCENT RSD SUMMARY: 190110B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 52 Cr [2] | | | | 55 Mn [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N033651-012A | SAMP | 1 | 0.98 | 7.52 | 15 | PASS | 5.48 | 4.68 | 15 | PASS |
| N033651-013A | SAMP | 1 | 2.64 | 1.78 | 15 | PASS | 0.37 | 18.56 | 15 | <PQL |
| N033651-014A | SAMP | 1 | 1.85 | 2.088 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N033660-004B | SAMP | 1 | 0.67 | 6.11 | 15 | PASS | 0.04 | 37.14 | 15 | <PQL |
| N033660-005B | SAMP | 1 | 0.92 | 8.048 | 15 | PASS | 0.79 | 5.23 | 15 | PASS |
| N033660-006B | SAMP | 1 | 0.33 | 7.73 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N033660-007B | SAMP | 1 | 0.22 | 5.54 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV3 | CCV | 1 | 18.65 | 1.62 | 15 | PASS | 19.74 | 0.46 | 15 | PASS |
| CCB3 | CCB | 1 | 0.0095 | 104 | 15 | <PQL | 0.014 | 60.026 | 15 | <PQL |
| N033660-011B | SAMP | 1 | 2.18 | 2.77 | 15 | PASS | 683.42 | 0.96 | 15 | PASS |
| N033660-012B | SAMP | 1 | 2.27 | 2.15 | 15 | PASS | 709.36 | 2.028 | 15 | PASS |
| CCV4 | CCV | 1 | 18.93 | 0.19 | 15 | PASS | 19.96 | 1.16 | 15 | PASS |
| CCB4 | CCB | 1 | 0.0078 | 25.39 | 15 | <PQL | 0.06 | 39.74 | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 18.95 | 0.48 | 15 | PASS | 16.53 | 3 | 15 | PASS |
| CCV5 | CCV | 1 | 19.16 | 1.0044 | 15 | PASS | 20.16 | 1.058 | 15 | PASS |
| CCB5 | CCB | 1 | 0.028 | 62.12 | 15 | <PQL | 0.046 | 25.19 | 15 | <PQL |
| CCV6 | CCV | 1 | 19.31 | 0.87 | 15 | PASS | 20.7 | 1.55 | 15 | PASS |
| CCB6 | CCB | 1 | 0.018 | 32.056 | 15 | <PQL | 0.053 | 31.0028 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 19.043 | 0.59 | 15 | PASS | 16.86 | 3.66 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190110B**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| B0110001.D | RINSE | RINSE | 1 | 01/10/19 2:46 PM |
| B0110002.D | Cal Blank | IBLK | 1 | 01/10/19 2:52 PM |
| B0110003.D | Std1-0.1/1 ppb | ICAL | 1 | 01/10/19 2:57 PM |
| B0110004.D | Std2-0.5/5 ppb | ICAL | 1 | 01/10/19 3:03 PM |
| B0110005.D | Std3-5/50 ppb | ICAL | 1 | 01/10/19 3:08 PM |
| B0110006.D | Std4-10/100 ppb | ICAL | 1 | 01/10/19 3:14 PM |
| B0110007.D | Std5-20/200 ppb | ICAL | 1 | 01/10/19 3:20 PM |
| B0110008.D | Std6-40/400 ppb | ICAL | 1 | 01/10/19 3:25 PM |
| B0110009.D | Std7-100/1000 ppb | ICAL | 1 | 01/10/19 3:31 PM |
| B0110010.D | Std8-200/2000 ppb | ICAL | 1 | 01/10/19 3:36 PM |
| B0110011.D | ICV | ICV | 1 | 01/10/19 3:42 PM |
| B0110012.D | ICB | ICB | 1 | 01/10/19 3:48 PM |
| B0110013.D | LLICV | CCV1 | 1 | 01/10/19 3:53 PM |
| B0110014.D | ICSA1 | ICSA | 1 | 01/10/19 3:59 PM |
| B0110015.D | ICSAB1 | ICSAB | 1 | 01/10/19 4:04 PM |
| B0110016.D | MB-72029 | MBLK | 1 | 01/10/19 4:10 PM |
| B0110017.D | LCS-72029 | LCS | 1 | 01/10/19 4:17 PM |
| B0110018.D | N033613-001D | SAMP | 1 | 01/10/19 4:22 PM |
| B0110019.D | N033613-001D | SAMP | 5 | 01/10/19 4:27 PM |
| B0110020.D | N033613-001D | SAMP | 25 | 01/10/19 4:32 PM |
| B0110021.D | N033613-001D-PS | PS | 1 | 01/10/19 4:38 PM |
| B0110022.D | N033613-001D-PS | PS | 5 | 01/10/19 4:43 PM |
| B0110023.D | N033613-001D-MS | MS | 1 | 01/10/19 4:49 PM |
| B0110024.D | N033613-001D-MS | MS | 5 | 01/10/19 4:55 PM |
| B0110025.D | N033613-001D-MSD | MSD | 1 | 01/10/19 5:00 PM |
| B0110026.D | CCV1 | CCV | 1 | 01/10/19 5:06 PM |
| B0110027.D | CCB1 | CCB | 1 | 01/10/19 5:11 PM |
| B0110028.D | N033613-001D-MSD | MSD | 5 | 01/10/19 5:17 PM |
| B0110029.D | N033613-002D | SAMP | 1 | 01/10/19 5:22 PM |
| B0110030.D | N033613-002D | SAMP | 5 | 01/10/19 5:28 PM |
| B0110031.D | N033651-003A | SAMP | 1 | 01/10/19 5:34 PM |
| B0110032.D | N033651-004A | SAMP | 1 | 01/10/19 5:39 PM |
| B0110033.D | N033651-005A | SAMP | 1 | 01/10/19 5:45 PM |
| B0110034.D | N033651-006A | SAMP | 1 | 01/10/19 5:50 PM |
| B0110035.D | N033651-007A | SAMP | 1 | 01/10/19 5:56 PM |
| B0110036.D | N033651-008A | SAMP | 1 | 01/10/19 6:01 PM |
| B0110037.D | N033651-009A | SAMP | 1 | 01/10/19 6:07 PM |
| B0110038.D | CCV2 | CCV | 1 | 01/10/19 6:13 PM |
| B0110039.D | CCB2 | CCB | 1 | 01/10/19 6:18 PM |
| B0110040.D | N033651-010A | SAMP | 1 | 01/10/19 6:24 PM |
| B0110041.D | N033651-010A-MS | MS | 1 | 01/10/19 6:29 PM |
| B0110042.D | N033651-011A | SAMP | 1 | 01/10/19 6:35 PM |

**INJECTION LOG: 190110B**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| B0110043.D | N033651-012A | SAMP | 1 | 01/10/19 6:41 PM |
| B0110044.D | N033651-013A | SAMP | 1 | 01/10/19 6:46 PM |
| B0110045.D | N033651-014A | SAMP | 1 | 01/10/19 6:52 PM |
| B0110046.D | N033660-004B | SAMP | 1 | 01/10/19 6:57 PM |
| B0110047.D | N033660-005B | SAMP | 1 | 01/10/19 7:03 PM |
| B0110048.D | N033660-006B | SAMP | 1 | 01/10/19 7:08 PM |
| B0110049.D | N033660-007B | SAMP | 1 | 01/10/19 7:14 PM |
| B0110050.D | CCV3 | CCV | 1 | 01/10/19 7:20 PM |
| B0110051.D | CCB3 | CCB | 1 | 01/10/19 7:25 PM |
| B0110052.D | N033660-011B | SAMP | 1 | 01/10/19 7:31 PM |
| B0110053.D | N033660-012B | SAMP | 1 | 01/10/19 7:36 PM |
| B0110054.D | MB-72030 | MBLK | 1 | 01/10/19 7:42 PM |
| B0110055.D | LCS-72030 | LCS | 1 | 01/10/19 7:47 PM |
| B0110056.D | N033633-001A | SAMP | 1 | 01/10/19 7:53 PM |
| B0110061.D | N033633-003B | SAMP | 1 | 01/10/19 7:53 PM |
| B0110057.D | N033633-001A | SAMP | 5 | 01/10/19 7:59 PM |
| B0110058.D | N033633-001A-PS | PS | 1 | 01/10/19 8:04 PM |
| B0110059.D | N033633-001A-MS | MS | 1 | 01/10/19 8:10 PM |
| B0110060.D | N033633-001A-MSD | MSD | 1 | 01/10/19 8:15 PM |
| B0110062.D | CCV4 | CCV | 1 | 01/10/19 8:26 PM |
| B0110063.D | CCB4 | CCB | 1 | 01/10/19 8:33 PM |
| B0110064.D | ICSA2 | ICSA | 1 | 01/10/19 8:38 PM |
| B0110065.D | ICSAB2 | ICSAB | 1 | 01/10/19 8:43 PM |
| B0110066.D | N033635-001A | SAMP | 1 | 01/10/19 8:49 PM |
| B0110067.D | N033649-001A | SAMP | 1 | 01/10/19 8:54 PM |
| B0110068.D | N033649-003A | SAMP | 1 | 01/10/19 9:00 PM |
| B0110069.D | N033650-001B | SAMP | 1 | 01/10/19 9:05 PM |
| B0110070.D | N033650-002B | SAMP | 1 | 01/10/19 9:11 PM |
| B0110071.D | N033650-003B | SAMP | 1 | 01/10/19 9:17 PM |
| B0110072.D | N033650-004B | SAMP | 1 | 01/10/19 9:22 PM |
| B0110073.D | N033650-005B | SAMP | 1 | 01/10/19 9:28 PM |
| B0110074.D | N033650-006B | SAMP | 1 | 01/10/19 9:33 PM |
| B0110075.D | N033650-007B | SAMP | 1 | 01/10/19 9:39 PM |
| B0110076.D | CCV5 | CCV | 1 | 01/10/19 9:44 PM |
| B0110077.D | CCB5 | CCB | 1 | 01/10/19 9:50 PM |
| B0110078.D | N033650-008B | SAMP | 1 | 01/10/19 9:56 PM |
| B0110079.D | N033650-009B | SAMP | 1 | 01/10/19 10:01 PM |
| B0110080.D | N033650-010B | SAMP | 1 | 01/10/19 10:07 PM |
| B0110081.D | N033650-011B | SAMP | 1 | 01/10/19 10:12 PM |
| B0110082.D | N033651-001B | SAMP | 1 | 01/10/19 10:18 PM |
| B0110083.D | N033651-002B | SAMP | 1 | 01/10/19 10:24 PM |
| B0110084.D | CCV6 | CCV | 1 | 01/10/19 10:29 PM |

**INJECTION LOG: 190110B**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| B0110085.D | CCB6 | CCB | 1 | 01/10/19 10:36 PM |
| B0110086.D | ICSA3 | ICSA | 1 | 01/10/19 10:41 PM |
| B0110087.D | ICSAB3 | ICSAB | 1 | 01/10/19 10:46 PM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **1/9/2019 8:47:09 A**
Prep End Date: **1/9/2019 1:00:00 P**
Prep Batch **72029** Prep Code: **200.8_PR**

Reviewed/ Date: 1/17/2019
Initials/ Date: 1/17/2019
Technician: **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.5** | **02-16** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72029 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-72029 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033613-001D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033613-001D-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033613-001D-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033613-002D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033651-003A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033651-004A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033651-005A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033651-006A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033651-007A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033651-008A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033651-009A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033651-010A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10029 | HYDROCHLORIC ACID |
| 10235 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **1/9/2019 8:47:09 A**
Prep End Date: **1/9/2019 1:00:00 P**
Prep Batch **72029** Prep Code: **200.8_PR**

Reviewed/ Date: 1/17/2019
Initials/ Date: 1/17/2019
Technician: **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.5** | **02-16** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| N033651-010A-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033651-011A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033651-012A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033651-013A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033651-014A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033660-004B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033660-005B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033660-006B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033660-007B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033660-011B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N033660-012B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10029 | HYDROCHLORIC ACID |
| 10235 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

# INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 10 Jan 2019 10:50:37 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | | Actual | Required | Flag |
|---|---|---|---|---|
| 9 | Be | 108478.00 | 0.00 | |
| 24 | Mg | 250138.00 | 0.00 | |
| 25 | Mg | 32771.80 | 0.00 | |
| 26 | Mg | 37106.70 | 0.00 | |
| 59 | Co | 201659.00 | 0.00 | |
| 115 | In | 273888.00 | 0.00 | |
| 206 | Pb | 103554.00 | 0.00 | |
| 207 | Pb | 90391.20 | 0.00 | |
| 208 | Pb | 224334.00 | 0.00 | |

RSD (%)

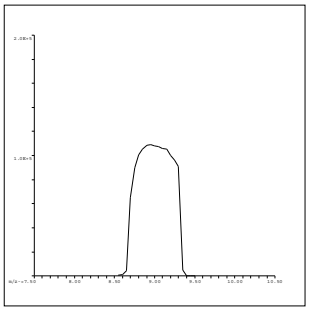
| Element | | Actual | Required | Flag |
|---|---|---|---|---|
| 9 | Be | 1.10 | 5.00 | |
| 24 | Mg | 1.12 | 5.00 | |
| 25 | Mg | 0.27 | 5.00 | |
| 26 | Mg | 0.81 | 5.00 | |
| 59 | Co | 0.65 | 5.00 | |
| 115 | In | 0.98 | 5.00 | |
| 206 | Pb | 0.97 | 5.00 | |
| 207 | Pb | 1.33 | 5.00 | |
| 208 | Pb | 1.30 | 5.00 | |

Ion Ratio

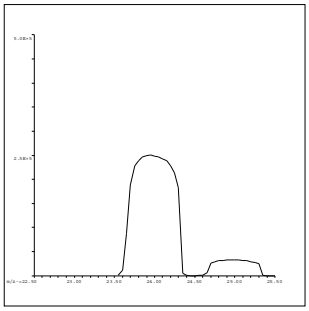
| Element | | Actual | Required | Flag |
|---|---|---|---|---|
| 9 | Be | | | |
| 24 | Mg | | | |
| 25 | Mg | | | |
| 26 | Mg | | | |
| 59 | Co | | | |
| 115 | In | | | |
| 206 | Pb | | | |
| 207 | Pb | | | |
| 208 | Pb | | | |

Maximum Bkg. Count(CPS)

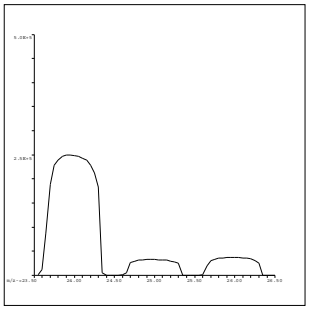
| Element | Actual | Required | Flag |
|---|---|---|---|



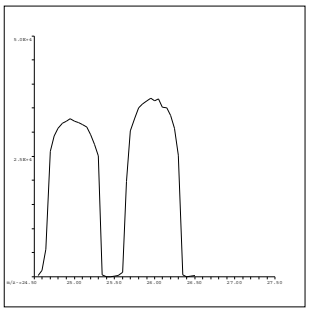
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



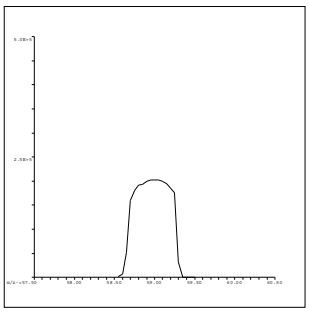
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



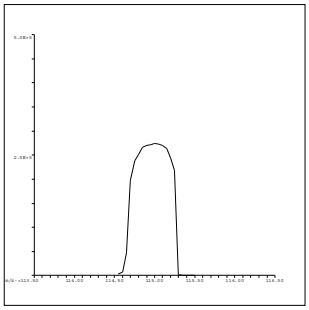
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



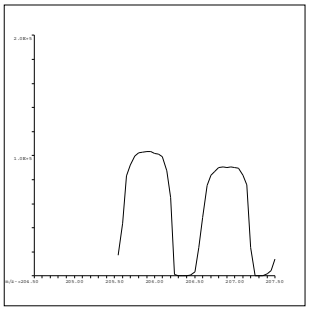
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



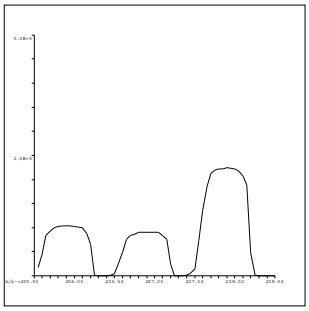
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



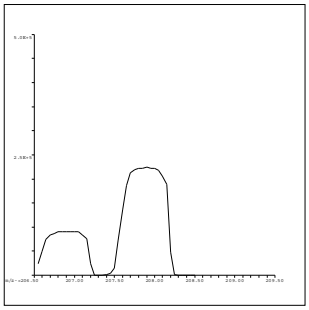
115 In
Mass Calib.
Actual: 115.00
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 205.90
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.90
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.90
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190110B**

**Instrument ID: ICPMS-02**

| Analyte | Data File | B0110002.D | B0110004.D | B0110005.D | B0110006.D | B0110007.D | B0110008.D | B0110009.D | B0110010.D | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 01/10/2019 02:52 PM | 01/10/2019 03:03 PM | 01/10/2019 03:08 PM | 01/10/2019 03:14 PM | 01/10/2019 03:20 PM | 01/10/2019 03:25 PM | 01/10/2019 03:31 PM | 01/10/2019 03:36 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 45 Sc ( ISTD ) [ 2 ] | CPS | 37933.2 | 37436.3 | 36994 | 37048.6 | 37157.8 | 36429.6 | 36154.7 | 35288.2 | |
| 55 Mn [ 2 ] | CPS | 10.6 | 685.9 | 6245.9 | 12881.9 | 25349.7 | 50340.7 | 124203.7 | 240181.4 | 1.0000 |
| 52 Cr [ 2 ] | CPS | 80 | 1391.2 | 13195.4 | 25980.5 | 52094.7 | 102791.9 | 253758.8 | 491944.2 | 1.0000 |

| Standard Code |
|---|
| ICAL: 2MSST-180608B |
| ICAL: 2MSST-170620B |
| ICAL: 2MWST-180409H |
| IS Mix: 2MWST-180618C |

Calibration Acceptance Criteria: > 0.995 Correlation

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254578** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 105.505 | 0.50 | 100.0 | 0 | 106 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254580** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 0.577 | 0.50 | 0.5000 | 0 | 115 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254593** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 20.251 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254605** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 20.571 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254617** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 19.739 | 0.50 | 20.00 | 0 | 98.7 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254629** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 19.963 | 0.50 | 20.00 | 0 | 99.8 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254655** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.438 | 1.0 | 10.00 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254657** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 1.037 | 1.0 | 1.000 | 0 | 104 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254670** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.437 | 1.0 | 20.00 | 0 | 97.2 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254682** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.314 | 1.0 | 20.00 | 0 | 96.6 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254694** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 18.647 | 1.0 | 20.00 | 0 | 93.2 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254706** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 18.933 | 1.0 | 20.00 | 0 | 94.7 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **ICB** | **ICB** | **200.8_WDISS** | **µg/L** | | **131109** |
| Client ID: **ICB** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254579** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **CCB1** | **CCB** | **200.8_WDISS** | **µg/L** | | **131109** |
| Client ID: **CCB** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254594** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **CCB2** | **CCB** | **200.8_WDISS** | **µg/L** | | **131109** |
| Client ID: **CCB** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254606** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **CCB3** | **CCB** | **200.8_WDISS** | **µg/L** | | **131109** |
| Client ID: **CCB** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254618** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **CCB4** | **CCB** | **200.8_WDISS** | **µg/L** | | **131109** |
| Client ID: **CCB** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254630** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID | ICB | SampType: | ICB | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | | RunNo: | 131109 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ICB | Batch ID: | R131109 | TestNo: | EPA 200.8 | | | Analysis Date: | 1/10/2019 | SeqNo: | 3254656 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | CCB1 | SampType: | CCB | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | | RunNo: | 131109 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | CCB | Batch ID: | R131109 | TestNo: | EPA 200.8 | | | Analysis Date: | 1/10/2019 | SeqNo: | 3254671 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | CCB2 | SampType: | CCB | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | | RunNo: | 131109 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | CCB | Batch ID: | R131109 | TestNo: | EPA 200.8 | | | Analysis Date: | 1/10/2019 | SeqNo: | 3254683 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | CCB3 | SampType: | CCB | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | | RunNo: | 131109 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | CCB | Batch ID: | R131109 | TestNo: | EPA 200.8 | | | Analysis Date: | 1/10/2019 | SeqNo: | 3254695 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | CCB4 | SampType: | CCB | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | | RunNo: | 131109 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | CCB | Batch ID: | R131109 | TestNo: | EPA 200.8 | | | Analysis Date: | 1/10/2019 | SeqNo: | 3254707 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

| Sample ID | ICSA1 | SampType: | ICSA | TestCode: | 200.8_WDISS | Units: | µg/L | Prep Date: | | RunNo: | 131109 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ICSA | Batch ID: | R131109 | TestNo: | EPA 200.8 | | | Analysis Date: | 1/10/2019 | SeqNo: | 3254581 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID | ICSAB1 | SampType: | ICSAB | TestCode: | 200.8_WDISS | Units: | µg/L | Prep Date: | | RunNo: | 131109 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ICSAB | Batch ID: | R131109 | TestNo: | EPA 200.8 | | | Analysis Date: | 1/10/2019 | SeqNo: | 3254582 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 16.399 | 0.50 | 20.00 | 0 | 82.0 | 80 | 120 | | | | |

| Sample ID | ICSA2 | SampType: | ICSA | TestCode: | 200.8_WDISS | Units: | µg/L | Prep Date: | | RunNo: | 131109 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ICSA | Batch ID: | R131109 | TestNo: | EPA 200.8 | | | Analysis Date: | 1/10/2019 | SeqNo: | 3254631 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID | ICSAB2 | SampType: | ICSAB | TestCode: | 200.8_WDISS | Units: | µg/L | Prep Date: | | RunNo: | 131109 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ICSAB | Batch ID: | R131109 | TestNo: | EPA 200.8 | | | Analysis Date: | 1/10/2019 | SeqNo: | 3254632 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 16.534 | 0.50 | 20.00 | 0 | 82.7 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254658** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254659** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.265 | 1.0 | 20.00 | 0 | 101 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254708** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **131109** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131109** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254709** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 18.953 | 1.0 | 20.00 | 0 | 94.8 | 80 | 120 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190110B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 37933.2 | 37933.2 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 37383.9 | 37933.2 | 98.55 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 37436.3 | 37933.2 | 98.69 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 36994 | 37933.2 | 97.52 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 37048.6 | 37933.2 | 97.67 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 37157.8 | 37933.2 | 97.96 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 36429.6 | 37933.2 | 96.036 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 36154.7 | 37933.2 | 95.31 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 35288.2 | 37933.2 | 93.027 | PASS | 70-125 |
| ICV | ICV | 1 | 32913.3 | 37933.2 | 86.77 | PASS | 70-125 |
| ICB | ICB | 1 | 33167.1 | 37933.2 | 87.44 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 31710.9 | 37933.2 | 83.6 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 40597 | 37933.2 | 107.02 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 43365 | 37933.2 | 114.32 | PASS | 70-125 |
| MB-72029 | MBLK | 1 | 31943.6 | 37933.2 | 84.21 | PASS | 70-125 |
| LCS-72029 | LCS | 1 | 30293.9 | 37933.2 | 79.86 | PASS | 70-125 |
| N033613-001D | SAMP | 1 | 29155.1 | 37933.2 | 76.86 | PASS | 70-125 |
| N033613-001D | SAMP | 5 | 37666.8 | 37933.2 | 99.3 | PASS | 70-125 |
| N033613-001D | SAMP | 25 | 37644.5 | 37933.2 | 99.24 | PASS | 70-125 |
| N033613-001D-PS | PS | 1 | 37541.8 | 37933.2 | 98.97 | PASS | 70-125 |
| N033613-001D-PS | PS | 5 | 38997.5 | 37933.2 | 102.81 | PASS | 70-125 |
| N033613-001D-MS | MS | 1 | 37497.4 | 37933.2 | 98.85 | PASS | 70-125 |
| N033613-001D-MS | MS | 5 | 39030.8 | 37933.2 | 102.89 | PASS | 70-125 |
| N033613-001D-MSD | MSD | 1 | 37557.6 | 37933.2 | 99.01 | PASS | 70-125 |
| CCV1 | CCV | 1 | 41569.2 | 37933.2 | 109.59 | PASS | 70-125 |
| CCB1 | CCB | 1 | 39040.9 | 37933.2 | 102.92 | PASS | 70-125 |
| N033613-001D-MSD | MSD | 5 | 37885.1 | 37933.2 | 99.87 | PASS | 70-125 |
| N033613-002D | SAMP | 1 | 38408.4 | 37933.2 | 101.25 | PASS | 70-125 |
| N033613-002D | SAMP | 5 | 41256.4 | 37933.2 | 108.76 | PASS | 70-125 |
| N033651-003A | SAMP | 1 | 40713.9 | 37933.2 | 107.33 | PASS | 70-125 |
| N033651-004A | SAMP | 1 | 39446.3 | 37933.2 | 103.99 | PASS | 70-125 |
| N033651-005A | SAMP | 1 | 38505.3 | 37933.2 | 101.51 | PASS | 70-125 |
| N033651-006A | SAMP | 1 | 36952.9 | 37933.2 | 97.42 | PASS | 70-125 |
| N033651-007A | SAMP | 1 | 35814.9 | 37933.2 | 94.42 | PASS | 70-125 |
| N033651-008A | SAMP | 1 | 37811.4 | 37933.2 | 99.68 | PASS | 70-125 |
| N033651-009A | SAMP | 1 | 38886.2 | 37933.2 | 102.51 | PASS | 70-125 |
| CCV2 | CCV | 1 | 40820.9 | 37933.2 | 107.61 | PASS | 70-125 |
| CCB2 | CCB | 1 | 39085.5 | 37933.2 | 103.04 | PASS | 70-125 |
| N033651-010A | SAMP | 1 | 35914 | 37933.2 | 94.68 | PASS | 70-125 |
| N033651-010A-MS | MS | 1 | 37198 | 37933.2 | 98.062 | PASS | 70-125 |
| N033651-011A | SAMP | 1 | 37371.6 | 37933.2 | 98.52 | PASS | 70-125 |

**INTERNAL STANDARD: 190110B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| N033651-012A | SAMP | 1 | 37592.2 | 37933.2 | 99.1 | PASS | 70-125 |
| N033651-013A | SAMP | 1 | 39006.5 | 37933.2 | 102.83 | PASS | 70-125 |
| N033651-014A | SAMP | 1 | 38820.5 | 37933.2 | 102.34 | PASS | 70-125 |
| N033660-004B | SAMP | 1 | 38729.2 | 37933.2 | 102.1 | PASS | 70-125 |
| N033660-005B | SAMP | 1 | 38173.4 | 37933.2 | 100.63 | PASS | 70-125 |
| N033660-006B | SAMP | 1 | 38494.1 | 37933.2 | 101.48 | PASS | 70-125 |
| N033660-007B | SAMP | 1 | 39305 | 37933.2 | 103.62 | PASS | 70-125 |
| CCV3 | CCV | 1 | 40646.1 | 37933.2 | 107.15 | PASS | 70-125 |
| CCB3 | CCB | 1 | 38839.4 | 37933.2 | 102.39 | PASS | 70-125 |
| N033660-011B | SAMP | 1 | 34944.1 | 37933.2 | 92.12 | PASS | 70-125 |
| N033660-012B | SAMP | 1 | 34753.7 | 37933.2 | 91.62 | PASS | 70-125 |
| CCV4 | CCV | 1 | 41740.9 | 37933.2 | 110.04 | PASS | 70-125 |
| CCB4 | CCB | 1 | 30476.4 | 37933.2 | 80.34 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 42838.1 | 37933.2 | 112.93 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 44677.3 | 37933.2 | 117.78 | PASS | 70-125 |
| CCV5 | CCV | 1 | 34434.2 | 37933.2 | 90.78 | PASS | 70-125 |
| CCB5 | CCB | 1 | 28209.1 | 37933.2 | 74.37 | PASS | 70-125 |
| CCV6 | CCV | 1 | 30272.8 | 37933.2 | 79.81 | PASS | 70-125 |
| CCB6 | CCB | 1 | 28092.2 | 37933.2 | 74.057 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 32076.1 | 37933.2 | 84.56 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 33317.4 | 37933.2 | 87.83 | PASS | 70-125 |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-MS-Metals in Water**

**Dilution Test Summary**

Work Order No.: N033613
Test Method: EPA 200.8
Analysis Date: 1/10/2019

Matrix: Groundwater
Batch No.: 72029

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr. The calculated concentration is <25RL.

| Sample ID | Analyte | Units | Calc Val | OQual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|
| N033613-001D DT 5X | Chromium | ug/L | 0 | | 0 | | 10 |
| N033613-001D DT 25X | Manganese | ug/L | 664.4811 | PASS | 634.4179 | 4.74% | 10 |

Note: NA - Not applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

| Sample ID | **N033613-001D-PS** | SampType: **PS** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **131109** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **72029** | TestNo: **EPA 200.8** | | Analysis Date: **1/10/2019** | SeqNo: **3254589** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 693.466 | 2.5 | 100.0 | 634.4 | 59.0 | 80 | 120 | | | | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID | N033613-001D-PS | SampType: | PS | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | | RunNo: | 131109 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72029 | TestNo: | EPA 200.8 | | | Analysis Date: | 1/10/2019 | SeqNo: | 3254665 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.754 | 1.0 | 10.00 | 0 | 97.5 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Amount of Sample:** 25 mL
**Units:** ug/L

| Analyte | AMT SPIKED, ppb | 1 | 2 | 3 | 4 | 5 | 6 | 7 | SD | MDL | LOD | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANTIMONY | 0.50 | 0.525 | 0.514 | 0.473 | 0.500 | 0.492 | 0.486 | 0.530 | 0.0210 | 0.0660 | 0.100 | 0.50 |
| ARSENIC | 0.10 | 0.099 | 0.104 | 0.087 | 0.048 | 0.060 | 0.069 | 0.120 | 0.0259 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 1.00 | 1.041 | 1.059 | 1.052 | 1.011 | 0.967 | 0.957 | 1.023 | 0.0403 | 0.1264 | 0.250 | 1.00 |
| BERYLLIUM | 0.50 | 0.469 | 0.476 | 0.473 | 0.495 | 0.480 | 0.488 | 0.507 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.50 | 0.515 | 0.513 | 0.492 | 0.534 | 0.499 | 0.483 | 0.508 | 0.0168 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 1.00 | 0.979 | 0.986 | 0.940 | 0.990 | 0.946 | 0.978 | 0.977 | 0.0197 | 0.0618 | 0.250 | 1.00 |
| COBALT | 0.50 | 0.499 | 0.489 | 0.486 | 0.488 | 0.465 | 0.502 | 0.505 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| COPPER | 1.00 | 1.110 | 0.667 | 1.039 | 1.060 | 1.006 | 1.099 | 1.075 | 0.1544 | 0.4850 | 0.500 | 1.00 |
| IRON | 10.00 | 10.873 | 10.802 | 10.142 | 9.991 | 9.846 | 9.852 | 10.596 | 0.4463 | 1.4014 | 2.500 | 10.00 |
| LEAD | 1.00 | 0.928 | 0.931 | 0.899 | 0.996 | 0.990 | 0.987 | 0.997 | 0.0406 | 0.1274 | 0.250 | 1.00 |
| MANGANESE | 0.50 | 0.577 | 0.588 | 0.561 | 0.566 | 0.517 | 0.541 | 0.520 | 0.0276 | 0.0866 | 0.100 | 0.50 |
| MOLYBDENUM | 0.50 | 0.514 | 0.504 | 0.467 | 0.478 | 0.456 | 0.433 | 0.527 | 0.0338 | 0.1061 | 0.250 | 0.50 |
| NICKEL | 1.00 | 0.961 | 0.965 | 0.977 | 0.907 | 0.914 | 0.962 | 1.075 | 0.0551 | 0.1731 | 0.250 | 1.00 |
| SELENIUM | 0.50 | 0.450 | 0.478 | 0.419 | 0.693 | 0.707 | 0.495 | 0.555 | 0.1155 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.50 | 0.558 | 0.511 | 0.490 | 0.542 | 0.458 | 0.490 | 0.684 | 0.0745 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.50 | 0.437 | 0.428 | 0.408 | 0.538 | 0.446 | 0.438 | 0.525 | 0.0504 | 0.1583 | 0.250 | 0.50 |
| URANIUM | 0.50 | 0.478 | 0.467 | 0.461 | 0.517 | 0.510 | 0.521 | 0.521 | 0.0267 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 1.00 | 0.950 | 0.969 | 0.900 | 0.844 | 0.829 | 0.848 | 1.053 | 0.0820 | 0.2574 | 0.500 | 1.00 |
| ZINC | 10.00 | 11.259 | 11.279 | 10.915 | 9.620 | 9.849 | 9.745 | 10.241 | 0.7235 | 2.2717 | 2.500 | 10.00 |

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Units:** ug/L

| Analyte | MDLs | MDLb | MDL | LOD | PQL |
|---|---|---|---|---|---|
| ANTIMONY | 0.0660 | 0.1564 | 0.1564 | 0.300 | 0.50 |
| ARSENIC | 0.0813 | 0.0387 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 0.1264 | 0.1497 | 0.1497 | 0.300 | 1.00 |
| BERYLLIUM | 0.0424 | 0.0153 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.0527 | 0.0060 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 0.0618 | 0.1298 | 0.1298 | 0.300 | 1.00 |
| COBALT | 0.0424 | 0.0339 | 0.0424 | 0.100 | 0.50 |
| COPPER | 0.4850 | 0.5459 | 0.5459 | 0.600 | 1.00 |
| IRON | 1.4014 | 4.3484 | 4.3484 | 5.000 | 10.00 |
| LEAD | 0.1274 | 0.1008 | 0.1274 | 0.300 | 1.00 |
| MANGANESE | 0.0866 | 0.2552 | 0.2552 | 0.300 | 0.50 |
| MOLYBDENUM | 0.1061 | 0.2149 | 0.2149 | 0.300 | 0.50 |
| NICKEL | 0.1731 | 0.2606 | 0.2606 | 0.300 | 1.00 |
| SELENIUM | 0.3628 | 0.0953 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.2340 | 0.2023 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.1583 | 0.1924 | 0.1924 | 0.300 | 0.50 |
| URANIUM | 0.0838 | 0.0020 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 0.2574 | 0.2768 | 0.2768 | 0.600 | 1.00 |
| ZINC | 2.2717 | 0.4511 | 2.2717 | 3.000 | 10.00 |

# EPA 218.6

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R130983
**ASSET #:** N033613

**Instrument ID:** IC-07
**Analyst:** RBA
**Date Analyzed:** 1/4/2019

**Method:**

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | | | |
| 3. ICV within ± 10% of expected value. | X | | | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | X | | | | | |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | X | | | | | |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | X | | | | | |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | X | | | | | |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | X | | | | | |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | X | | | | | |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | X | | | | | |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | | | |
| 21. Are all samples analyzed within hold time? | X | | | | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | | | |
| 24. LCS compounds are within control limits. | X | | | | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | |
| 29. All manual integrations initialed, date and reasons included. | X | | | | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | | | |
| 31. All samples and QC raw data present in package. | X | | | | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | | | |
| 34 Is the QC summary report present and complete? | X | | | | | |

Comments:

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: rba  Date: 1/18/2019

2nd Level Reviewer: 1/19/2019  Date: —

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 218.6
**TEST NAME:** HEXAVALENT CHROMIUM BY IC
**MATRIX:** Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N033613-002A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 4.9600 * 100$$

$$Cr^{+6}, \mu g/L = 496.0000$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 500}$$

rba 1/18/2019

# ANALYSIS RUN LOG

**INJECTION LOG: 181218A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 12/18/18 8:51 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 12/18/18 9:02 AM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 9:11 AM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 9:23 AM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 9:32 AM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 9:42 AM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 9:51 AM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 10:01 AM | Reported |
| 9 | ICV | ICV | 1 | Hexavalent Chromium | 12/18/18 10:15 AM | Reported |
| 10 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 12/18/18 10:27 AM | Reported |
| 11 | ICB | ICB | 1 | Hexavalent Chromium | 12/18/18 10:36 AM | Reported |
| 12 | MB-R130636 | MBLK | 1 | Hexavalent Chromium | 12/18/18 10:58 AM | Reported |
| 13 | LCS-R130636 | LCS | 1 | Hexavalent Chromium | 12/18/18 11:09 AM | Reported |
| 14 | N033233-001A | SAMP | 1 | Hexavalent Chromium | 12/18/18 11:19 AM | Not Reported |
| 15 | N033233-001AMS | MS | 1 | Hexavalent Chromium | 12/18/18 11:28 AM | Not Reported |
| 16 | N033461-001A | SAMP | 1 | Hexavalent Chromium | 12/18/18 11:37 AM | Not Reported |
| 17 | N033478-091A | SAMP | 1 | Hexavalent Chromium | 12/18/18 11:47 AM | Reported |
| 18 | N033478-091AREP | DUP | 1 | Hexavalent Chromium | 12/18/18 11:56 AM | Not Reported |
| 19 | N033461-001AMS | MS | 5 | Hexavalent Chromium | 12/18/18 12:14 PM | Reported |
| 20 | N033461-001A | SAMP | 5 | Hexavalent Chromium | 12/18/18 12:25 PM | Reported |
| 21 | N033478-091AREP | DUP | 1 | Hexavalent Chromium | 12/18/18 12:35 PM | Reported |
| 22 | CCV-1 | CCV1 | 1 | Hexavalent Chromium | 12/18/18 12:44 PM | Reported |
| 23 | CCB-1 | CCB | 1 | Hexavalent Chromium | 12/18/18 12:54 PM | Reported |
| 24 | N033461-001AMSD | MSD | 5 | Hexavalent Chromium | 12/18/18 1:03 PM | Reported |
| 25 | N033461-001ADUP | DUP | 5 | Hexavalent Chromium | 12/18/18 1:12 PM | Reported |
| 26 | N033461-001AMS | MS | 1 | Hexavalent Chromium | 12/18/18 1:22 PM | Not Reported |
| 27 | N033238-008A | SAMP | 2 | Hexavalent Chromium | 12/18/18 1:57 PM | Not Reported |
| 28 | N033238-009A | SAMP | 2 | Hexavalent Chromium | 12/18/18 2:08 PM | Not Reported |
| 29 | N033240-013A | SAMP | 20 | Hexavalent Chromium | 12/18/18 2:17 PM | Not Reported |
| 30 | N033240-013AMS | MS | 20 | Hexavalent Chromium | 12/18/18 2:27 PM | Not Reported |
| 31 | N033351-001A | SAMP | 1 | Hexavalent Chromium | 12/18/18 2:36 PM | Reported |
| 32 | N033351-001AMS | MS | 1 | Hexavalent Chromium | 12/18/18 2:46 PM | Reported |
| 33 | N033351-002A | SAMP | 1 | Hexavalent Chromium | 12/18/18 2:55 PM | Reported |
| 34 | CCV-2 | CCV | 1 | Hexavalent Chromium | 12/18/18 3:05 PM | Reported |
| 35 | CCB-2 | CCB | 1 | Hexavalent Chromium | 12/18/18 3:14 PM | Reported |
| 36 | N033351-002AMS | MS | 1 | Hexavalent Chromium | 12/18/18 3:23 PM | Reported |
| 37 | N033351-003A | SAMP | 1 | Hexavalent Chromium | 12/18/18 3:33 PM | Reported |
| 38 | N033351-003AMS | MS | 1 | Hexavalent Chromium | 12/18/18 3:42 PM | Not Reported |
| 39 | N033351-004A | SAMP | 1 | Hexavalent Chromium | 12/18/18 3:52 PM | Reported |
| 40 | N033351-004AMS | MS | 1 | Hexavalent Chromium | 12/18/18 4:01 PM | Reported |
| 41 | N033351-005A | SAMP | 1 | Hexavalent Chromium | 12/18/18 4:11 PM | Reported |
| 42 | N033351-005AMS | MS | 1 | Hexavalent Chromium | 12/18/18 4:20 PM | Reported |

**INJECTION LOG: 181218A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N033351-006A | SAMP | 1 | Hexavalent Chromium | 12/18/18 4:30 PM | Reported |
| 44 | N033351-006AMS | MS | 1 | Hexavalent Chromium | 12/18/18 4:39 PM | Reported |
| 45 | N033351-007A | SAMP | 1 | Hexavalent Chromium | 12/18/18 4:59 PM | Reported |
| 46 | CCV-3 | CCV1 | 1 | Hexavalent Chromium | 12/18/18 5:10 PM | Reported |
| 47 | CCB-3 | CCB | 1 | Hexavalent Chromium | 12/18/18 5:20 PM | Reported |
| 48 | N033351-007AMS | MS | 1 | Hexavalent Chromium | 12/18/18 5:29 PM | Reported |
| 49 | N033351-008A | SAMP | 1 | Hexavalent Chromium | 12/18/18 5:39 PM | Reported |
| 50 | N033351-008AMS | MS | 1 | Hexavalent Chromium | 12/18/18 5:48 PM | Reported |
| 51 | N033351-009A | SAMP | 1 | Hexavalent Chromium | 12/18/18 5:58 PM | Reported |
| 52 | N033351-009AMS | MS | 1 | Hexavalent Chromium | 12/18/18 6:07 PM | Reported |
| 53 | N033351-010A | SAMP | 1 | Hexavalent Chromium | 12/18/18 6:16 PM | Reported |
| 54 | N033351-010AMS | MS | 1 | Hexavalent Chromium | 12/18/18 6:26 PM | Reported |
| 55 | N033351-011A | SAMP | 1 | Hexavalent Chromium | 12/18/18 6:35 PM | Reported |
| 56 | N033351-011AMS | MS | 1 | Hexavalent Chromium | 12/18/18 6:45 PM | Reported |
| 57 | N033351-012A | SAMP | 1 | Hexavalent Chromium | 12/18/18 6:54 PM | Reported |
| 58 | CCV-4 | CCV | 1 | Hexavalent Chromium | 12/18/18 7:04 PM | Reported |
| 59 | CCB-4 | CCB | 1 | Hexavalent Chromium | 12/18/18 7:13 PM | Reported |
| 60 | N033351-012AMS | MS | 1 | Hexavalent Chromium | 12/18/18 7:23 PM | Reported |
| 61 | N033351-013A | SAMP | 1 | Hexavalent Chromium | 12/18/18 7:32 PM | Reported |
| 62 | N033351-013AMS | MS | 1 | Hexavalent Chromium | 12/18/18 7:42 PM | Reported |
| 63 | N033351-014A | SAMP | 1 | Hexavalent Chromium | 12/18/18 7:51 PM | Reported |
| 64 | N033351-014AMS | MS | 1 | Hexavalent Chromium | 12/18/18 8:01 PM | Reported |
| 65 | N033351-015A | SAMP | 1 | Hexavalent Chromium | 12/18/18 8:10 PM | Reported |
| 66 | N033351-015AMS | MS | 1 | Hexavalent Chromium | 12/18/18 8:19 PM | Reported |
| 67 | N033351-003AMS | MS | 1 | Hexavalent Chromium | 12/18/18 8:29 PM | Reported |
| 68 | CCV-5 | CCV1 | 1 | Hexavalent Chromium | 12/18/18 8:38 PM | Reported |
| 69 | CCB-5 | CCB | 1 | Hexavalent Chromium | 12/18/18 8:48 PM | Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_181218A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **19/Dec/18 19:02:56** |
| *No. of Injections:* | **72** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 12/18/2018 08:51 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 12/18/2018 09:02 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 4 | 1000 | Calibration Standard | 01 | 12/18/2018 09:11 | Finished | 0.2 ppb, IWST-181022C |
| 4 | STD2-1.0 ppb | 5 | 1000 | Calibration Standard | 02 | 12/18/2018 09:23 | Finished | 1.0 ppb, IWST-181022C |
| 5 | STD3-5.0 ppb | 6 | 1000 | Calibration Standard | 03 | 12/18/2018 09:32 | Finished | 5.0 ppb, IWST-181022C |
| 6 | STD4-10.0 ppb | 7 | 1000 | Calibration Standard | 04 | 12/18/2018 09:42 | Finished | 10 ppb, IWST-181022C |
| 7 | STD5-15.0 ppb | 8 | 1000 | Calibration Standard | 05 | 12/18/2018 09:51 | Finished | 15 ppb, IWST-181022C |
| 8 | STD6-20.0 ppb | 9 | 1000 | Calibration Standard | 06 | 12/18/2018 10:01 | Finished | 20 ppb, IWST-181022C |
| 9 | ICV,ICV,1, | 10 | 1000 | Unknown | | 12/18/2018 10:15 | Finished | ICV @5ppb, IWST-181022D |
| 10 | PQL@0.2ppb,CCV2,1 | 11 | 1000 | Unknown | | 12/18/2018 10:27 | Finished | PQL @ 0.2ppb |
| 11 | ICB,ICB,1, | 12 | 1000 | Unknown | | 12/18/2018 10:36 | Finished | ICB R181210C |
| 12 | MB-H2O,MBLK,1, | 14 | 1000 | Unknown | | 12/18/2018 10:58 | Finished | MB R181210C |
| 13 | LCS-H2O,LCS,1, | 15 | 1000 | Unknown | | 12/18/2018 11:09 | Finished | LCS @5ppb, IWST-181022D |
| 14 | N033233-001A,SAMP | 16 | 1000 | Unknown | | 12/18/2018 11:19 | Finished | SAMP,10mL |
| 15 | N033233-001AMS,MS | 17 | 1000 | Unknown | | 12/18/2018 11:28 | Finished | MS (1ppb), IWST-181022D,10 |
| 16 | N033461-001A,SAMP | 18 | 1000 | Unknown | | 12/18/2018 11:37 | Finished | SAMP,10mL |
| 17 | N033478-091A,SAMP | 19 | 1000 | Unknown | | 12/18/2018 11:47 | Finished | SAMP,10mL |
| 18 | N033478-091AREP,D | 20 | 1000 | Unknown | | 12/18/2018 11:56 | Finished | REP,10mL |
| 19 | N033461-001AMS,MS | 22 | 1000 | Unknown | | 12/18/2018 12:14 | Finished | MS (1ppb), IWST-181022D,2>1 |
| 20 | N033461-001A,SAMP | 23 | 1000 | Unknown | | 12/18/2018 12:25 | Finished | SAMP,2>10mL |
| 21 | N033478-091AREP,D | 24 | 1000 | Unknown | | 12/18/2018 12:35 | Finished | REP,10mL |
| 22 | CCV-1,CCV1,1, | 25 | 1000 | Unknown | | 12/18/2018 12:44 | Finished | CCV @10ppb, IWST-181022C |
| 23 | CCB-1,CCB,1, | 26 | 1000 | Unknown | | 12/18/2018 12:54 | Finished | CCB R181210C |
| 24 | N033461-001AMSD,M | 27 | 1000 | Unknown | | 12/18/2018 13:03 | Finished | MSD (1ppb), IWST-181022D,2 |
| 25 | N033461-001ADUP,D | 28 | 1000 | Unknown | | 12/18/2018 13:12 | Finished | DUP,2>10mL |
| 26 | N033461-001AMS,MS | 29 | 1000 | Unknown | | 12/18/2018 13:22 | Finished | MS (1ppb), IWST-181022D,10 |
| 27 | N033238-008A,SAMP | 1 | 1000 | Unknown | | 12/18/2018 13:57 | Finished | SAMP,5>10mL |
| 28 | N033238-009A,SAMP | 2 | 1000 | Unknown | | 12/18/2018 14:08 | Finished | SAMP,5>10mL |
| 29 | N033240-013A,SAMP | 3 | 1000 | Unknown | | 12/18/2018 14:17 | Finished | SAMP,0.5>10mL |
| 30 | N033240-013AMS,MS | 4 | 1000 | Unknown | | 12/18/2018 14:27 | Finished | MS (5ppb), IWST-181022D,0.5 |
| 31 | N033351-001A,SAMP | 5 | 1000 | Unknown | | 12/18/2018 14:36 | Finished | SAMP,10mL |
| 32 | N033351-001AMS,MS | 6 | 1000 | Unknown | | 12/18/2018 14:46 | Finished | MS (1ppb), IWST-181022D,10 |
| 33 | N033351-002A,SAMP | 7 | 1000 | Unknown | | 12/18/2018 14:55 | Finished | SAMP,10mL |
| 34 | CCV-2,CCV,1, | 8 | 1000 | Unknown | | 12/18/2018 15:05 | Finished | CCV @5ppb, IWST-181022C |
| 35 | CCB-2,CCB,1, | 9 | 1000 | Unknown | | 12/18/2018 15:14 | Finished | CCB R181210C |
| 36 | N033351-002AMS,MS | 10 | 1000 | Unknown | | 12/18/2018 15:23 | Finished | MS (1ppb), IWST-181022D,10 |
| 37 | N033351-003A,SAMP | 11 | 1000 | Unknown | | 12/18/2018 15:33 | Finished | SAMP,10mL |
| 38 | N033351-003AMS,MS | 12 | 1000 | Unknown | | 12/18/2018 15:42 | Finished | MS (1ppb), IWST-181022D,10 |
| 39 | N033351-004A,SAMP | 13 | 1000 | Unknown | | 12/18/2018 15:52 | Finished | SAMP,10mL |
| 40 | N033351-004AMS,MS | 14 | 1000 | Unknown | | 12/18/2018 16:01 | Finished | MS (1ppb), IWST-181022D,10 |
| 41 | N033351-005A,SAMP | 15 | 1000 | Unknown | | 12/18/2018 16:11 | Finished | SAMP,10mL |
| 42 | N033351-005AMS,MS | 16 | 1000 | Unknown | | 12/18/2018 16:20 | Finished | MS (1ppb), IWST-181022D,10 |
| 43 | N033351-006A,SAMP | 17 | 1000 | Unknown | | 12/18/2018 16:30 | Finished | SAMP,10mL |
| 44 | N033351-006AMS,MS | 18 | 1000 | Unknown | | 12/18/2018 16:39 | Finished | MS (1ppb), IWST-181022D,10 |
| 45 | N033351-007A,SAMP | 1 | 1000 | Unknown | | 12/18/2018 16:59 | Finished | SAMP,10mL |
| 46 | CCV-3,CCV1,1, | 2 | 1000 | Unknown | | 12/18/2018 17:10 | Finished | CCV @10ppb, IWST-181022C |
| 47 | CCB-3,CCB,1, | 3 | 1000 | Unknown | | 12/18/2018 17:20 | Finished | CCB R181210C |
| 48 | N033351-007AMS,MS | 4 | 1000 | Unknown | | 12/18/2018 17:29 | Finished | MS (1ppb), IWST-181022D,10 |
| 49 | N033351-008A,SAMP | 5 | 1000 | Unknown | | 12/18/2018 17:39 | Finished | SAMP,10mL |
| 50 | N033351-008AMS,MS | 6 | 1000 | Unknown | | 12/18/2018 17:48 | Finished | MS (1ppb), IWST-181022D,10 |
| 51 | N033351-009A,SAMP | 7 | 1000 | Unknown | | 12/18/2018 17:58 | Finished | SAMP,10mL |
| 52 | N033351-009AMS,MS | 8 | 1000 | Unknown | | 12/18/2018 18:07 | Finished | MS (1ppb), IWST-181022D,10 |
| 53 | N033351-010A,SAMP | 9 | 1000 | Unknown | | 12/18/2018 18:16 | Finished | SAMP,10mL |
| 54 | N033351-010AMS,MS | 10 | 1000 | Unknown | | 12/18/2018 18:26 | Finished | MS (1ppb), IWST-181022D,10 |
| 55 | N033351-011A,SAMP | 11 | 1000 | Unknown | | 12/18/2018 18:35 | Finished | SAMP,10mL |
| 56 | N033351-011AMS,MS | 12 | 1000 | Unknown | | 12/18/2018 18:45 | Finished | MS (1ppb), IWST-181022D,10 |
| 57 | N033351-012A,SAMP | 13 | 1000 | Unknown | | 12/18/2018 18:54 | Finished | SAMP,10mL |
| 58 | CCV-4,CCV,1, | 14 | 1000 | Unknown | | 12/18/2018 19:04 | Finished | CCV @5ppb, IWST-181022C |
| 59 | CCB-4,CCB,1, | 15 | 1000 | Unknown | | 12/18/2018 19:13 | Finished | CCB R181210C |
| 60 | N033351-012AMS,MS | 16 | 1000 | Unknown | | 12/18/2018 19:23 | Finished | MS (1ppb), IWST-181022D,10 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | N033351-013A,SAMF | 17 | 1000 | Unknown | | 12/18/2018 19:32 | Finished | SAMP,10mL |
| 62 | N033351-013AMS,MS | 18 | 1000 | Unknown | | 12/18/2018 19:42 | Finished | MS (1ppb), IWST-181022D,10 |
| 63 | N033351-014A,SAMF | 19 | 1000 | Unknown | | 12/18/2018 19:51 | Finished | SAMP,10mL |
| 64 | N033351-014AMS,MS | 20 | 1000 | Unknown | | 12/18/2018 20:01 | Finished | MS (1ppb), IWST-181022D,10 |
| 65 | N033351-015A,SAMF | 21 | 1000 | Unknown | | 12/18/2018 20:10 | Finished | SAMP,10mL |
| 66 | N033351-015AMS,MS | 22 | 1000 | Unknown | | 12/18/2018 20:19 | Finished | MS (1ppb), IWST-181022D,10 |
| 67 | N033351-003AMS,MS | 23 | 1000 | Unknown | | 12/18/2018 20:29 | Finished | MS (1ppb), IWST-181022D,10 |
| 68 | CCV-5,CCV1,1, | 24 | 1000 | Unknown | | 12/18/2018 20:38 | Finished | CCV @10ppb, IWST-181022C |
| 69 | CCB-5,CCB,1, | 25 | 1000 | Unknown | | 12/18/2018 20:48 | Finished | CCB R181127D |
| 70 | SHUTDOWN | 26 | 1000 | Unknown | | 12/18/2018 20:57 | Finished | |
| 71 | Eluent: R181217A | 27 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 72 | PCR: R181217B | 28 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

**INJECTION LOG: 190104A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 12/18/18 8:51 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 12/18/18 9:02 AM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 9:11 AM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 9:23 AM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 9:32 AM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 9:42 AM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 9:51 AM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 10:01 AM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 01/04/19 10:12 AM | Not Reported |
| 10 | BLANK | BLANK | 1 | Hexavalent Chromium | 01/04/19 10:23 AM | Not Reported |
| 11 | CCV-1 | CCV | 1 | Hexavalent Chromium | 01/04/19 10:32 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 01/04/19 10:55 AM | Reported |
| 13 | CCB-1 | CCB | 1 | Hexavalent Chromium | 01/04/19 11:06 AM | Reported |
| 14 | MB-R130983 | MBLK | 1 | Hexavalent Chromium | 01/04/19 11:16 AM | Reported |
| 15 | LCS-R130983 | LCS | 1 | Hexavalent Chromium | 01/04/19 11:25 AM | Reported |
| 16 | N033350-012A | SAMP | 200 | Hexavalent Chromium | 01/04/19 11:35 AM | Not Reported |
| 17 | N033350-012AMS | MS | 200 | Hexavalent Chromium | 01/04/19 11:44 AM | Not Reported |
| 18 | N033350-013A | SAMP | 200 | Hexavalent Chromium | 01/04/19 11:54 AM | Not Reported |
| 19 | N033350-013AMS | MS | 200 | Hexavalent Chromium | 01/04/19 12:03 PM | Not Reported |
| 20 | N033370-004A | SAMP | 5 | Hexavalent Chromium | 01/04/19 12:13 PM | Not Reported |
| 21 | N033370-004AMS | MS | 5 | Hexavalent Chromium | 01/04/19 12:22 PM | Not Reported |
| 22 | N033370-005A | SAMP | 1 | Hexavalent Chromium | 01/04/19 12:31 PM | Not Reported |
| 23 | N033370-005AMS | MS | 1 | Hexavalent Chromium | 01/04/19 12:41 PM | Not Reported |
| 24 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 01/04/19 12:50 PM | Reported |
| 25 | CCB-2 | CCB | 1 | Hexavalent Chromium | 01/04/19 1:00 PM | Reported |
| 26 | N033613-001A | SAMP | 1 | Hexavalent Chromium | 01/04/19 1:09 PM | Reported |
| 27 | N033613-001AMS | MS | 1 | Hexavalent Chromium | 01/04/19 1:19 PM | Reported |
| 28 | N033613-002A | SAMP | 100 | Hexavalent Chromium | 01/04/19 1:28 PM | Reported |
| 29 | N033613-002AMS | MS | 100 | Hexavalent Chromium | 01/04/19 1:38 PM | Reported |
| 30 | N033613-002AMSD | MSD | 100 | Hexavalent Chromium | 01/04/19 1:47 PM | Reported |
| 31 | N033613-002ADUP | DUP | 100 | Hexavalent Chromium | 01/04/19 1:57 PM | Reported |
| 32 | N033401-007A | SAMP | 5 | Hexavalent Chromium | 01/04/19 2:06 PM | Not Reported |
| 33 | N033401-007AMS | MS | 5 | Hexavalent Chromium | 01/04/19 2:15 PM | Not Reported |
| 34 | N033401-013A | SAMP | 1 | Hexavalent Chromium | 01/04/19 2:25 PM | Not Reported |
| 35 | N033401-013AMS | MS | 1 | Hexavalent Chromium | 01/04/19 2:34 PM | Not Reported |
| 36 | CCV-3 | CCV | 1 | Hexavalent Chromium | 01/04/19 2:44 PM | Reported |
| 37 | CCB-3 | CCB | 1 | Hexavalent Chromium | 01/04/19 2:53 PM | Reported |
| 38 | N033401-017A | SAMP | 5 | Hexavalent Chromium | 01/04/19 3:03 PM | Not Reported |
| 39 | N033401-017AMS | MS | 5 | Hexavalent Chromium | 01/04/19 3:12 PM | Not Reported |
| 40 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 01/04/19 3:22 PM | Reported |
| 41 | CCB-4 | CCB | 1 | Hexavalent Chromium | 01/04/19 3:31 PM | Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190104A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **04/Jan/19 16:29:01** |
| *No. of Injections:* | **44** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 12/18/2018 08:51 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 12/18/2018 09:02 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 4 | 1000 | Calibration Standard | 01 | 12/18/2018 09:11 | Finished | 0.2 ppb, IWST-181022C |
| 4 | STD2-1.0 ppb | 5 | 1000 | Calibration Standard | 02 | 12/18/2018 09:23 | Finished | 1.0 ppb, IWST-181022C |
| 5 | STD3-5.0 ppb | 6 | 1000 | Calibration Standard | 03 | 12/18/2018 09:32 | Finished | 5.0 ppb, IWST-181022C |
| 6 | STD4-10.0 ppb | 7 | 1000 | Calibration Standard | 04 | 12/18/2018 09:42 | Finished | 10 ppb, IWST-181022C |
| 7 | STD5-15.0 ppb | 8 | 1000 | Calibration Standard | 05 | 12/18/2018 09:51 | Finished | 15 ppb, IWST-181022C |
| 8 | STD6-20.0 ppb | 9 | 1000 | Calibration Standard | 06 | 12/18/2018 10:01 | Finished | 20 ppb, IWST-181022C |
| 9 | BLANK | 1 | 1000 | Unknown | | 01/04/2019 10:12 | Finished | BLANK |
| 10 | BLANK | 2 | 1000 | Unknown | | 01/04/2019 10:23 | Finished | BLANK |
| 11 | CCV-1,CCV,1, | 3 | 1000 | Unknown | | 01/04/2019 10:32 | Finished | CCV @5ppb, IWST-181022C |
| 12 | PQL@0.2ppb,CCV2,1 | 4 | 1000 | Unknown | | 01/04/2019 10:55 | Finished | PQL @ 0.2ppb |
| 13 | CCB-1,CCB,1, | 5 | 1000 | Unknown | | 01/04/2019 11:06 | Finished | CCB R181210C |
| 14 | MB-H2O,MBLK,1, | 6 | 1000 | Unknown | | 01/04/2019 11:16 | Finished | MB R181210C |
| 15 | LCS-H2O,LCS,1, | 7 | 1000 | Unknown | | 01/04/2019 11:25 | Finished | LCS @5ppb, IWST-181022D |
| 16 | N033350-012A,SAMF | 8 | 1000 | Unknown | | 01/04/2019 11:35 | Finished | SAMP,0.05>10mL |
| 17 | N033350-012AMS,MS | 9 | 1000 | Unknown | | 01/04/2019 11:44 | Finished | MS (5ppb), IWST-181022D,0.0 |
| 18 | N033350-013A,SAMF | 10 | 1000 | Unknown | | 01/04/2019 11:54 | Finished | SAMP,0.05>10mL |
| 19 | N033350-013AMS,MS | 11 | 1000 | Unknown | | 01/04/2019 12:03 | Finished | MS (5ppb), IWST-181022D,0.0 |
| 20 | N033370-004A,SAMF | 12 | 1000 | Unknown | | 01/04/2019 12:13 | Finished | SAMP,2>10mL |
| 21 | N033370-004AMS,MS | 13 | 1000 | Unknown | | 01/04/2019 12:22 | Finished | MS (1ppb), IWST-181022D,2>1 |
| 22 | N033370-005A,SAMF | 14 | 1000 | Unknown | | 01/04/2019 12:31 | Finished | SAMP,10mL |
| 23 | N033370-005AMS,MS | 15 | 1000 | Unknown | | 01/04/2019 12:41 | Finished | MS (1ppb), IWST-181022D,10 |
| 24 | CCV-2,CCV1,1, | 16 | 1000 | Unknown | | 01/04/2019 12:50 | Finished | CCV @10ppb, IWST-181022C |
| 25 | CCB-2,CCB,1, | 17 | 1000 | Unknown | | 01/04/2019 13:00 | Finished | CCB R181127D |
| 26 | N033613-001A,SAMF | 18 | 1000 | Unknown | | 01/04/2019 13:09 | Finished | SAMP,10mL |
| 27 | N033613-001AMS,MS | 19 | 1000 | Unknown | | 01/04/2019 13:19 | Finished | MS (1ppb), IWST-181022D,10 |
| 28 | N033613-002A,SAMF | 20 | 1000 | Unknown | | 01/04/2019 13:28 | Finished | SAMP,0.1>10mL |
| 29 | N033613-002AMS,MS | 21 | 1000 | Unknown | | 01/04/2019 13:38 | Finished | MS (5ppb), IWST-181022D,0.1 |
| 30 | N033613-002AMSD,M | 22 | 1000 | Unknown | | 01/04/2019 13:47 | Finished | MSD (5ppb), IWST-181022D,0. |
| 31 | N033613-002ADUP,D | 23 | 1000 | Unknown | | 01/04/2019 13:57 | Finished | DUP,0.1>10mL |
| 32 | N033401-007A,SAMF | 24 | 1000 | Unknown | | 01/04/2019 14:06 | Finished | SAMP,2>10mL |
| 33 | N033401-007AMS,MS | 25 | 1000 | Unknown | | 01/04/2019 14:15 | Finished | MS (1ppb), IWST-181022D,2>1 |
| 34 | N033401-013A,SAMF | 26 | 1000 | Unknown | | 01/04/2019 14:25 | Finished | SAMP,10mL |
| 35 | N033401-013AMS,MS | 27 | 1000 | Unknown | | 01/04/2019 14:34 | Finished | MS (1ppb), IWST-181022D,10 |
| 36 | CCV-3,CCV,1, | 28 | 1000 | Unknown | | 01/04/2019 14:44 | Finished | CCV @5ppb, IWST-181022C |
| 37 | CCB-3,CCB,1, | 29 | 1000 | Unknown | | 01/04/2019 14:53 | Finished | CCB R181210C |
| 38 | N033401-017A,SAMF | 30 | 1000 | Unknown | | 01/04/2019 15:03 | Finished | SAMP,2>10mL |
| 39 | N033401-017AMS,MS | 31 | 1000 | Unknown | | 01/04/2019 15:12 | Finished | MS (1ppb), IWST-181022D,2>1 |
| 40 | CCV-4,CCV1,1, | 32 | 1000 | Unknown | | 01/04/2019 15:22 | Finished | CCV @10ppb, IWST-181022C |
| 41 | CCB-4,CCB,1, | 33 | 1000 | Unknown | | 01/04/2019 15:31 | Finished | CCB R181210C |
| 42 | SHUTDOWN | 34 | 1000 | Unknown | | 01/04/2019 15:41 | Finished | |
| 43 | Eluent: R190103C | 35 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 44 | PCR: R190103D | 36 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# SAMPLE PREPARATION LOG

# Hexavalent Chromium Preparation and Runlog

## Sample Preparation

Date Prepared: 1/4/19
Time Prepared: 1121 H
Prepared By: MSA

Slope: 95.38
pH 4: 4.03 @ 25.0°C
7: 7.00 @ 25.0°C
10: 10.02 @ 25.0°C

Reagent ID:
Sulfuric Acid: 1030W
Diphenylcarbazide: CINV-181102A
NH4OH + NH4SO4 eluent: M90103C
NH4OH + NH4SO4 buffer: M8121°C

6N NaOH M80911C

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | N033633-001A | 9.23 | 9.37 | ~250 mL | ~250 mL | 12 drops 6N NaOH | |
| 2) | L 2A | 9.24 | 9.38 | L | L | 1 | |
| 3) | | | | | | | |
| 4) | | | | | | | |
| 5) | | | | | | | |
| 6) | | | | | | | |
| 7) | | | | | | | |
| 8) | | | | | | | |
| 9) | | | | | | | |
| 10) | | | | | | | |
| 11) | | | | | | | |
| 12) | | | | | | | |
| 13) | | | | | | | |
| 14) | | | | | | | |
| 15) | | | | | | | |

## Sample Preparation

Date Prepared: 1/7/19
Time Prepared: 8:30
Prepared By: HSG

Slope: 96.7
pH 4: 4.04
7: 7.02
10: 10.02

Reagent ID:
Sulfuric Acid: 1030W
Diphenylcarbazide: CINV-181107A
NH4OH + NH4SO4 eluent: M90107B
NH4OH + NH4SO4 buffer: M8121°C, M81127D

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | N033632-001A | 9.51 | — | ~250 mL | ~250 mL | | |
| 2) | N033633-002A | 9.59 | — | ↓ | ↓ | | |
| 3) | 003A | 9.64 | — | | | | |
| 4) | N033634-001A | 9.63 | — | | | | |
| 5) | N033635-002A | 9.49 | — | | | | |
| 6) | | | | | | | |
| 7) | | | | | | | |
| 8) | | | | | | | |
| 9) | | | | | | | |
| 10) | | | | | | | |
| 11) | | | | | | | |
| 12) | | | | | | | |
| 13) | | | | | | | |
| 14) | | | | | | | |
| 15) | | | | | | | |

Logbook No. 15

jba 1/18/2019

# INITIAL CALIBRATION DATA SUMMARY

**(EPA 218.6) - INITIAL CALIBRATION**

Instrument ID: IC-07
Date Calibrated: 12/18/2018

Initial Calibration:

| Hexavalent Chromium | STD1 | STD2 | STD3 | STD4 | STD5 | STD6 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0.2 | 1 | 5 | 10 | 15 | 20 | $R^2$ |
| Area,mAU*min | 0.0554 | 0.2590 | 1.3008 | 2.6236 | 3.9152 | 5.2382 | 1.0000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock | Working |
|---|---|---|
| Standard Concentration: | 1,000,000 PPB | 1,000 PPB |
| Standard ID: | ISST-170814H | IWST-181022C |

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **130983** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R130983** | TestNo: **EPA 218.6** | | Analysis Date: **12/18/2018** | SeqNo: **3249702** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.917 | 0.20 | 5.000 | 0 | 98.3 | 90 | 110 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **130983** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R130983** | TestNo: **EPA 218.6** | | Analysis Date: **12/18/2018** | SeqNo: **3249703** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.217 | 0.20 | 0.2000 | 0 | 109 | 80 | 120 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **130983** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R130983** | TestNo: **EPA 218.6** | | Analysis Date: **1/4/2019** | SeqNo: **3249705** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.207 | 0.20 | 5.000 | 0 | 104 | 95 | 105 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **130983** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R130983** | TestNo: **EPA 218.6** | | Analysis Date: **1/4/2019** | SeqNo: **3249706** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.198 | 0.20 | 0.2000 | 0 | 98.8 | 80 | 120 | | | | |

| Sample ID **CCV-2** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **130983** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R130983** | TestNo: **EPA 218.6** | | Analysis Date: **1/4/2019** | SeqNo: **3249710** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.451 | 0.20 | 10.00 | 0 | 105 | 95 | 105 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **130983** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R130983** | TestNo: **EPA 218.6** | | Analysis Date: **1/4/2019** | SeqNo: **3249718** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.123 | 0.20 | 5.000 | 0 | 102 | 95 | 105 | | | | |

| Sample ID **CCV-4** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **130983** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R130983** | TestNo: **EPA 218.6** | | Analysis Date: **1/4/2019** | SeqNo: **3249720** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.311 | 0.20 | 10.00 | 0 | 103 | 95 | 105 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **130983** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R130983** | TestNo: **EPA 218.6** | | Analysis Date: **12/18/2018** | SeqNo: **3249704** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **130983** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R130983** | TestNo: **EPA 218.6** | | Analysis Date: **1/4/2019** | SeqNo: **3249707** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **130983** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R130983** | TestNo: **EPA 218.6** | | Analysis Date: **1/4/2019** | SeqNo: **3249711** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **130983** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R130983** | TestNo: **EPA 218.6** | | Analysis Date: **1/4/2019** | SeqNo: **3249719** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **130983** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R130983** | TestNo: **EPA 218.6** | | Analysis Date: **1/4/2019** | SeqNo: **3249721** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# RETENTION TIME SUMMARY

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 1/4/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.156 | |
| CCV-1 | 4.156 | |
| CCV-2 | 4.115 | |
| CCV-3 | 4.115 | |
| CCV-4 | 4.115 | |

| | | |
|---|---|---|
| **Average** | 4.125 | |
| **Actual RT Window** | 4.045 - | 4.205 |
| **Applied RT Window** | 3.925 - | 4.325 |

| | | |
|---|---|---|
| MB-R130983 | N.A. | N.A. |
| LCS-R130983 | 4.156 | PASS |
| N033350-012A | 4.156 | PASS |
| N033350-012AMS | 4.123 | PASS |
| N033350-013A | 4.115 | PASS |
| N033350-013AMS | 4.115 | PASS |
| N033370-004A | 4.106 | PASS |
| N033370-004AMS | 4.106 | PASS |
| N033370-005A | 4.006 | PASS |
| N033370-005AMS | 4.006 | PASS |
| N033613-001A | 4.048 | PASS |
| N033613-001AMS | 4.073 | PASS |
| N033613-002A | 4.115 | PASS |
| N033613-002AMS | 4.115 | PASS |
| N033613-002AMSD | 4.115 | PASS |
| N033613-002ADUP | 4.115 | PASS |
| N033401-007A | 4.040 | PASS |
| N033401-007AMS | 4.048 | PASS |
| N033401-013A | 3.948 | PASS |
| N033401-013AMS | 3.940 | PASS |
| N033401-017A | N.A. | N.A. |
| N033401-017AMS | 4.031 | PASS |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

| Datafile | 170505 | 170508 | 170509 | 170510 | 170511 | 170512 | 170515 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte** | **#1** | **#2** | **#3** | **#4** | **#5** | **#6** | **#7** | **Spike Conc., mg/L** | **SD** | **$t_{(n-1)}$ value** | **MDL** | **PQL** | **Remarks** |
| Hexavalent Chromium | 0.1949 | 0.2135 | 0.1840 | 0.1828 | 0.2011 | 0.1936 | 0.1911 | 0.20 | 0.0105 | 3.143 | **0.0331** | **0.20** | OK,meets criteria |

Students' **t** Values at 99% CL

| # | $t_{(n-1)}$ |
|---|---|
| 10 | 2.821 |
| 9 | 2.896 |
| 8 | 2.998 |
| 7 | 3.143 |

## LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

| Compound | MDL | LOD Spike Conc., µg/L | LOD actual Conc., µg/L |
|---|---|---|---|
| Hexavalent Chromium | 0.0331 | 0.100 | 0.116 |

| Compound | PQL | PQL Spike Conc., µg/L | PQL actual Conc., µg/L | % Recovery |
|---|---|---|---|---|
| Hexavalent Chromium | 0.200 | 0.200 | 0.201 | **100** |

# RAW DATA

# INITIAL CALIBRATION

**INJECTION LOG: 181218A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 12/18/18 8:51 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 12/18/18 9:02 AM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 9:11 AM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 9:23 AM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 9:32 AM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 9:42 AM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 9:51 AM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 10:01 AM | Reported |
| 9 | ICV | ICV | 1 | Hexavalent Chromium | 12/18/18 10:15 AM | Reported |
| 10 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 12/18/18 10:27 AM | Reported |
| 11 | ICB | ICB | 1 | Hexavalent Chromium | 12/18/18 10:36 AM | Reported |
| 12 | MB-R130636 | MBLK | 1 | Hexavalent Chromium | 12/18/18 10:58 AM | Reported |
| 13 | LCS-R130636 | LCS | 1 | Hexavalent Chromium | 12/18/18 11:09 AM | Reported |
| 14 | N033233-001A | SAMP | 1 | Hexavalent Chromium | 12/18/18 11:19 AM | Not Reported |
| 15 | N033233-001AMS | MS | 1 | Hexavalent Chromium | 12/18/18 11:28 AM | Not Reported |
| 16 | N033461-001A | SAMP | 1 | Hexavalent Chromium | 12/18/18 11:37 AM | Not Reported |
| 17 | N033478-091A | SAMP | 1 | Hexavalent Chromium | 12/18/18 11:47 AM | Reported |
| 18 | N033478-091AREP | DUP | 1 | Hexavalent Chromium | 12/18/18 11:56 AM | Not Reported |
| 19 | N033461-001AMS | MS | 5 | Hexavalent Chromium | 12/18/18 12:14 PM | Reported |
| 20 | N033461-001A | SAMP | 5 | Hexavalent Chromium | 12/18/18 12:25 PM | Reported |
| 21 | N033478-091AREP | DUP | 1 | Hexavalent Chromium | 12/18/18 12:35 PM | Reported |
| 22 | CCV-1 | CCV1 | 1 | Hexavalent Chromium | 12/18/18 12:44 PM | Reported |
| 23 | CCB-1 | CCB | 1 | Hexavalent Chromium | 12/18/18 12:54 PM | Reported |
| 24 | N033461-001AMSD | MSD | 5 | Hexavalent Chromium | 12/18/18 1:03 PM | Reported |
| 25 | N033461-001ADUP | DUP | 5 | Hexavalent Chromium | 12/18/18 1:12 PM | Reported |
| 26 | N033461-001AMS | MS | 1 | Hexavalent Chromium | 12/18/18 1:22 PM | Not Reported |
| 27 | N033238-008A | SAMP | 2 | Hexavalent Chromium | 12/18/18 1:57 PM | Not Reported |
| 28 | N033238-009A | SAMP | 2 | Hexavalent Chromium | 12/18/18 2:08 PM | Not Reported |
| 29 | N033240-013A | SAMP | 20 | Hexavalent Chromium | 12/18/18 2:17 PM | Not Reported |
| 30 | N033240-013AMS | MS | 20 | Hexavalent Chromium | 12/18/18 2:27 PM | Not Reported |
| 31 | N033351-001A | SAMP | 1 | Hexavalent Chromium | 12/18/18 2:36 PM | Reported |
| 32 | N033351-001AMS | MS | 1 | Hexavalent Chromium | 12/18/18 2:46 PM | Reported |
| 33 | N033351-002A | SAMP | 1 | Hexavalent Chromium | 12/18/18 2:55 PM | Reported |
| 34 | CCV-2 | CCV | 1 | Hexavalent Chromium | 12/18/18 3:05 PM | Reported |
| 35 | CCB-2 | CCB | 1 | Hexavalent Chromium | 12/18/18 3:14 PM | Reported |
| 36 | N033351-002AMS | MS | 1 | Hexavalent Chromium | 12/18/18 3:23 PM | Reported |
| 37 | N033351-003A | SAMP | 1 | Hexavalent Chromium | 12/18/18 3:33 PM | Reported |
| 38 | N033351-003AMS | MS | 1 | Hexavalent Chromium | 12/18/18 3:42 PM | Not Reported |
| 39 | N033351-004A | SAMP | 1 | Hexavalent Chromium | 12/18/18 3:52 PM | Reported |
| 40 | N033351-004AMS | MS | 1 | Hexavalent Chromium | 12/18/18 4:01 PM | Reported |
| 41 | N033351-005A | SAMP | 1 | Hexavalent Chromium | 12/18/18 4:11 PM | Reported |
| 42 | N033351-005AMS | MS | 1 | Hexavalent Chromium | 12/18/18 4:20 PM | Reported |

**INJECTION LOG: 181218A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N033351-006A | SAMP | 1 | Hexavalent Chromium | 12/18/18 4:30 PM | Reported |
| 44 | N033351-006AMS | MS | 1 | Hexavalent Chromium | 12/18/18 4:39 PM | Reported |
| 45 | N033351-007A | SAMP | 1 | Hexavalent Chromium | 12/18/18 4:59 PM | Reported |
| 46 | CCV-3 | CCV1 | 1 | Hexavalent Chromium | 12/18/18 5:10 PM | Reported |
| 47 | CCB-3 | CCB | 1 | Hexavalent Chromium | 12/18/18 5:20 PM | Reported |
| 48 | N033351-007AMS | MS | 1 | Hexavalent Chromium | 12/18/18 5:29 PM | Reported |
| 49 | N033351-008A | SAMP | 1 | Hexavalent Chromium | 12/18/18 5:39 PM | Reported |
| 50 | N033351-008AMS | MS | 1 | Hexavalent Chromium | 12/18/18 5:48 PM | Reported |
| 51 | N033351-009A | SAMP | 1 | Hexavalent Chromium | 12/18/18 5:58 PM | Reported |
| 52 | N033351-009AMS | MS | 1 | Hexavalent Chromium | 12/18/18 6:07 PM | Reported |
| 53 | N033351-010A | SAMP | 1 | Hexavalent Chromium | 12/18/18 6:16 PM | Reported |
| 54 | N033351-010AMS | MS | 1 | Hexavalent Chromium | 12/18/18 6:26 PM | Reported |
| 55 | N033351-011A | SAMP | 1 | Hexavalent Chromium | 12/18/18 6:35 PM | Reported |
| 56 | N033351-011AMS | MS | 1 | Hexavalent Chromium | 12/18/18 6:45 PM | Reported |
| 57 | N033351-012A | SAMP | 1 | Hexavalent Chromium | 12/18/18 6:54 PM | Reported |
| 58 | CCV-4 | CCV | 1 | Hexavalent Chromium | 12/18/18 7:04 PM | Reported |
| 59 | CCB-4 | CCB | 1 | Hexavalent Chromium | 12/18/18 7:13 PM | Reported |
| 60 | N033351-012AMS | MS | 1 | Hexavalent Chromium | 12/18/18 7:23 PM | Reported |
| 61 | N033351-013A | SAMP | 1 | Hexavalent Chromium | 12/18/18 7:32 PM | Reported |
| 62 | N033351-013AMS | MS | 1 | Hexavalent Chromium | 12/18/18 7:42 PM | Reported |
| 63 | N033351-014A | SAMP | 1 | Hexavalent Chromium | 12/18/18 7:51 PM | Reported |
| 64 | N033351-014AMS | MS | 1 | Hexavalent Chromium | 12/18/18 8:01 PM | Reported |
| 65 | N033351-015A | SAMP | 1 | Hexavalent Chromium | 12/18/18 8:10 PM | Reported |
| 66 | N033351-015AMS | MS | 1 | Hexavalent Chromium | 12/18/18 8:19 PM | Reported |
| 67 | N033351-003AMS | MS | 1 | Hexavalent Chromium | 12/18/18 8:29 PM | Reported |
| 68 | CCV-5 | CCV1 | 1 | Hexavalent Chromium | 12/18/18 8:38 PM | Reported |
| 69 | CCB-5 | CCB | 1 | Hexavalent Chromium | 12/18/18 8:48 PM | Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_181218A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **19/Dec/18 19:02:56** |
| *No. of Injections:* | **72** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 12/18/2018 08:51 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 12/18/2018 09:02 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 4 | 1000 | Calibration Standard | 01 | 12/18/2018 09:11 | Finished | 0.2 ppb, IWST-181022C |
| 4 | STD2-1.0 ppb | 5 | 1000 | Calibration Standard | 02 | 12/18/2018 09:23 | Finished | 1.0 ppb, IWST-181022C |
| 5 | STD3-5.0 ppb | 6 | 1000 | Calibration Standard | 03 | 12/18/2018 09:32 | Finished | 5.0 ppb, IWST-181022C |
| 6 | STD4-10.0 ppb | 7 | 1000 | Calibration Standard | 04 | 12/18/2018 09:42 | Finished | 10 ppb, IWST-181022C |
| 7 | STD5-15.0 ppb | 8 | 1000 | Calibration Standard | 05 | 12/18/2018 09:51 | Finished | 15 ppb, IWST-181022C |
| 8 | STD6-20.0 ppb | 9 | 1000 | Calibration Standard | 06 | 12/18/2018 10:01 | Finished | 20 ppb, IWST-181022C |
| 9 | ICV,ICV,1, | 10 | 1000 | Unknown | | 12/18/2018 10:15 | Finished | ICV @5ppb, IWST-181022D |
| 10 | PQL@0.2ppb,CCV2,1 | 11 | 1000 | Unknown | | 12/18/2018 10:27 | Finished | PQL @ 0.2ppb |
| 11 | ICB,ICB,1, | 12 | 1000 | Unknown | | 12/18/2018 10:36 | Finished | ICB R181210C |
| 12 | MB-H2O,MBLK,1, | 14 | 1000 | Unknown | | 12/18/2018 10:58 | Finished | MB R181210C |
| 13 | LCS-H2O,LCS,1, | 15 | 1000 | Unknown | | 12/18/2018 11:09 | Finished | LCS @5ppb, IWST-181022D |
| 14 | N033233-001A,SAMF | 16 | 1000 | Unknown | | 12/18/2018 11:19 | Finished | SAMP,10mL |
| 15 | N033233-001AMS,MS | 17 | 1000 | Unknown | | 12/18/2018 11:28 | Finished | MS (1ppb), IWST-181022D,10 |
| 16 | N033461-001A,SAMF | 18 | 1000 | Unknown | | 12/18/2018 11:37 | Finished | SAMP,10mL |
| 17 | N033478-091A,SAMF | 19 | 1000 | Unknown | | 12/18/2018 11:47 | Finished | SAMP,10mL |
| 18 | N033478-091AREP,D | 20 | 1000 | Unknown | | 12/18/2018 11:56 | Finished | REP,10mL |
| 19 | N033461-001AMS,MS | 22 | 1000 | Unknown | | 12/18/2018 12:14 | Finished | MS (1ppb), IWST-181022D,2>1 |
| 20 | N033461-001A,SAMF | 23 | 1000 | Unknown | | 12/18/2018 12:25 | Finished | SAMP,2>10mL |
| 21 | N033478-091AREP,D | 24 | 1000 | Unknown | | 12/18/2018 12:35 | Finished | REP,10mL |
| 22 | CCV-1,CCV1,1, | 25 | 1000 | Unknown | | 12/18/2018 12:44 | Finished | CCV @10ppb, IWST-181022C |
| 23 | CCB-1,CCB,1, | 26 | 1000 | Unknown | | 12/18/2018 12:54 | Finished | CCB R181210C |
| 24 | N033461-001AMSD,M | 27 | 1000 | Unknown | | 12/18/2018 13:03 | Finished | MSD (1ppb), IWST-181022D,2 |
| 25 | N033461-001ADUP,D | 28 | 1000 | Unknown | | 12/18/2018 13:12 | Finished | DUP,2>10mL |
| 26 | N033461-001AMS,MS | 29 | 1000 | Unknown | | 12/18/2018 13:22 | Finished | MS (1ppb), IWST-181022D,10 |
| 27 | N033238-008A,SAMF | 1 | 1000 | Unknown | | 12/18/2018 13:57 | Finished | SAMP,5>10mL |
| 28 | N033238-009A,SAMF | 2 | 1000 | Unknown | | 12/18/2018 14:08 | Finished | SAMP,5>10mL |
| 29 | N033240-013A,SAMF | 3 | 1000 | Unknown | | 12/18/2018 14:17 | Finished | SAMP,0.5>10mL |
| 30 | N033240-013AMS,MS | 4 | 1000 | Unknown | | 12/18/2018 14:27 | Finished | MS (5ppb), IWST-181022D,0.5 |
| 31 | N033351-001A,SAMF | 5 | 1000 | Unknown | | 12/18/2018 14:36 | Finished | SAMP,10mL |
| 32 | N033351-001AMS,MS | 6 | 1000 | Unknown | | 12/18/2018 14:46 | Finished | MS (1ppb), IWST-181022D,10 |
| 33 | N033351-002A,SAMF | 7 | 1000 | Unknown | | 12/18/2018 14:55 | Finished | SAMP,10mL |
| 34 | CCV-2,CCV,1, | 8 | 1000 | Unknown | | 12/18/2018 15:05 | Finished | CCV @5ppb, IWST-181022C |
| 35 | CCB-2,CCB,1, | 9 | 1000 | Unknown | | 12/18/2018 15:14 | Finished | CCB R181210C |
| 36 | N033351-002AMS,MS | 10 | 1000 | Unknown | | 12/18/2018 15:23 | Finished | MS (1ppb), IWST-181022D,10 |
| 37 | N033351-003A,SAMF | 11 | 1000 | Unknown | | 12/18/2018 15:33 | Finished | SAMP,10mL |
| 38 | N033351-003AMS,MS | 12 | 1000 | Unknown | | 12/18/2018 15:42 | Finished | MS (1ppb), IWST-181022D,10 |
| 39 | N033351-004A,SAMF | 13 | 1000 | Unknown | | 12/18/2018 15:52 | Finished | SAMP,10mL |
| 40 | N033351-004AMS,MS | 14 | 1000 | Unknown | | 12/18/2018 16:01 | Finished | MS (1ppb), IWST-181022D,10 |
| 41 | N033351-005A,SAMF | 15 | 1000 | Unknown | | 12/18/2018 16:11 | Finished | SAMP,10mL |
| 42 | N033351-005AMS,MS | 16 | 1000 | Unknown | | 12/18/2018 16:20 | Finished | MS (1ppb), IWST-181022D,10 |
| 43 | N033351-006A,SAMF | 17 | 1000 | Unknown | | 12/18/2018 16:30 | Finished | SAMP,10mL |
| 44 | N033351-006AMS,MS | 18 | 1000 | Unknown | | 12/18/2018 16:39 | Finished | MS (1ppb), IWST-181022D,10 |
| 45 | N033351-007A,SAMF | 1 | 1000 | Unknown | | 12/18/2018 16:59 | Finished | SAMP,10mL |
| 46 | CCV-3,CCV1,1, | 2 | 1000 | Unknown | | 12/18/2018 17:10 | Finished | CCV @10ppb, IWST-181022C |
| 47 | CCB-3,CCB,1, | 3 | 1000 | Unknown | | 12/18/2018 17:20 | Finished | CCB R181210C |
| 48 | N033351-007AMS,MS | 4 | 1000 | Unknown | | 12/18/2018 17:29 | Finished | MS (1ppb), IWST-181022D,10 |
| 49 | N033351-008A,SAMF | 5 | 1000 | Unknown | | 12/18/2018 17:39 | Finished | SAMP,10mL |
| 50 | N033351-008AMS,MS | 6 | 1000 | Unknown | | 12/18/2018 17:48 | Finished | MS (1ppb), IWST-181022D,10 |
| 51 | N033351-009A,SAMF | 7 | 1000 | Unknown | | 12/18/2018 17:58 | Finished | SAMP,10mL |
| 52 | N033351-009AMS,MS | 8 | 1000 | Unknown | | 12/18/2018 18:07 | Finished | MS (1ppb), IWST-181022D,10 |
| 53 | N033351-010A,SAMF | 9 | 1000 | Unknown | | 12/18/2018 18:16 | Finished | SAMP,10mL |
| 54 | N033351-010AMS,MS | 10 | 1000 | Unknown | | 12/18/2018 18:26 | Finished | MS (1ppb), IWST-181022D,10 |
| 55 | N033351-011A,SAMF | 11 | 1000 | Unknown | | 12/18/2018 18:35 | Finished | SAMP,10mL |
| 56 | N033351-011AMS,MS | 12 | 1000 | Unknown | | 12/18/2018 18:45 | Finished | MS (1ppb), IWST-181022D,10 |
| 57 | N033351-012A,SAMF | 13 | 1000 | Unknown | | 12/18/2018 18:54 | Finished | SAMP,10mL |
| 58 | CCV-4,CCV,1, | 14 | 1000 | Unknown | | 12/18/2018 19:04 | Finished | CCV @5ppb, IWST-181022C |
| 59 | CCB-4,CCB,1, | 15 | 1000 | Unknown | | 12/18/2018 19:13 | Finished | CCB R181210C |
| 60 | N033351-012AMS,MS | 16 | 1000 | Unknown | | 12/18/2018 19:23 | Finished | MS (1ppb), IWST-181022D,10 |

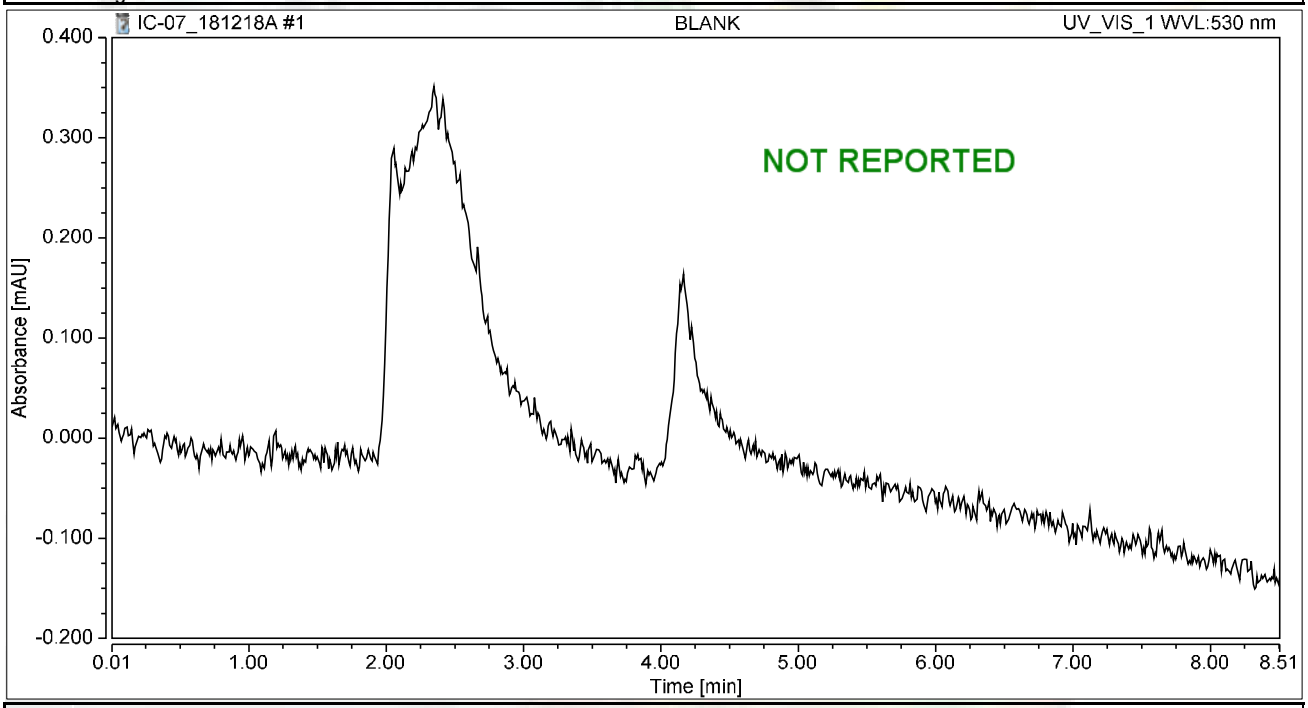
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | N033351-013A,SAMF | 17 | 1000 | Unknown | | 12/18/2018 19:32 | Finished | SAMP,10mL |
| 62 | N033351-013AMS,MS | 18 | 1000 | Unknown | | 12/18/2018 19:42 | Finished | MS (1ppb), IWST-181022D,10 |
| 63 | N033351-014A,SAMF | 19 | 1000 | Unknown | | 12/18/2018 19:51 | Finished | SAMP,10mL |
| 64 | N033351-014AMS,MS | 20 | 1000 | Unknown | | 12/18/2018 20:01 | Finished | MS (1ppb), IWST-181022D,10 |
| 65 | N033351-015A,SAMF | 21 | 1000 | Unknown | | 12/18/2018 20:10 | Finished | SAMP,10mL |
| 66 | N033351-015AMS,MS | 22 | 1000 | Unknown | | 12/18/2018 20:19 | Finished | MS (1ppb), IWST-181022D,10 |
| 67 | N033351-003AMS,MS | 23 | 1000 | Unknown | | 12/18/2018 20:29 | Finished | MS (1ppb), IWST-181022D,10 |
| 68 | CCV-5,CCV1,1, | 24 | 1000 | Unknown | | 12/18/2018 20:38 | Finished | CCV @10ppb, IWST-181022C |
| 69 | CCB-5,CCB,1, | 25 | 1000 | Unknown | | 12/18/2018 20:48 | Finished | CCB R181127D |
| 70 | SHUTDOWN | 26 | 1000 | Unknown | | 12/18/2018 20:57 | Finished | |
| 71 | Eluent: R181217A | 27 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 72 | PCR: R181217B | 28 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **18/Dec/18 08:51** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

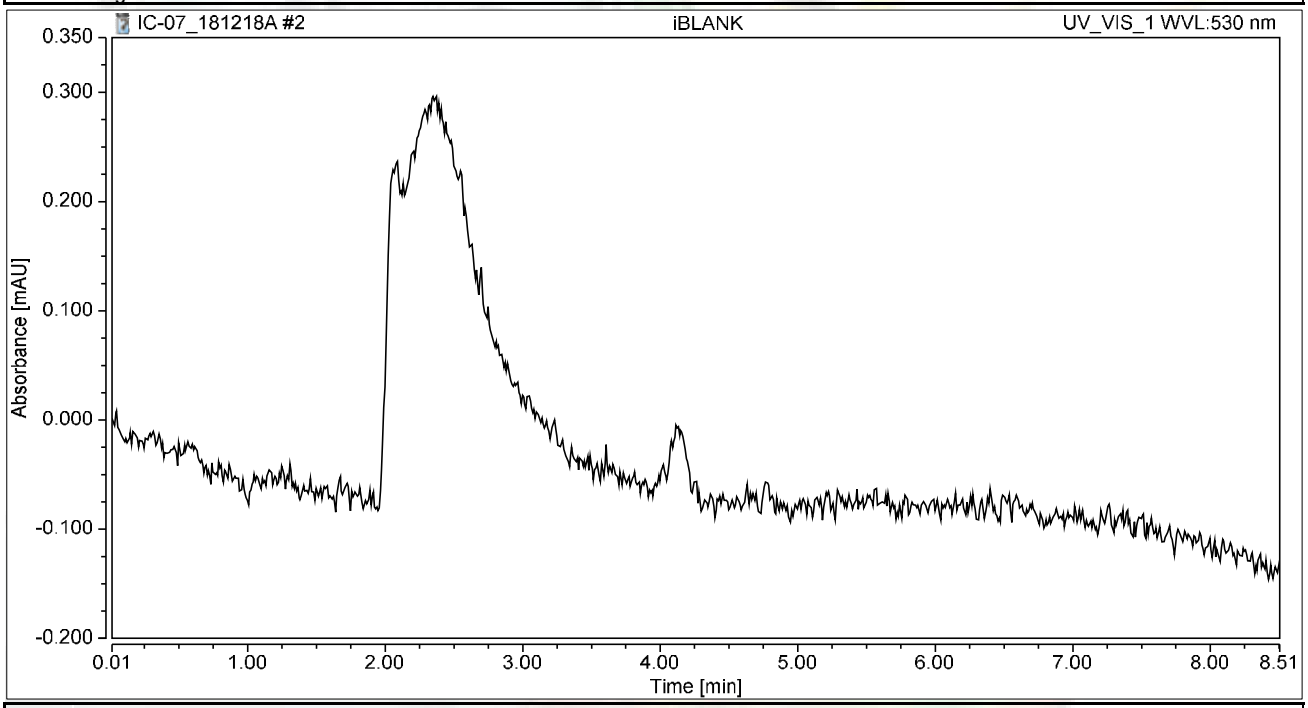
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **iBLANK** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **18/Dec/18 09:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

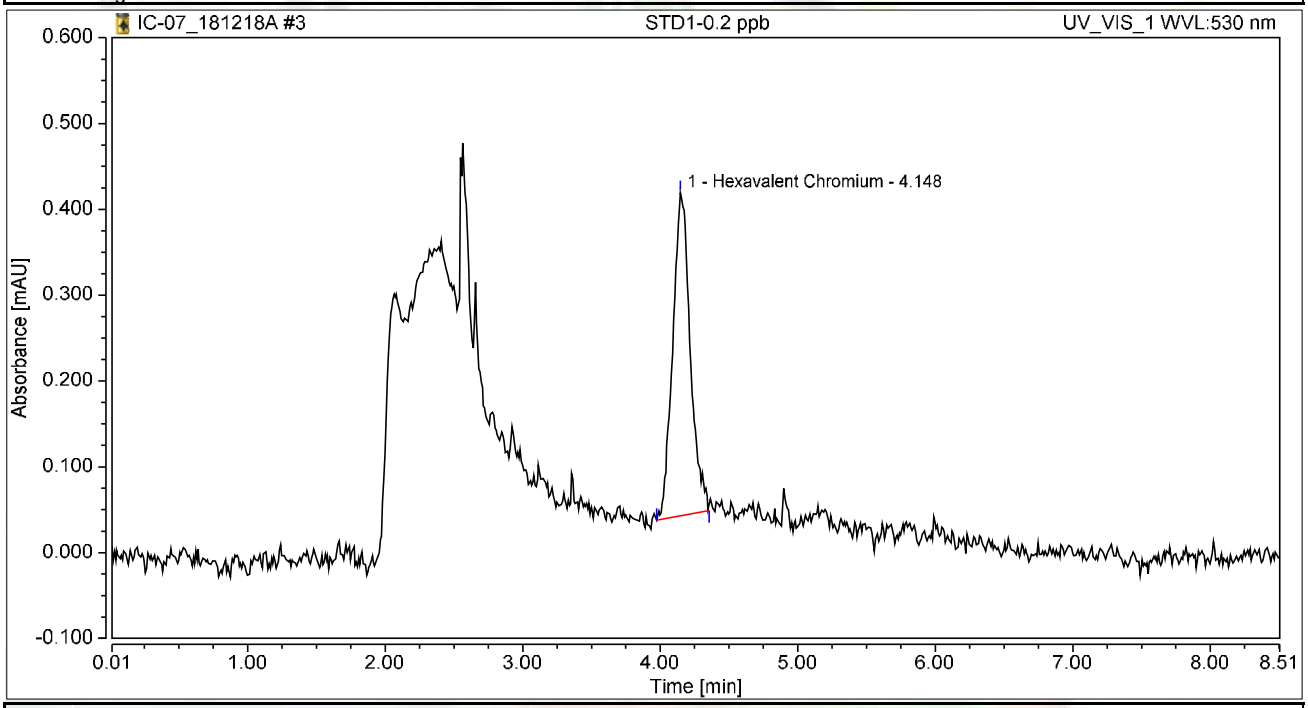
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD1-0.2 ppb** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **01** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **18/Dec/18 09:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

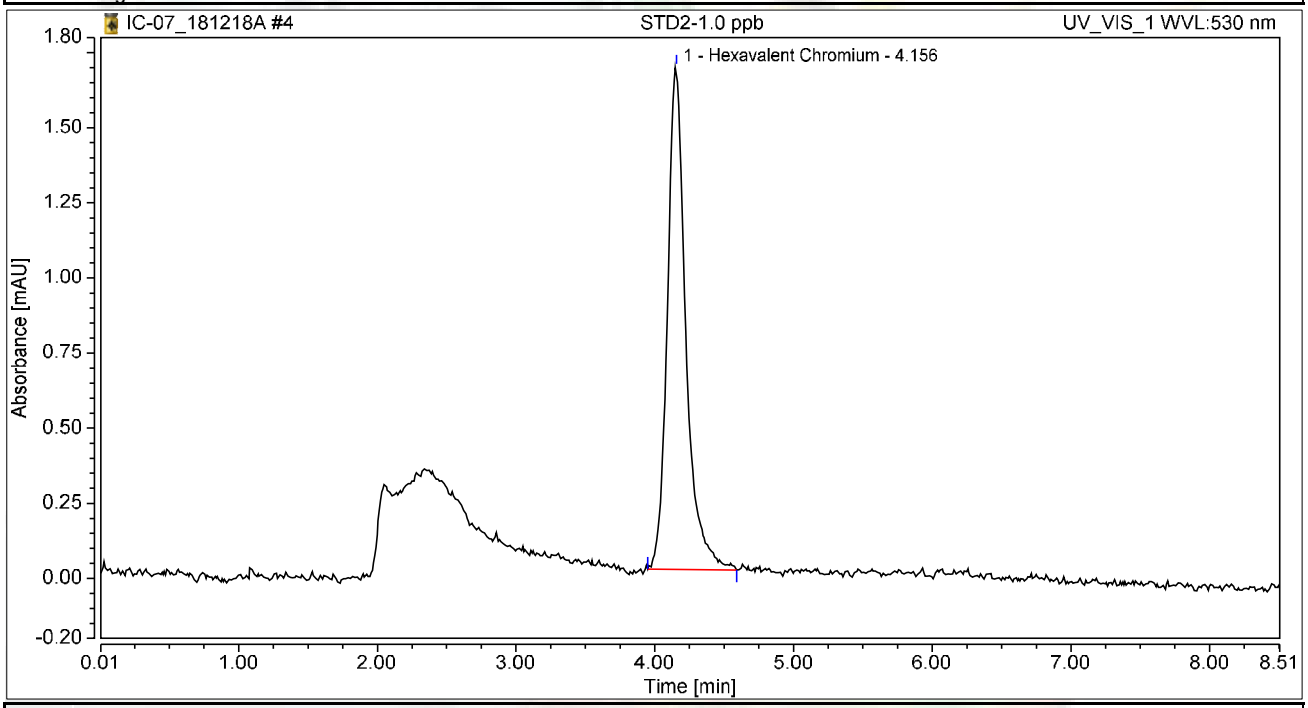
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.148 | 0.055 | 0.376 | 100.00 | 100.00 | 0.2119 |
| **Total:** | | | **0.055** | **0.376** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **18/Dec/18 09:23** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

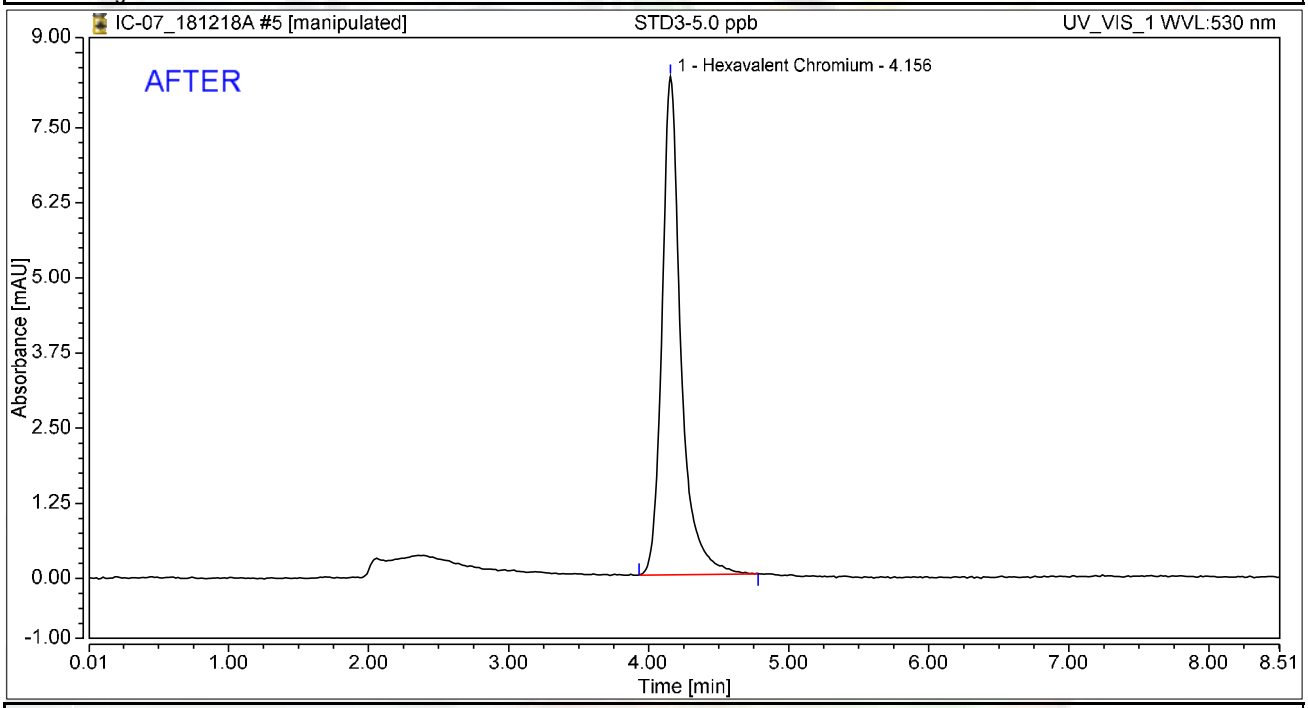
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.156 | 0.259 | 1.674 | 100.00 | 100.00 | 0.9898 |
| **Total:** | | | **0.259** | **1.674** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD3-5.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **03** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **18/Dec/18 09:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.156 | 1.301 | 8.292 | 100.00 | 100.00 | 4.9716 |
| **Total:** | | | **1.301** | **8.292** | **100.00** | **100.00** | |

rba 12/23/2018

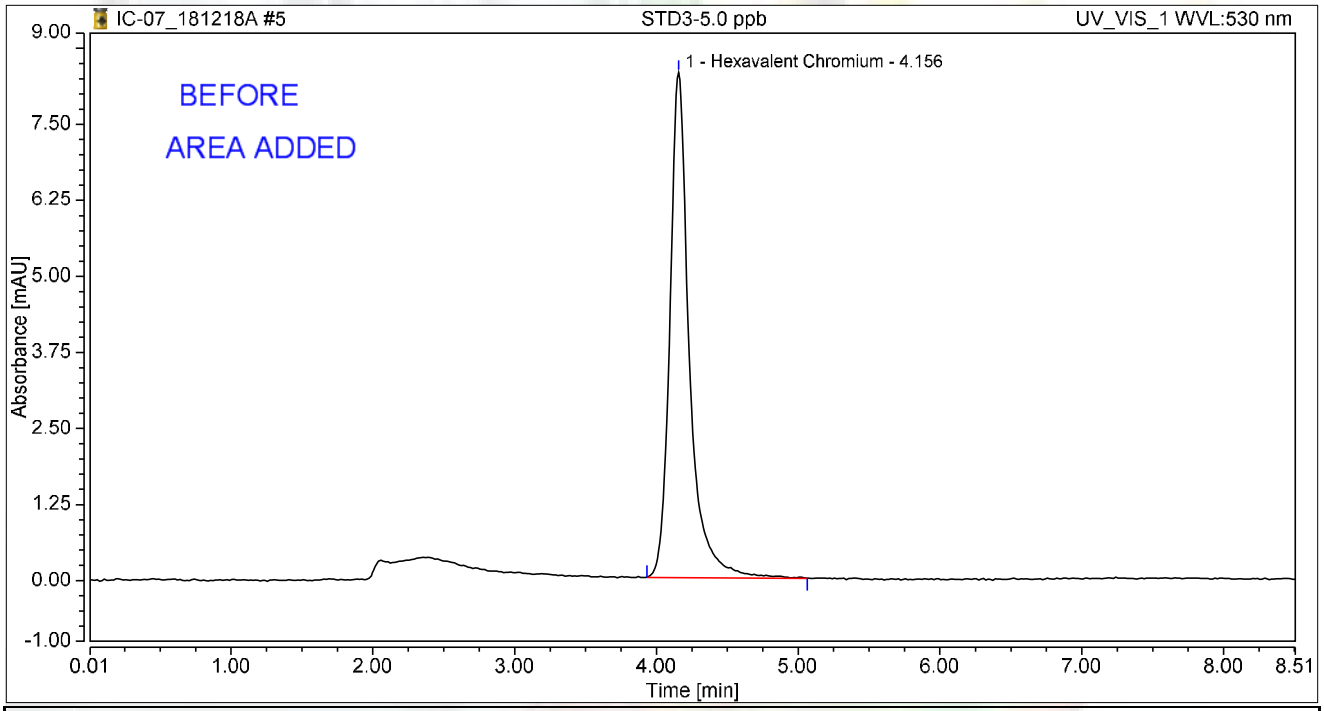
Reviewed by:
Nancy 12/27/2018

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD3-5.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **03** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **18/Dec/18 09:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.156 | 1.326 | 8.303 | 100.00 | 100.00 | 5.0641 |
| **Total:** | | | **1.326** | **8.303** | **100.00** | **100.00** | |

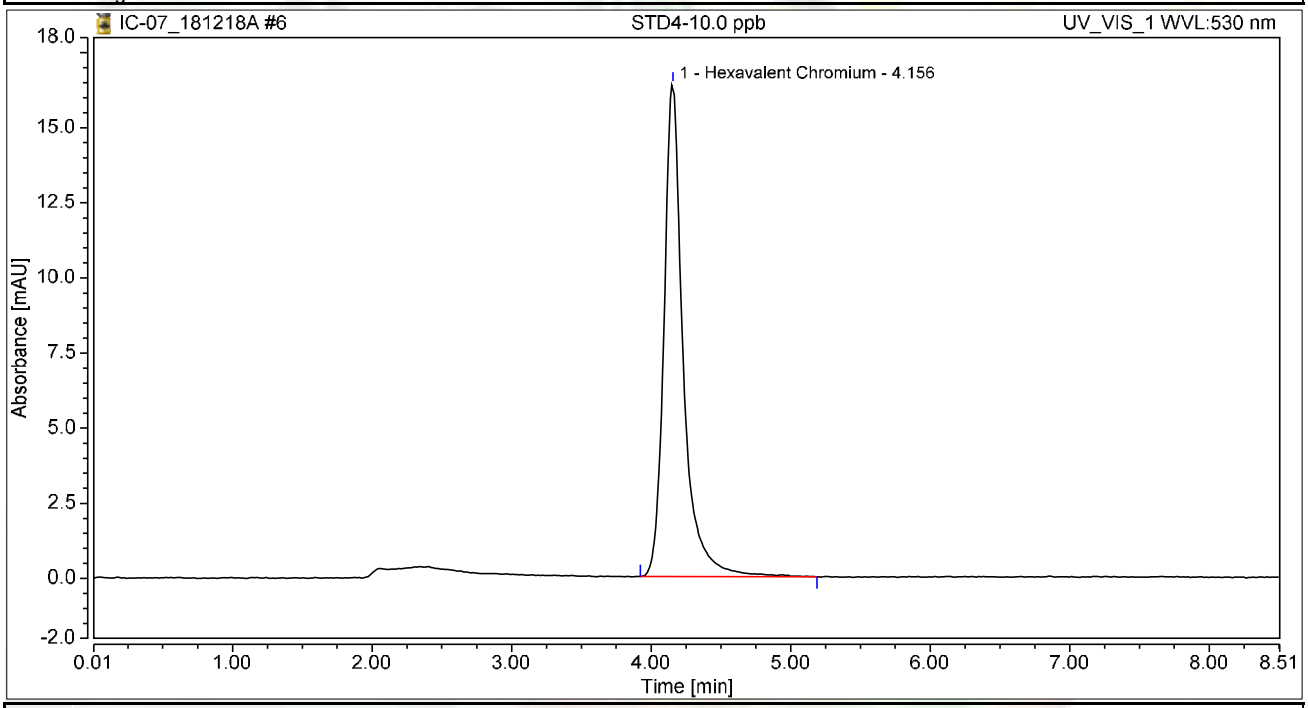
rba 12/23/2018

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD4-10.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **04** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **18/Dec/18 09:42** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

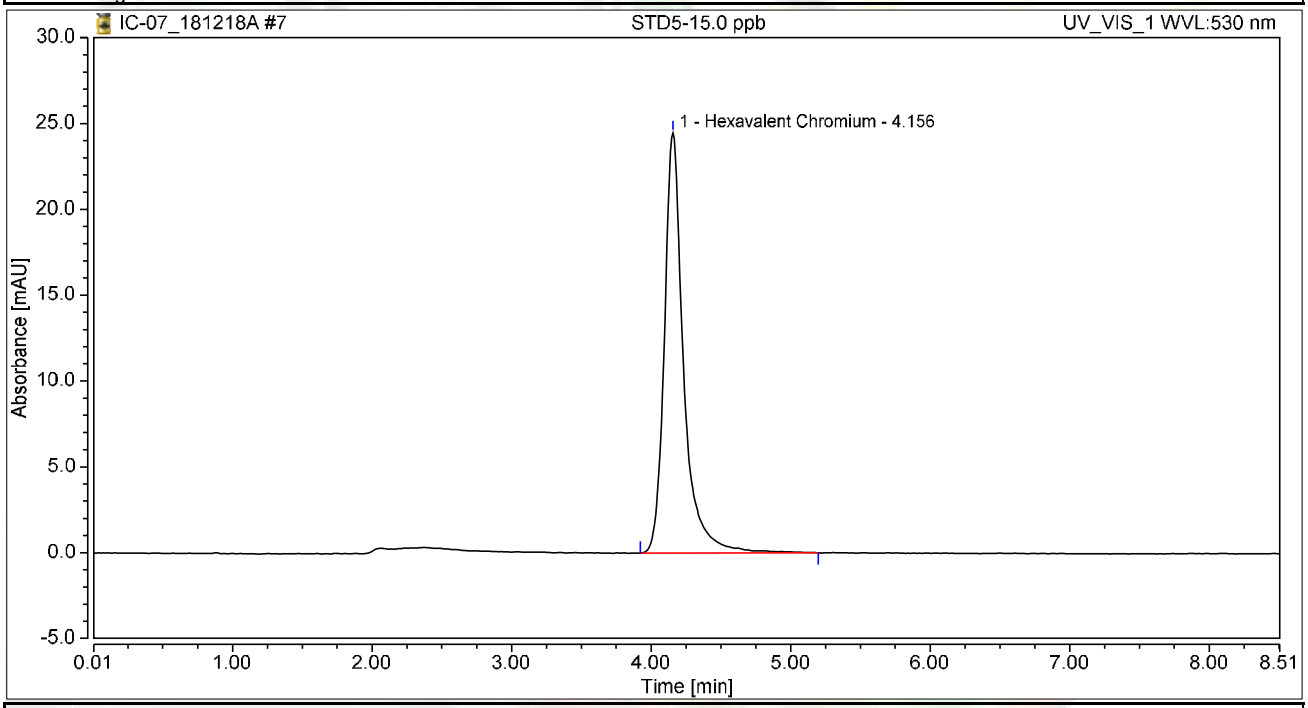
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.156 | 2.624 | 16.391 | 100.00 | 100.00 | 10.0274 |
| **Total:** | | | **2.624** | **16.391** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **18/Dec/18 09:51** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

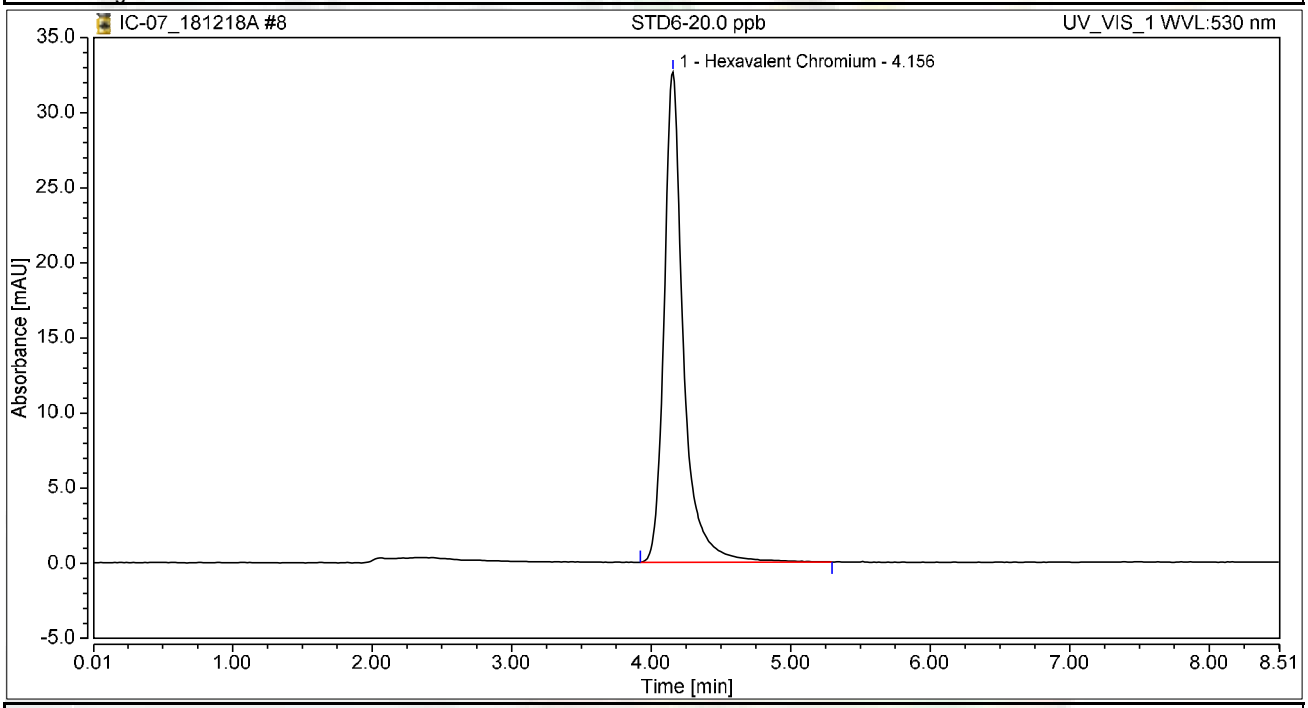
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.156 | 3.915 | 24.478 | 100.00 | 100.00 | 14.9641 |
| **Total:** | | | **3.915** | **24.478** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD6-20.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **06** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **18/Dec/18 10:01** | *Sample Weight:* | **1.0000** |

## Chromatogram



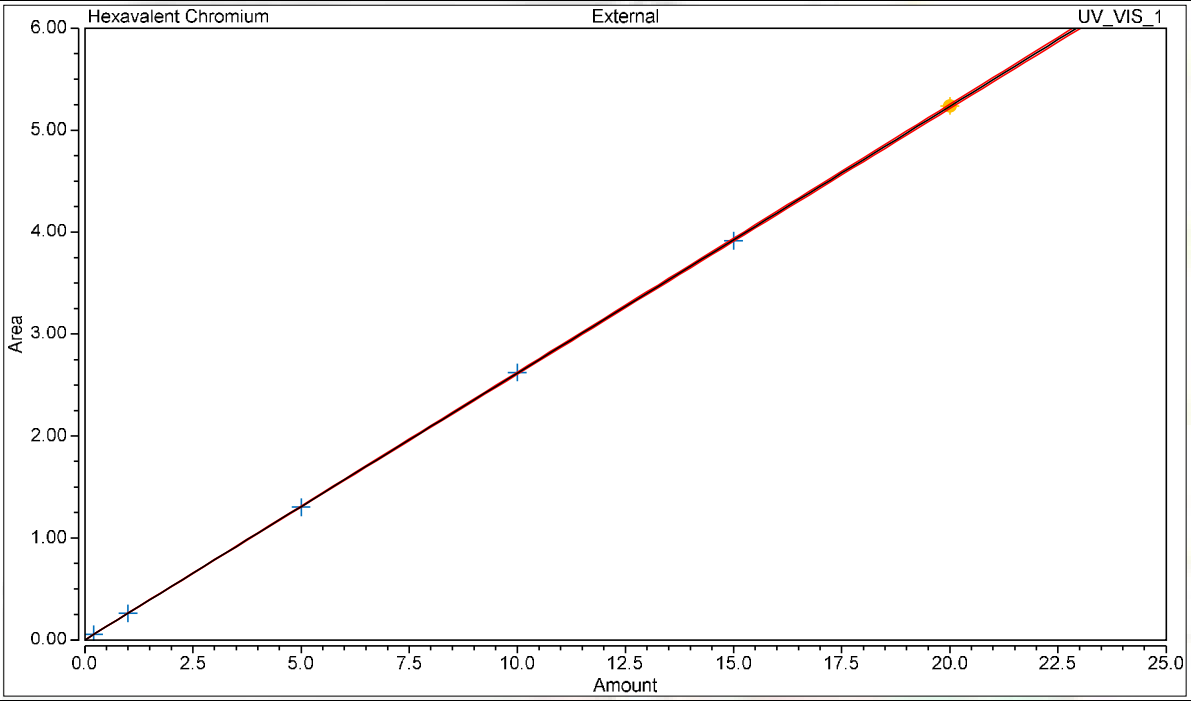

## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.156 | 5.238 | 32.623 | 100.00 | 100.00 | 20.0207 |
| **Total:** | | | **5.238** | **32.623** | **100.00** | **100.00** | |

# Initial Calibration Summary

| Calibration Details | Hexavalent Chromium | | |
|---|---|---|---|
| *Calibration Type* | Lin | *Offset (C0)* | 0.0000 |
| *Evaluation Type* | Area | *Slope (C1)* | 0.2616 |
| *Number of Calibration Points* | 6 | *Curve (C2)* | 0.0000 |
| *Number of disabled Calibration Points* | 0 | *R-Square* | 0.99999 |

Calibration Plot Hexavalent Chromium




Calibration Results Hexavalent Chromium

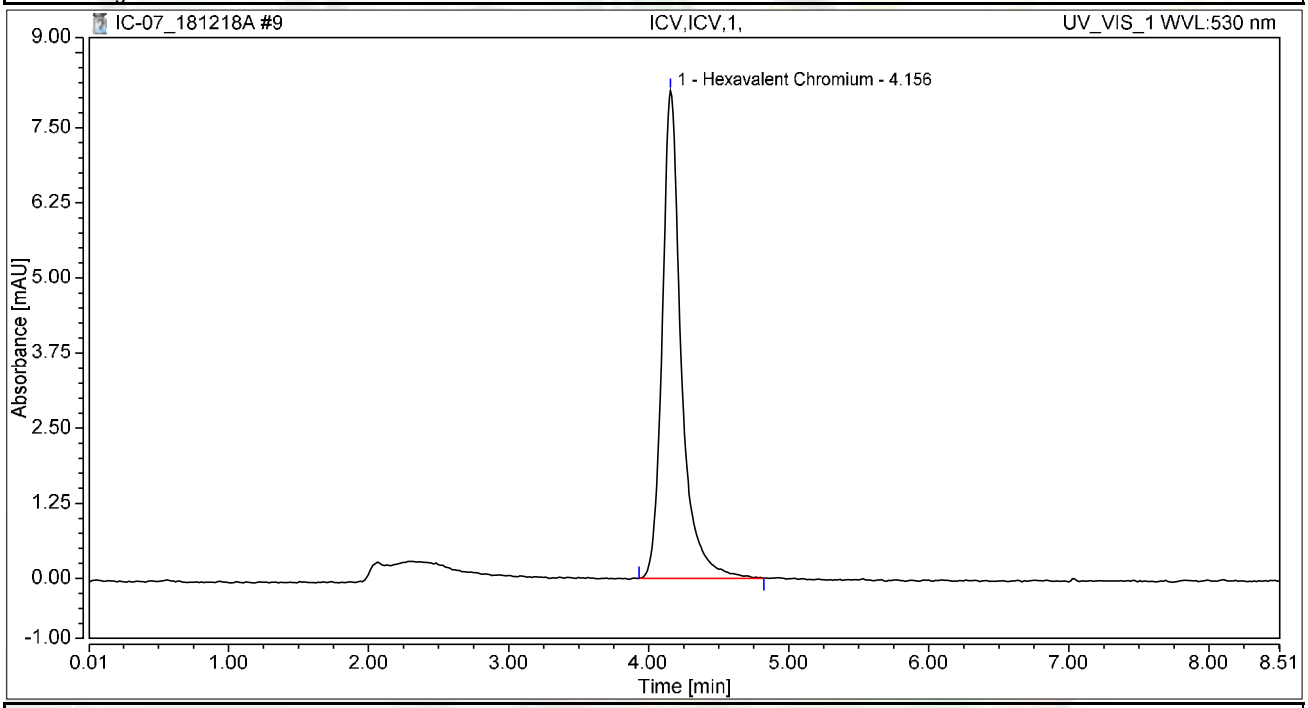
| No. | Injection Name | Calibration Level | X Value | Y Value | Area mAU*min | Height mAU |
|---|---|---|---|---|---|---|
| 3 | STD1-0.2 ppb | 01 | 0.2000 | 0.0554 | 0.055 | 0.376 |
| 4 | STD2-1.0 ppb | 02 | 1.0000 | 0.2590 | 0.259 | 1.674 |
| 5 | STD3-5.0 ppb | 03 | 5.0000 | 1.3008 | 1.301 | 8.292 |
| 6 | STD4-10.0 ppb | 04 | 10.0000 | 2.6236 | 2.624 | 16.391 |
| 7 | STD5-15.0 ppb | 05 | 15.0000 | 3.9152 | 3.915 | 24.478 |
| 8 | STD6-20.0 ppb | 06 | 20.0000 | 5.2382 | 5.238 | 32.623 |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICV,ICV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **18/Dec/18 10:15** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

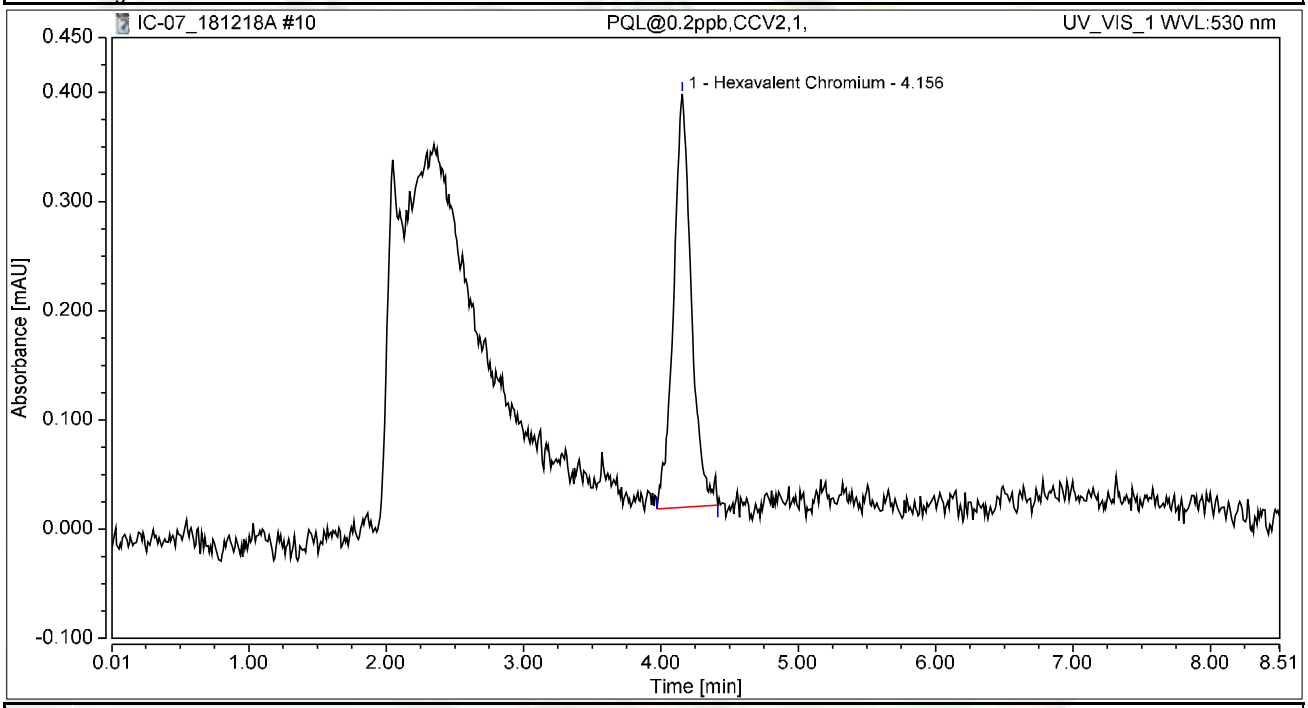
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.156 | 1.287 | 8.122 | 100.00 | 100.00 | 4.9173 |
| **Total:** | | | **1.287** | **8.122** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **18/Dec/18 10:27** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

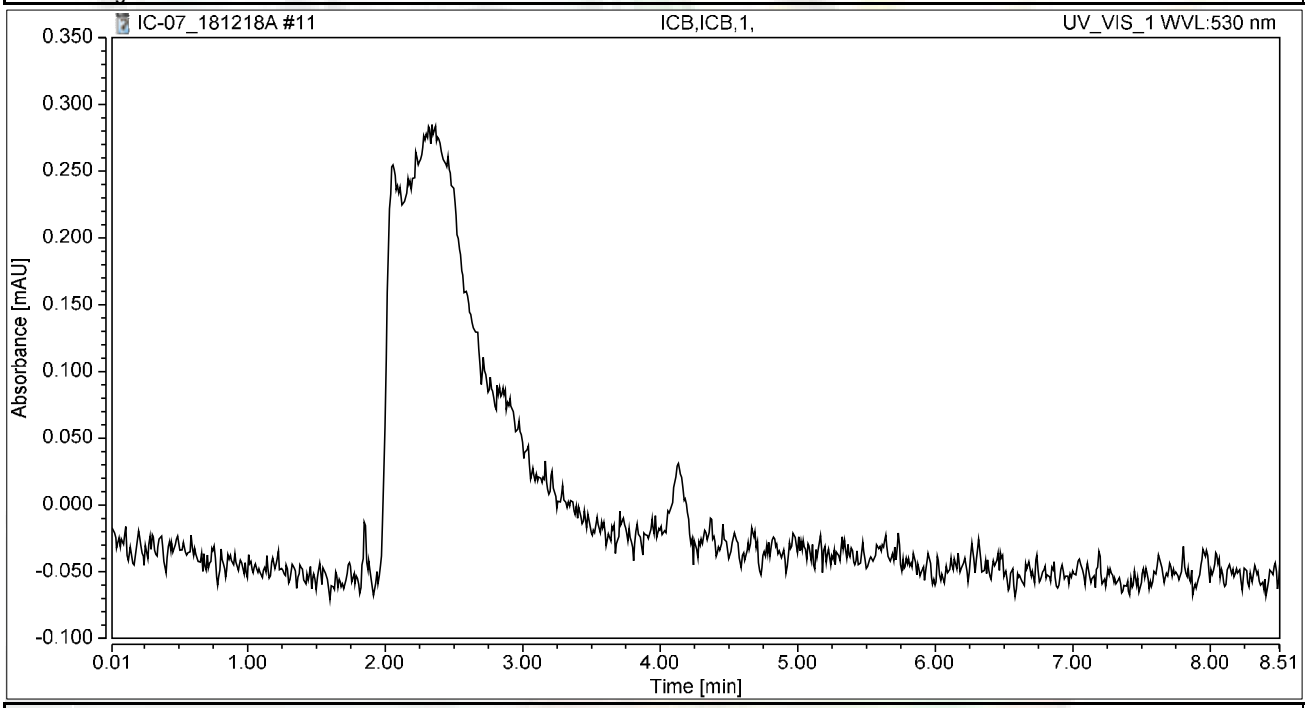
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.156 | 0.057 | 0.379 | 100.00 | 100.00 | 0.2173 |
| **Total:** | | | **0.057** | **0.379** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICB,ICB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **18/Dec/18 10:36** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# RAW DATA

**INJECTION LOG: 190104A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 12/18/18 8:51 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 12/18/18 9:02 AM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 9:11 AM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 9:23 AM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 9:32 AM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 9:42 AM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 9:51 AM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 12/18/18 10:01 AM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 01/04/19 10:12 AM | Not Reported |
| 10 | BLANK | BLANK | 1 | Hexavalent Chromium | 01/04/19 10:23 AM | Not Reported |
| 11 | CCV-1 | CCV | 1 | Hexavalent Chromium | 01/04/19 10:32 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 01/04/19 10:55 AM | Reported |
| 13 | CCB-1 | CCB | 1 | Hexavalent Chromium | 01/04/19 11:06 AM | Reported |
| 14 | MB-R130983 | MBLK | 1 | Hexavalent Chromium | 01/04/19 11:16 AM | Reported |
| 15 | LCS-R130983 | LCS | 1 | Hexavalent Chromium | 01/04/19 11:25 AM | Reported |
| 16 | N033350-012A | SAMP | 200 | Hexavalent Chromium | 01/04/19 11:35 AM | Not Reported |
| 17 | N033350-012AMS | MS | 200 | Hexavalent Chromium | 01/04/19 11:44 AM | Not Reported |
| 18 | N033350-013A | SAMP | 200 | Hexavalent Chromium | 01/04/19 11:54 AM | Not Reported |
| 19 | N033350-013AMS | MS | 200 | Hexavalent Chromium | 01/04/19 12:03 PM | Not Reported |
| 20 | N033370-004A | SAMP | 5 | Hexavalent Chromium | 01/04/19 12:13 PM | Not Reported |
| 21 | N033370-004AMS | MS | 5 | Hexavalent Chromium | 01/04/19 12:22 PM | Not Reported |
| 22 | N033370-005A | SAMP | 1 | Hexavalent Chromium | 01/04/19 12:31 PM | Not Reported |
| 23 | N033370-005AMS | MS | 1 | Hexavalent Chromium | 01/04/19 12:41 PM | Not Reported |
| 24 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 01/04/19 12:50 PM | Reported |
| 25 | CCB-2 | CCB | 1 | Hexavalent Chromium | 01/04/19 1:00 PM | Reported |
| 26 | N033613-001A | SAMP | 1 | Hexavalent Chromium | 01/04/19 1:09 PM | Reported |
| 27 | N033613-001AMS | MS | 1 | Hexavalent Chromium | 01/04/19 1:19 PM | Reported |
| 28 | N033613-002A | SAMP | 100 | Hexavalent Chromium | 01/04/19 1:28 PM | Reported |
| 29 | N033613-002AMS | MS | 100 | Hexavalent Chromium | 01/04/19 1:38 PM | Reported |
| 30 | N033613-002AMSD | MSD | 100 | Hexavalent Chromium | 01/04/19 1:47 PM | Reported |
| 31 | N033613-002ADUP | DUP | 100 | Hexavalent Chromium | 01/04/19 1:57 PM | Reported |
| 32 | N033401-007A | SAMP | 5 | Hexavalent Chromium | 01/04/19 2:06 PM | Not Reported |
| 33 | N033401-007AMS | MS | 5 | Hexavalent Chromium | 01/04/19 2:15 PM | Not Reported |
| 34 | N033401-013A | SAMP | 1 | Hexavalent Chromium | 01/04/19 2:25 PM | Not Reported |
| 35 | N033401-013AMS | MS | 1 | Hexavalent Chromium | 01/04/19 2:34 PM | Not Reported |
| 36 | CCV-3 | CCV | 1 | Hexavalent Chromium | 01/04/19 2:44 PM | Reported |
| 37 | CCB-3 | CCB | 1 | Hexavalent Chromium | 01/04/19 2:53 PM | Reported |
| 38 | N033401-017A | SAMP | 5 | Hexavalent Chromium | 01/04/19 3:03 PM | Not Reported |
| 39 | N033401-017AMS | MS | 5 | Hexavalent Chromium | 01/04/19 3:12 PM | Not Reported |
| 40 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 01/04/19 3:22 PM | Reported |
| 41 | CCB-4 | CCB | 1 | Hexavalent Chromium | 01/04/19 3:31 PM | Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190104A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **04/Jan/19 16:29:01** |
| *No. of Injections:* | **44** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 12/18/2018 08:51 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 12/18/2018 09:02 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 4 | 1000 | Calibration Standard | 01 | 12/18/2018 09:11 | Finished | 0.2 ppb, IWST-181022C |
| 4 | STD2-1.0 ppb | 5 | 1000 | Calibration Standard | 02 | 12/18/2018 09:23 | Finished | 1.0 ppb, IWST-181022C |
| 5 | STD3-5.0 ppb | 6 | 1000 | Calibration Standard | 03 | 12/18/2018 09:32 | Finished | 5.0 ppb, IWST-181022C |
| 6 | STD4-10.0 ppb | 7 | 1000 | Calibration Standard | 04 | 12/18/2018 09:42 | Finished | 10 ppb, IWST-181022C |
| 7 | STD5-15.0 ppb | 8 | 1000 | Calibration Standard | 05 | 12/18/2018 09:51 | Finished | 15 ppb, IWST-181022C |
| 8 | STD6-20.0 ppb | 9 | 1000 | Calibration Standard | 06 | 12/18/2018 10:01 | Finished | 20 ppb, IWST-181022C |
| 9 | BLANK | 1 | 1000 | Unknown | | 01/04/2019 10:12 | Finished | BLANK |
| 10 | BLANK | 2 | 1000 | Unknown | | 01/04/2019 10:23 | Finished | BLANK |
| 11 | CCV-1,CCV,1, | 3 | 1000 | Unknown | | 01/04/2019 10:32 | Finished | CCV @5ppb, IWST-181022C |
| 12 | PQL@0.2ppb,CCV2,1 | 4 | 1000 | Unknown | | 01/04/2019 10:55 | Finished | PQL @ 0.2ppb |
| 13 | CCB-1,CCB,1, | 5 | 1000 | Unknown | | 01/04/2019 11:06 | Finished | CCB R181210C |
| 14 | MB-H2O,MBLK,1, | 6 | 1000 | Unknown | | 01/04/2019 11:16 | Finished | MB R181210C |
| 15 | LCS-H2O,LCS,1, | 7 | 1000 | Unknown | | 01/04/2019 11:25 | Finished | LCS @5ppb, IWST-181022D |
| 16 | N033350-012A,SAMF | 8 | 1000 | Unknown | | 01/04/2019 11:35 | Finished | SAMP,0.05>10mL |
| 17 | N033350-012AMS,MS | 9 | 1000 | Unknown | | 01/04/2019 11:44 | Finished | MS (5ppb), IWST-181022D,0.0 |
| 18 | N033350-013A,SAMF | 10 | 1000 | Unknown | | 01/04/2019 11:54 | Finished | SAMP,0.05>10mL |
| 19 | N033350-013AMS,MS | 11 | 1000 | Unknown | | 01/04/2019 12:03 | Finished | MS (5ppb), IWST-181022D,0.0 |
| 20 | N033370-004A,SAMF | 12 | 1000 | Unknown | | 01/04/2019 12:13 | Finished | SAMP,2>10mL |
| 21 | N033370-004AMS,MS | 13 | 1000 | Unknown | | 01/04/2019 12:22 | Finished | MS (1ppb), IWST-181022D,2>1 |
| 22 | N033370-005A,SAMF | 14 | 1000 | Unknown | | 01/04/2019 12:31 | Finished | SAMP,10mL |
| 23 | N033370-005AMS,MS | 15 | 1000 | Unknown | | 01/04/2019 12:41 | Finished | MS (1ppb), IWST-181022D,10 |
| 24 | CCV-2,CCV1,1, | 16 | 1000 | Unknown | | 01/04/2019 12:50 | Finished | CCV @10ppb, IWST-181022C |
| 25 | CCB-2,CCB,1, | 17 | 1000 | Unknown | | 01/04/2019 13:00 | Finished | CCB R181127D |
| 26 | N033613-001A,SAMF | 18 | 1000 | Unknown | | 01/04/2019 13:09 | Finished | SAMP,10mL |
| 27 | N033613-001AMS,MS | 19 | 1000 | Unknown | | 01/04/2019 13:19 | Finished | MS (1ppb), IWST-181022D,10 |
| 28 | N033613-002A,SAMF | 20 | 1000 | Unknown | | 01/04/2019 13:28 | Finished | SAMP,0.1>10mL |
| 29 | N033613-002AMS,MS | 21 | 1000 | Unknown | | 01/04/2019 13:38 | Finished | MS (5ppb), IWST-181022D,0.1 |
| 30 | N033613-002AMSD,M | 22 | 1000 | Unknown | | 01/04/2019 13:47 | Finished | MSD (5ppb), IWST-181022D,0. |
| 31 | N033613-002ADUP,D | 23 | 1000 | Unknown | | 01/04/2019 13:57 | Finished | DUP,0.1>10mL |
| 32 | N033401-007A,SAMF | 24 | 1000 | Unknown | | 01/04/2019 14:06 | Finished | SAMP,2>10mL |
| 33 | N033401-007AMS,MS | 25 | 1000 | Unknown | | 01/04/2019 14:15 | Finished | MS (1ppb), IWST-181022D,2>1 |
| 34 | N033401-013A,SAMF | 26 | 1000 | Unknown | | 01/04/2019 14:25 | Finished | SAMP,10mL |
| 35 | N033401-013AMS,MS | 27 | 1000 | Unknown | | 01/04/2019 14:34 | Finished | MS (1ppb), IWST-181022D,10 |
| 36 | CCV-3,CCV,1, | 28 | 1000 | Unknown | | 01/04/2019 14:44 | Finished | CCV @5ppb, IWST-181022C |
| 37 | CCB-3,CCB,1, | 29 | 1000 | Unknown | | 01/04/2019 14:53 | Finished | CCB R181210C |
| 38 | N033401-017A,SAMF | 30 | 1000 | Unknown | | 01/04/2019 15:03 | Finished | SAMP,2>10mL |
| 39 | N033401-017AMS,MS | 31 | 1000 | Unknown | | 01/04/2019 15:12 | Finished | MS (1ppb), IWST-181022D,2>1 |
| 40 | CCV-4,CCV1,1, | 32 | 1000 | Unknown | | 01/04/2019 15:22 | Finished | CCV @10ppb, IWST-181022C |
| 41 | CCB-4,CCB,1, | 33 | 1000 | Unknown | | 01/04/2019 15:31 | Finished | CCB R181210C |
| 42 | SHUTDOWN | 34 | 1000 | Unknown | | 01/04/2019 15:41 | Finished | |
| 43 | Eluent: R190103C | 35 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 44 | PCR: R190103D | 36 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

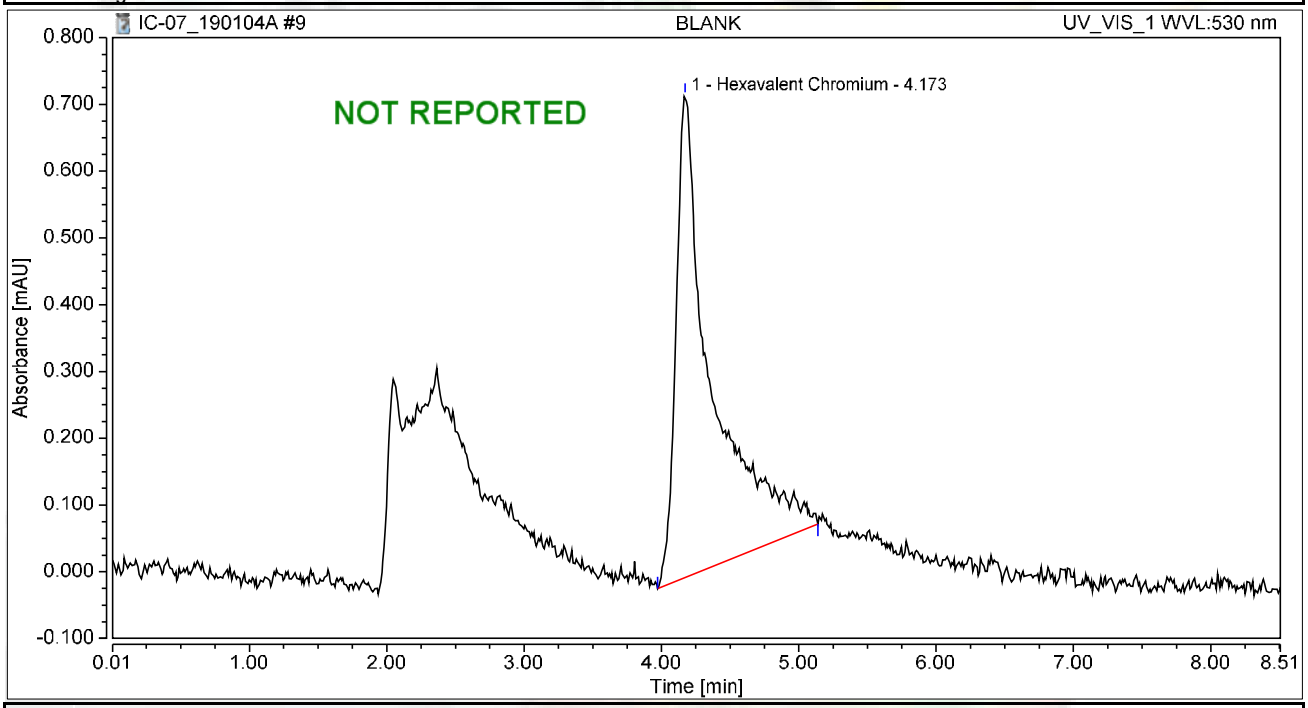
rba 1/18/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 10:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

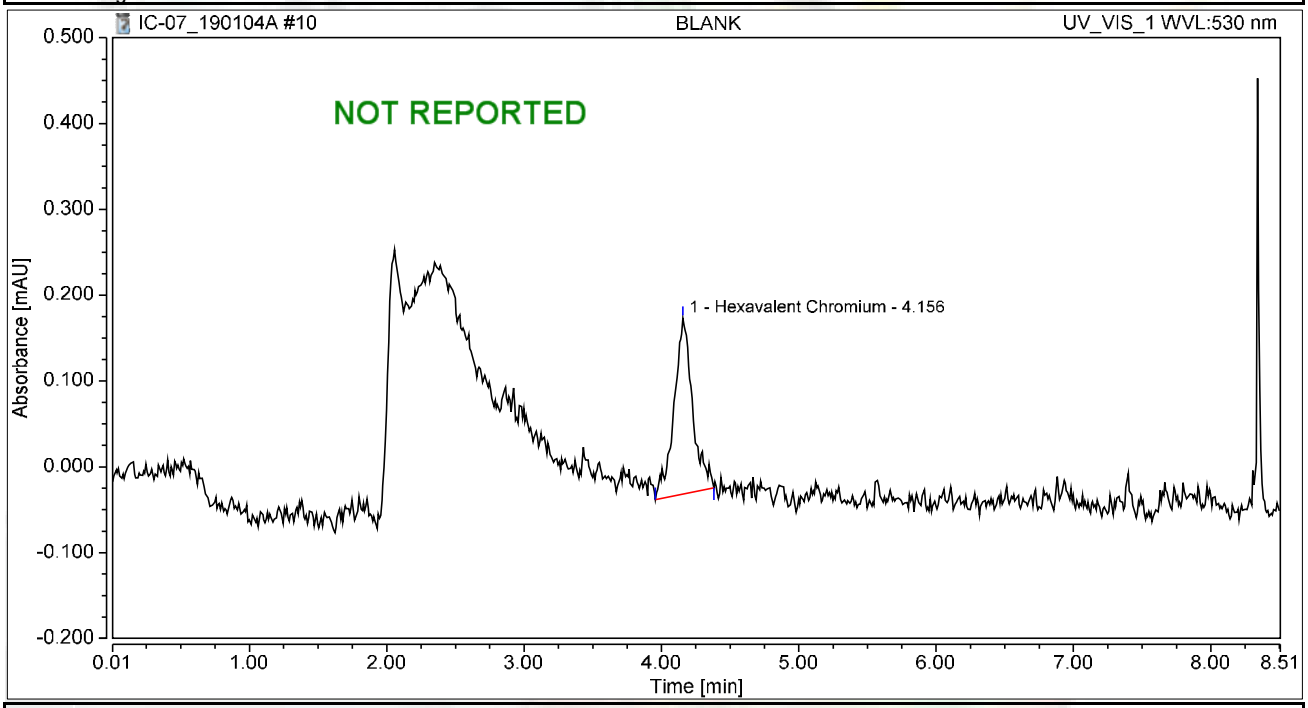
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.173 | 0.222 | 0.723 | 100.00 | 100.00 | 0.8500 |
| **Total:** | | | **0.222** | **0.723** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 10:23** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

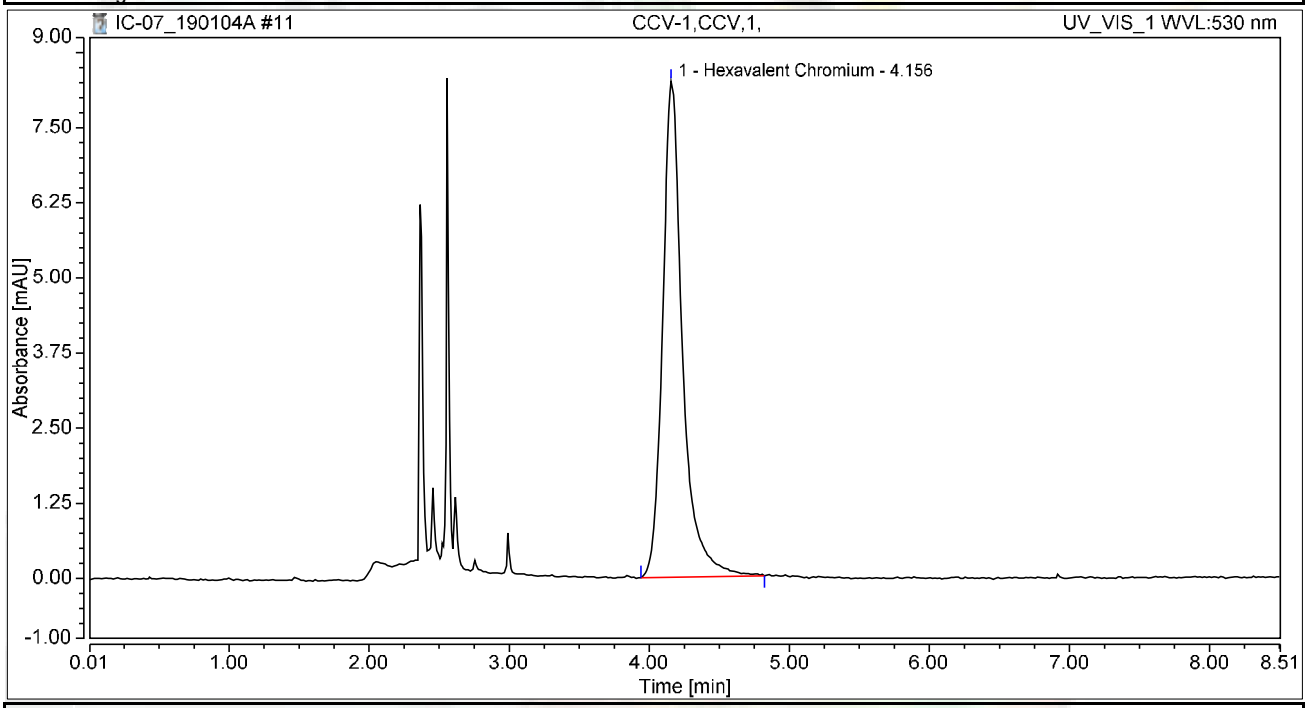
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.156 | 0.032 | 0.205 | 100.00 | 100.00 | 0.1224 |
| **Total:** | | | **0.032** | **0.205** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-1,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 10:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

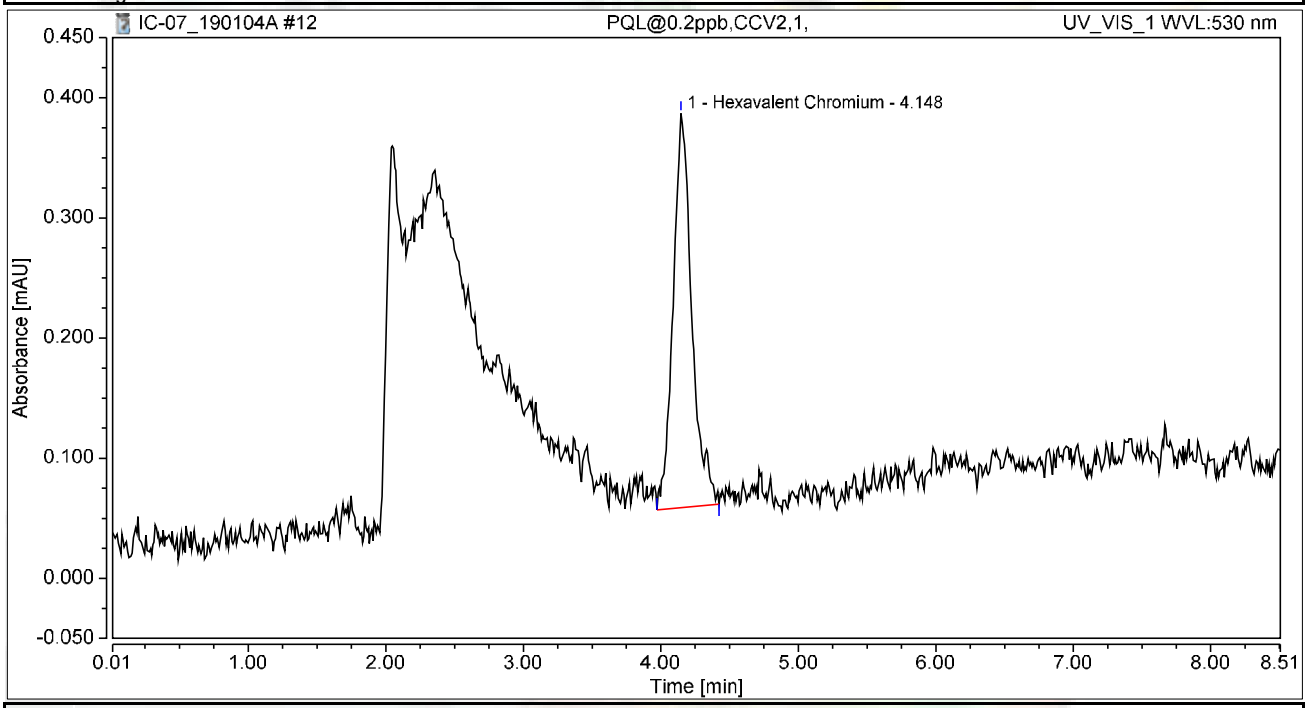
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.156 | 1.362 | 8.250 | 100.00 | 100.00 | 5.2066 |
| **Total:** | | | **1.362** | **8.250** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 10:55** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

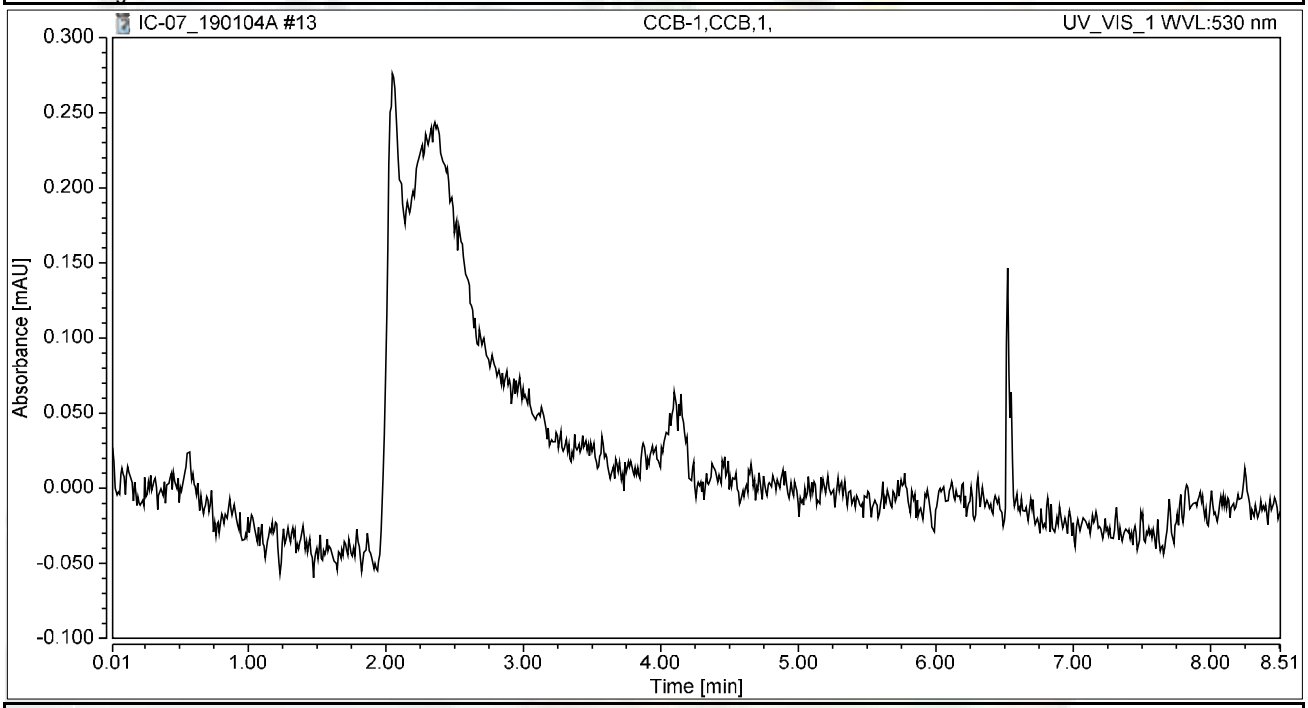
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.148 | 0.052 | 0.328 | 100.00 | 100.00 | 0.1975 |
| **Total:** | | | **0.052** | **0.328** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-1,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 11:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

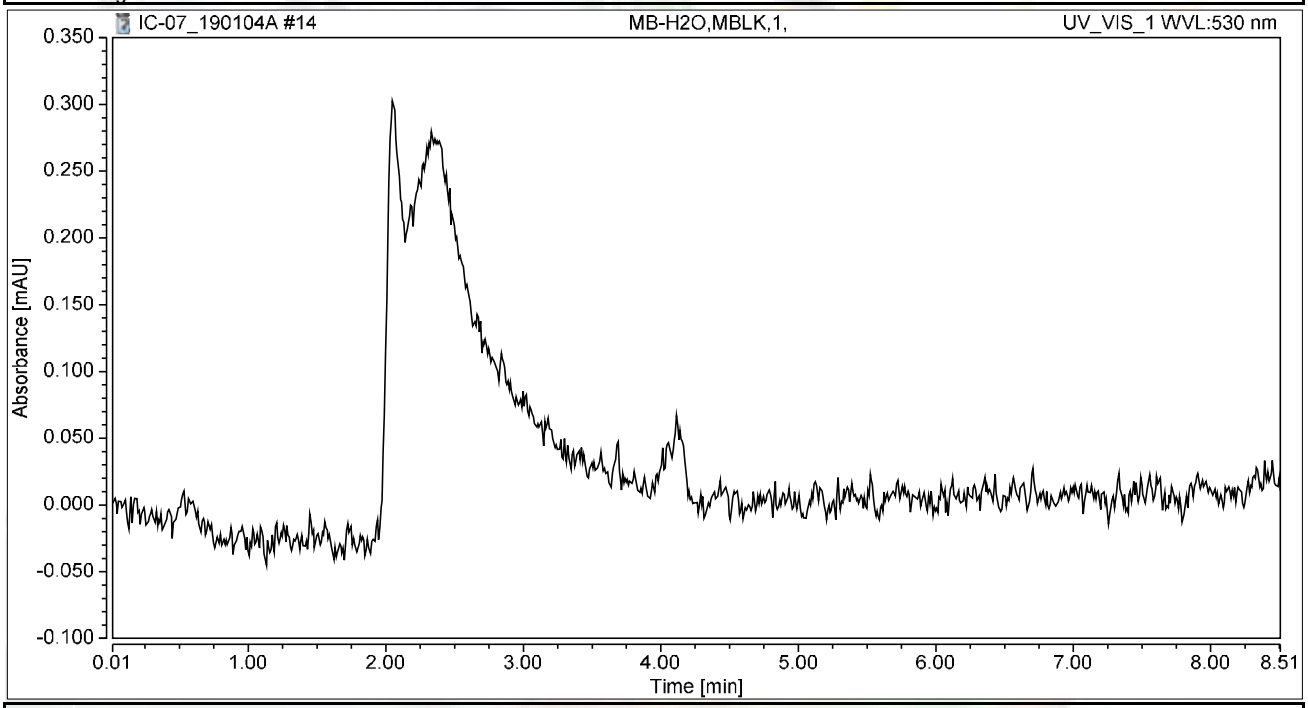
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **MB-H2O,MBLK,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 11:16** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

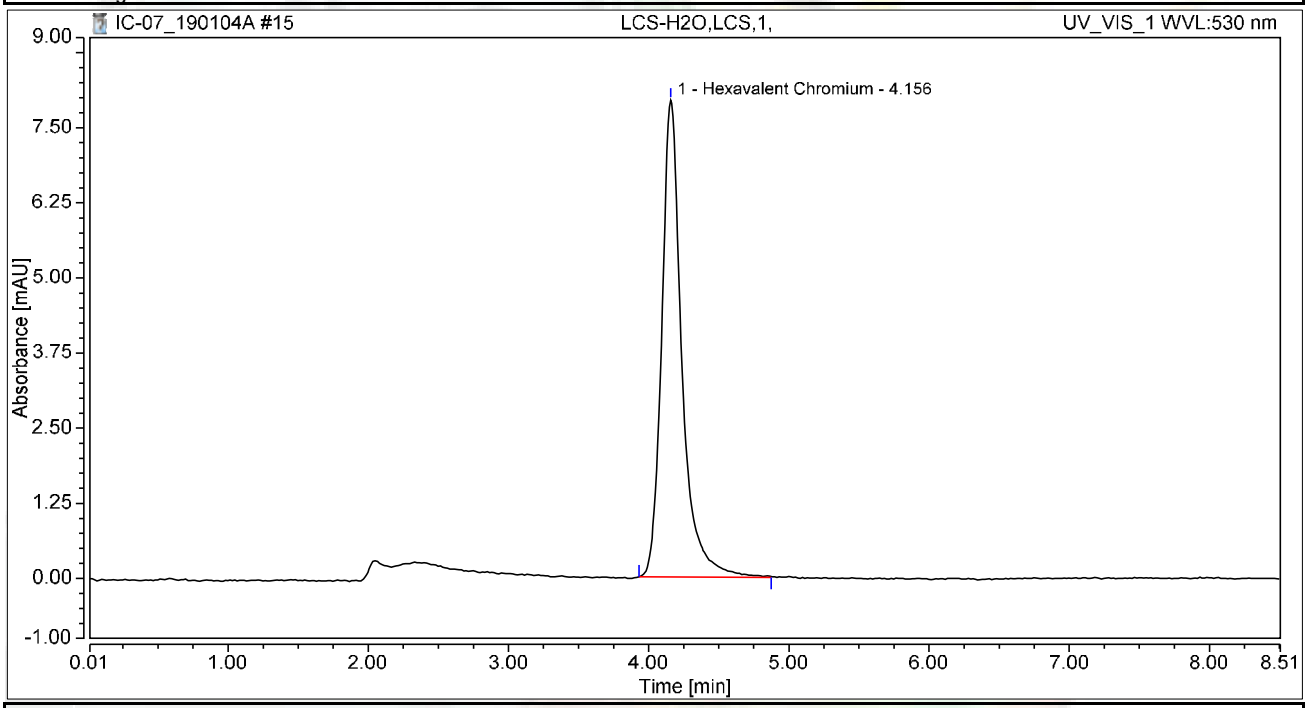
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **LCS-H2O,LCS,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 11:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

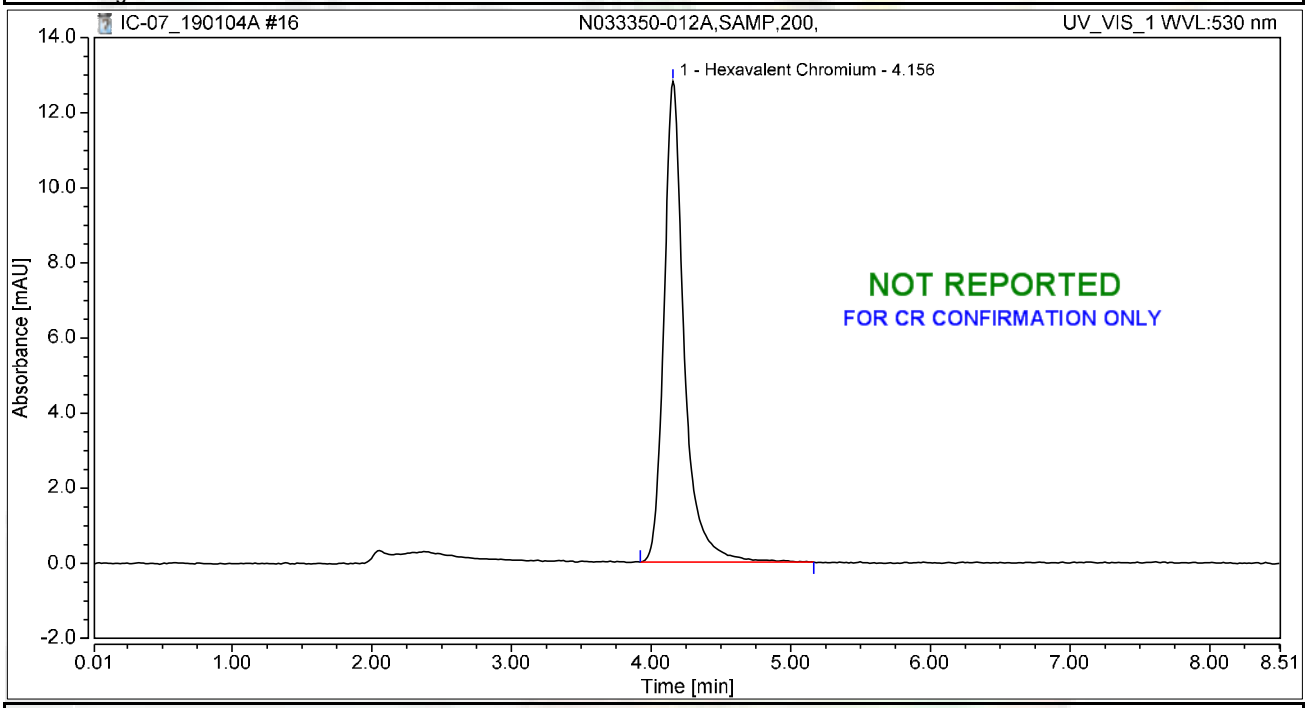
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.156 | 1.323 | 7.934 | 100.00 | 100.00 | 5.0581 |
| **Total:** | | | **1.323** | **7.934** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033350-012A,SAMP,200,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 11:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

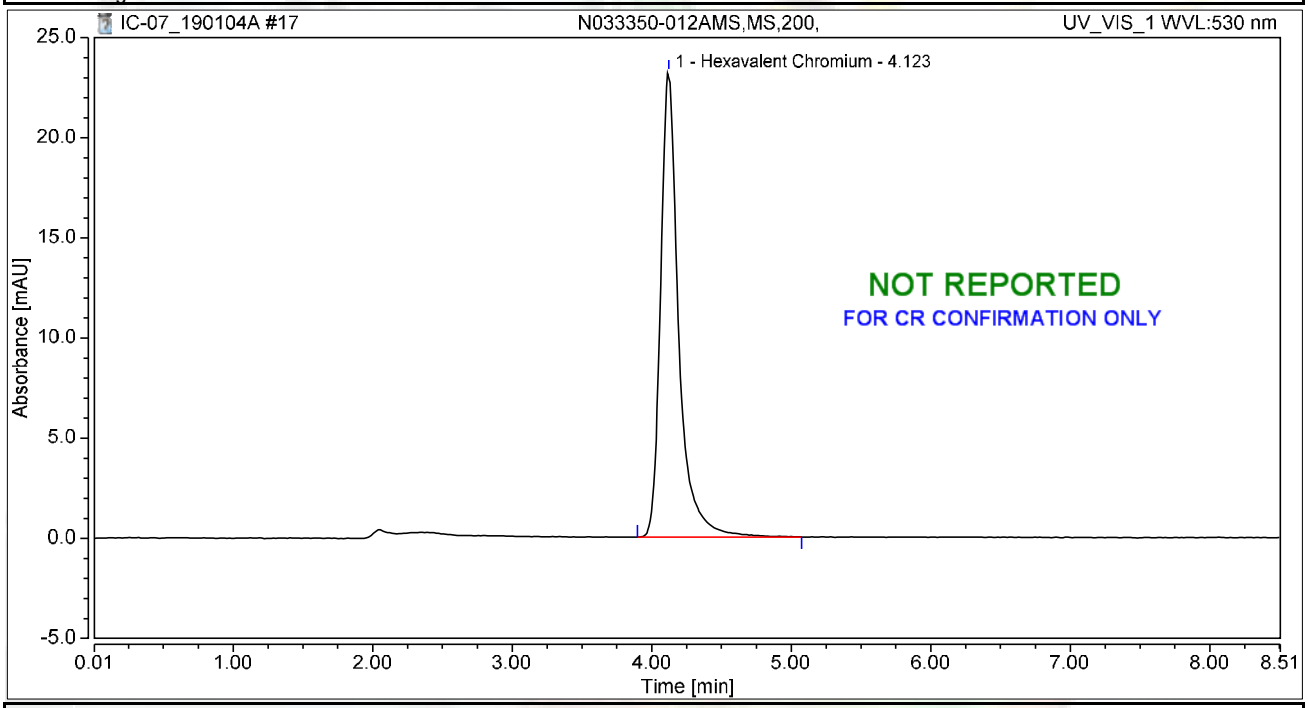
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.156 | 2.149 | 12.802 | 100.00 | 100.00 | 8.2145 |
| **Total:** | | | **2.149** | **12.802** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033350-012AMS,MS,200,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 11:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

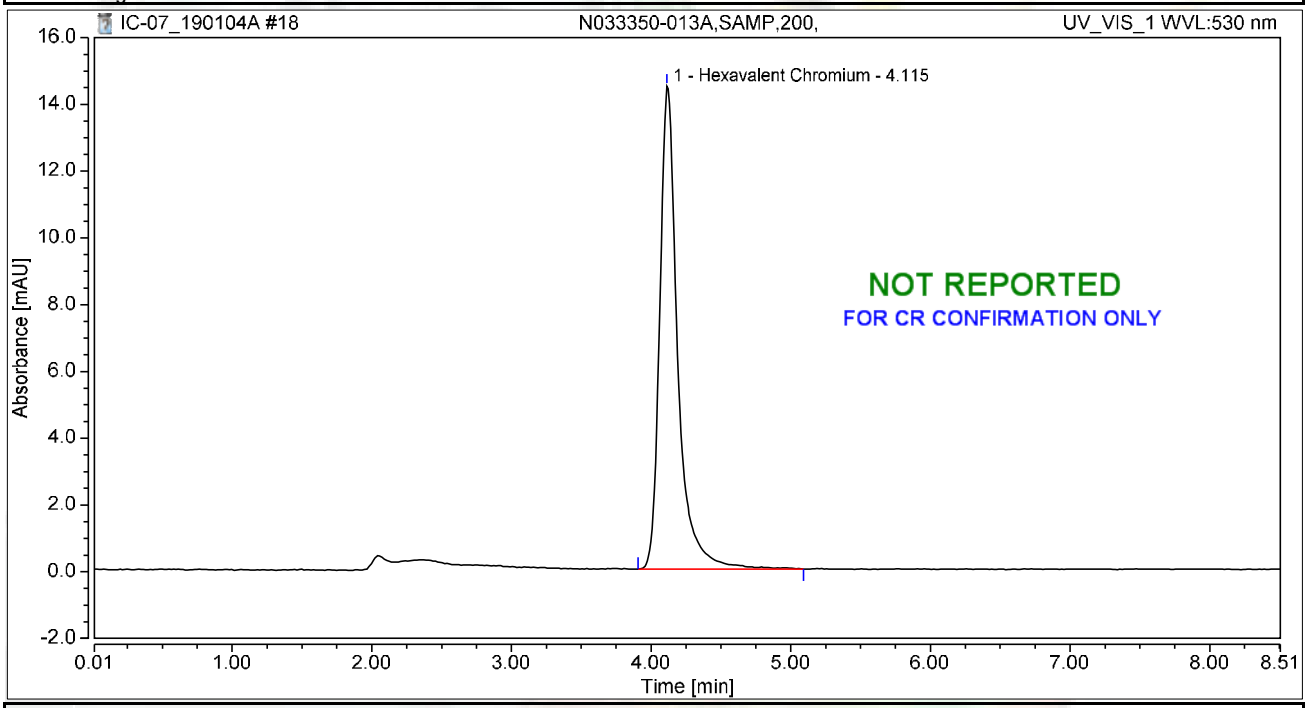
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.123 | 3.491 | 23.212 | 100.00 | 100.00 | 13.3441 |
| **Total:** | | | **3.491** | **23.212** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033350-013A,SAMP,200,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 11:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

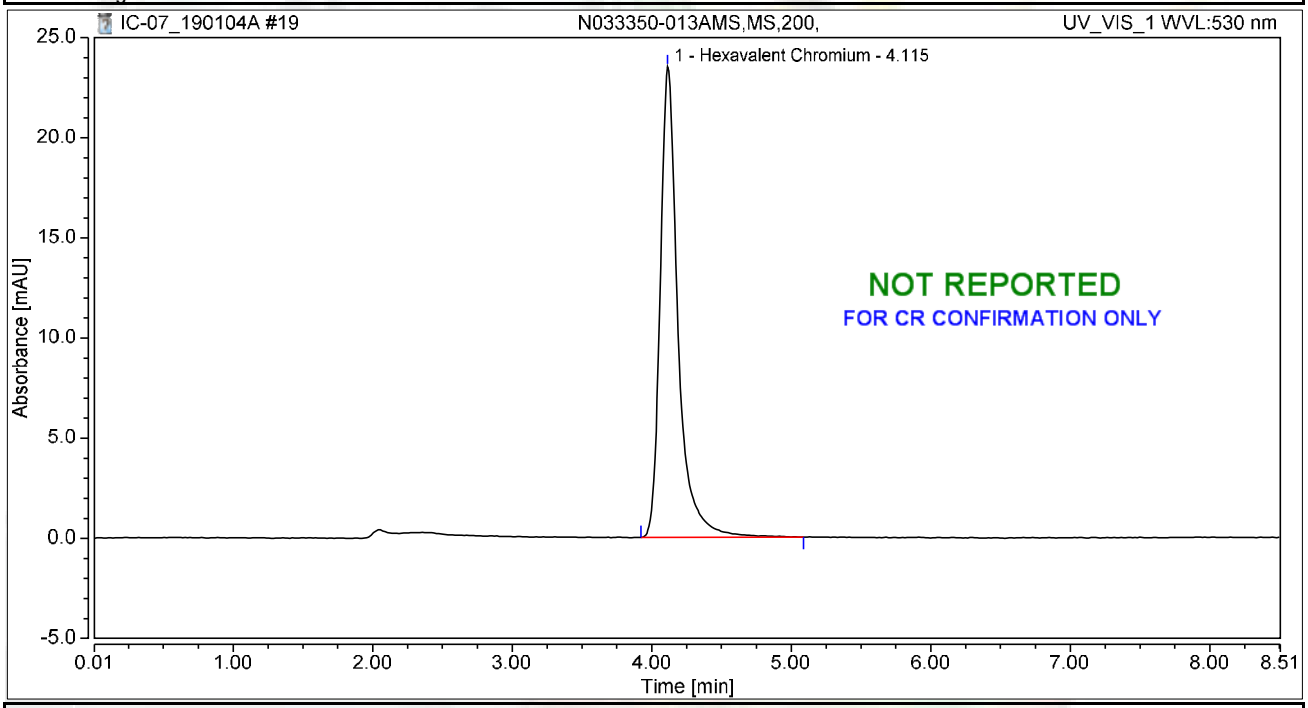
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 2.168 | 14.470 | 100.00 | 100.00 | 8.2865 |
| **Total:** | | | **2.168** | **14.470** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033350-013AMS,MS,200,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 12:03** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

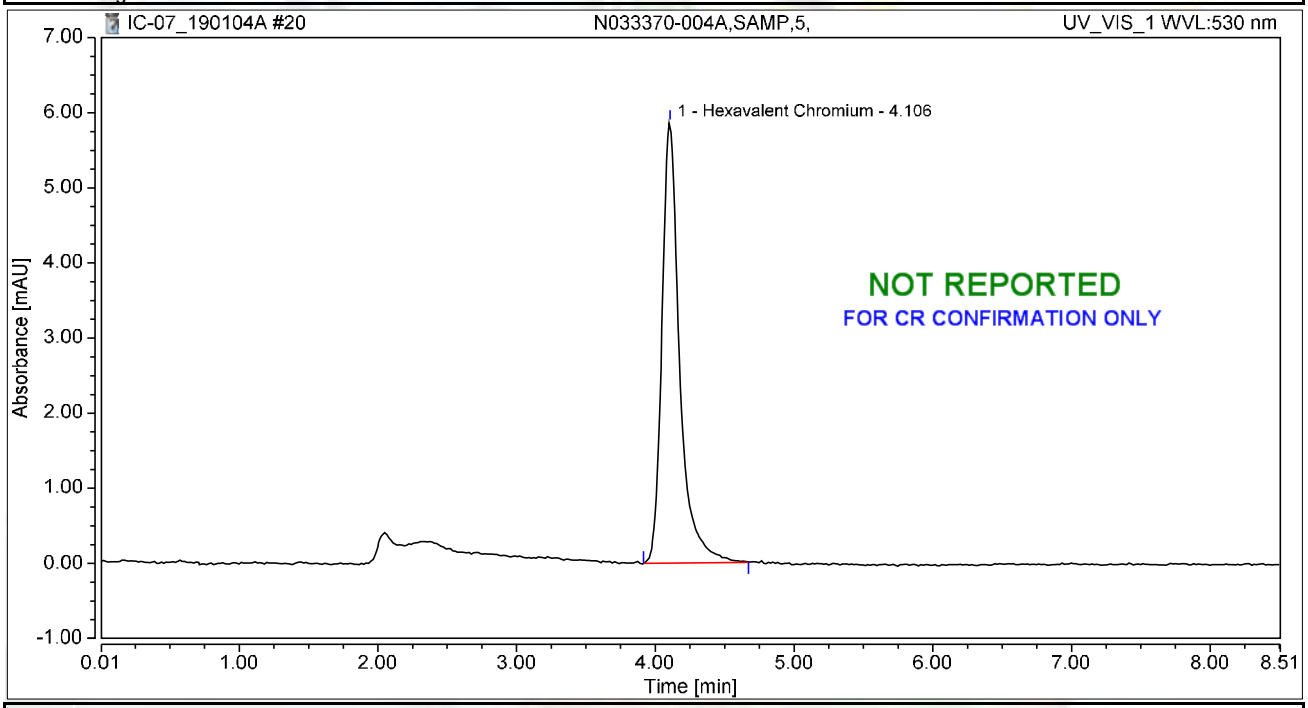
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 3.487 | 23.505 | 100.00 | 100.00 | 13.3267 |
| **Total:** | | | **3.487** | **23.505** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033370-004A,SAMP,5,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 12:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

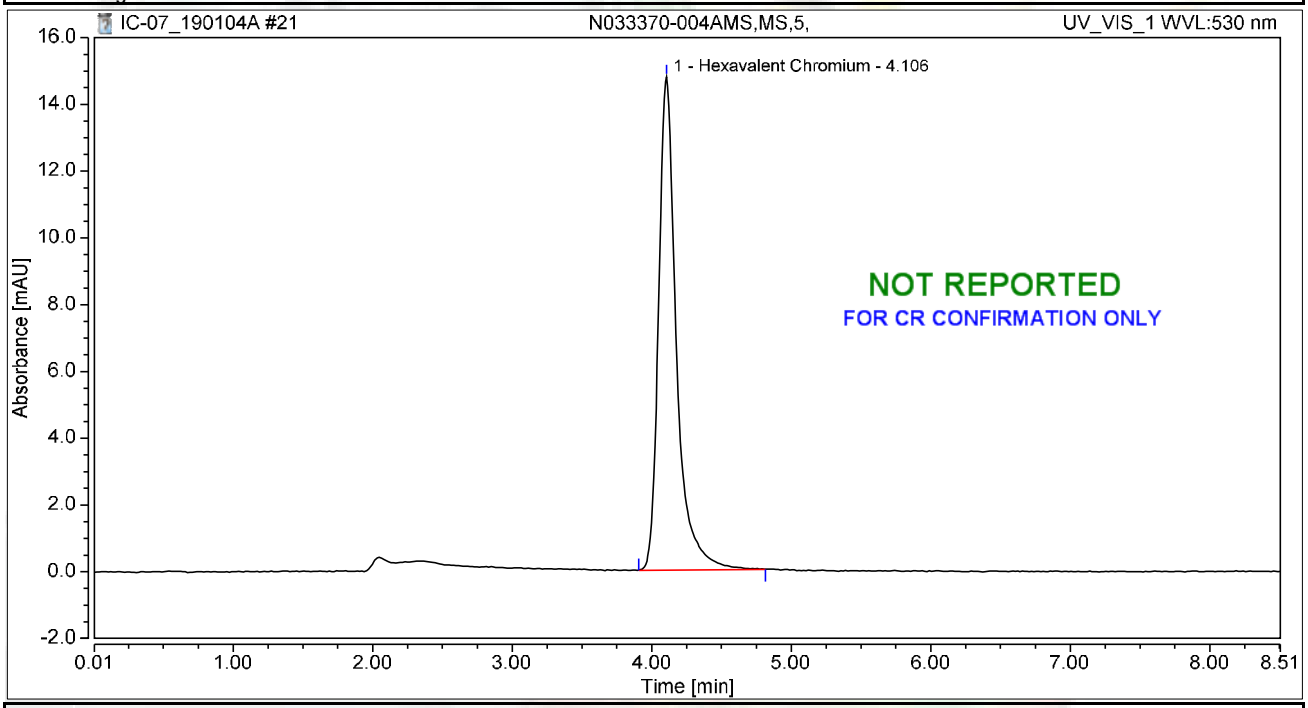
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.868 | 5.867 | 100.00 | 100.00 | 3.3172 |
| **Total:** | | | **0.868** | **5.867** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033370-004AMS,MS,5,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 12:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

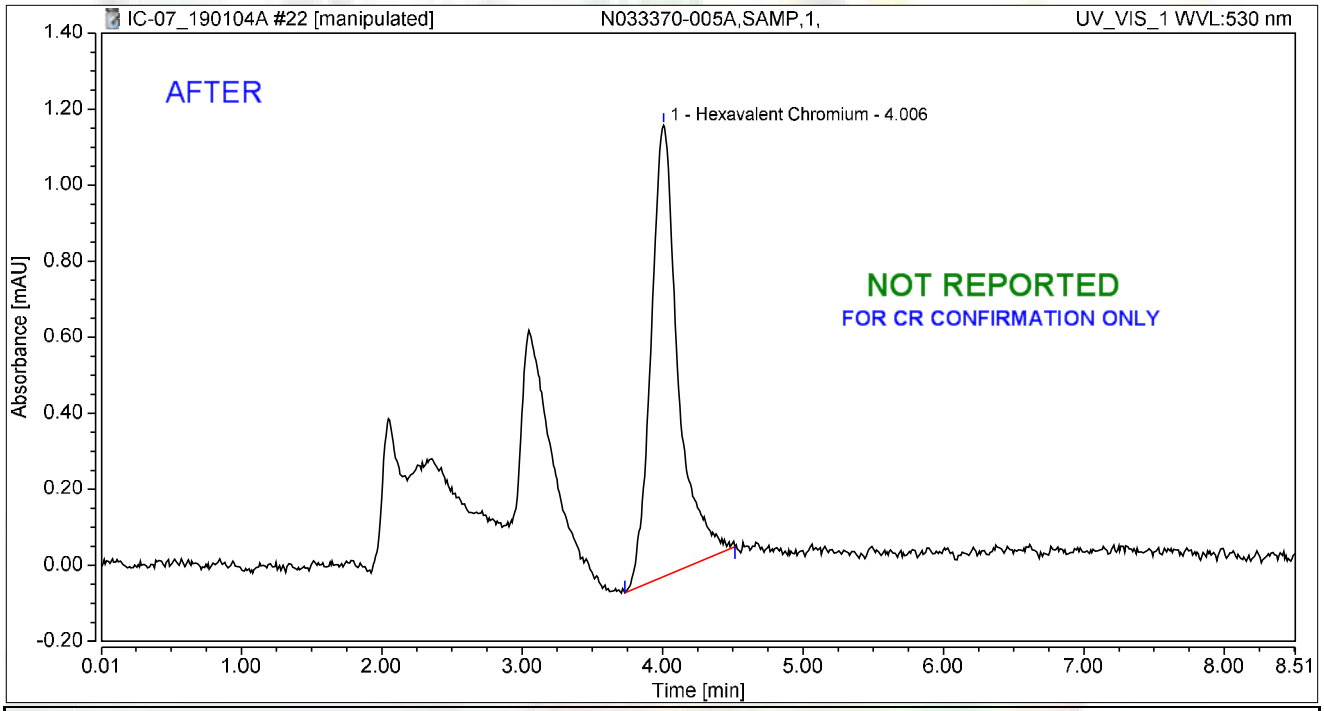
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 2.190 | 14.785 | 100.00 | 100.00 | 8.3703 |
| **Total:** | | | **2.190** | **14.785** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033370-005A,SAMP,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 12:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.006 | 0.265 | 1.187 | 100.00 | 100.00 | 1.0119 |
| **Total:** | | | **0.265** | **1.187** | **100.00** | **100.00** | |

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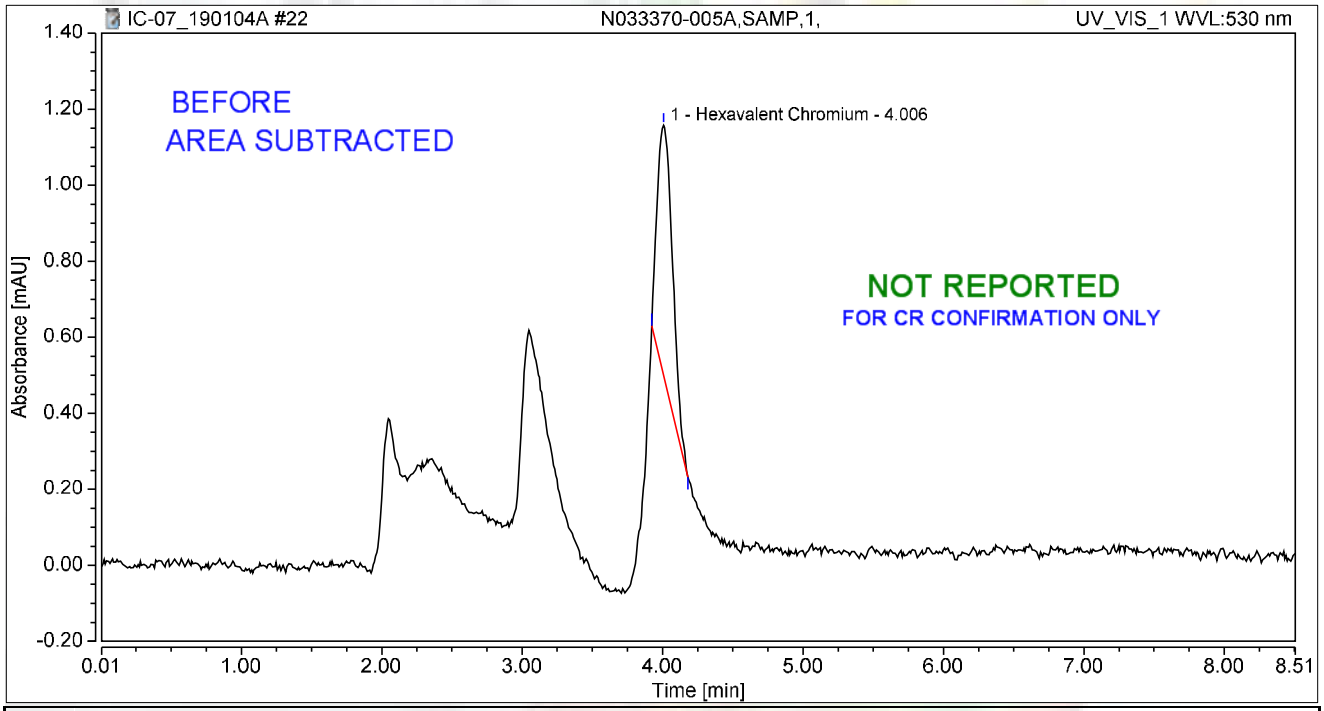
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033370-005A,SAMP,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 12:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.006 | 0.083 | 0.656 | 100.00 | 100.00 | 0.3190 |
| **Total:** | | | **0.083** | **0.656** | **100.00** | **100.00** | |

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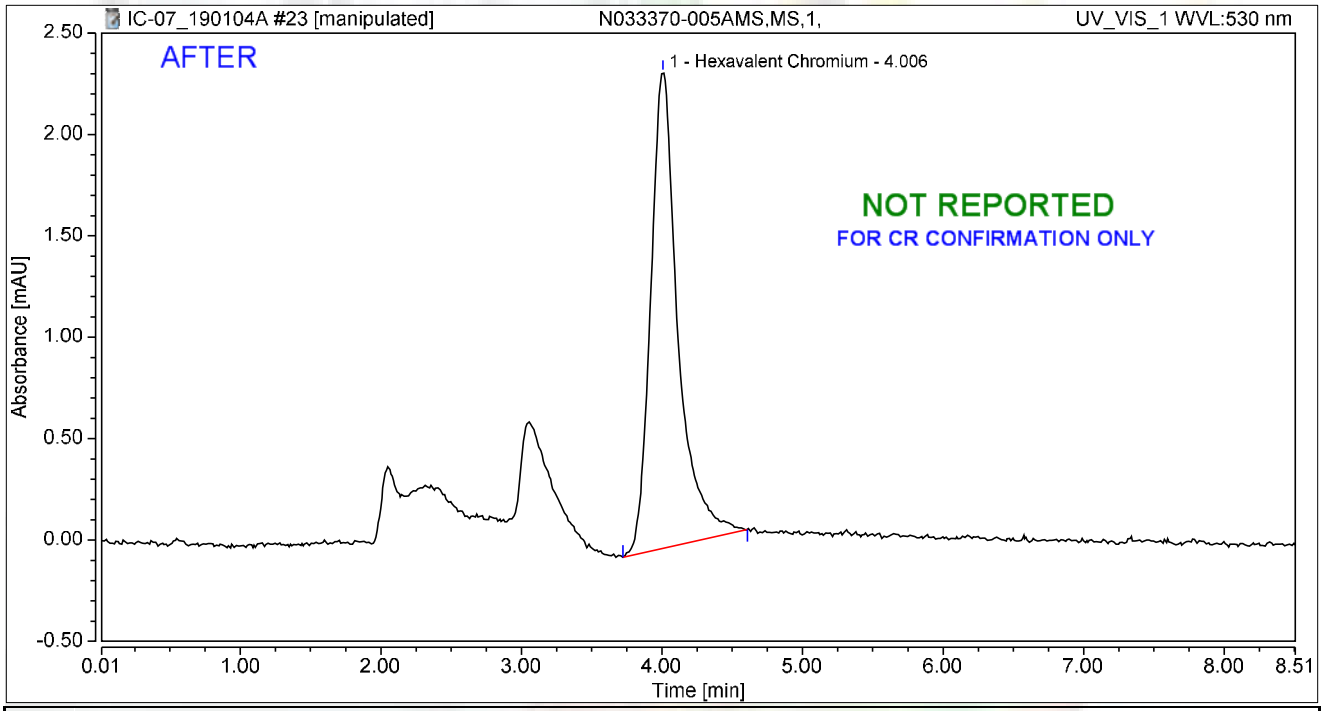
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033370-005AMS,MS,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 12:41** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.006 | 0.530 | 2.348 | 100.00 | 100.00 | 2.0241 |
| **Total:** | | | **0.530** | **2.348** | **100.00** | **100.00** | |

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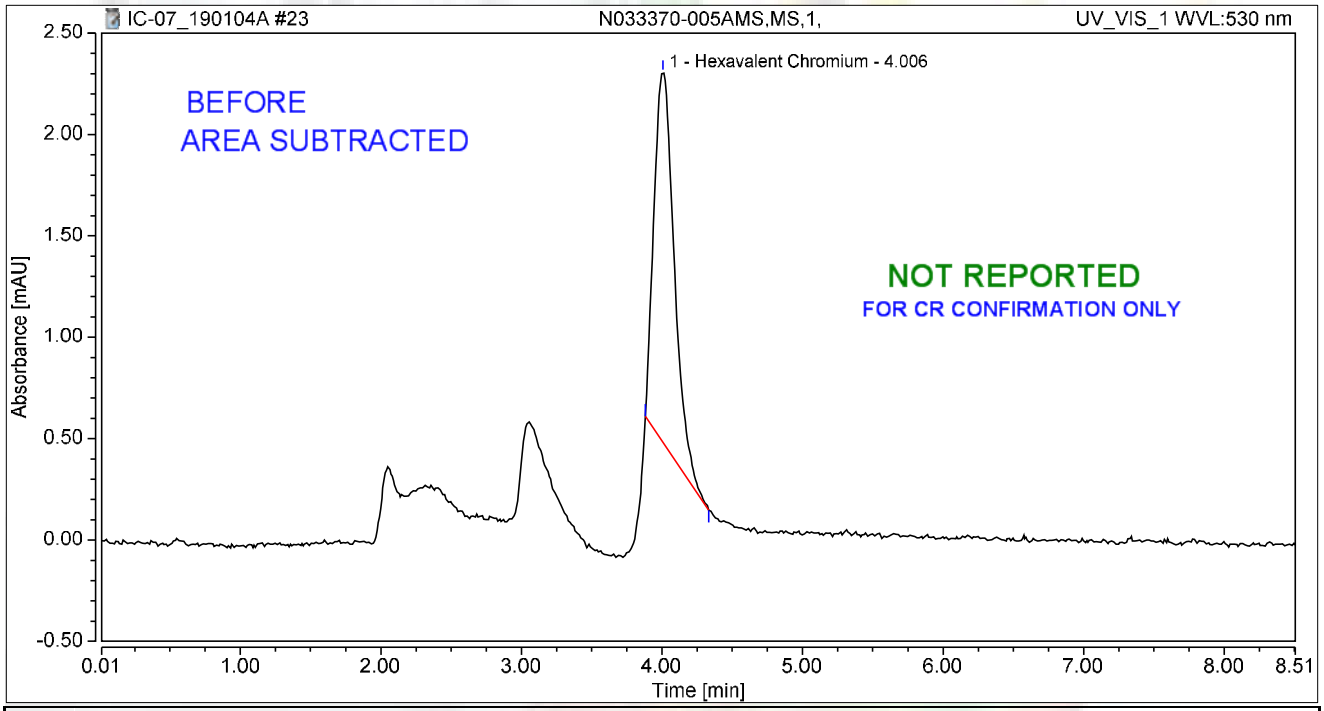
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033370-005AMS,MS,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 12:41** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.006 | 0.307 | 1.825 | 100.00 | 100.00 | 1.1728 |
| **Total:** | | | **0.307** | **1.825** | **100.00** | **100.00** | |

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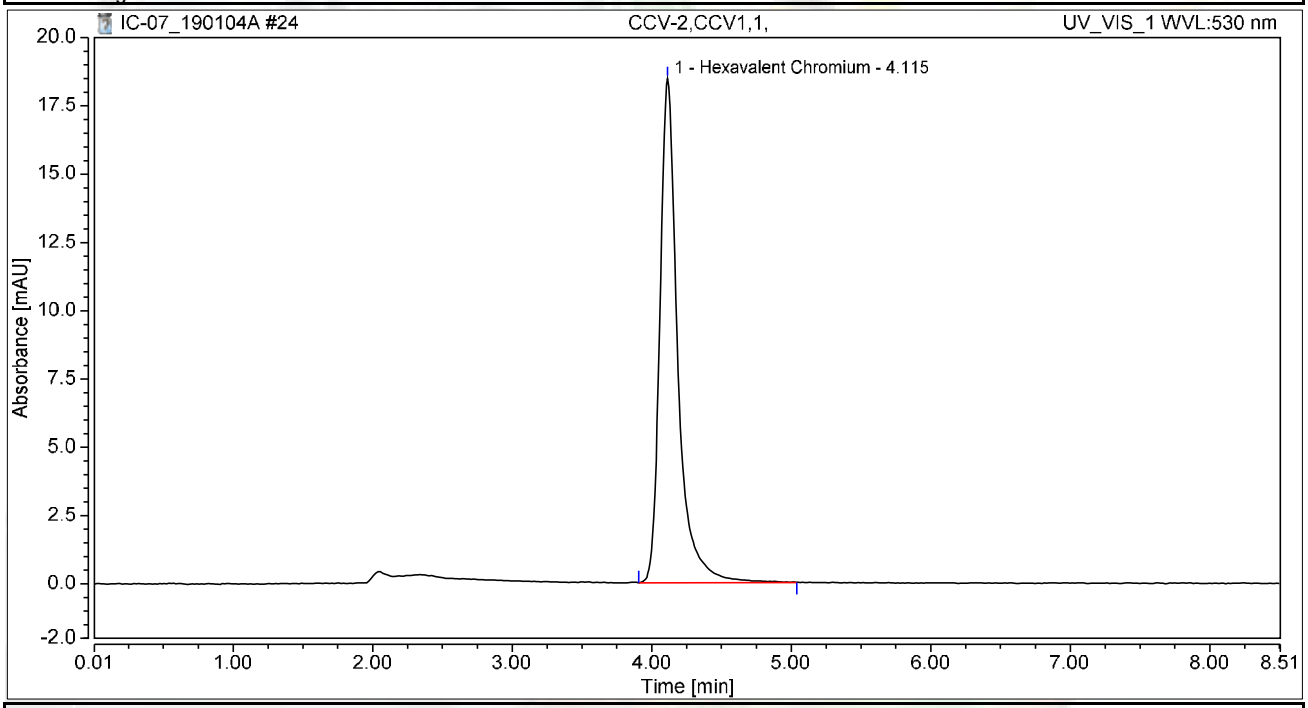
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-2,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 12:50** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

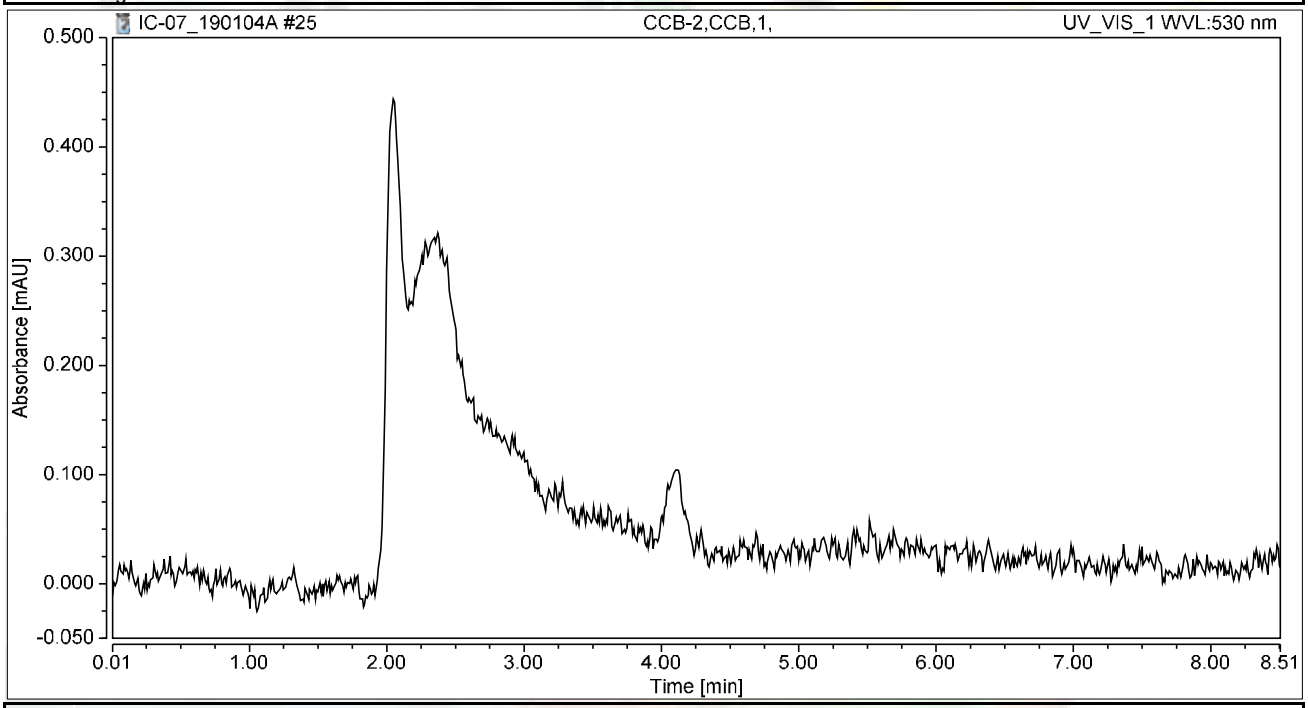
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 2.734 | 18.451 | 100.00 | 100.00 | 10.4513 |
| **Total:** | | | **2.734** | **18.451** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-2,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 13:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

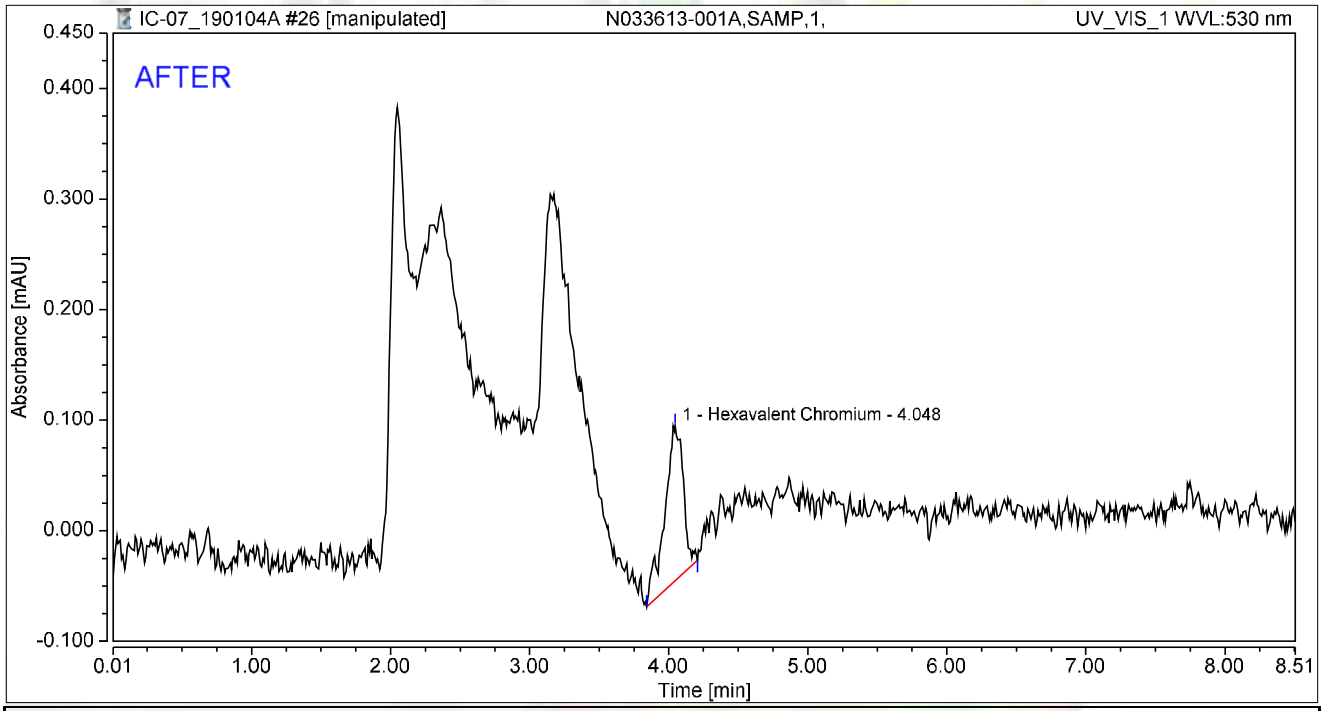
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033613-001A,SAMP,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 13:09** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.022 | 0.140 | 100.00 | 100.00 | 0.0829 |
| **Total:** | | | **0.022** | **0.140** | **100.00** | **100.00** | |

rba 1/18/2019

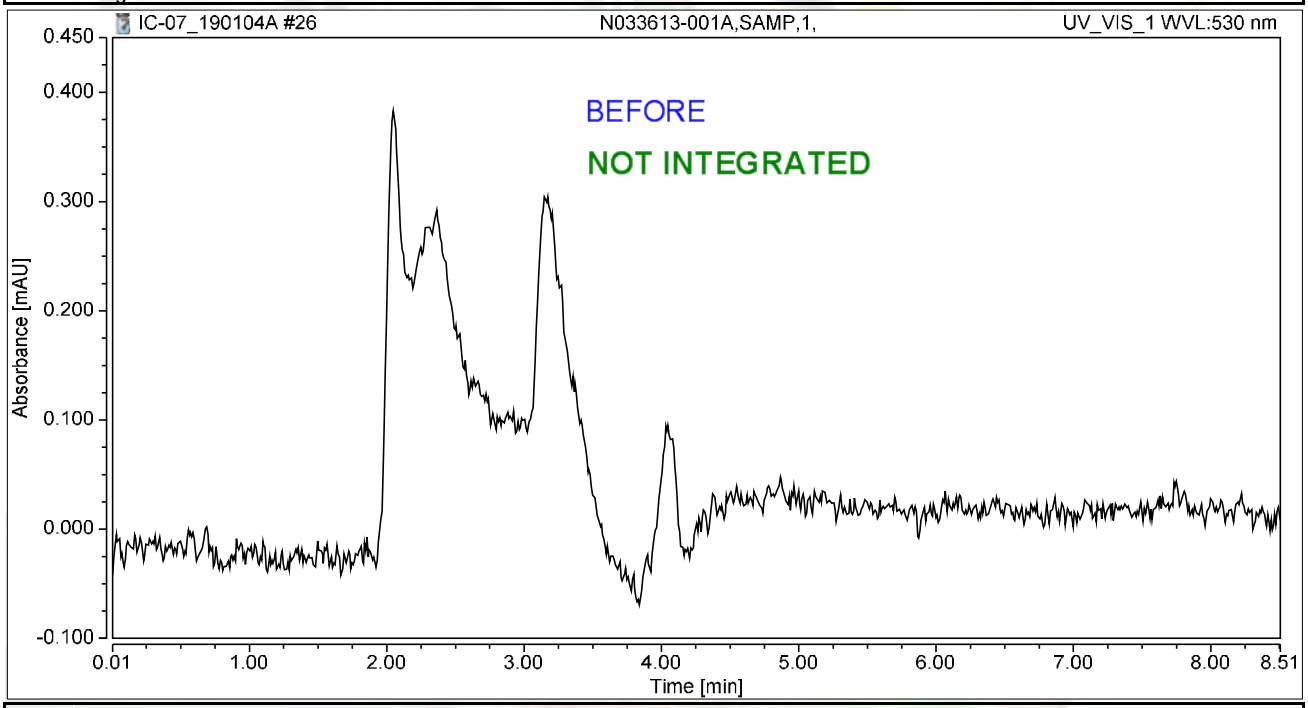
Reviewed by:
Nancy 1/19/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033613-001A,SAMP,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 13:09** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

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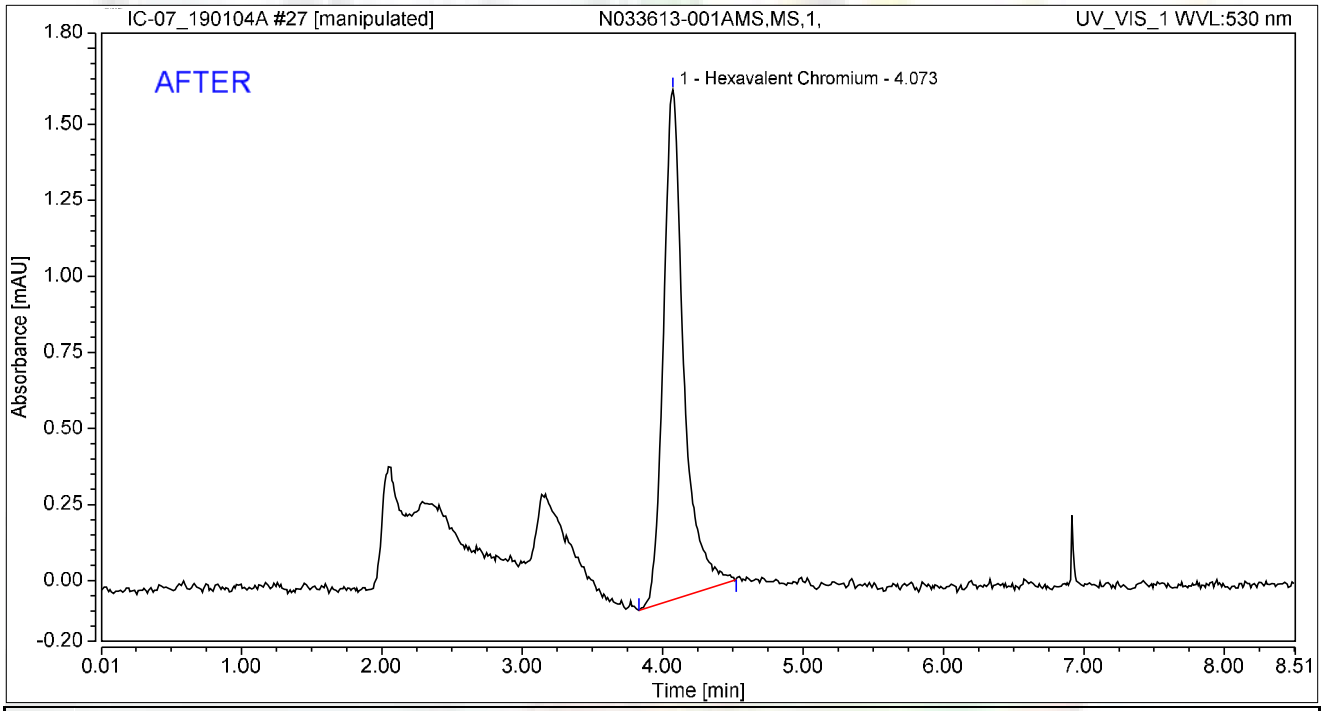
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033613-001AMS,MS,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 13:19** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 0.283 | 1.677 | 100.00 | 100.00 | 1.0835 |
| **Total:** | | | **0.283** | **1.677** | **100.00** | **100.00** | |

rba 1/18/2019

My first Reviewed by: 1/19/2019

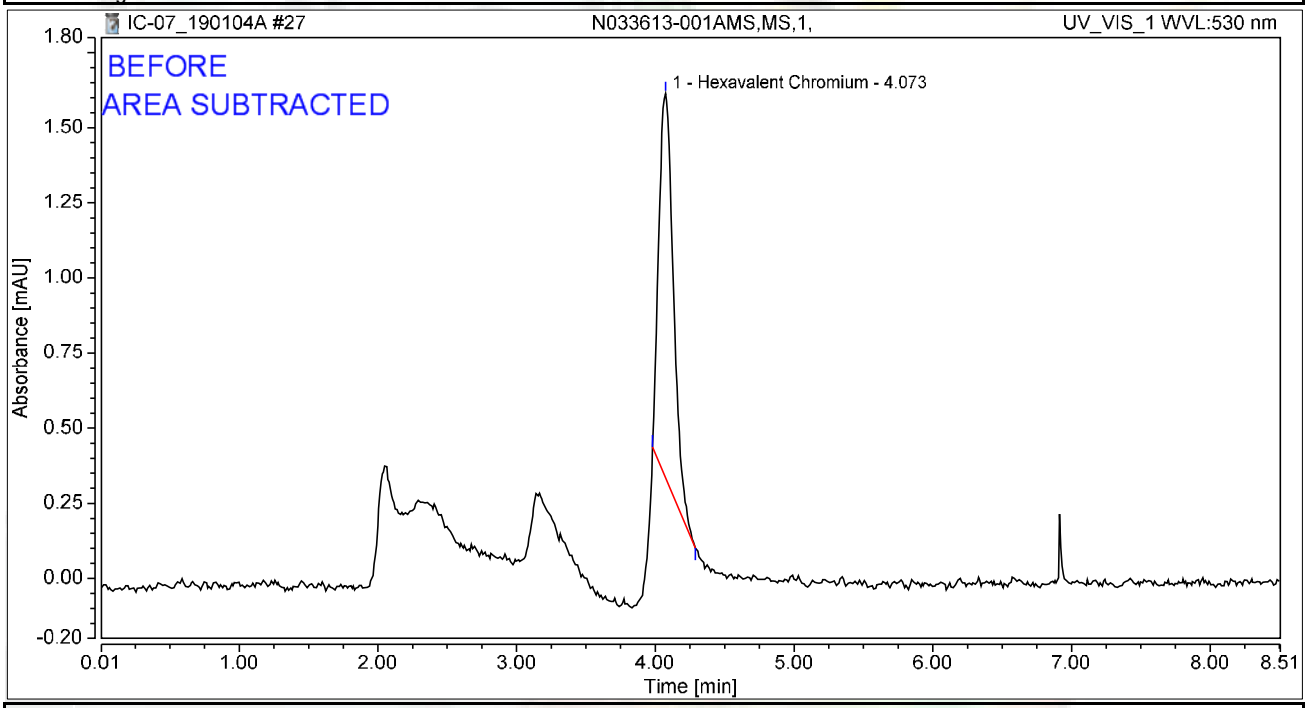
Chromeleon (c) Dionex
Version 7.1.1.1127

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033613-001AMS,MS,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 13:19** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 0.155 | 1.276 | 100.00 | 100.00 | 0.5931 |
| **Total:** | | | **0.155** | **1.276** | **100.00** | **100.00** | |

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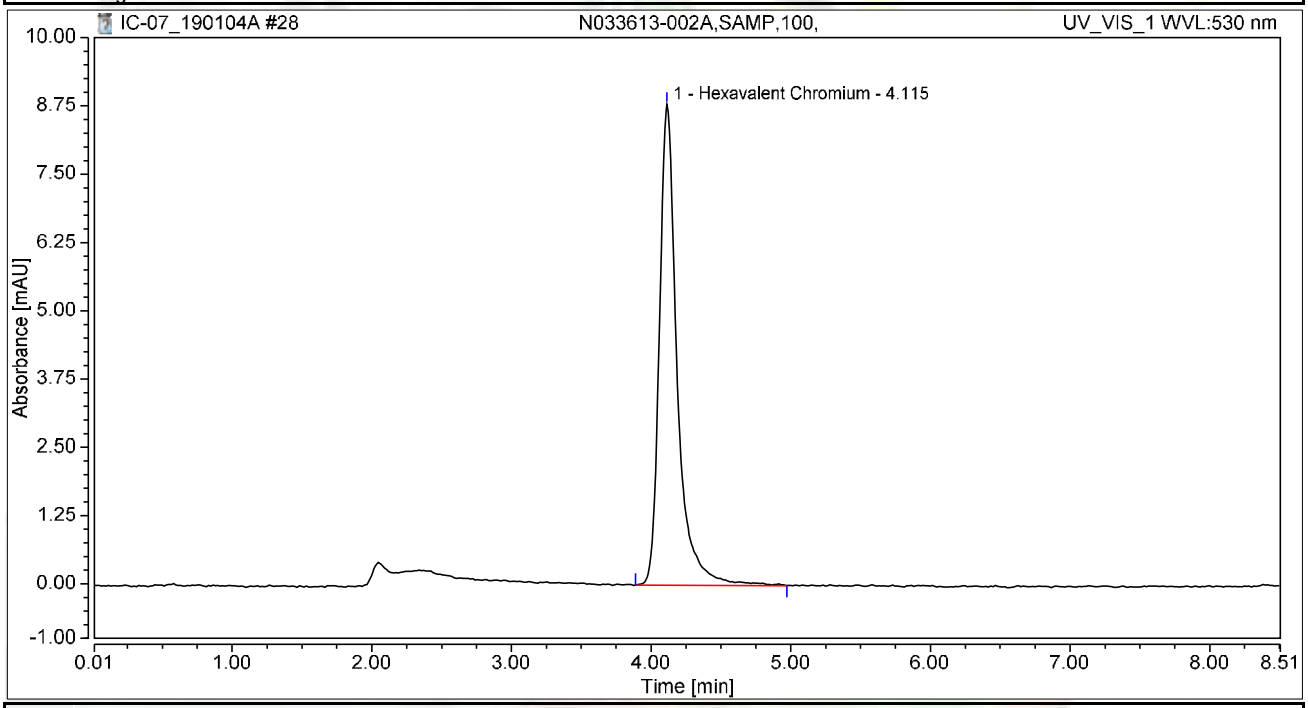
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033613-002A,SAMP,100,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **20** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 13:28** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

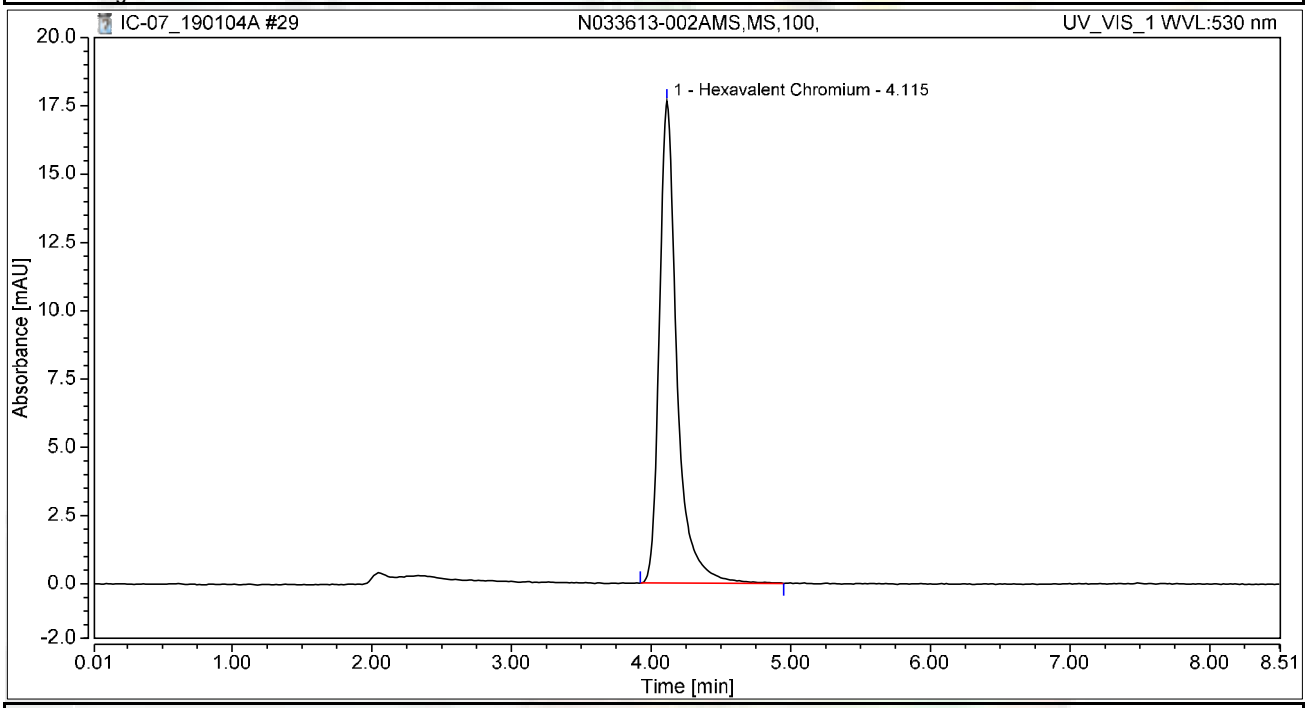
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 1.298 | 8.799 | 100.00 | 100.00 | 4.9600 |
| **Total:** | | | **1.298** | **8.799** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033613-002AMS,MS,100,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 13:38** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

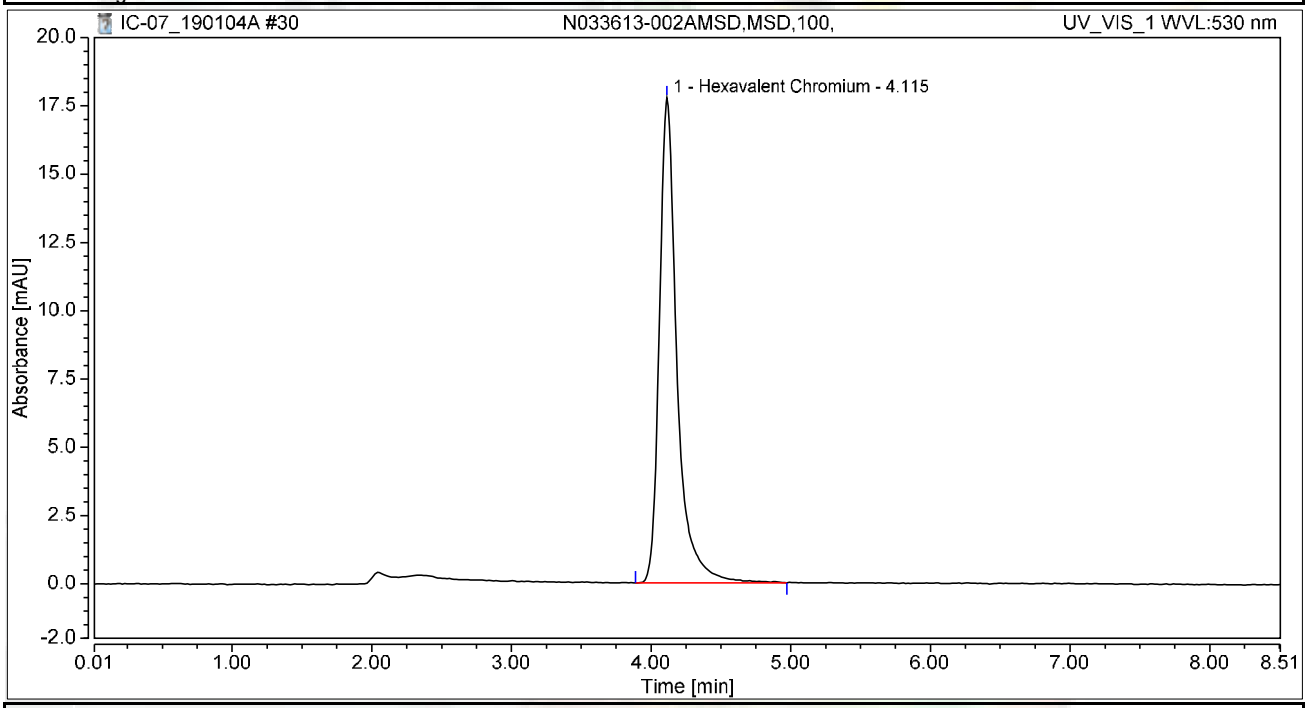
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 2.587 | 17.659 | 100.00 | 100.00 | 9.8882 |
| **Total:** | | | **2.587** | **17.659** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033613-002AMSD,MSD,100,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 13:47** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

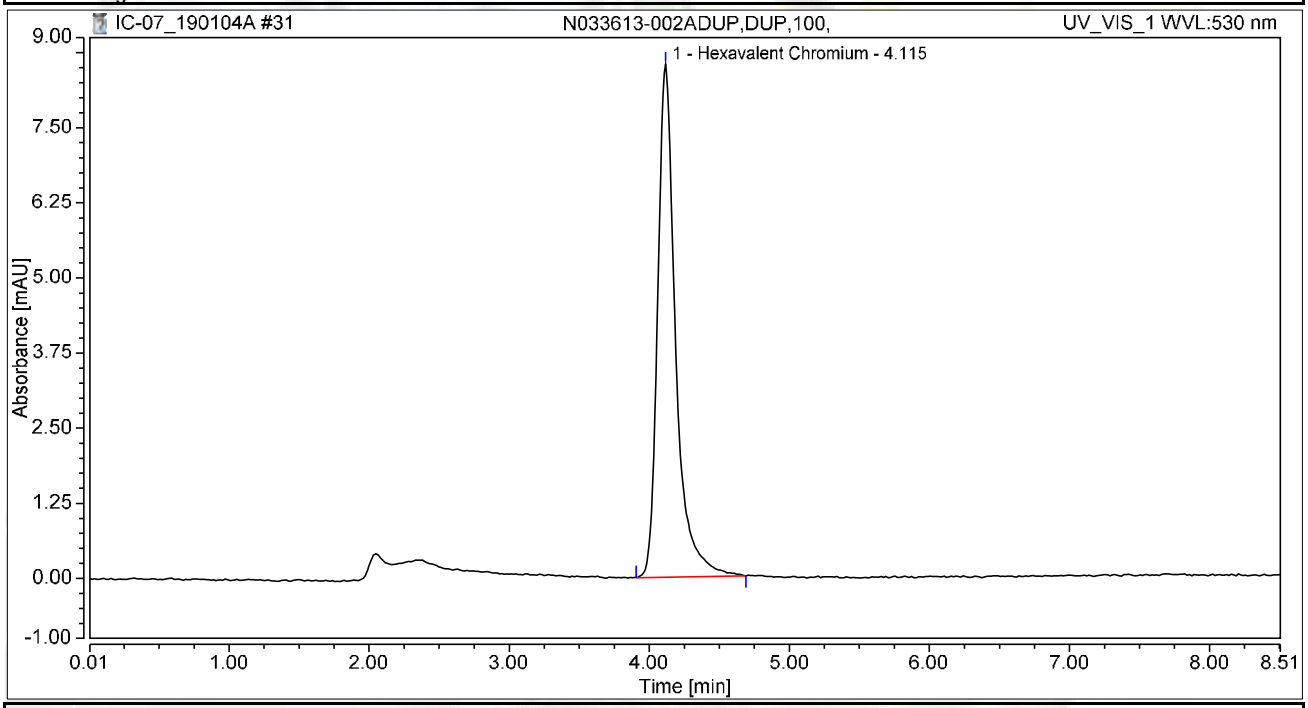
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 2.608 | 17.761 | 100.00 | 100.00 | 9.9660 |
| **Total:** | | | **2.608** | **17.761** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033613-002ADUP,DUP,100,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **23** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 13:57** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

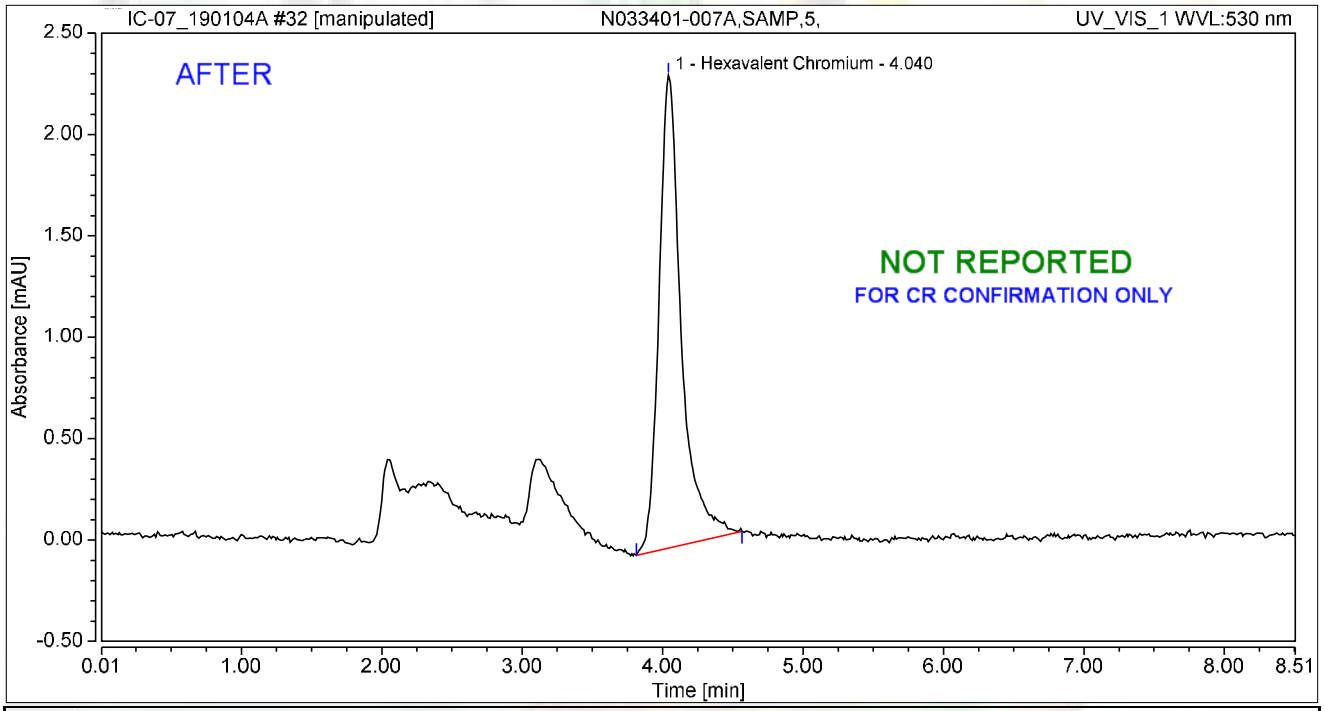
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 1.266 | 8.538 | 100.00 | 100.00 | 4.8393 |
| **Total:** | | | **1.266** | **8.538** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033401-007A,SAMP,5,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **24** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 14:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.040 | 0.430 | 2.334 | 100.00 | 100.00 | 1.6445 |
| **Total:** | | | **0.430** | **2.334** | **100.00** | **100.00** | |

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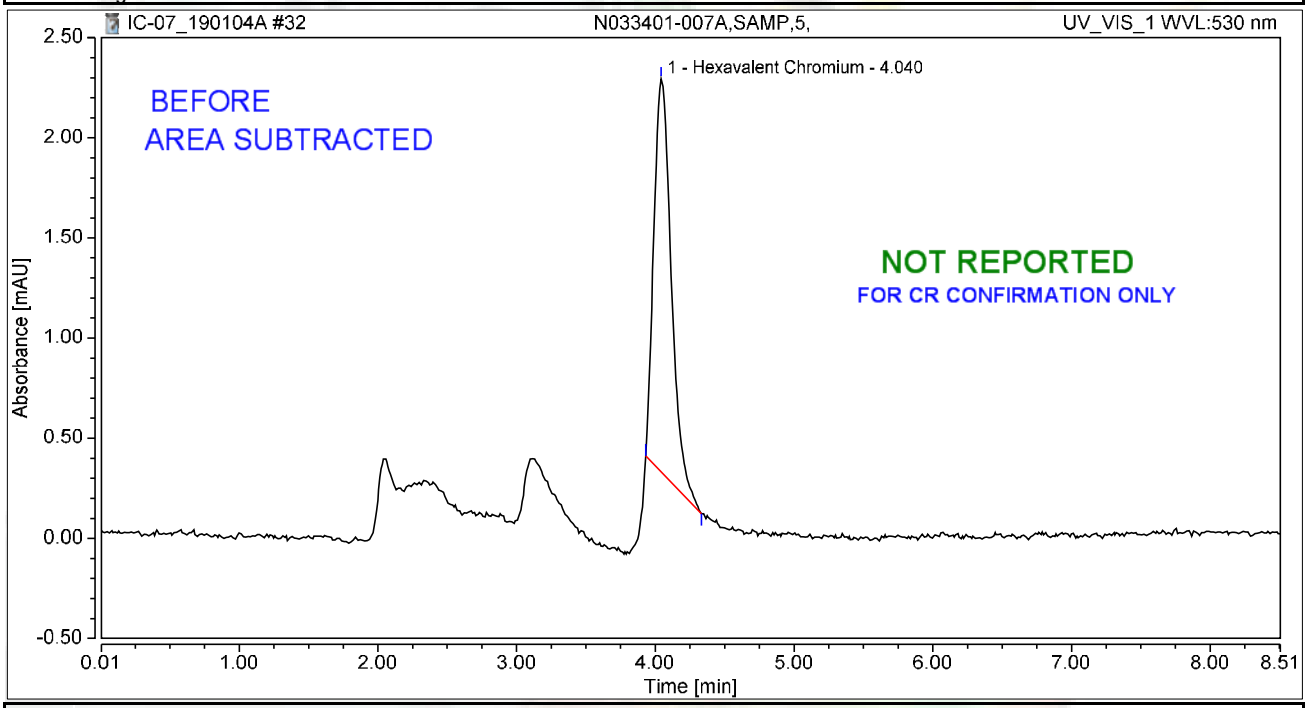
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033401-007A,SAMP,5,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **24** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 14:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.040 | 0.286 | 1.960 | 100.00 | 100.00 | 1.0947 |
| **Total:** | | | **0.286** | **1.960** | **100.00** | **100.00** | |

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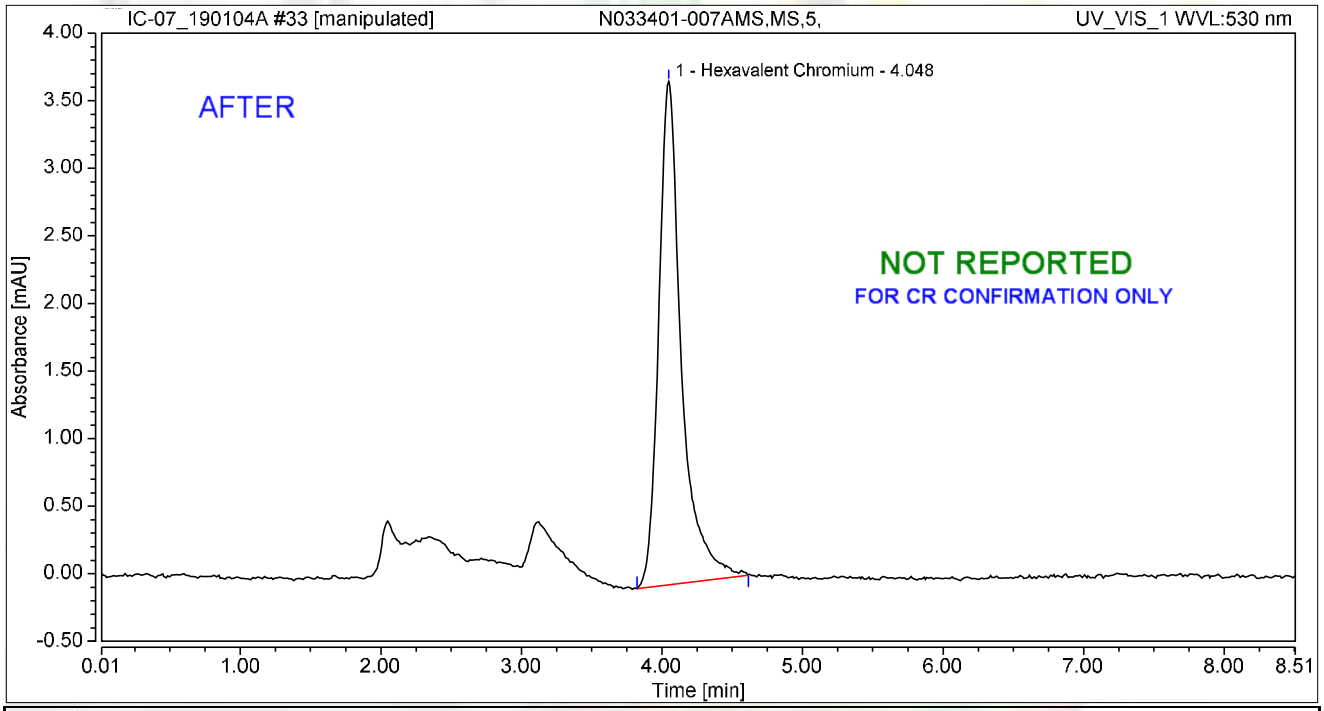
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033401-007AMS,MS,5,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 14:15** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.696 | 3.723 | 100.00 | 100.00 | 2.6614 |
| **Total:** | | | **0.696** | **3.723** | **100.00** | **100.00** | |

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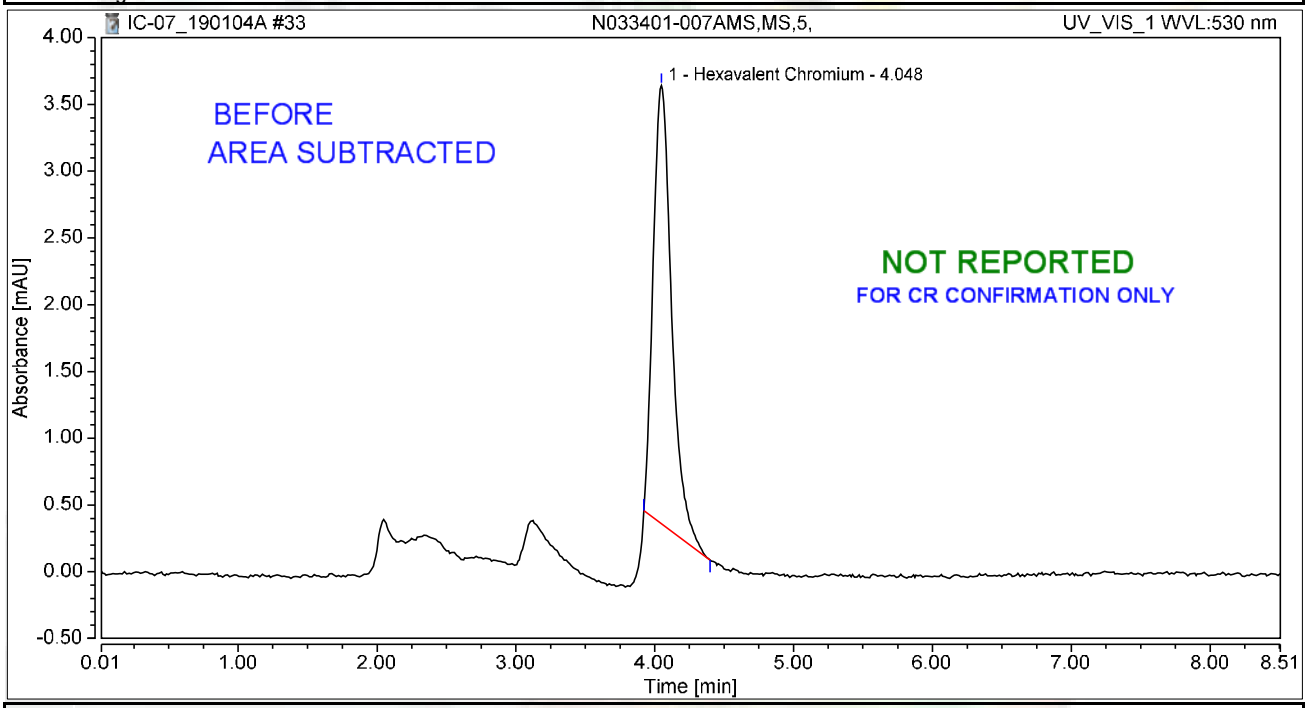
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033401-007AMS,MS,5,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 14:15** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.508 | 3.283 | 100.00 | 100.00 | 1.9406 |
| **Total:** | | | **0.508** | **3.283** | **100.00** | **100.00** | |

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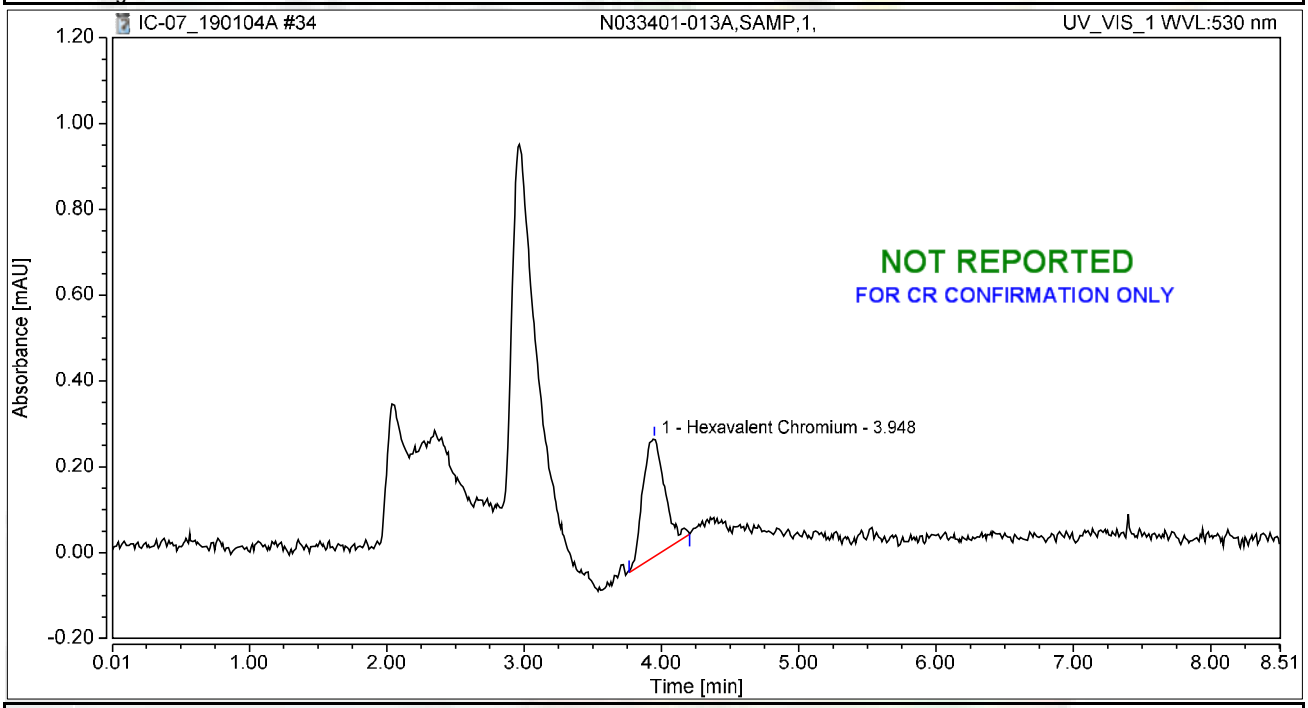
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033401-013A,SAMP,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **26** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 14:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

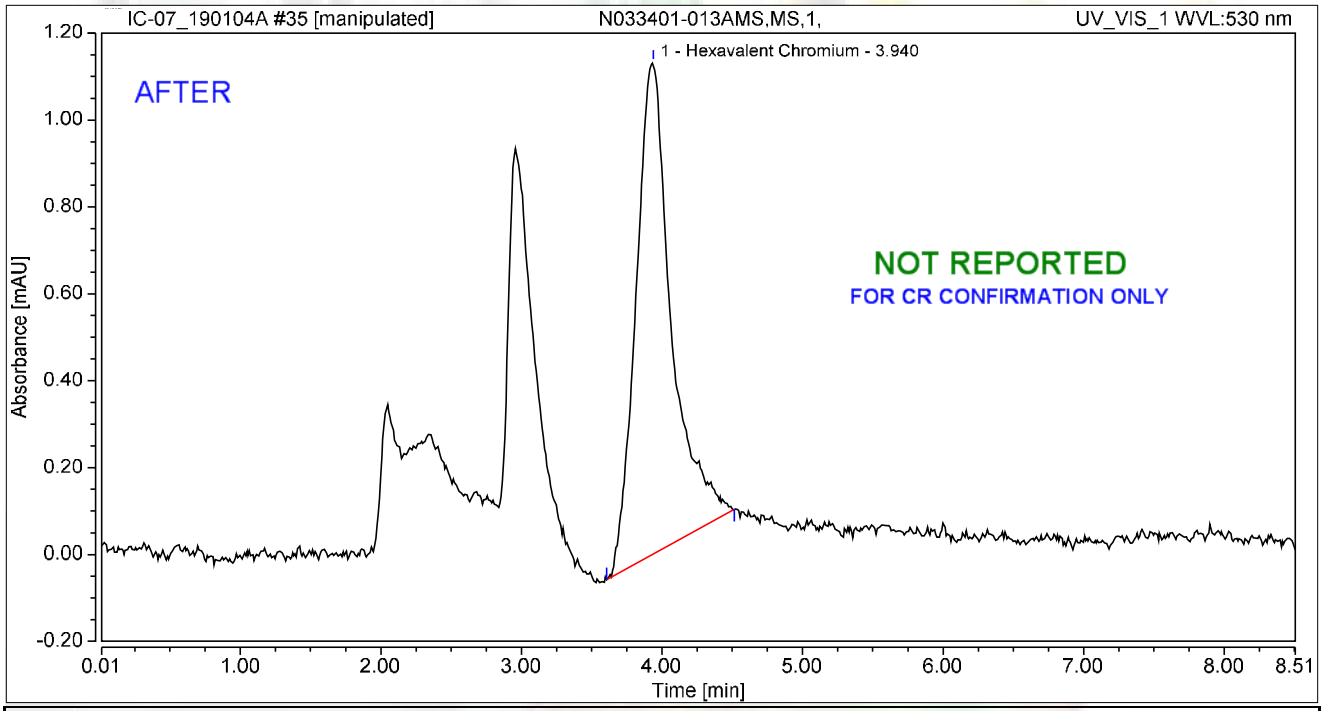
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.948 | 0.051 | 0.275 | 100.00 | 100.00 | 0.1950 |
| **Total:** | | | **0.051** | **0.275** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033401-013AMS,MS,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 14:34** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.940 | 0.333 | 1.131 | 100.00 | 100.00 | 1.2710 |
| **Total:** | | | **0.333** | **1.131** | **100.00** | **100.00** | |

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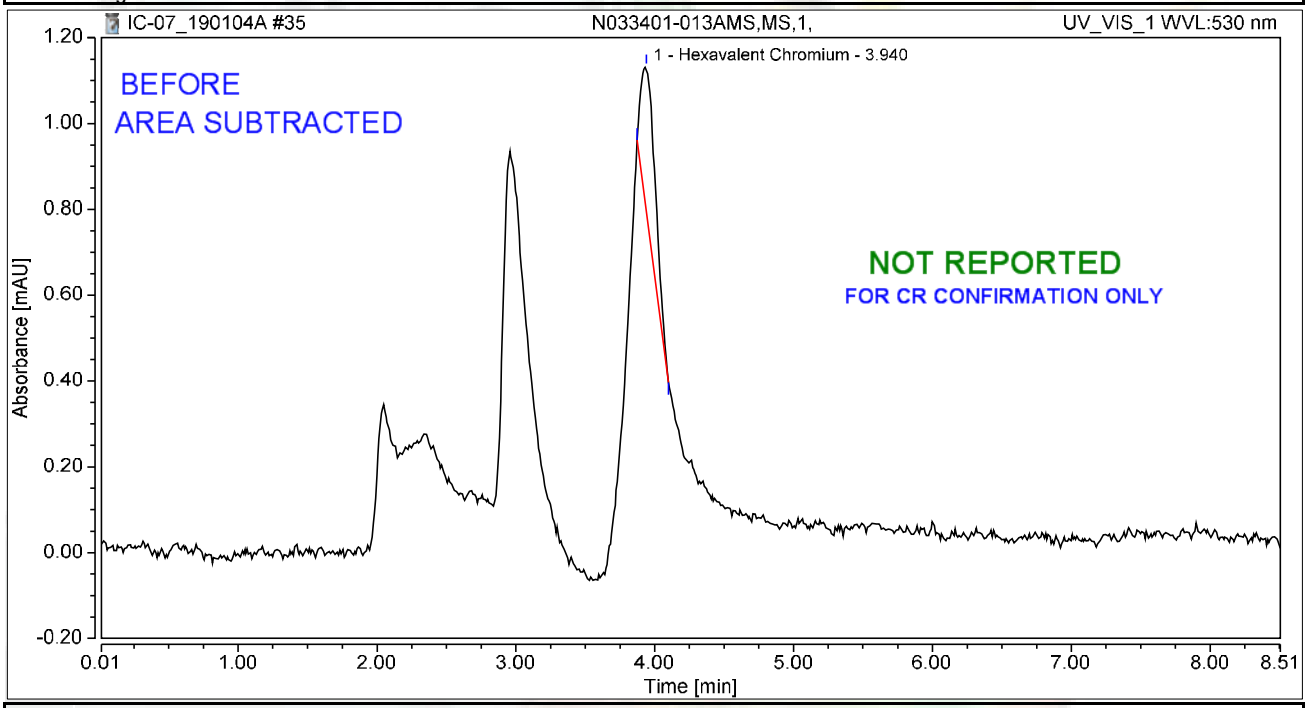
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033401-013AMS,MS,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 14:34** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.940 | 0.041 | 0.339 | 100.00 | 100.00 | 0.1579 |
| **Total:** | | | **0.041** | **0.339** | **100.00** | **100.00** | |

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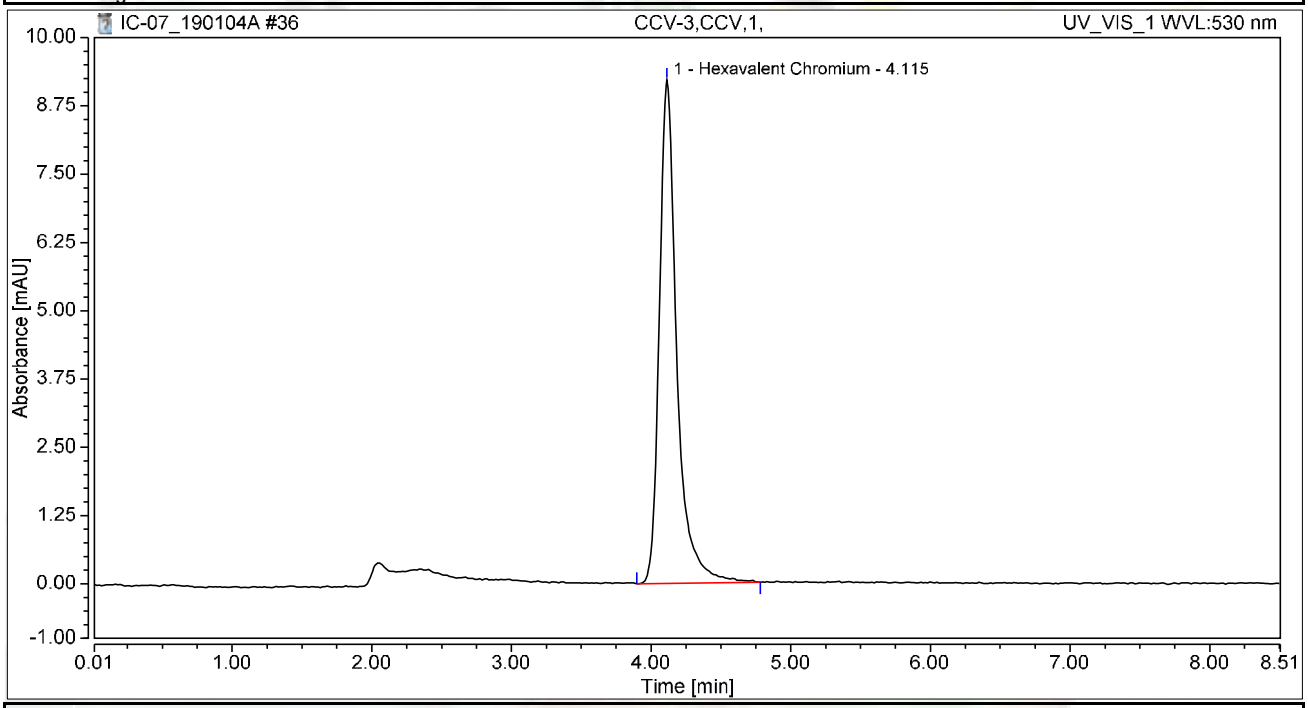
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-3,CCV,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **28** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 14:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

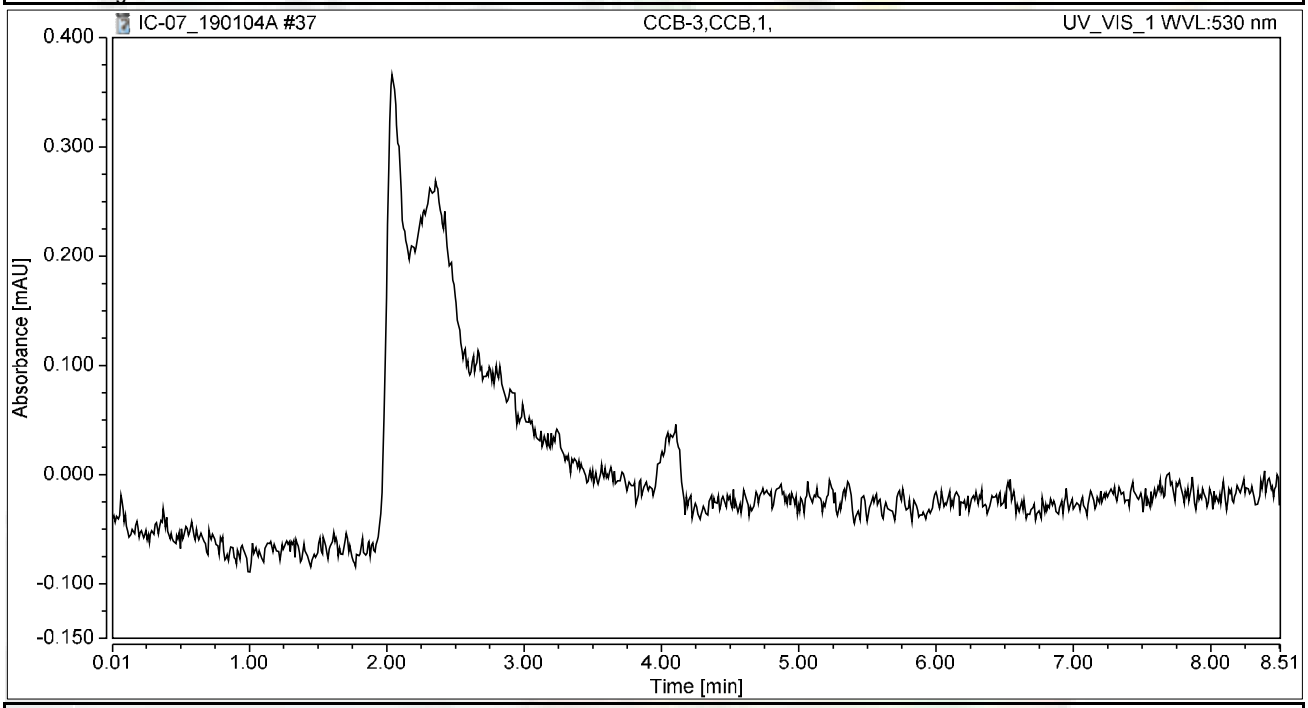
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 1.340 | 9.221 | 100.00 | 100.00 | 5.1232 |
| **Total:** | | | **1.340** | **9.221** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-3,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **29** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 14:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

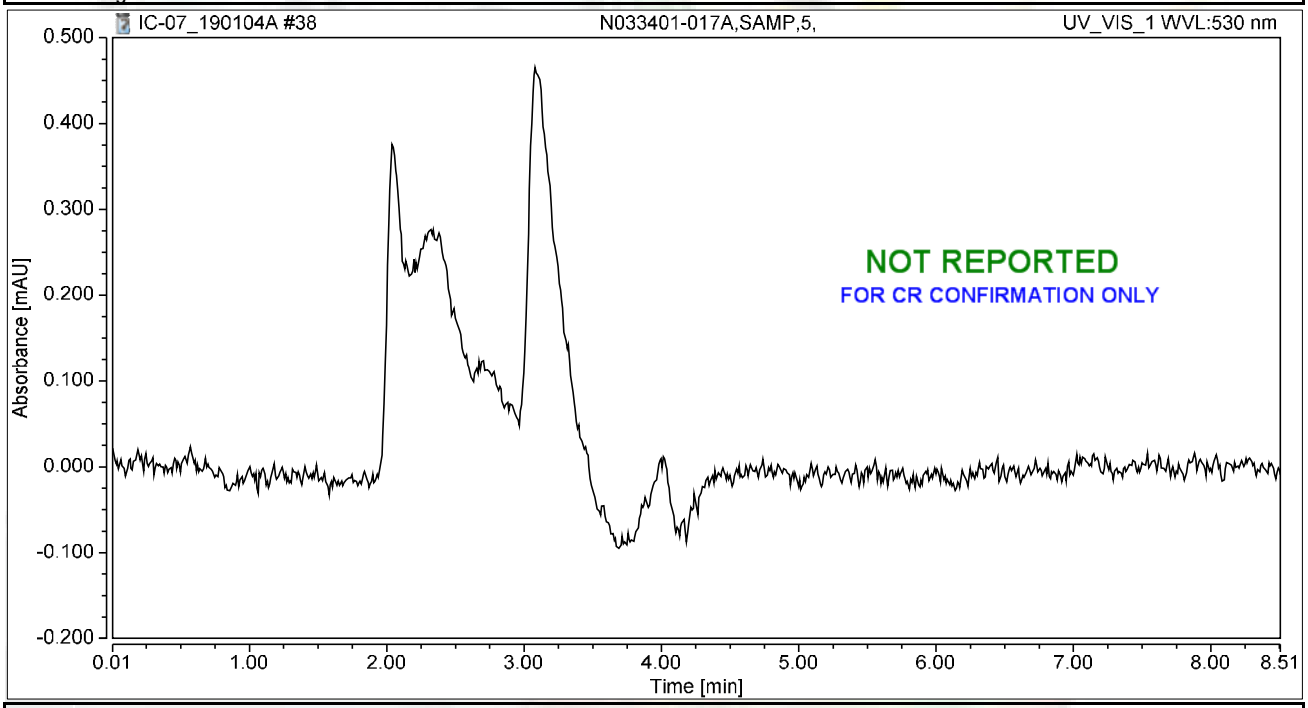
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033401-017A,SAMP,5,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **30** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 15:03** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

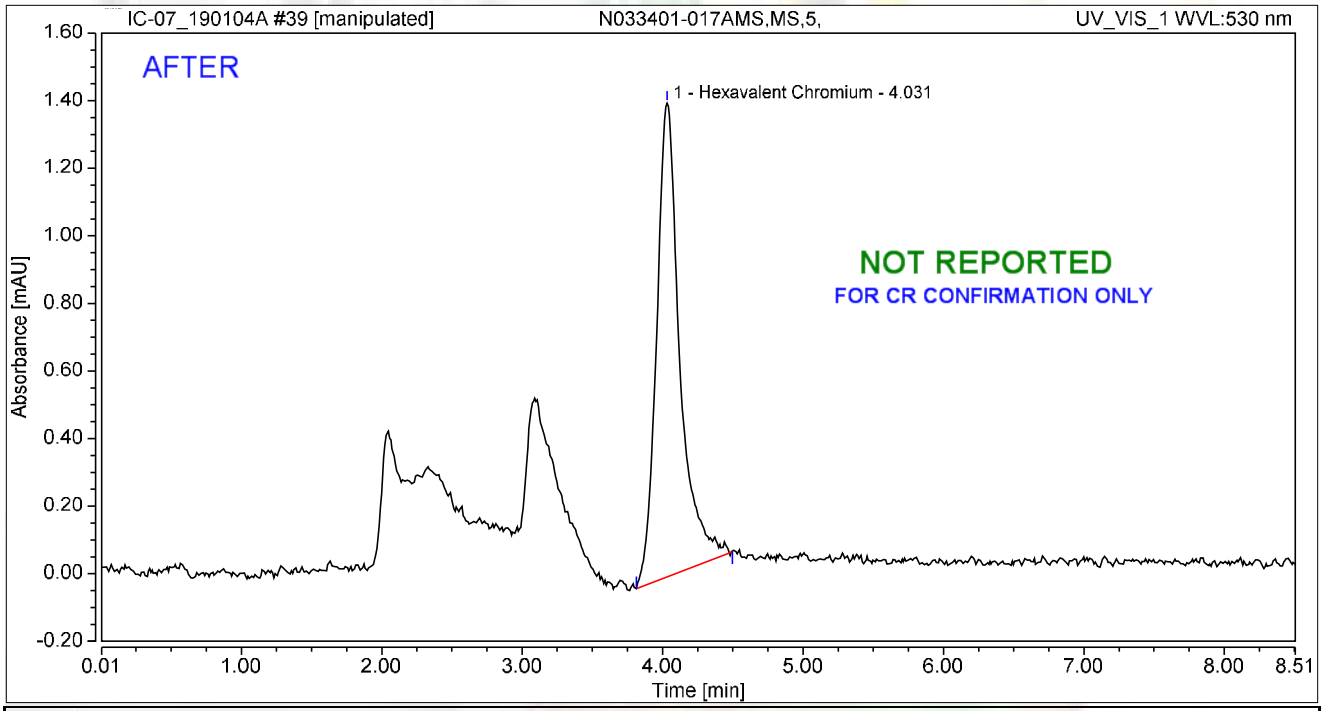
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033401-017AMS,MS,5,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **31** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 15:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.031 | 0.270 | 1.402 | 100.00 | 100.00 | 1.0316 |
| **Total:** | | | **0.270** | **1.402** | **100.00** | **100.00** | |

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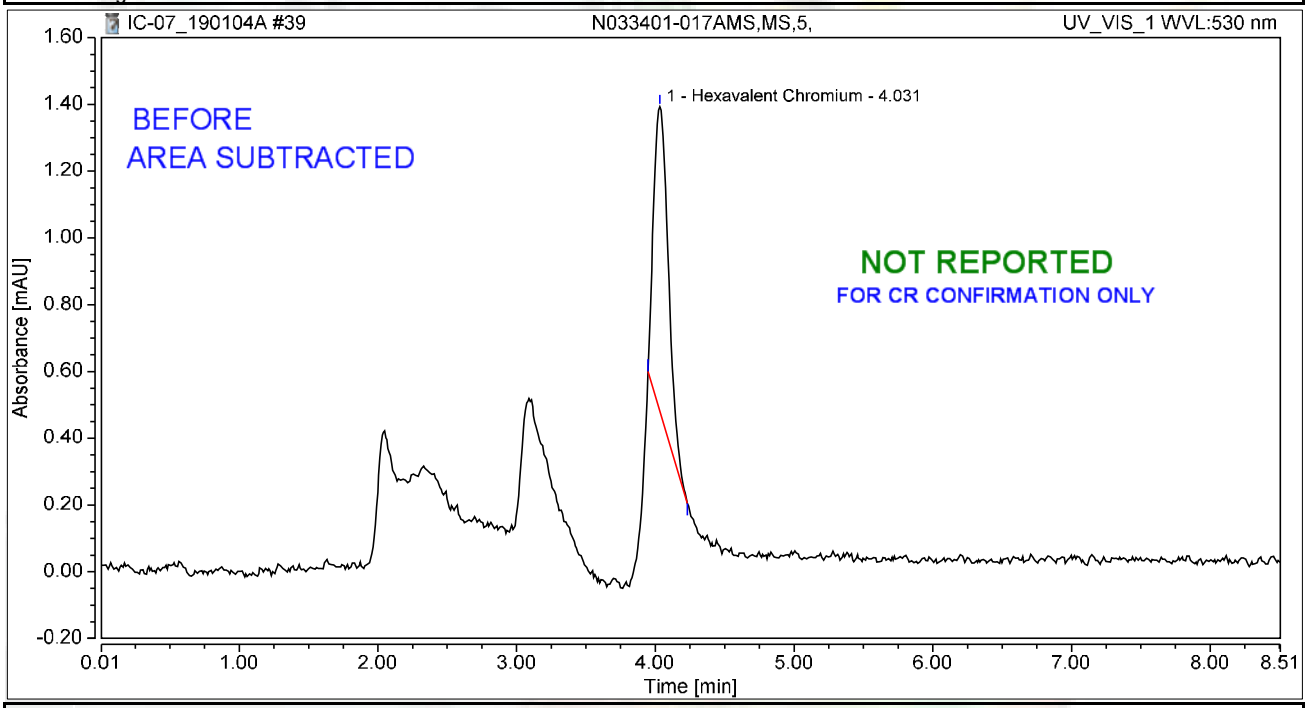
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N033401-017AMS,MS,5,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **31** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 15:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.031 | 0.112 | 0.909 | 100.00 | 100.00 | 0.4279 |
| **Total:** | | | **0.112** | **0.909** | **100.00** | **100.00** | |

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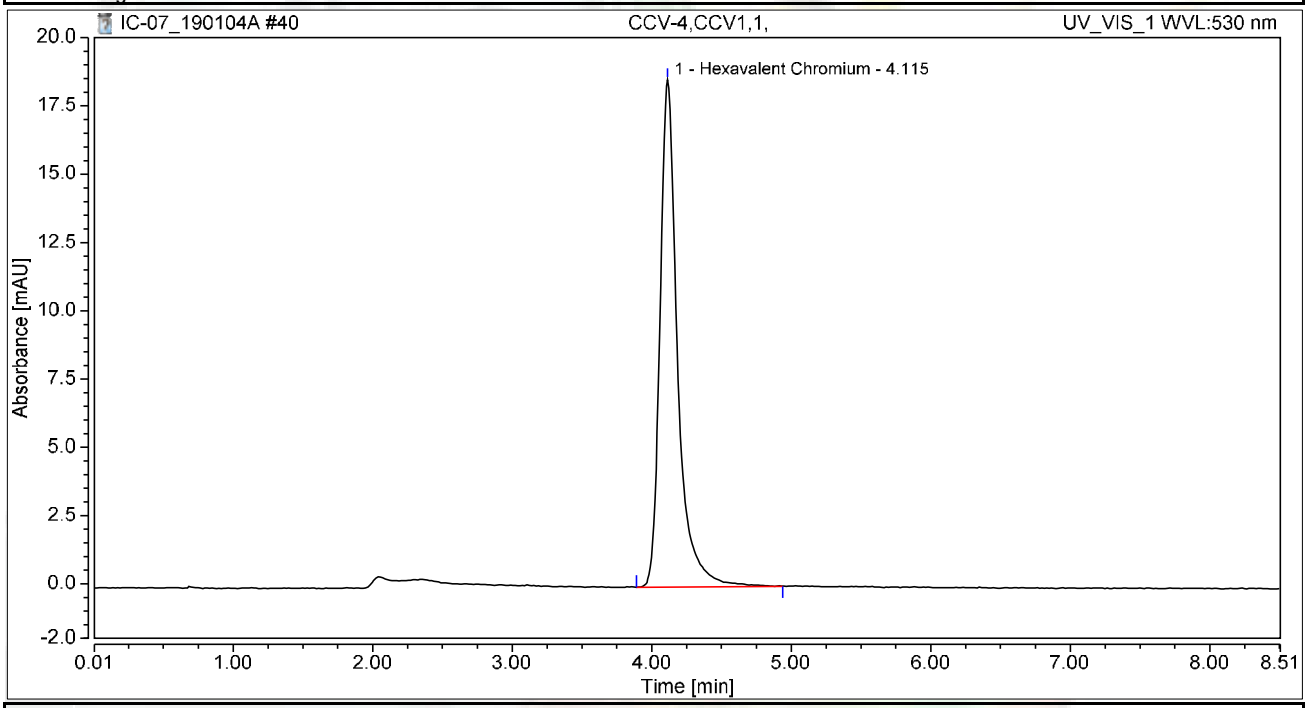
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-4,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **32** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 15:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

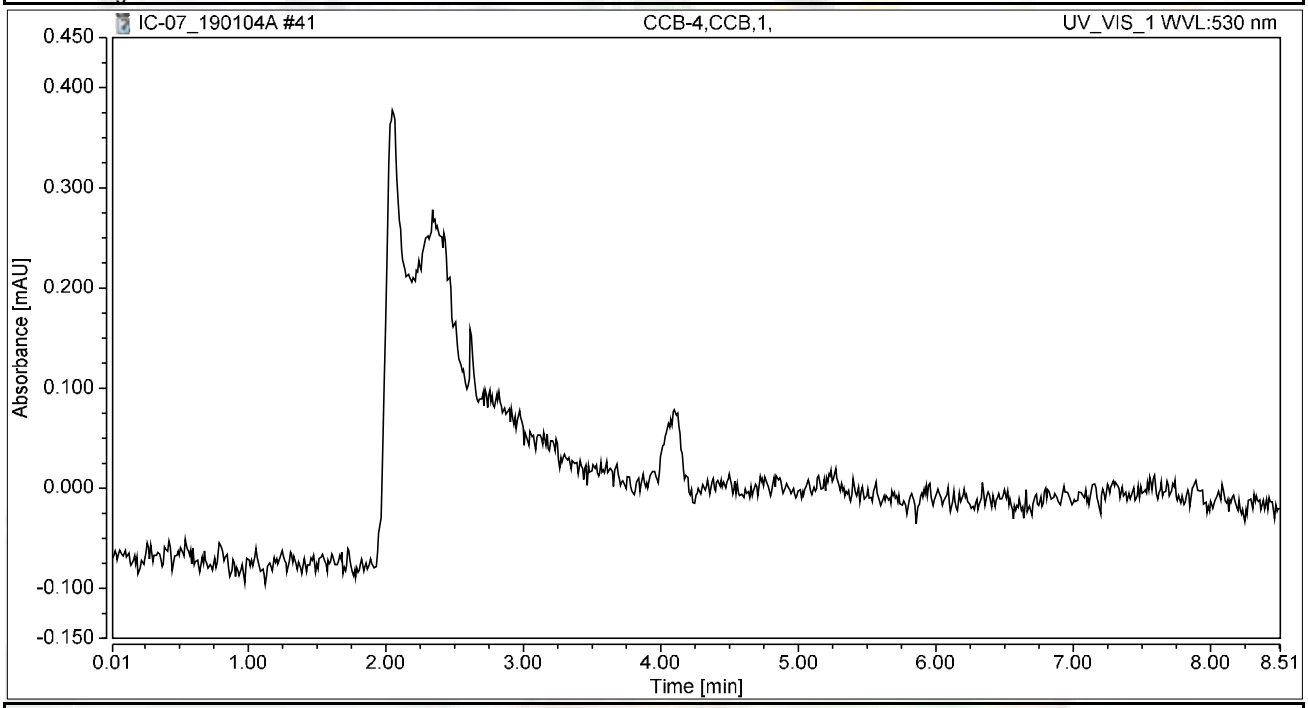
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 2.698 | 18.559 | 100.00 | 100.00 | 10.3113 |
| **Total:** | | | **2.698** | **18.559** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-4,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **33** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **181218_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Jan/19 15:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# SM 2320B

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R131214 **Analyst:** LSR

**ASSET #:** N033613 **Date Analyzed:** 7-Jan

**Method:** EPA 2320

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | | | |
| 11. LCS compounds within control limits. | X | | | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer Silvia Ramit Date: 1/17/2019

2nd Level Reviewer Mary 1/17/2019 Date: —

# SAMPLE CALCULATION

Sample ID: **N033613-001B @ pH 7.77**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A) (B)/ (53.00) (C)

Where:

A, grams weighed for $Na_2CO_3$ solution ($Na_2CO_3$ Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

**$Na_2CO_3$ Standardization Solution**, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of $Na_2CO_3$ in distilled water and dilute to 1 liter.

**LCS/MS/MSD Stock** $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65 g/L) (5mL) / (53.00) (11.70 mL)

= **0.02137 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N $H_2SO_4$ * DF * 1000

Where:

$M_{vol.}$ volume titrant used to reach pH 4.5, ml
N, Normality of $H_2SO_4$
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (10.50) (0.02137 N) (1) * 1000

= 224.3850 mg**/L**

Reporting results in two significant figures,

= 220 as CaCO3

Julia Ramit 1/17/2019

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N $H_2SO_4$ * DF * 1000

= (0.00) (0.02137 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N $H_2SO_4$ * DF * 1000

= (10.50 mL) (0.02137) (1) * 1000

= 224.3850 **mg/L** as CaCO3

Where:

$P_{vol.}$ - Volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - Volume titrant used to reach pH 4.5, ml
N - Normality of $H_2SO_4$
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, $CO_3$, $HCO_3$ alkalinities as $CaCO_3$ will be calculated as follows:

| **Result of Titration** | **OH Alkalinity as $CaCO_3$** | **$CO_3$ Alkalinity as $CaCO_3$** | **$HCO_3$ Alkalinity as $CaCO_3$** |
|---|---|---|---|
| P = 0 | 0 | 0 | T |
| P < ½ T | 0 | 2P | T – 2P |
| P = ½ T | 0 | 2P | 0 |
| P > ½ T | 2P – T | 2(T – P) | 0 |
| P = T | T | 0 | 0 |

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

$CO_3$ Alkalinity as $CaCO_3$ = **0**

$HCO_3$ Alkalinity as $CaCO_3$ = 224.3850 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

$CO_3$ Alkalinity as $CaCO_3$ = **0**

$HCO_3$ Alkalinity as $CaCO_3$ = **220 mg/L**

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# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

| SAMPLE | PH SAMPLE | AMOUNT | V@8.3 | VT TO 4.5 | Sample Type |
|---|---|---|---|---|---|
| MB-1 | 5.64 | 50 | 0.00 | 0.050 | MBLK |
| MB-2 | 5.57 | 50 | 0.00 | 0.05 | MBLK |
| MB-3 | 5.61 | 50 | 0.00 | 0.05 | MBLK |
| LCS-1 | 8.64 | 50 | 0.10 | 4.70 | LCS |
| N033197-001A | 7.38 | 50 | 0.00 | 0.55 | SAMP |
| N033197-002A | 7.37 | 50 | 0.00 | 0.55 | SAMP |
| N033197-003A | 7.31 | 50 | 0.00 | 0.50 | SAMP |
| N033613-001B | 7.77 | 50 | 0.00 | 10.50 | SAMP |
| N033613-002B | 7.70 | 50 | 0.00 | 7.30 | SAMP |
| N033613-002BDUP | 7.73 | 50 | 0.00 | 7.20 | DUP |
| N033613-002BMS | 7.82 | 50 | 0.00 | 11.90 | MS |
| N033613-002BMSD | 7.85 | 50 | 0.00 | 11.70 | MSD |

| Standardization: | | |
|---|---|---|
| Spike amt: | **5** | ml |
| Titrant used: | **11.700** | ml |
| | | |
| N H2SO4 | **0.02137** | Normal |
| | | |
| **Date Analyzed:** | **1/7/19** | |
| **Time:** | **2:00 PM** | |
| **Analyzed By:** | **LSR** | |
| | | |
| Sodium Carbonate: | **CINV-161205A** | |
| Sodium Bicarbonate: | **CINV-180510A** | |
| Sulfuric Acid: | **R181217C** | |

Julia Ramit 1/17/2019

| Date Analyzed: | 1/7/19 | | Reagents: | | | | | Standardization: | | | | | P = 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time Started: | 2:00 PM | | | Sodium Carbonate: | | CINV-161205A | | | Spike amt: | 5 | mL | | P < 1/2 T |
| Analyzed By: | LSR | | | Hydrochloric Acid: | | 0 | | | Titrant used: | 11.7 | mL | | P = 1/2 T |
| | | | | Sulfuric Acid: | | R181217C | | | | | | | P > 1/2 T |
| | | | | | | | | | N H2SO4 | 0.02137 | N | | P = T |

| Sample ID | Sample Vol/Wt. | Sample pH | Std. Code | Spike Amount | Spike Conc. | Normality, Titrant | Vol. Used to pH 8.3, ml. | Vol. Used pH 8.3 to 4.5, ml. | Total Vol. Used, ml. | DF (50ml/Vsamp.) | P Alkalinity | T Alkalinity | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-1 | 50 | 5.64 | | | | 0.02137 | 0.00 | 0.05 | 0.05 | 1 | 0.00 | 1.07 | |
| MB-2 | 50 | 5.57 | | | | 0.02137 | 0.00 | 0.05 | 0.05 | 1 | 0.00 | 1.07 | |
| MB-3 | 50 | 5.61 | | | | 0.02137 | 0.00 | 0.05 | 0.05 | 1 | 0.00 | 1.07 | |
| LCS-1 | 50 | 8.64 | | | | 0.02137 | 0.10 | 4.60 | 4.70 | 1 | 2.14 | 100.43 | |
| N033197-001A | 50 | 7.38 | | | | 0.02137 | 0.00 | 0.55 | 0.55 | 1 | 0.00 | 11.75 | |
| N033197-002A | 50 | 7.37 | | | | 0.02137 | 0.00 | 0.55 | 0.55 | 1 | 0.00 | 11.75 | |
| N033197-003A | 50 | 7.31 | | | | 0.02137 | 0.00 | 0.50 | 0.50 | 1 | 0.00 | 10.68 | |
| N033613-001B | 50 | 7.77 | | | | 0.02137 | 0.00 | 10.50 | 10.50 | 1 | 0.00 | 224.36 | |
| N033613-002B | 50 | 7.7 | | | | 0.02137 | 0.00 | 7.30 | 7.30 | 1 | 0.00 | 155.98 | |
| N033613-002BDU | 50 | 7.73 | | | | 0.02137 | 0.00 | 7.20 | 7.20 | 1 | 0.00 | 153.85 | |
| N033613-002BMS | 50 | 7.82 | | | | 0.02137 | 0.00 | 11.90 | 11.90 | 1 | 0.00 | 254.27 | |
| N033613-002BMS | 50 | 7.85 | | | | 0.02137 | 0.00 | 11.70 | 11.70 | 1 | 0.00 | 250.00 | |

Julia Ramit 1/17/2019

## Speciated, Alkalinity as CaCO3

**SM 2320B**

| | |
|---|---|
| **Date Analyzed:** | 1/7/19 |
| **Time:** | 2:00 PM |
| **Analyzed By:** | LSR |

| SAMPLE ID | OH | CO3 | HCO3 | TOTAL | CHECK | COMMENT | REMARKS |
|---|---|---|---|---|---|---|---|
| MB-1 | 0.00 | 0.00 | 1.07 | 1.07 | 1.07 | | P = 0 |
| MB-2 | 0.00 | 0.00 | 1.07 | 1.07 | 1.07 | | P = 0 |
| MB-3 | 0.00 | 0.00 | 1.07 | 1.07 | 1.07 | | P = 0 |
| LCS-1 | 0.00 | 4.27 | 96.15 | 100.43 | 100.43 | | P < 1/2 T |
| N033197-001A | 0.00 | 0.00 | 11.75 | 11.75 | 11.75 | | P = 0 |
| N033197-002A | 0.00 | 0.00 | 11.75 | 11.75 | 11.75 | | P = 0 |
| N033197-003A | 0.00 | 0.00 | 10.68 | 10.68 | 10.68 | | P = 0 |
| N033613-001B | 0.00 | 0.00 | 224.36 | 224.36 | 224.36 | | P = 0 |
| N033613-002B | 0.00 | 0.00 | 155.98 | 155.98 | 155.98 | | P = 0 |
| N033613-002BDUP | 0.00 | 0.00 | 153.85 | 153.85 | 153.85 | | P = 0 |
| N033613-002BMS | 0.00 | 0.00 | 254.27 | 254.27 | 254.27 | | P = 0 |
| N033613-002BMSD | 0.00 | 0.00 | 250.00 | 250.00 | 250.00 | | P = 0 |

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# Alkalinity Preparation and Runlog

**Matrix:** $H_2O$

Date Extracted: 1/7/19
Time Extracted: 1/7/19
Extracted By: LSR

Date Analyzed: 1/7/19
Time Analyzed: 1400
Analyzed By: LSR

Reagent Lot # / Reagent ID
Sodium Carbonate: CINV 161205A
Hydrochloric Acid: –
Sulfuric Acid: R181217C
Sodium Bicarbonate: CINV 180510A

pH meter Calibration
SLOPE: 96.7%
pH 7 - 7.02 CINV 180914C
4 - 4.04 180940
10 - 10.02 180919C

| | Sample ID. | Sample Wt./Vol. | Sample pH | Std Code | Spike Amt Added | Spike Conc. | Norm. Titrant | Vol. At pH = 8.3 | Vol. At pH = 4.5 | Dilution (F/I) | Calculations | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | STANDARDIZATION | | | | | | | | | | | |
| | #1 | 50mL | 10.64 | IWST190107A | 5mL | 0.05N | - | - | 11.70 | 50/50 | N $H_2SO_4$ = (2.65g/L)(5mL) / (53)(V titrant) | = 0.021367521 |
| | #2 | | 10.68 | | | | - | - | 11.70 | | | |
| 1) | MBLK 1 | 50mL | 5.64 | | | | 0.02137 | 0 | 0.05 | 50/50 | | |
| 2) | 2 | | 5.57 | | | | | 0 | 0.05 | | | |
| 3) | 3 | | 5.61 | | | | | 0 | 0.05 | | | |
| 4) | LCS | | 8.64 | IWST190107B | 1mL | 0.05N | | 0.10 | 4.70 | | | |
| 5) | N033197-1A | | 7.38 | | | | | 0 | 0.55 | | | |
| 6) | 2A | | 7.37 | | | | | 0 | 0.55 | | | |
| 7) | 3A | | 7.31 | | | | | 0 | 0.50 | | | |
| 8) | N033613-1B | | 7.77 | | | | | 0 | 10.50 | | | |
| 9) | 2B | | 7.70 | | | | | 0 | 7.30 | | | |
| 10) | 2BDUP | | 7.73 | | | | | 0 | 7.20 | | | |
| 11) | 2BMS | | 7.82 | IWST190107B | 1mL | 0.05N | | 0 | 11.90 | | | |
| 12) | 2BMSD | | 7.85 | | | | | 0 | 11.70 | | | |
| 13) | | | | | | | | | | | | |
| 14) | | | | | | | | | | | | |
| 15) | | | | | | | | | | | | |
| 16) | | | | | | | | | | | | |
| 17) | | | | R P = (V pH 8.3)(N $H_2SO_4$)(50,000) / VSx | | | | | | | | |
| 18) | | | | | | | | | | | | |
| 19) | | | | | | | | | | | | |
| 20) | | | | | | | | | | | | |
| | MS | | | T R = (V pH 4.5)(N $H_2SO_4$)(50,000) / VSx | | | | | | | | |
| | MSD | | | | | | | | | | | |
| | LCS | | | | | | | | | | | |
| | | | | | | | | | | | Julia Ramit 1/17/2019 | |


ASSET LABORATORIES
CALIFORNIA | P:562.219.7435 F:562.219.7436 11110 Artesia Blvd., Ste B, Cerritos, CA 90703
NEVADA | P:702.307.2659 F:702.307.2691 3151 W. Post Rd., Las Vegas, NV 89118
Logbook #7
242

# EPA 300.0

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R130996
**ASSET #:** N033613

**Instrument ID:** IC-08
**Analyst:** RBA
**Date Analyzed:** 1/4/2019

**Method:**

[X] EPA 300.0
[ ] EPA 7199

[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | | | |
| 3. ICV within ± 10% of expected value. | X | | | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | | | X | | | |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | | | X | | | |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | | | X | | | |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | | | X | | | |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | | | X | | | |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | | | |
| 21. Are all samples analyzed within hold time? | X | | | | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | | | |
| 24. LCS compounds are within control limits. | X | | | | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | |
| 29. All manual integrations initialed, date and reasons included. | X | | | | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | | | |
| 31. All samples and QC raw data present in package. | X | | | | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | | | |
| 34 Is the QC summary report present and complete? | X | | | | | |

Comments:

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer RBA 1/17/2019 Date: 1/17/19

2nd Level Reviewer _____ Date: _____

# SAMPLE CALCULATION

# Sample Calculation

**METHOD:** EPA 300
**TEST NAME:** INORGANIC ANIONS BY IC
**MATRIX:** GROUNDWATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the orignal sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N033613-001A** concentration in mg/L is calculated as follows:

Chloride, mg/L = 2.2668 * 200

= 453.36

Reporting result in two significant values,

**Chloride, mg/L = 450**

# ANALYSIS RUN LOG

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 61
Created: 12/20/2018 8:45:43 AM by IC-05
Last Update: 12/20/2018 5:26:43 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 1 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 2 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 3 | Std - 0 | Standard | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 4 | Std - 1 | Standard | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 5 | Std - 2 | Standard | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 6 | Std - 3 | Standard | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 7 | Std - 4 | Standard | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 8 | Std - 5 | Standard | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 9 | ICV,ICV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 10 | ICB,ICB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 11 | MB-H2O,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 12 | LCS-H2O,LCS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 13 | N033350-010B,SAMP,200 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 14 | N033401-003B,SAMP,2000 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 15 | N033401-003BMS,MS,2000 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 16 | N033401-003BMSD,MSD,2000 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 17 | N033401-003B,SAMP,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 18 | N033401-003BMS,MS,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 19 | N033401-003BMSD,MSD,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 20 | N033401-006B,SAMP,1000 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 21 | CCV-1,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 22 | CCB-1,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 23 | N033401-006BMS,MS,1000 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 24 | N033401-006B,SAMP,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 25 | N033401-006BMS,MS,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 26 | N033401-001B,SAMP,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 27 | N033401-001BDUP,DUP,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 28 | N033401-001B,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 29 | N033401-001BDUP,DUP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 30 | N033401-002B,SAMP,1000 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 31 | N033401-002B,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 32 | N033401-004B,SAMP,200 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 33 | CCV-2,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 34 | CCB-2,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 35 | N033401-004B,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 36 | N033401-005B,SAMP,1000 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 37 | N033401-005B,SAMP,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 38 | N033401-007B,SAMP,1000 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 39 | N033401-007B,SAMP,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 40 | N033401-008B,SAMP,1000 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 41 | N033401-008B,SAMP,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |

Chromeleon © Dionex Corporation, Version 6.80 SR10 Build 2818 (166959)

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 61
Created: 12/20/2018 8:45:43 AM by IC-05
Last Update: 12/20/2018 5:26:43 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 1 | BLANK,BLANK | 12/20/2018 8:46:00 AM | BLANK |
| 2 | BLANK,BLANK | 12/20/2018 9:01:49 AM | BLANK |
| 3 | Std - 0 | 12/20/2018 9:17:37 AM | BLANK |
| 4 | Std - 1 | 12/20/2018 10:04:08 AM | STD-LOW |
| 5 | Std - 2 | 12/20/2018 10:19:56 AM | STD |
| 6 | Std - 3 | 12/20/2018 10:35:44 AM | STD |
| 7 | Std - 4 | 12/20/2018 10:51:32 AM | STD |
| 8 | Std - 5 | 12/20/2018 11:07:19 AM | STD-HIGH |
| 9 | ICV,ICV,1 | 12/20/2018 11:43:52 AM | ICV |
| 10 | ICB,ICB,1 | 12/20/2018 11:59:40 AM | ICB |
| 11 | MB-H2O,MBLK,1 | 12/20/2018 12:15:28 PM | METHOD BLANK |
| 12 | LCS-H2O,LCS,1 | 12/20/2018 12:31:16 PM | LCS |
| 13 | N033350-010B,SAMP,200 | 12/20/2018 1:31:59 PM | SAMP,0.05>10mL |
| 14 | N033401-003B,SAMP,2000 | 12/20/2018 2:16:12 PM | SAMP,0.005>10mL |
| 15 | N033401-003BMS,MS,2000 | 12/20/2018 2:32:01 PM | MS,0.005>10mL |
| 16 | N033401-003BMSD,MSD,2000 | 12/20/2018 2:47:49 PM | MSD,0.005>10mL |
| 17 | N033401-003B,SAMP,100 | 12/20/2018 3:03:36 PM | SAMP,0.1>10mL |
| 18 | N033401-003BMS,MS,100 | 12/20/2018 3:19:24 PM | MS,0.1>10mL |
| 19 | N033401-003BMSD,MSD,100 | 12/20/2018 3:35:12 PM | MSD,0.1>10mL |
| 20 | N033401-006B,SAMP,1000 | 12/20/2018 4:03:40 PM | SAMP,0.01>10mL |
| 21 | CCV-1,CCV,1 | 12/20/2018 4:19:27 PM | CCV |
| 22 | CCB-1,CCB,1 | 12/20/2018 4:35:15 PM | CCB |
| 23 | N033401-006BMS,MS,1000 | 12/20/2018 4:51:03 PM | MS,0.01>10mL |
| 24 | N033401-006B,SAMP,100 | 12/20/2018 5:06:51 PM | SAMP,0.1>10mL |
| 25 | N033401-006BMS,MS,100 | 12/20/2018 5:22:38 PM | MS,0.1>10mL |
| 26 | N033401-001B,SAMP,500 | 12/20/2018 5:38:26 PM | SAMP,0.02>10mL |
| 27 | N033401-001BDUP,DUP,500 | 12/20/2018 5:54:14 PM | DUP,0.02>10mL |
| 28 | N033401-001B,SAMP,50 | 12/20/2018 6:10:02 PM | SAMP,0.2>10mL |
| 29 | N033401-001BDUP,DUP,50 | 12/20/2018 6:25:50 PM | DUP,0.2>10mL |
| 30 | N033401-002B,SAMP,1000 | 12/20/2018 6:41:37 PM | SAMP,0.01>10mL |
| 31 | N033401-002B,SAMP,50 | 12/20/2018 6:57:25 PM | SAMP,0.2>10mL |
| 32 | N033401-004B,SAMP,200 | 12/20/2018 7:13:13 PM | SAMP,0.05>10mL |
| 33 | CCV-2,CCV,1 | 12/20/2018 7:29:01 PM | CCV |
| 34 | CCB-2,CCB,1 | 12/20/2018 7:44:49 PM | CCB |
| 35 | N033401-004B,SAMP,20 | 12/20/2018 8:00:36 PM | SAMP,0.5>10mL |
| 36 | N033401-005B,SAMP,1000 | 12/20/2018 8:16:24 PM | SAMP,0.01>10mL |
| 37 | N033401-005B,SAMP,100 | 12/20/2018 8:32:12 PM | SAMP,0.1>10mL |
| 38 | N033401-007B,SAMP,1000 | 12/20/2018 8:48:00 PM | SAMP,0.01>10mL |
| 39 | N033401-007B,SAMP,100 | 12/20/2018 9:03:47 PM | SAMP,0.1>10mL |
| 40 | N033401-008B,SAMP,1000 | 12/20/2018 9:19:35 PM | SAMP,0.01>10mL |
| 41 | N033401-008B,SAMP,100 | 12/20/2018 9:35:23 PM | SAMP,0.1>10mL |

rba 12/25/2018

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 61
Created: 12/20/2018 8:45:43 AM by IC-05
Last Update: 12/20/2018 5:26:43 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 42 | N033401-011B,SAMP,2000 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 43 | N033401-011B,SAMP,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 44 | N033401-012B,SAMP,2000 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 45 | CCV-3,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 46 | CCB-3,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 47 | N033401-012B,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 48 | N033401-013B,SAMP,1000 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 49 | N033401-013B,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 50 | N033401-014B,SAMP,2000 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 51 | N033401-014B,SAMP,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 52 | N033401-015B,SAMP,2000 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 53 | N033401-015B,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 54 | N033401-016B,SAMP,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 55 | N033401-016B,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 56 | N033401-017B,SAMP,2000 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 57 | CCV-4,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 58 | CCB-4,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 59 | N033401-017B,SAMP,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 60 | CCV-5,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 61 | CCB-5,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 61
Created: 12/20/2018 8:45:43 AM by IC-05
Last Update: 12/20/2018 5:26:43 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 42 | N033401-011B,SAMP,2000 | 12/20/2018 9:51:11 PM | SAMP,0.005>10mL |
| 43 | N033401-011B,SAMP,100 | 12/20/2018 10:06:59 PM | SAMP,0.1>10mL |
| 44 | N033401-012B,SAMP,2000 | 12/20/2018 10:22:46 PM | SAMP,0.005>10mL |
| 45 | CCV-3,CCV,1 | 12/20/2018 10:38:34 PM | CCV |
| 46 | CCB-3,CCB,1 | 12/20/2018 10:54:22 PM | CCB |
| 47 | N033401-012B,SAMP,50 | 12/20/2018 11:10:10 PM | SAMP,0.2>10mL |
| 48 | N033401-013B,SAMP,1000 | 12/20/2018 11:25:58 PM | SAMP,0.01>10mL |
| 49 | N033401-013B,SAMP,50 | 12/20/2018 11:41:46 PM | SAMP,0.2>10mL |
| 50 | N033401-014B,SAMP,2000 | 12/20/2018 11:57:33 PM | SAMP,0.005>10mL |
| 51 | N033401-014B,SAMP,100 | 12/21/2018 12:13:21 AM | SAMP,0.1>10mL |
| 52 | N033401-015B,SAMP,2000 | 12/21/2018 12:29:09 AM | SAMP,0.005>10mL |
| 53 | N033401-015B,SAMP,50 | 12/21/2018 12:44:57 AM | SAMP,0.2>10mL |
| 54 | N033401-016B,SAMP,500 | 12/21/2018 1:00:45 AM | SAMP,0.02>10mL |
| 55 | N033401-016B,SAMP,50 | 12/21/2018 1:16:33 AM | SAMP,0.2>10mL |
| 56 | N033401-017B,SAMP,2000 | 12/21/2018 1:32:20 AM | SAMP,0.005>10mL |
| 57 | CCV-4,CCV,1 | 12/21/2018 1:48:08 AM | CCV |
| 58 | CCB-4,CCB,1 | 12/21/2018 2:03:56 AM | CCB |
| 59 | N033401-017B,SAMP,100 | 12/21/2018 2:19:43 AM | SAMP,0.1>10mL |
| 60 | CCV-5,CCV,1 | 12/21/2018 2:35:31 AM | CCV |
| 61 | CCB-5,CCB,1 | 12/21/2018 2:51:19 AM | CCB |

rba 12/25/2018

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 34
Created: 1/4/2019 8:40:12 AM by IC-05
Last Update: 1/4/2019 4:26:40 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 1 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 2 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 3 | Std - 0 | Standard | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 4 | Std - 1 | Standard | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 5 | Std - 2 | Standard | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 6 | Std - 3 | Standard | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 7 | Std - 4 | Standard | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 8 | Std - 5 | Standard | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 9 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 10 | CCV-1,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 11 | CCB-1,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 12 | MB-H2O,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 13 | LCS-H2O,LCS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 14 | LCS-H2O,LCS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 15 | N033613-001B,SAMP,200 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 16 | N033613-002B,SAMP,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 17 | N033613-001B,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 18 | N033613-002B,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 19 | N033613-001BMS,MS,200 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 20 | N033613-001BMSD,MSD,200 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 21 | N033613-002BDUP,DUP,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 22 | CCV-2,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 23 | CCB-2,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 24 | N033613-001BMS,MS,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 25 | N033613-001BMSD,MSD,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 26 | N033613-002BDUP,DUP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 27 | MB-1,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 28 | MB-2,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 29 | MB-3,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 30 | N033197-001A,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 31 | N033197-002A,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 32 | N033197-003A,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 33 | CCV-3,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |
| 34 | CCB-3,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_181220 | Finished |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 34
Created: 1/4/2019 8:40:12 AM by IC-05
Last Update: 1/4/2019 4:26:40 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 1 | BLANK,BLANK | 12/20/2018 8:46:00 AM | BLANK |
| 2 | BLANK,BLANK | 12/20/2018 9:01:49 AM | BLANK |
| 3 | Std - 0 | 12/20/2018 9:17:37 AM | BLANK |
| 4 | Std - 1 | 12/20/2018 10:04:08 AM | STD-LOW |
| 5 | Std - 2 | 12/20/2018 10:19:56 AM | STD |
| 6 | Std - 3 | 12/20/2018 10:35:44 AM | STD |
| 7 | Std - 4 | 12/20/2018 10:51:32 AM | STD |
| 8 | Std - 5 | 12/20/2018 11:07:19 AM | STD-HIGH |
| 9 | BLANK,BLANK | 1/4/2019 8:40:36 AM | BLANK |
| 10 | CCV-1,CCV,1 | 1/4/2019 8:56:24 AM | CCV |
| 11 | CCB-1,CCB,1 | 1/4/2019 9:12:12 AM | CCB |
| 12 | MB-H2O,MBLK,1 | 1/4/2019 9:28:00 AM | METHOD BLANK |
| 13 | LCS-H2O,LCS,1 | 1/4/2019 9:43:48 AM | LCS |
| 14 | LCS-H2O,LCS,1 | 1/4/2019 10:20:10 AM | LCS |
| 15 | N033613-001B,SAMP,200 | 1/4/2019 10:42:05 AM | SAMP,0.05>10mL |
| 16 | N033613-002B,SAMP,500 | 1/4/2019 10:57:53 AM | SAMP,0.02>10mL |
| 17 | N033613-001B,SAMP,50 | 1/4/2019 11:13:41 AM | SAMP,0.2>10mL |
| 18 | N033613-002B,SAMP,50 | 1/4/2019 11:29:29 AM | SAMP,0.2>10mL |
| 19 | N033613-001BMS,MS,200 | 1/4/2019 11:52:07 AM | MS,0.05>10mL |
| 20 | N033613-001BMSD,MSD,200 | 1/4/2019 12:07:56 PM | MSD,0.05>10mL |
| 21 | N033613-002BDUP,DUP,500 | 1/4/2019 12:23:43 PM | DUP,0.02>10mL |
| 22 | CCV-2,CCV,1 | 1/4/2019 12:39:31 PM | CCV |
| 23 | CCB-2,CCB,1 | 1/4/2019 12:55:19 PM | CCB |
| 24 | N033613-001BMS,MS,50 | 1/4/2019 1:11:07 PM | MS,0.2>10mL |
| 25 | N033613-001BMSD,MSD,50 | 1/4/2019 1:26:55 PM | MSD,0.2>10mL |
| 26 | N033613-002BDUP,DUP,50 | 1/4/2019 1:42:42 PM | DUP,0.2>10mL |
| 27 | MB-1,MBLK,1 | 1/4/2019 2:15:28 PM | METHOD BLANK |
| 28 | MB-2,MBLK,1 | 1/4/2019 2:31:16 PM | METHOD BLANK |
| 29 | MB-3,MBLK,1 | 1/4/2019 2:47:04 PM | METHOD BLANK |
| 30 | N033197-001A,SAMP,1 | 1/4/2019 3:02:52 PM | SAMP,10mL |
| 31 | N033197-002A,SAMP,1 | 1/4/2019 3:18:40 PM | SAMP,10mL |
| 32 | N033197-003A,SAMP,1 | 1/4/2019 3:34:27 PM | SAMP,10mL |
| 33 | CCV-3,CCV,1 | 1/4/2019 3:50:15 PM | CCV |
| 34 | CCB-3,CCB,1 | 1/4/2019 4:06:03 PM | CCB |

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# INITIAL CALIBRATION DATA SUMMARY

**(EPA 300) - INITIAL CALIBRATION**

Instrument ID: IC-08
Date Calibrated: 12/20/2018

Initial Calibration:

| Chloride | STD0 | STD1 | STD2 | STD3 | STD4 | STD5 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0 | 0.5 | 1 | 2 | 5 | 10 | $R^2$ |
| Area,mAU*min | 0.0000 | 0.0746 | 0.1496 | 0.3057 | 0.8031 | 1.6871 | 1.000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock |
|---|---|
| Standard Concentration: | 1000000 PPB |
| Standard ID: | ISST-180914B |

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

**(EPA 300) - INITIAL CALIBRATION**

Instrument ID: IC-08
Date Calibrated: 12/20/2018

Initial Calibration:

| Sulfate | STD0 | STD1 | STD2 | STD3 | STD4 | STD5 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0 | 0.5 | 2 | 4 | 10 | 20 | $R^2$ |
| Area,mAU*min | 0.0000 | 0.0577 | 0.2253 | 0.454 | 1.1889 | 2.4615 | 1.000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock |
|---|---|
| Standard Concentration: | 1000000 PPB |
| Standard ID: | ISST-180914G |

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **130996** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R130996** | TestNo: **EPA 300.0** | | Analysis Date: **12/20/2018** | SeqNo: **3250167** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 2.063 | 0.50 | 2.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **130996** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R130996** | TestNo: **EPA 300.0** | | Analysis Date: **1/4/2019** | SeqNo: **3250169** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.936 | 0.50 | 2.000 | 0 | 96.8 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **130996** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R130996** | TestNo: **EPA 300.0** | | Analysis Date: **1/4/2019** | SeqNo: **3250178** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 2.053 | 0.50 | 2.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **130996** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R130996** | TestNo: **EPA 300.0** | | Analysis Date: **1/4/2019** | SeqNo: **3250180** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.927 | 0.50 | 2.000 | 0 | 96.4 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **130996** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R130996** | TestNo: **EPA 300.0** | | Analysis Date: **12/20/2018** | SeqNo: **3250182** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.897 | 0.50 | 4.000 | 0 | 97.4 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **130996** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R130996** | TestNo: **EPA 300.0** | | Analysis Date: **1/4/2019** | SeqNo: **3250184** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.997 | 0.50 | 4.000 | 0 | 99.9 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **130996** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R130996** | TestNo: **EPA 300.0** | | Analysis Date: **1/4/2019** | SeqNo: **3250190** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.865 | 0.50 | 4.000 | 0 | 96.6 | 90 | 110 | | | | |

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **130996** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R130996** | TestNo: **EPA 300.0** | | Analysis Date: **1/4/2019** | SeqNo: **3250195** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 4.016 | 0.50 | 4.000 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID | **ICB** | SampType: | **ICB** | TestCode: | **300_W_CLP** | Units: | **mg/L** | Prep Date: | | RunNo: | **130996** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ICB** | Batch ID: | **R130996** | TestNo: | **EPA 300.0** | | | Analysis Date: | **12/20/2018** | SeqNo: | **3250168** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | 0.50 | | | | | | | | | |

| Sample ID | **CCB-1** | SampType: | **CCB** | TestCode: | **300_W_CLP** | Units: | **mg/L** | Prep Date: | | RunNo: | **130996** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **CCB** | Batch ID: | **R130996** | TestNo: | **EPA 300.0** | | | Analysis Date: | **1/4/2019** | SeqNo: | **3250170** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | 0.50 | | | | | | | | | |

| Sample ID | **CCB-2** | SampType: | **CCB** | TestCode: | **300_W_CLP** | Units: | **mg/L** | Prep Date: | | RunNo: | **130996** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **CCB** | Batch ID: | **R130996** | TestNo: | **EPA 300.0** | | | Analysis Date: | **1/4/2019** | SeqNo: | **3250179** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | 0.50 | | | | | | | | | |

| Sample ID | **CCB-3** | SampType: | **CCB** | TestCode: | **300_W_CLP** | Units: | **mg/L** | Prep Date: | | RunNo: | **130996** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **CCB** | Batch ID: | **R130996** | TestNo: | **EPA 300.0** | | | Analysis Date: | **1/4/2019** | SeqNo: | **3250181** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **130996** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R130996** | TestNo: **EPA 300.0** | | Analysis Date: **12/20/2018** | SeqNo: **3250183** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **130996** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R130996** | TestNo: **EPA 300.0** | | Analysis Date: **1/4/2019** | SeqNo: **3250185** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **130996** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R130996** | TestNo: **EPA 300.0** | | Analysis Date: **1/4/2019** | SeqNo: **3250191** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **130996** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R130996** | TestNo: **EPA 300.0** | | Analysis Date: **1/4/2019** | SeqNo: **3250196** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# RETENTION TIME SUMMARY

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-08

**Analytical Sequence**

Date Analyzed: 1/4/2019

| Sample Name | | Retention Time | | Evaluation |
|---|---|---|---|---|
| ICV | Chloride | 4.437 | | |
| CCV-1 | Chloride | 4.384 | | |
| CCV-2 | Chloride | 4.380 | | |
| CCV-3 | Chloride | 4.380 | | |
| | **Average** | 4.381 | | |
| | **Applied RT Window** | 4.181 - | 4.581 | |
| MB-R130996_CL | Chloride | n.a. | | N.A. |
| LCS-R130996_CL | Chloride | 4.377 | | PASS |
| N033613-001B | Chloride | 4.380 | | PASS |
| N033613-002B | Chloride | 4.380 | | PASS |
| N033613-001BMS | Chloride | 4.380 | | PASS |
| N033613-001BMSD | Chloride | 4.380 | | PASS |
| N033613-002BDUP | Chloride | 4.383 | | PASS |

## RETENTION TIME (RT) SUMMARY

**Instrument ID:** IC-08

**Analytical Sequence**

Date Analyzed: 1/4/2019

| Sample Name | | Retention Time | | Evaluation |
|---|---|---|---|---|
| ICV | Sulfate | 10.974 | | |
| CCV-1 | Sulfate | 10.704 | | |
| CCV-2 | Sulfate | 10.674 | | |
| CCV-3 | Sulfate | 10.704 | | |
| | **Average** | 10.694 | | |
| | **Applied RT Window** | 10.494 | - 10.894 | |
| MB-R130996_SO4 | Sulfate | n.a. | | N.A. |
| LCS-R130996_SO4 | Sulfate | 10.667 | | PASS |
| N033613-001B | Sulfate | 10.673 | | PASS |
| N033613-002B | Sulfate | 10.677 | | PASS |
| N033613-001BMS | Sulfate | 10.677 | | PASS |
| N033613-001BMSD | Sulfate | 10.677 | | PASS |
| N033613-002BDUP | Sulfate | 10.680 | | PASS |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **INORGANIC IONS by Ion Chromatography**
Method Number: EPA 300.0
Analysis Date(s): 5/23/2017 ; 5/24/2017; 5/25/2017
Analyst/Technician: Ria Abes

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

**Acceptance Criteria:** MDL < spike < 10XMDL

| Datafile | 170523A D36 | 170523A D37 | 170523A D38 | 170524A D17 | 170524A D18 | 170525A D45 | 170525A D46 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte** | **#1** | **#2** | **#3** | **#4** | **#5** | **#6** | **#7** | **Spike Conc., mg/L** | **SD** | **MDL** | **LOD** | **PQL** |
| Fluoride | 0.020 | 0.022 | 0.021 | 0.020 | 0.023 | 0.026 | 0.024 | 0.020 | 0.0021 | **0.0065** | 0.020 | 0.10 |
| Chloride | 0.133 | 0.136 | 0.136 | 0.133 | 0.141 | 0.133 | 0.136 | 0.025 | 0.0029 | **0.0091** | 0.020 | 0.50 |
| Nitrite | 0.030 | 0.028 | 0.027 | 0.028 | 0.028 | 0.027 | 0.027 | 0.020 | 0.0010 | **0.0030** | 0.010 | 0.05 |
| Bromide | 0.037 | 0.042 | 0.043 | 0.038 | 0.040 | 0.032 | 0.025 | 0.040 | 0.0062 | **0.0196** | 0.040 | 0.20 |
| Nitrate | 0.035 | 0.034 | 0.033 | 0.033 | 0.033 | 0.031 | 0.030 | 0.020 | 0.0016 | **0.0050** | 0.010 | 0.05 |
| Phosphate | 0.047 | 0.051 | 0.049 | 0.046 | 0.052 | 0.047 | 0.059 | 0.040 | 0.0043 | **0.0135** | 0.030 | 0.10 |
| Sulfate | 0.213 | 0.199 | 0.208 | 0.216 | 0.199 | 0.201 | 0.198 | 0.050 | 0.0073 | **0.0229** | 0.050 | 0.50 |

# MDL/LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Inorganic Ions by Ion Chromatography (Low Level)**
Method Number: EPA Method 300.0
Analysis Date(s): 3/29-30/2018
Analyst: Ria B. Abes

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

| Compound | MDL | LOD Spike Conc., mg/L | LOD Actual Conc., mg/L | PQL Spike Conc., mg/L | PQL Actual Conc., mg/L | %Recovery |
|---|---|---|---|---|---|---|
| Fluoride | **0.0065** | 0.020 | 0.0252 | 0.10 | 0.087 | **87** |
| Chloride | **0.0091** | 0.020 | 0.1193 | 0.50 | 0.5757 | **115** |
| Nitrite | **0.0030** | 0.010 | 0.0237 | 0.05 | 0.0638 | **128** |
| Bromide | **0.0196** | 0.040 | 0.0405 | 0.20 | 0.1993 | **100** |
| Nitrate | **0.0050** | 0.010 | 0.0191 | 0.05 | 0.0561 | **112** |
| Phosphate | **0.0135** | 0.030 | 0.0415 | 0.10 | 0.1216 | **122** |
| Sulfate | **0.0229** | 0.050 | 0.3682 | 0.50 | 0.6549 | **131** |

# SM 4500-NO3F

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R131021 **Analyst:** QBM

**ASSET #:** N033613 **Date Analyzed:** 1/8/2019

**Method:** 4500_N03

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | X | | | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | | | |
| 3. ICV within ± 15% of expected value. | X | | | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | X | | | | | |
| 5. CCV within ± 15% of expected value. | X | | | | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< PQL) | X | | | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | X | | | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | | | |
| 11. LCS compounds within control limits. | X | | | | | |
| 12. MS/MSD, RPD's are within control limits | | X | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

~~%Rec of Nitrate/Nitrite as N in MS @10x failed, high bias. Possibly due to matrix interference.~~

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer QBM Date:

2nd Level Reviewer 1/19/2019 Date:

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 4500N03F
**TEST NAME:** Nitrate/Nitrite-N by Automated Cadmium Reduction
**MATRIX:** Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

**Nitrate/Nitrite-N, mg/L= A * DF**

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N033613-002C**

The concentration in mg/L is calculated as follows:

**Nitrate/Nitrite-N** = 0.5374 * 5
= 2.687 mg/L

Reporting result in two significant figures,

**Nitrate/Nitrite-N = 2.7 mg/L**

# INITIAL CALIBRATION DATA SUMMARY

## EPA 353.2 NO3 as N (NO3CD) - Endpoint

### General setup

| | |
|---|---|
| **Measuring unit** | **ppm** |
| **Number of decimals** | 4 |
| **Stabilization time (sec)** | 26 |
| **Measurement time (sec)** | 3 |
| **Sample volume (µl)** | 450 |
| **Filter** | 546 |
| **Reagent prime** | No |
| **CD Reduction** | Yes |

### Limits and dilution

| | |
|---|---|
| **Low level** | **-0.2** |
| **High level** | 4 |
| **Max linearity** | 4 |
| **Blank min** | 0 |
| **Blank max** | 0.049 |
| **Postdilution factor %** | 10 |
| **Factor Calculations** | No |

### Washes

| | |
|---|---|
| **Number of final washes** | 6 |
| **Wash every** | R1, R2 |

### O.D.Corrections

| | |
|---|---|
| **Carry Over** | **No** |
| **Carry Over value** | 0.0000 |
| **Blank** | No |
| **Gain** | No |

### Reagents

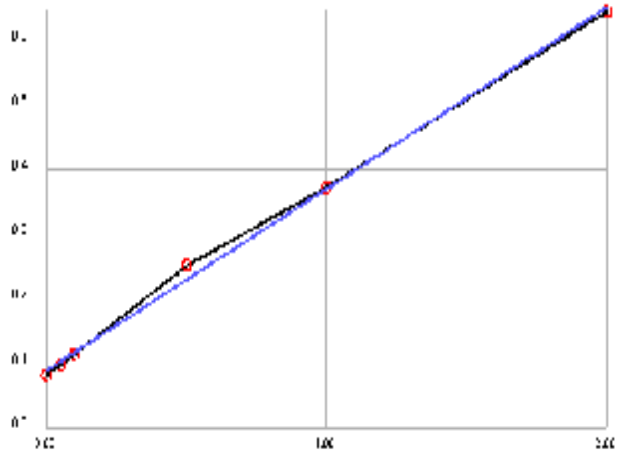
| N. | Volume (µl) | Incubation time (sec) |
|---|---|---|
| **1** | 200 | 102 |
| **2** | 300 | 663 |
| **3** | 0 | 0 |

### QC

| N. | Value | Tolerance |
|---|---|---|
| **1** | 1 | 0.1 |

## Calibration

| | |
|---|---|
| **Curve type** | Linear (Calibrants) |
| **Curve forced to zero** | No |
| **Blank inclusion** | No |



| | |
|---|---|
| **Formula** | y = 0.2809x + 0.0894 |
| **Correlation** | .99878 |

| Calibrant | Energy | Set | Conc |
|---|---|---|---|
| **1** | 0.0813 | 0.0000 | -0.0290 |
| **2** | 0.0987 | 0.0500 | 0.0330 |
| **3** | 0.1130 | 0.1000 | 0.0839 |
| **4** | 0.2505 | 0.5000 | 0.5734 |
| **5** | 0.3736 | 1.0000 | 1.0116 |
| **6** | 0.6448 | 2.0000 | 1.9771 |

**Notes:**

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131021** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131021** | TestNo: **SM4500-NO3** | | Analysis Date: **1/8/2019** | SeqNo: **3251202** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.505 | 0.050 | 0.5000 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131021** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131021** | TestNo: **SM4500-NO3** | | Analysis Date: **1/8/2019** | SeqNo: **3251213** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.516 | 0.050 | 0.5000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131021** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131021** | TestNo: **SM4500-NO3** | | Analysis Date: **1/8/2019** | SeqNo: **3251216** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.490 | 0.050 | 0.5000 | 0 | 98.1 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N033613
**Project:** PG&E Topock - PMP

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131021** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131021** | TestNo: **SM4500-NO3** | | Analysis Date: **1/8/2019** | SeqNo: **3251203** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131021** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131021** | TestNo: **SM4500-NO3** | | Analysis Date: **1/8/2019** | SeqNo: **3251214** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131021** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131021** | TestNo: **SM4500-NO3** | | Analysis Date: **1/8/2019** | SeqNo: **3251217** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

**Advanced Technology Laboratories, Inc.**

**3151 W. Post Rd.**
**Las Vegas, NV. 89118**
**702-307-2659**
**702-307-2691**
**www.atl-labs.com**

**Time start: 01-08-2019 11:58**
**Time end: 01-08-2019 13:50**

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 1 | <BLANK> | 13:26:15 | -0.0475 | | 0.0761 |
| 2 | <BLANK> | 13:27:10 | -0.0411 | | 0.0779 |
| 3 | <BLANK> | 13:28:04 | 0.0163 | | 0.0940 |
| 4 | <CAL1> | 13:29:06 | -0.0290 | [0] | 0.0813 |
| 5 | <CAL2> | 13:30:01 | 0.0330 | [0.05] | 0.0987 |
| 6 | <CAL3> | 13:30:56 | 0.0839 | [0.1] | 0.1130 |
| 7 | <CAL4> | 13:31:56 | 0.5734 | [0.5] | 0.2505 |
| 8 | <CAL5> | 13:32:51 | 1.0116 | [1] | 0.3736 |
| 9 | <CAL6> | 13:33:53 | 1.9771 | [2] | 0.6448 |
| 10 | ,BLANK,BLANK,1, NOT REPORTED | 13:34:35 | 0.0672 | | 0.1083 |
| 11 | ,ICV,ICV,1, | 13:35:25 | 0.5047 | | 0.2312 |
| 12 | ,ICB,ICB,1, | 13:36:07 | -0.0147 | | 0.0853 |
| 13 | ,MB-H2O,MBLK,1, | 13:36:56 | -0.0268 | | 0.0819 |
| 14 | ,LCS-H2O,LCS,1, | 13:37:39 | 0.4317 | | 0.2107 |
| 15 | ,N033604-001D,SAMP,1, | 13:38:21 | 0.0195 | | 0.0949 |
| 16 | ,N033604-002D,SAMP,1, | 13:39:11 | 0.0255 | | 0.0966 |
| 17 | ,N033613-001C,SAMP,1, | 13:39:53 | 0.0298 | | 0.0978 |
| 18 | ,N033613-001CDUP,DUP,1, | 13:40:36 | 0.0294 | | 0.0977 |
| 19 | ,N033613-002C,SAMP,5, | 13:41:24 | 0.5374 | | 0.2404 |
| 20 | ,N033613-002CMS,MS,5, | 13:42:07 | 1.0219 | | 0.3765 |
| 21 | ,N033613-002CMSD,MSD,5, | 13:42:51 | 1.1166 | | 0.4031 |
| 22 | ,BLANK, NOT REPORTED | 13:43:39 | 0.0166 | | 0.0941 |
| 23 | ,CCV-1,CCV,1, | 13:44:22 | 0.5161 | | 0.2344 |
| 24 | ,CCB-1,CCB,1, | 13:45:10 | -0.0158 | | 0.0850 |
| 25 | ,N033622-001A,SAMP,10, | 13:45:53 | 0.9116 | | 0.3455 |
| 26 | ,BLANK, NOT REPORTED | 13:46:36 | -0.0080 | | 0.0872 |

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| **27** | **,CCV-2,CCV,1,** | 13:47:25 | 0.4904 | | 0.2272 |
| **28** | **,CCB-2,CCB,1,** | 13:48:08 | -0.0254 | | 0.0823 |

**Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog**

## Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 1/8/2019
Time Analyzed: 11:58 AM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R181226B
Color reagent: R181226C
2% Copper Sulfate: R181226A
Ammonium Hydroxide: CINV-181121D

| Sample ID. | Sample Wt./Vol. | Sample pH | Std Code | Spike Amt Added (mL) | Spike Conc.(PPM) | Final Volume (mL) | Dilution (F/I) | Reading & Calculations (mg/L) | Comments |
|---|---|---|---|---|---|---|---|---|---|
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| N033604-001D | | 7.91 | | | | | | | |
| N033604-002D | | 8.06 | | | | | | | |
| N033613-001C | | 7.84 | | | | | | | |
| N033613-002C | | 7.40 | | | | | | | |
| N033622-001A | | 7.7 | | | | | | | |
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Advanced Technology Laboratories, Inc.
Book # 1

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

| Analyte | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Ave | SD | $t_{(n-1)}$ value | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.0573 | 0.0562 | 0.0500 | 0.0730 | 0.0698 | 0.0637 | 0.0564 | 0.0609 | 0.0082 | 3.143 | 0.0259 | 0.05 |
| **Method Blank** | | | | | | | | | | | | |
| Nitrate/Nitrite as N | 0.0160 | 0.0067 | 0.0064 | 0.0204 | 0.0173 | 0.0036 | 0.0083 | 0.0112 | 0.0065 | 3.143 | 0.0317 | 0.05 |

**MDL:** **0.0317** **mg/L**

February 26, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034091

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on February 11, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

# CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N034091-002B-MS and N034091-002B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

## ASSET Laboratories

**Date:** *26-Feb-19*

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab Order:** N034091
**Contract No:**

# Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034091-001A | MW-701-Q119 | Groundwater | 2/11/2019 3:45:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-002A | MW-73-080-Q119 | Groundwater | 2/11/2019 1:26:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-002B | MW-73-080-Q119 | Groundwater | 2/11/2019 1:26:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-002C | MW-73-080-Q119 | Groundwater | 2/11/2019 1:26:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-002D | MW-73-080-Q119 | Groundwater | 2/11/2019 1:26:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-003A | MW-72-080-Q119 | Groundwater | 2/11/2019 2:17:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-003B | MW-72-080-Q119 | Groundwater | 2/11/2019 2:17:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-003C | MW-72-080-Q119 | Groundwater | 2/11/2019 2:17:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-003D | MW-72-080-Q119 | Groundwater | 2/11/2019 2:17:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-004A | MW-62-065-Q119 | Groundwater | 2/11/2019 3:16:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-004B | MW-62-065-Q119 | Groundwater | 2/11/2019 3:16:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-004C | MW-62-065-Q119 | Groundwater | 2/11/2019 3:16:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-004D | MW-62-065-Q119 | Groundwater | 2/11/2019 3:16:00 PM | 2/11/2019 | 2/26/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-73-080-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 1:26:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190212A** | QC Batch: **R131763** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 12000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/12/2019 11:10 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72-080-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 2:17:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190212A** | QC Batch: **R131763** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 16000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/12/2019 11:10 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-62-065-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 3:16:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190212A** | QC Batch: **R131763** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 6100 | 0.10 | 0.10 | | umhos/cm | 1 | 2/12/2019 11:10 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID **N034091-002DDUP** | SampType: **DUP** | TestCode: **120.1_WPGE** | Units: **umhos/cm** | Prep Date: | | | | RunNo: **131763** | | |
| Client ID: **ZZZZZZ** | Batch ID: **R131763** | TestNo: **EPA 120.1** | | Analysis Date: **2/12/2019** | | | | SeqNo: **3286441** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Specific Conductance | 11600.000 | 0.10 | | | | | | 11560 | 0.345 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-701-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 3:45:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190212A** | QC Batch: **R131774** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/12/2019 01:39 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034091-002

**Client Sample ID:** MW-73-080-Q119
**Collection Date:** 2/11/2019 1:26:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190212A** QC Batch: **R131774** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 29 | 0.33 | 2.0 | | µg/L | 10 | 2/12/2019 01:48 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72457** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | 34 | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 05:13 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72-080-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 2:17:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190212A** QC Batch: **R131774** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 77 | 0.33 | 2.0 | | µg/L | 10 | 2/12/2019 02:23 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72457** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | 92 | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 05:51 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-62-065-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 3:16:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190212A** | QC Batch: **R131774** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 470 | 3.3 | 20 | | µg/L | 100 | 2/12/2019 02:35 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190215A** | QC Batch: **72457** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | 550 | 0.65 | 5.0 | | µg/L | 5 | 2/15/2019 09:06 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **MB-R131774** | SampType: **MBLK** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/12/2019** | SeqNo: **3286723** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **LCS-R131774** | SampType: **LCS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/12/2019** | SeqNo: **3286724** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.778 | 0.20 | 5.000 | 0 | 95.6 | 90 | 110 | | | | |

| Sample ID **N034090-012ADUP** | SampType: **DUP** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/12/2019** | SeqNo: **3286749** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 18.893 | 0.40 | | | | | | 19.07 | 0.920 | 20 | |

| Sample ID **N034091-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/12/2019** | SeqNo: **3286750** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.131 | 0.20 | 1.000 | 0.1224 | 101 | 90 | 110 | | | | |

| Sample ID **N034091-001AMSD** | SampType: **MSD** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/12/2019** | SeqNo: **3286751** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.105 | 0.20 | 1.000 | 0.1224 | 98.2 | 90 | 110 | 1.131 | 2.37 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034091-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131774 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131774 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/12/2019 | SeqNo: | 3286752 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 76.696 | 2.0 | 50.00 | 29.04 | 95.3 | 90 | 110 | | | | |

| Sample ID | N034091-003AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131774 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131774 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/12/2019 | SeqNo: | 3286753 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 128.856 | 2.0 | 50.00 | 77.33 | 103 | 90 | 110 | | | | |

| Sample ID | N034091-004AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131774 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131774 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/12/2019 | SeqNo: | 3286754 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 951.980 | 20 | 500.0 | 465.8 | 97.2 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | MB-72457 | SampType: | MBLK | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72457 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293596 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-72457 | SampType: | LCS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72457 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293597 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.922 | 1.0 | 10.00 | 0 | 99.2 | 85 | 115 | | | | |

| Sample ID | N034091-002B-MS | SampType: | MS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72457 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293603 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 40.363 | 1.0 | 10.00 | 34.00 | 63.6 | 75 | 125 | | | | S |

| Sample ID | N034091-002B-MSD | SampType: | MSD | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72457 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293604 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 40.436 | 1.0 | 10.00 | 34.00 | 64.3 | 75 | 125 | 40.36 | 0.181 | 20 | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-73-080-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 1:26:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190213B** | QC Batch: **R131800** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 2.8 | 0.16 | 0.25 | | mg/L | 5 | 2/13/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72-080-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 2:17:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190213B** | QC Batch: **R131800** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.74 | 0.032 | 0.050 | | mg/L | 1 | 2/13/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-62-065-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 3:16:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190213B** | QC Batch: **R131800** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 4.7 | 0.32 | 0.50 | | mg/L | 10 | 2/13/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **MB-R131800** | SampType: **MBLK** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131800** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R131800** | TestNo: **SM4500-NO3** | | Analysis Date: **2/13/2019** | SeqNo: **3287843** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **LCS-R131800** | SampType: **LCS** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131800** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R131800** | TestNo: **SM4500-NO3** | | Analysis Date: **2/13/2019** | SeqNo: **3287844** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.501 | 0.050 | 0.5000 | 0 | 100 | 85 | 115 | | | | |

| Sample ID **N034091-003CDUP** | SampType: **DUP** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131800** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131800** | TestNo: **SM4500-NO3** | | Analysis Date: **2/13/2019** | SeqNo: **3287847** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.691 | 0.050 | | | | | | 0.7367 | 6.45 | 20 | |

| Sample ID **N034091-004CMS** | SampType: **MS** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131800** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131800** | TestNo: **SM4500-NO3** | | Analysis Date: **2/13/2019** | SeqNo: **3287849** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 9.331 | 0.50 | 5.000 | 4.680 | 93.0 | 75 | 125 | | | | |

| Sample ID **N034091-004CMSD** | SampType: **MSD** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131800** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131800** | TestNo: **SM4500-NO3** | | Analysis Date: **2/13/2019** | SeqNo: **3287850** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 9.597 | 0.50 | 5.000 | 4.680 | 98.3 | 75 | 125 | 9.331 | 2.81 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-73-080-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 1:26:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72457** | | | | PrepDate | **2/13/2019** | Analyst: **CEI** |
| Arsenic | 1.5 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 05:13 PM |
| Manganese | 20 | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 05:13 PM |
| Molybdenum | 38 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 05:13 PM |
| Selenium | 3.4 | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 05:13 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72-080-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 2:17:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72457** | | | | PrepDate | **2/13/2019** | Analyst: **CEI** |
| Arsenic | 11 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 05:51 PM |
| Manganese | 48 | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 05:51 PM |
| Molybdenum | 83 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 05:51 PM |
| Selenium | 1.2 | 0.36 | 0.50 | | µg/L | 1 | 2/25/2019 04:17 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-62-065-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 3:16:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** | | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72457** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 1.7 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 05:57 PM |
| Manganese | 2.5 | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 05:57 PM |
| Molybdenum | 16 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 05:57 PM |
| Selenium | 4.6 | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 05:57 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **MB-72457** | SampType: **MBLK** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72457** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293465** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.215 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **LCS-72457** | SampType: **LCS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72457** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293466** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.707 | 0.10 | 10.00 | 0 | 97.1 | 85 | 115 | | | | |
| Manganese | 104.940 | 0.50 | 100.0 | 0 | 105 | 85 | 115 | | | | |
| Molybdenum | 9.973 | 0.50 | 10.00 | 0 | 99.7 | 85 | 115 | | | | |
| Selenium | 10.296 | 0.50 | 10.00 | 0 | 103 | 85 | 115 | | | | |

| Sample ID **N034091-002B-MS** | SampType: **MS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72457** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293472** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 12.205 | 0.10 | 10.00 | 1.504 | 107 | 75 | 125 | | | | |
| Manganese | 117.294 | 0.50 | 100.0 | 20.18 | 97.1 | 75 | 125 | | | | |
| Molybdenum | 49.552 | 0.50 | 10.00 | 38.29 | 113 | 75 | 125 | | | | |
| Selenium | 13.109 | 0.50 | 10.00 | 3.380 | 97.3 | 75 | 125 | | | | |

| Sample ID **N034091-002B-MSD** | SampType: **MSD** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72457** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293473** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.861 | 0.10 | 10.00 | 1.504 | 104 | 75 | 125 | 12.20 | 2.85 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | N034091-002B-MSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131940 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72457 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293473 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 117.237 | 0.50 | 100.0 | 20.18 | 97.1 | 75 | 125 | 117.3 | 0.0492 | 20 | |
| Molybdenum | 49.953 | 0.50 | 10.00 | 38.29 | 117 | 75 | 125 | 49.55 | 0.806 | 20 | |
| Selenium | 13.061 | 0.50 | 10.00 | 3.380 | 96.8 | 75 | 125 | 13.11 | 0.371 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
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# CHAIN OF CUSTODY RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State: |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: | Sample Receipt Condition: 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number 2; 6. Method of Cooling: ICE |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661 | Email to: mbloes@pivox.com P.O.# SWA-ASSET-C9817-057 | Sample Temp: 1.8°C |
| Submitted By: Joe Gatel | | Phone: 949-727-1400, ext 200 Fax: | Global ID: |
| Title: Scientist | Phone: 916-786-3302 Fax: | | |
| Signature: Date: 2/11/2019 | Sampled By: Jordan Towne | Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid | Courier: ASSET; Tracking No.: |
| I hereby authorize ASSET Labs to perform the tests indicated below. | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | | |
| Project Name: PG&E Topock - GMP | Signature: Date: 2/11/2019 | | |
| Project Number: RC000753.801D | | | |

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly) | 2x250 mL poly | Metals Dissolved (SW 6020) Arsenic; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Cr, HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Manganese; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Molybdenum; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Selenium; HNO3 (500 mL poly) | Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly) | Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly) | Specific Conductance (EPA 120.1) (1 liter poly) | Total Dissolved Solids (SM92540) (1 liter poly) | Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly) | 500 mL poly | 3x40 mL poly | 250 mL poly | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034091-01 | MW-701-Q119 | 2/11/2019 | 15:45 | | X | | | | | | | X | | | | | | | | E | 1 | P | B | |
| 2 | -02 | MW-73-080-Q119 | 2/11/2019 | 13:26 | | X | | X | X | X | X | X | X | | X | | | | | | E | 4 | P | BNS | |
| 3 | -03 | MW-72-080-Q119 | 2/11/2019 | 14:17 | | X | | X | X | X | X | X | X | | X | | | | | | E | 4 | P | BNS | |
| 4 | -04 | MW-62-065-Q119 | 2/11/2019 | 15:16 | | X | | X | X | X | X | X | X | | X | | | | | | E | 4 | P | BNS | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | |

| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| Jordan Towne | 2/11/19 1615 | JORDAN LEE | 2-11-19 1615 |
| Jordan Lee | 2-11-19 1615 | Jordan Lee | 2-11-19 1615 |
| | | | |

**Turn Around Time (TAT)**

| | | |
|---|---|---|
| | A | < 24 Hrs or Same Day TAT |
| | B | = Next Workday |
| | C | = 2 Workdays |
| | D | = 3 Workdays |
| X | E | = Routine 5-7 Workdays |

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

**Preservatives:**

| | | | |
|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C |
| Z=$Zn(AC)_2$ | O=NaOH | T=$Na_2S_2O_3$ | |
| Others/Specify: | B | (NH4)2SO4/NH4OH | |

**Container Type:**

| | | |
|---|---|---|
| T=Tube | V=VOA | P=Pint |
| J=Jar | B=Tedlar | G=Glass |
| M=Metal | M=Metal | C=Can |

White=Laboratory Copy
Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 2/11/2019 | Workorder: | N034091 |
| Rep sample Temp (Deg C): | 1.8 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | N/A | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☑ | No ☐ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☐ | No ☐ | NA ☑ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments:

Checklist Completed By: RM 2/12/2019

Reviewed By: LG 021219

# ASSET Laboratories

## WORK ORDER Summary

*12-Feb-19*

**WorkOrder:** N034091

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/11/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034091-001A | MW-701-Q119 | 2/11/2019 3:45:00 PM | 2/25/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034091-002A | MW-73-080-Q119 | 2/11/2019 1:26:00 PM | 2/25/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034091-002B | | | 2/25/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/25/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/25/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034091-002C | | | 2/25/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034091-002D | | | 2/25/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034091-003A | MW-72-080-Q119 | 2/11/2019 2:17:00 PM | 2/25/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034091-003B | | | 2/25/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/25/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/25/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034091-003C | | | 2/25/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034091-003D | | | 2/25/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034091-004A | MW-62-065-Q119 | 2/11/2019 3:16:00 PM | 2/25/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034091-004B | | | 2/25/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/25/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/25/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034091-004C | | | 2/25/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034091-004D | | | 2/25/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034091-005A | FOLDER | 2/25/2019 | 2/25/2019 | | EDD | RWQCB | ☐ | ☐ | ☐ | LAB |
| | | | 2/25/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# ASSET Laboratories

## WORK ORDER Summary

*12-Feb-19*

**WorkOrder:** N034091

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/11/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034091-005A | FOLDER | 2/25/2019 | 2/25/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# *ARCADIS*

Project: PG&E Topock - GMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N034091

## *ANALYTICAL and QC RESULTS*
## *SAMPLE RECEIVING ITEMS*

*PRIVILEGED AND CONFIDENTIAL*

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## ASSET Laboratories Work Order: N034091


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February 26, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034091

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on February 11, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N034091-002B-MS and N034091-002B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

## ASSET Laboratories

**Date:** *26-Feb-19*

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab Order:** N034091
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034091-001A | MW-701-Q119 | Groundwater | 2/11/2019 3:45:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-002A | MW-73-080-Q119 | Groundwater | 2/11/2019 1:26:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-002B | MW-73-080-Q119 | Groundwater | 2/11/2019 1:26:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-002C | MW-73-080-Q119 | Groundwater | 2/11/2019 1:26:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-002D | MW-73-080-Q119 | Groundwater | 2/11/2019 1:26:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-003A | MW-72-080-Q119 | Groundwater | 2/11/2019 2:17:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-003B | MW-72-080-Q119 | Groundwater | 2/11/2019 2:17:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-003C | MW-72-080-Q119 | Groundwater | 2/11/2019 2:17:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-003D | MW-72-080-Q119 | Groundwater | 2/11/2019 2:17:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-004A | MW-62-065-Q119 | Groundwater | 2/11/2019 3:16:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-004B | MW-62-065-Q119 | Groundwater | 2/11/2019 3:16:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-004C | MW-62-065-Q119 | Groundwater | 2/11/2019 3:16:00 PM | 2/11/2019 | 2/26/2019 |
| N034091-004D | MW-62-065-Q119 | Groundwater | 2/11/2019 3:16:00 PM | 2/11/2019 | 2/26/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-73-080-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 1:26:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190212A** | QC Batch: **R131763** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 12000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/12/2019 11:10 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72-080-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 2:17:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190212A** | QC Batch: **R131763** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 16000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/12/2019 11:10 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-62-065-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 3:16:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190212A** | QC Batch: **R131763** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 6100 | 0.10 | 0.10 | | umhos/cm | 1 | 2/12/2019 11:10 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

Sample ID **N034091-002DDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **131763**
Client ID: **ZZZZZZ** Batch ID: **R131763** TestNo: **EPA 120.1** Analysis Date: **2/12/2019** SeqNo: **3286441**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 11600.000 | 0.10 | | | | | | 11560 | 0.345 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-701-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 3:45:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190212A** | QC Batch: **R131774** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/12/2019 01:39 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-73-080-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 1:26:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190212A** QC Batch: **R131774** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 29 | 0.33 | 2.0 | | µg/L | 10 | 2/12/2019 01:48 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72457** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | 34 | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 05:13 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034091-003

**Client Sample ID:** MW-72-080-Q119
**Collection Date:** 2/11/2019 2:17:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190212A** QC Batch: **R131774** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 77 | 0.33 | 2.0 | | µg/L | 10 | 2/12/2019 02:23 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72457** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | 92 | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 05:51 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-62-065-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 3:16:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190212A** | QC Batch: **R131774** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 470 | 3.3 | 20 | | µg/L | 100 | 2/12/2019 02:35 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190215A** | QC Batch: **72457** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | 550 | 0.65 | 5.0 | | µg/L | 5 | 2/15/2019 09:06 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **MB-R131774** | SampType: **MBLK** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/12/2019** | SeqNo: **3286723** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **LCS-R131774** | SampType: **LCS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/12/2019** | SeqNo: **3286724** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.778 | 0.20 | 5.000 | 0 | 95.6 | 90 | 110 | | | | |

| Sample ID **N034090-012ADUP** | SampType: **DUP** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/12/2019** | SeqNo: **3286749** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 18.893 | 0.40 | | | | | | 19.07 | 0.920 | 20 | |

| Sample ID **N034091-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/12/2019** | SeqNo: **3286750** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.131 | 0.20 | 1.000 | 0.1224 | 101 | 90 | 110 | | | | |

| Sample ID **N034091-001AMSD** | SampType: **MSD** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/12/2019** | SeqNo: **3286751** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.105 | 0.20 | 1.000 | 0.1224 | 98.2 | 90 | 110 | 1.131 | 2.37 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034091-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131774 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131774 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/12/2019 | SeqNo: | 3286752 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 76.696 | 2.0 | 50.00 | 29.04 | 95.3 | 90 | 110 | | | | |

| Sample ID | N034091-003AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131774 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131774 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/12/2019 | SeqNo: | 3286753 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 128.856 | 2.0 | 50.00 | 77.33 | 103 | 90 | 110 | | | | |

| Sample ID | N034091-004AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131774 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131774 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/12/2019 | SeqNo: | 3286754 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 951.980 | 20 | 500.0 | 465.8 | 97.2 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | MB-72457 | SampType: | MBLK | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72457 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293596 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-72457 | SampType: | LCS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72457 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293597 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.922 | 1.0 | 10.00 | 0 | 99.2 | 85 | 115 | | | | |

| Sample ID | N034091-002B-MS | SampType: | MS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72457 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293603 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 40.363 | 1.0 | 10.00 | 34.00 | 63.6 | 75 | 125 | | | | S |

| Sample ID | N034091-002B-MSD | SampType: | MSD | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72457 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293604 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 40.436 | 1.0 | 10.00 | 34.00 | 64.3 | 75 | 125 | 40.36 | 0.181 | 20 | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-73-080-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 1:26:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190213B** | QC Batch: **R131800** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 2.8 | 0.16 | 0.25 | | mg/L | 5 | 2/13/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72-080-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 2:17:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | **SM4500-NO3F** | | | |
| RunID: **NV00922-WC_190213B** | QC Batch: **R131800** | | | PrepDate | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.74 | 0.032 | 0.050 | | mg/L | 1 | 2/13/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-62-065-Q119 |
| **Lab Order:** | N034091 | **Collection Date:** | 2/11/2019 3:16:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034091-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190213B** | QC Batch: **R131800** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 4.7 | 0.32 | 0.50 | | mg/L | 10 | 2/13/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **MB-R131800** | SampType: **MBLK** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | | | RunNo: **131800** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R131800** | TestNo: **SM4500-NO3** | | Analysis Date: **2/13/2019** | | | SeqNo: **3287843** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **LCS-R131800** | SampType: **LCS** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | | | RunNo: **131800** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R131800** | TestNo: **SM4500-NO3** | | Analysis Date: **2/13/2019** | | | SeqNo: **3287844** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Nitrate/Nitrite as N | 0.501 | 0.050 | 0.5000 | 0 | 100 | 85 | 115 | | | | |

| Sample ID **N034091-003CDUP** | SampType: **DUP** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | | | RunNo: **131800** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131800** | TestNo: **SM4500-NO3** | | Analysis Date: **2/13/2019** | | | SeqNo: **3287847** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Nitrate/Nitrite as N | 0.691 | 0.050 | | | | | | 0.7367 | 6.45 | 20 | |

| Sample ID **N034091-004CMS** | SampType: **MS** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | | | RunNo: **131800** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131800** | TestNo: **SM4500-NO3** | | Analysis Date: **2/13/2019** | | | SeqNo: **3287849** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Nitrate/Nitrite as N | 9.331 | 0.50 | 5.000 | 4.680 | 93.0 | 75 | 125 | | | | |

| Sample ID **N034091-004CMSD** | SampType: **MSD** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | | | RunNo: **131800** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131800** | TestNo: **SM4500-NO3** | | Analysis Date: **2/13/2019** | | | SeqNo: **3287850** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Nitrate/Nitrite as N | 9.597 | 0.50 | 5.000 | 4.680 | 98.3 | 75 | 125 | 9.331 | 2.81 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034091-002

**Client Sample ID:** MW-73-080-Q119
**Collection Date:** 2/11/2019 1:26:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72457** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 1.5 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 05:13 PM |
| Manganese | 20 | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 05:13 PM |
| Molybdenum | 38 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 05:13 PM |
| Selenium | 3.4 | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 05:13 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034091-003

**Client Sample ID:** MW-72-080-Q119
**Collection Date:** 2/11/2019 2:17:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72457** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 11 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 05:51 PM |
| Manganese | 48 | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 05:51 PM |
| Molybdenum | 83 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 05:51 PM |
| Selenium | 1.2 | 0.36 | 0.50 | | µg/L | 1 | 2/25/2019 04:17 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034091-004

**Client Sample ID:** MW-62-065-Q119
**Collection Date:** 2/11/2019 3:16:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72457** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 1.7 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 05:57 PM |
| Manganese | 2.5 | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 05:57 PM |
| Molybdenum | 16 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 05:57 PM |
| Selenium | 4.6 | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 05:57 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **MB-72457** | SampType: **MBLK** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72457** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293465** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.215 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **LCS-72457** | SampType: **LCS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72457** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293466** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.707 | 0.10 | 10.00 | 0 | 97.1 | 85 | 115 | | | | |
| Manganese | 104.940 | 0.50 | 100.0 | 0 | 105 | 85 | 115 | | | | |
| Molybdenum | 9.973 | 0.50 | 10.00 | 0 | 99.7 | 85 | 115 | | | | |
| Selenium | 10.296 | 0.50 | 10.00 | 0 | 103 | 85 | 115 | | | | |

| Sample ID **N034091-002B-MS** | SampType: **MS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72457** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293472** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 12.205 | 0.10 | 10.00 | 1.504 | 107 | 75 | 125 | | | | |
| Manganese | 117.294 | 0.50 | 100.0 | 20.18 | 97.1 | 75 | 125 | | | | |
| Molybdenum | 49.552 | 0.50 | 10.00 | 38.29 | 113 | 75 | 125 | | | | |
| Selenium | 13.109 | 0.50 | 10.00 | 3.380 | 97.3 | 75 | 125 | | | | |

| Sample ID **N034091-002B-MSD** | SampType: **MSD** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72457** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293473** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.861 | 0.10 | 10.00 | 1.504 | 104 | 75 | 125 | 12.20 | 2.85 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | N034091-002B-MSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131940 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72457 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293473 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 117.237 | 0.50 | 100.0 | 20.18 | 97.1 | 75 | 125 | 117.3 | 0.0492 | 20 | |
| Molybdenum | 49.953 | 0.50 | 10.00 | 38.29 | 117 | 75 | 125 | 49.55 | 0.806 | 20 | |
| Selenium | 13.061 | 0.50 | 10.00 | 3.380 | 96.8 | 75 | 125 | 13.11 | 0.371 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State: |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: | Sample Receipt Condition (Y / N): 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number 2; 6. Method of Cooling: ICE |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661 | Email to: mbloes@pivox.com | P.O.# SWA-ASSET-C9817-057 |
| Submitted By: Joe Gatel | | Phone: 949-727-1400, ext 200 | Fax: |
| Title: Scientist | Phone: 916-786-3302 Fax: | | Global ID: |
| Signature: Date: 2/11/2019 | Sampled By: Jordan Towne | | Sample Temp: 1.8°C |
| I hereby authorize ASSET Labs to perform the tests indicated below. | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | | Courier: ASSET |
| Project Name: PG&E Topock - GMP | Signature: Date: 2/11/2019 | | Tracking No.: |
| Project Number: RC000753.801D | | | |

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly) | (2x250 mL poly) | Metals Dissolved (SW 6020) Arsenic; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Cr, HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Manganese; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Molybdenum; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Selenium; HNO3 (500 mL poly) | Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly) | Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly) | Specific Conductance (EPA 120.1) (1 liter poly) | Total Dissolved Solids (SM92540) (1 liter poly) | Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly) | (500 mL poly) | (3x40 mL poly) | (250 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034091-01 | MW-701-Q119 | 2/11/2019 | 15:45 | | X | | | | | | | | | | | | | | | E | 1 | P | B | |
| 2 | -02 | MW-73-080-Q119 | 2/11/2019 | 13:26 | | X | | X | X | X | X | X | X | | X | | | | | | E | 4 | P | BNS | |
| 3 | -03 | MW-72-080-Q119 | 2/11/2019 | 14:17 | | X | | X | X | X | X | X | X | | X | | | | | | E | 4 | P | BNS | |
| 4 | -04 | MW-62-065-Q119 | 2/11/2019 | 15:16 | | X | | X | X | X | X | X | X | | X | | | | | | E | 4 | P | BNS | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | |

| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| Jordan Towne | 2/11/19 1615 | JORDAN LEE | 2-11-19 1615 |
| Jordan Lee | 2-11-19 1615 | Jordan Lee | 2-11-19 1615 |
| | | | |

**Turn Around Time (TAT)**

| | | |
|---|---|---|
| | A | < 24 Hrs or Same Day TAT |
| | B | = Next Workday |
| | C | = 2 Workdays |
| | D | = 3 Workdays |
| X | E | = Routine 5-7 Workdays |

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

**Preservatives:**

| | | | |
|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C |
| Z=$Zn(AC)_2$ | O=NaOH | T=$Na_2S_2O_3$ | |
| Others/Specify: | B | (NH4)2SO4/NH4OH | |

**Container Type:**

| | | |
|---|---|---|
| T=Tube | V=VOA | P=Pint |
| J=Jar | B=Tedlar | G=Glass |
| M=Metal | M=Metal | C=Can |

White=Laboratory Copy
Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 2/11/2019 | Workorder: | N034091 |
| Rep sample Temp (Deg C): | 1.8 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | N/A | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☑ | No ☐ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☐ | No ☐ | NA ☑ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments:

Checklist Completed By: RM 2/12/2019

Reviewed By: LG 021219

# ASSET Laboratories

## WORK ORDER Summary

*12-Feb-19*

**WorkOrder:** N034091

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/11/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034091-001A | MW-701-Q119 | 2/11/2019 3:45:00 PM | 2/25/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034091-002A | MW-73-080-Q119 | 2/11/2019 1:26:00 PM | 2/25/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034091-002B | | | 2/25/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/25/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/25/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034091-002C | | | 2/25/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034091-002D | | | 2/25/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034091-003A | MW-72-080-Q119 | 2/11/2019 2:17:00 PM | 2/25/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034091-003B | | | 2/25/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/25/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/25/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034091-003C | | | 2/25/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034091-003D | | | 2/25/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034091-004A | MW-62-065-Q119 | 2/11/2019 3:16:00 PM | 2/25/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034091-004B | | | 2/25/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/25/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/25/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034091-004C | | | 2/25/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034091-004D | | | 2/25/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034091-005A | FOLDER | 2/25/2019 | 2/25/2019 | | EDD | RWQCB | ☐ | ☐ | ☐ | LAB |
| | | | 2/25/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

## WORK ORDER Summary

*12-Feb-19*

**WorkOrder:** N034091

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/11/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034091-005A | FOLDER | 2/25/2019 | 2/25/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# List of Analysts

## ASSET Laboratories Work Order: N034091

| NAME | TEST METHOD |
|---|---|
| Quennie Manimtim | SM 4500-NO3F |
| Claire Ignacio | EPA 6020_Dissolved |
| Lilia Ramit | EPA 120.1 |
| Hanah Glodoviza | EPA 218.6 |

# EPA 120.1

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R131763 **Analyst:** LSR

**ASSET #:** N034091 **Date Analyzed:** 12-Feb

**Method:** EPA 120.1

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | | | X | | | |
| 11. LCS compounds within control limits. | | | X | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 2/25/2019

2nd Level Reviewer: 2/26/2019 Date: —

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

# Conductivity Logbook

**Date:** 2/12/19 1110
**Analyst:** LR

| Standard | Std ID | Reading | Comments |
|---|---|---|---|
| 11.26 uS/cm | GNV-181011A | 11.55 @17.5C | % Rec: (90-110%) |
| 1410 | 190107D | 1405 @17.5C | |
| 9988 | 180731I | 9930 @17.5C | |
| 99661 | 181121B | 99500 @17.5C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | N034091-002D | 1120 | 11560 @16.9C | |
| 2 | 2D DUP | | 11600 @16.8C | |
| 3 | 3D DUP | | 16100 @17.2C | |
| 4 | 4D | | 6120 @17.2C | |
| 5 | | | | |
| 6 | | | | |
| 7 | 1413 uS/cm | GNV-181022A | 1426 @16.9C | |
| 8 | 10000 | B | 9980 @17.0C | |
| 9 | 99922 | C | 97200 @17.0C | |
| 10 | | | | |
| Dup | | | | Accept: 10% water, 20% soil |
| | Std Chk: | | | % Rec: (90-110%) |

Julia Ramit 2/25/2019

**Date:** 2/13/19 1055
**Analyst:** LR

| Standard | Std ID | Reading | Comments |
|---|---|---|---|
| 11.26 uS/cm | GNV-181011A | 11.43 @17.7C | % Rec: (90-110%) |
| 1410 | 190107D | 1442 @18.1C | |
| 9988 | 180731I | 10200 @18.3C | |
| 99661 | 181121B | 100700 @18.3C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | N034102-002D | 1120 | 14420 @17.0C | |
| 2 | 3D | | 14270 @17.0C | STD CHECK |
| 3 | 4D | | 14070 @16.7C | 1413 GNV 181022A |
| 4 | N034103-001A | | 56400 @17.1C | 1459 @17.7°C |
| 5 | 1A DUP | | 56100 @16.8C | 10000 GNV 181022B |
| 6 | 2A | | 41500 @16.8C | = 10010 @18.2°C |
| 7 | 4A | | 17930 @16.8C | 99922 GNV 181022C |
| 8 | 5A | | 1955 @17.1C | = 97200 @18.3°C |
| 9 | 6A | | 8840 @16.8C | |
| 10 | 7A | | 33200 @16.8C | |
| Dup | 8A | | 65000 @16.8C | Accept: 10% water, 20% soil |
| | Std Chk: | | | % Rec: (90-110%) |

Logbook # 6

# EPA 218.6

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**QC Batch Number:** R131774
**ASSET #:** N034091

**Instrument ID:** IC-07
**Analyst:** HSG
**Date Analyzed:** 2/12/2019

**Method:**

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | | | |
| 3. ICV within ± 10% of expected value. | X | | | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | X | | | | | |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | X | | | | | |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | X | | | | | |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | X | | | | | |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | X | | | | | |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | X | | | | | |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | X | | | | | |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | | | |
| 21. Are all samples analyzed within hold time? | X | | | | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | | | |
| 24. LCS compounds are within control limits. | X | | | | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | |
| 29. All manual integrations initialed, date and reasons included. | X | | | | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | | | |
| 31. All samples and QC raw data present in package. | X | | | | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | | | |
| 34 Is the QC summary report present and complete? | X | | | | | |

Comments:

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer HSG Date: 2/25/19

2nd Level Reviewer 2/25/2019 Date: —

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 218.6
**TEST NAME:** HEXAVALENT CHROMIUM BY IC
**MATRIX:** Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N034091-002A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 2.9040 * 10$$

$$Cr^{+6}, \mu g/L = 29.0400$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 29}$$

# ANALYSIS RUN LOG

**INJECTION LOG: 190204A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:31 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:41 AM | Not Reported |
| 3 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:54 AM | Not Reported |
| 4 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/04/19 10:22 AM | Reported |
| 5 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:35 AM | Reported |
| 6 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:47 AM | Reported |
| 7 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:56 AM | Reported |
| 8 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:06 AM | Reported |
| 9 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:15 AM | Reported |
| 10 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:25 AM | Reported |
| 11 | ICV | ICV | 1 | Hexavalent Chromium | 02/04/19 11:45 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/04/19 11:56 AM | Reported |
| 13 | ICB | ICB | 1 | Hexavalent Chromium | 02/04/19 12:06 PM | Not Reported |
| 14 | ICB | ICB | 1 | Hexavalent Chromium | 02/04/19 12:19 PM | Reported |
| 15 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 12:32 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190204A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **04/Feb/19 15:07:18** |
| *No. of Injections:* | **18** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:31 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 02/04/2019 09:41 | Finished | BLANK |
| 3 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:54 | Finished | BLANK |
| 4 | iBLANK | 2 | 1000 | Unknown | | 02/04/2019 10:22 | Finished | INSTRUMENT BLANK |
| 5 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/04/2019 10:35 | Finished | 0.2 ppb, IWST-181022C |
| 6 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/04/2019 10:47 | Finished | 1.0 ppb, IWST-181022C |
| 7 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/04/2019 10:56 | Finished | 5.0 ppb, IWST-181022C |
| 8 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/04/2019 11:06 | Finished | 10 ppb, IWST-181022C |
| 9 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/04/2019 11:15 | Finished | 15 ppb, IWST-181022C |
| 10 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/04/2019 11:25 | Finished | 20 ppb, IWST-181022C |
| 11 | ICV,ICV,1, | 9 | 1000 | Unknown | | 02/04/2019 11:45 | Finished | ICV @5ppb, IWST-181022D |
| 12 | PQL@0.2ppb,CCV2,1 | 10 | 1000 | Unknown | | 02/04/2019 11:56 | Finished | PQL @ 0.2ppb |
| 13 | ICB,ICB,1, | 11 | 1000 | Unknown | | 02/04/2019 12:06 | Finished | ICB R190115A |
| 14 | ICB,ICB,1, | 12 | 1000 | Unknown | | 02/04/2019 12:19 | Finished | ICB R190115A |
| 15 | BLANK | 13 | 1000 | Unknown | | 02/04/2019 12:32 | Finished | BLANK |
| 16 | SHUTDOWN | 14 | 1000 | Unknown | | 02/04/2019 14:44 | Finished | |
| 17 | Eluent: R190130B | 15 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 18 | PCR: R190130A | 16 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

**INJECTION LOG: 190212A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:31 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:41 AM | Not Reported |
| 3 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:54 AM | Not Reported |
| 4 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/04/19 10:22 AM | Reported |
| 5 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:35 AM | Reported |
| 6 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:47 AM | Reported |
| 7 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:56 AM | Reported |
| 8 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:06 AM | Reported |
| 9 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:15 AM | Reported |
| 10 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:25 AM | Reported |
| 11 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/12/19 8:56 AM | Not Reported |
| 12 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/12/19 9:06 AM | Not Reported |
| 13 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/12/19 9:22 AM | Not Reported |
| 14 | CCV-1 | CCV | 1 | Hexavalent Chromium | 02/12/19 9:33 AM | Reported |
| 15 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/12/19 9:43 AM | Reported |
| 16 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/12/19 9:52 AM | Reported |
| 17 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/12/19 10:12 AM | Reported |
| 18 | MB-R131774 | MBLK | 1 | Hexavalent Chromium | 02/12/19 10:23 AM | Reported |
| 19 | LCS-R131774 | LCS | 1 | Hexavalent Chromium | 02/12/19 10:33 AM | Reported |
| 20 | N034090-001A | SAMP | 1 | Hexavalent Chromium | 02/12/19 10:45 AM | Reported |
| 21 | N034090-002A | SAMP | 1 | Hexavalent Chromium | 02/12/19 10:54 AM | Reported |
| 22 | N034090-003A | SAMP | 1 | Hexavalent Chromium | 02/12/19 11:04 AM | Reported |
| 23 | N034090-004A | SAMP | 1 | Hexavalent Chromium | 02/12/19 11:13 AM | Reported |
| 24 | N034090-005A | SAMP | 1 | Hexavalent Chromium | 02/12/19 11:23 AM | Reported |
| 25 | N034090-006A | SAMP | 1 | Hexavalent Chromium | 02/12/19 11:32 AM | Reported |
| 26 | N034090-007A | SAMP | 1 | Hexavalent Chromium | 02/12/19 11:42 AM | Reported |
| 27 | N034090-008A | SAMP | 1 | Hexavalent Chromium | 02/12/19 11:51 AM | Reported |
| 28 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 02/12/19 12:01 PM | Reported |
| 29 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/12/19 12:10 PM | Reported |
| 30 | N034090-009A | SAMP | 1 | Hexavalent Chromium | 02/12/19 12:21 PM | Reported |
| 31 | N034090-010A | SAMP | 1 | Hexavalent Chromium | 02/12/19 12:33 PM | Reported |
| 32 | N034090-011A | SAMP | 1 | Hexavalent Chromium | 02/12/19 12:42 PM | Reported |
| 33 | N034090-012A | SAMP | 1 | Hexavalent Chromium | 02/12/19 12:52 PM | Not Reported |
| 34 | N034090-013A | SAMP | 1 | Hexavalent Chromium | 02/12/19 1:01 PM | Reported |
| 35 | N034090-014A | SAMP | 1 | Hexavalent Chromium | 02/12/19 1:11 PM | Reported |
| 36 | N034090-015A | SAMP | 1 | Hexavalent Chromium | 02/12/19 1:20 PM | Reported |
| 37 | N034090-016A | SAMP | 1 | Hexavalent Chromium | 02/12/19 1:30 PM | Reported |
| 38 | N034091-001A | SAMP | 1 | Hexavalent Chromium | 02/12/19 1:39 PM | Reported |
| 39 | N034091-002A | SAMP | 10 | Hexavalent Chromium | 02/12/19 1:48 PM | Reported |
| 40 | CCV-3 | CCV | 1 | Hexavalent Chromium | 02/12/19 1:58 PM | Reported |
| 41 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/12/19 2:07 PM | Reported |
| 42 | N034091-003A | SAMP | 10 | Hexavalent Chromium | 02/12/19 2:23 PM | Reported |

**INJECTION LOG: 190212A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034091-004A | SAMP | 100 | Hexavalent Chromium | 02/12/19 2:35 PM | Reported |
| 44 | N034090-012A | SAMP | 2 | Hexavalent Chromium | 02/12/19 2:44 PM | Reported |
| 45 | N034090-012ADUP | DUP | 2 | Hexavalent Chromium | 02/12/19 2:53 PM | Reported |
| 46 | N034091-001AMS | MS | 1 | Hexavalent Chromium | 02/12/19 3:03 PM | Reported |
| 47 | N034091-001AMSD | MSD | 1 | Hexavalent Chromium | 02/12/19 3:12 PM | Reported |
| 48 | N034091-002AMS | MS | 10 | Hexavalent Chromium | 02/12/19 3:22 PM | Reported |
| 49 | N034091-003AMS | MS | 10 | Hexavalent Chromium | 02/12/19 3:31 PM | Reported |
| 50 | N034091-004AMS | MS | 100 | Hexavalent Chromium | 02/12/19 3:41 PM | Reported |
| 51 | LCS-R131775 | LCS | 1 | Hexavalent Chromium | 02/12/19 3:52 PM | Reported |
| 52 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/12/19 4:04 PM | Reported |
| 53 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/12/19 4:13 PM | Not Reported |
| 54 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/12/19 4:26 PM | Reported |
| 55 | MB2-R131775 | MBLK | 1 | Hexavalent Chromium | 02/12/19 4:36 PM | Reported |
| 56 | N034089-001A | SAMP | 1 | Hexavalent Chromium | 02/12/19 4:46 PM | Reported |
| 57 | N034089-002A | SAMP | 1 | Hexavalent Chromium | 02/12/19 4:55 PM | Reported |
| 58 | N034089-003A | SAMP | 1 | Hexavalent Chromium | 02/12/19 5:05 PM | Reported |
| 59 | N034089-004A | SAMP | 5 | Hexavalent Chromium | 02/12/19 5:14 PM | Not Reported |
| 60 | N034089-005A | SAMP | 1 | Hexavalent Chromium | 02/12/19 5:24 PM | Reported |
| 61 | N034089-006A | SAMP | 1 | Hexavalent Chromium | 02/12/19 5:33 PM | Reported |
| 62 | N034089-007A | SAMP | 1 | Hexavalent Chromium | 02/12/19 5:43 PM | Reported |
| 63 | N034089-008A | SAMP | 1 | Hexavalent Chromium | 02/12/19 5:52 PM | Reported |
| 64 | N034089-009A | SAMP | 1 | Hexavalent Chromium | 02/12/19 6:02 PM | Reported |
| 65 | CCV-5 | CCV | 1 | Hexavalent Chromium | 02/12/19 6:11 PM | Reported |
| 66 | CCB-5 | CCB | 1 | Hexavalent Chromium | 02/12/19 6:20 PM | Reported |
| 67 | N034089-004A | SAMP | 1 | Hexavalent Chromium | 02/12/19 6:56 PM | Reported |
| 68 | N034089-004ADUP | DUP | 1 | Hexavalent Chromium | 02/12/19 7:07 PM | Reported |
| 69 | N034089-002AMS | MS | 1 | Hexavalent Chromium | 02/12/19 7:16 PM | Reported |
| 70 | N034089-002AMSD | MSD | 1 | Hexavalent Chromium | 02/12/19 7:26 PM | Reported |
| 71 | CCV-6 | CCV | 1 | Hexavalent Chromium | 02/12/19 7:35 PM | Reported |
| 72 | CCB-6 | CCB | 1 | Hexavalent Chromium | 02/12/19 7:45 PM | Reported |
| 73 | BLANK | BLANK | 1 | Hexavalent Chromium | N.A. | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190212A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **12/Feb/19 20:12:36** |
| *No. of Injections:* | **76** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:31 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 02/04/2019 09:41 | Finished | BLANK |
| 3 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:54 | Finished | BLANK |
| 4 | iBLANK | 2 | 1000 | Unknown | | 02/04/2019 10:22 | Finished | INSTRUMENT BLANK |
| 5 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/04/2019 10:35 | Finished | 0.2 ppb, IWST-181022C |
| 6 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/04/2019 10:47 | Finished | 1.0 ppb, IWST-181022C |
| 7 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/04/2019 10:56 | Finished | 5.0 ppb, IWST-181022C |
| 8 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/04/2019 11:06 | Finished | 10 ppb, IWST-181022C |
| 9 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/04/2019 11:15 | Finished | 15 ppb, IWST-181022C |
| 10 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/04/2019 11:25 | Finished | 20 ppb, IWST-181022C |
| 11 | BLANK | 1 | 1000 | Unknown | | 02/12/2019 08:56 | Finished | BLANK |
| 12 | BLANK | 2 | 1000 | Unknown | | 02/12/2019 09:06 | Finished | BLANK |
| 13 | BLANK | 3 | 1000 | Unknown | | 02/12/2019 09:22 | Finished | BLANK |
| 14 | CCV-1,CCV,1, | 4 | 1000 | Unknown | | 02/12/2019 09:33 | Finished | CCV @5ppb, IWST-181022C |
| 15 | PQL@0.2ppb,CCV2,1 | 5 | 1000 | Unknown | | 02/12/2019 09:43 | Finished | PQL @ 0.2ppb |
| 16 | CCB-1,CCB,1, | 6 | 1000 | Unknown | | 02/12/2019 09:52 | Finished | CCB R190115A |
| 17 | PQL@0.2ppb,CCV2,1 | 8 | 1000 | Unknown | | 02/12/2019 10:12 | Finished | PQL @ 0.2ppb |
| 18 | MB-H2O,MBLK,1, | 9 | 1000 | Unknown | | 02/12/2019 10:23 | Finished | MB R190115A |
| 19 | LCS-H2O,LCS,1, | 10 | 1000 | Unknown | | 02/12/2019 10:33 | Finished | LCS @5ppb, IWST-181022D |
| 20 | N034090-001A,SAMF | 11 | 1000 | Unknown | | 02/12/2019 10:45 | Finished | SAMP,10mL |
| 21 | N034090-002A,SAMF | 12 | 1000 | Unknown | | 02/12/2019 10:54 | Finished | SAMP,10mL |
| 22 | N034090-003A,SAMF | 13 | 1000 | Unknown | | 02/12/2019 11:04 | Finished | SAMP,10mL |
| 23 | N034090-004A,SAMF | 14 | 1000 | Unknown | | 02/12/2019 11:13 | Finished | SAMP,10mL |
| 24 | N034090-005A,SAMF | 15 | 1000 | Unknown | | 02/12/2019 11:23 | Finished | SAMP,10mL |
| 25 | N034090-006A,SAMF | 16 | 1000 | Unknown | | 02/12/2019 11:32 | Finished | SAMP,10mL |
| 26 | N034090-007A,SAMF | 17 | 1000 | Unknown | | 02/12/2019 11:42 | Finished | SAMP,10mL |
| 27 | N034090-008A,SAMF | 18 | 1000 | Unknown | | 02/12/2019 11:51 | Finished | SAMP,10mL |
| 28 | CCV-2,CCV1,1, | 19 | 1000 | Unknown | | 02/12/2019 12:01 | Finished | CCV @10ppb, IWST-181022C |
| 29 | CCB-2,CCB,1, | 20 | 1000 | Unknown | | 02/12/2019 12:10 | Finished | CCB R190115A |
| 30 | N034090-009A,SAMF | 21 | 1000 | Unknown | | 02/12/2019 12:21 | Finished | SAMP,10mL |
| 31 | N034090-010A,SAMF | 22 | 1000 | Unknown | | 02/12/2019 12:33 | Finished | SAMP,10mL |
| 32 | N034090-011A,SAMF | 23 | 1000 | Unknown | | 02/12/2019 12:42 | Finished | SAMP,10mL |
| 33 | N034090-012A,SAMF | 24 | 1000 | Unknown | | 02/12/2019 12:52 | Finished | SAMP,10mL |
| 34 | N034090-013A,SAMF | 25 | 1000 | Unknown | | 02/12/2019 13:01 | Finished | SAMP,10mL |
| 35 | N034090-014A,SAMF | 26 | 1000 | Unknown | | 02/12/2019 13:11 | Finished | SAMP,10mL |
| 36 | N034090-015A,SAMF | 27 | 1000 | Unknown | | 02/12/2019 13:20 | Finished | SAMP,10mL |
| 37 | N034090-016A,SAMF | 28 | 1000 | Unknown | | 02/12/2019 13:30 | Finished | SAMP,10mL |
| 38 | N034091-001A,SAMF | 29 | 1000 | Unknown | | 02/12/2019 13:39 | Finished | SAMP,10mL |
| 39 | N034091-002A,SAMF | 30 | 1000 | Unknown | | 02/12/2019 13:48 | Finished | SAMP,1>10mL |
| 40 | CCV-3,CCV,1, | 31 | 1000 | Unknown | | 02/12/2019 13:58 | Finished | CCV @5ppb, IWST-181022C |
| 41 | CCB-3,CCB,1, | 32 | 1000 | Unknown | | 02/12/2019 14:07 | Finished | CCB R190115A |
| 42 | N034091-003A,SAMF | 33 | 1000 | Unknown | | 02/12/2019 14:23 | Finished | SAMP,0.1>10mL |
| 43 | N034091-004A,SAMF | 34 | 1000 | Unknown | | 02/12/2019 14:35 | Finished | REP,0.1>10mL |
| 44 | N034090-012A,SAMF | 35 | 1000 | Unknown | | 02/12/2019 14:44 | Finished | SAMP,5>10mL |
| 45 | N034090-012ADUP,D | 36 | 1000 | Unknown | | 02/12/2019 14:53 | Finished | DUP,5>10mL |
| 46 | N034091-001AMS,MS | 37 | 1000 | Unknown | | 02/12/2019 15:03 | Finished | MS (1ppb), IWST-181022D,10 |
| 47 | N034091-001AMSD,M | 38 | 1000 | Unknown | | 02/12/2019 15:12 | Finished | MSD (1ppb), IWST-181022D,1( |
| 48 | N034091-002AMS,MS | 39 | 1000 | Unknown | | 02/12/2019 15:22 | Finished | MS (5ppb), IWST-181022D,10 |
| 49 | N034091-003AMS,MS | 40 | 1000 | Unknown | | 02/12/2019 15:31 | Finished | MS (5ppb), IWST-181022D,10 |
| 50 | N034091-004AMS,MS | 41 | 1000 | Unknown | | 02/12/2019 15:41 | Finished | REP,10mL |
| 51 | LCS-H2O,LCS,1, | 42 | 1000 | Unknown | | 02/12/2019 15:52 | Finished | LCS @5ppb, IWST-181022D |
| 52 | CCV-4,CCV1,1, | 43 | 1000 | Unknown | | 02/12/2019 16:04 | Finished | CCV @10ppb, IWST-181022C |
| 53 | CCB-4,CCB,1, | 44 | 1000 | Unknown | | 02/12/2019 16:13 | Interrupted | CCB R190115A |
| 54 | CCB-4,CCB,1, | 1 | 1000 | Unknown | | 02/12/2019 16:26 | Finished | CCB R190115A |
| 55 | MB2-H2O,MBLK,1, | 2 | 1000 | Unknown | | 02/12/2019 16:36 | Finished | MB R190115A |
| 56 | N034089-001A,SAMF | 3 | 1000 | Unknown | | 02/12/2019 16:46 | Finished | REP,2>10mL |
| 57 | N034089-002A,SAMF | 4 | 1000 | Unknown | | 02/12/2019 16:55 | Finished | SAMP,10mL |
| 58 | N034089-003A,SAMF | 5 | 1000 | Unknown | | 02/12/2019 17:05 | Finished | REP,10mL |
| 59 | N034089-004A,SAMF | 6 | 1000 | Unknown | | 02/12/2019 17:14 | Finished | SAMP,2>10mL |
| 60 | N034089-005A,SAMF | 7 | 1000 | Unknown | | 02/12/2019 17:24 | Finished | REP,2>10mL |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | N034089-006A,SAMF | 8 | 1000 | Unknown | | 02/12/2019 17:33 | Finished | SAMP,0.5>10mL |
| 62 | N034089-007A,SAMF | 9 | 1000 | Unknown | | 02/12/2019 17:43 | Finished | REP,0.5>10mL |
| 63 | N034089-008A,SAMF | 10 | 1000 | Unknown | | 02/12/2019 17:52 | Finished | SAMP,10mL |
| 64 | N034089-009A,SAMF | 11 | 1000 | Unknown | | 02/12/2019 18:02 | Finished | REP,10mL |
| 65 | CCV-5,CCV,1, | 12 | 1000 | Unknown | | 02/12/2019 18:11 | Finished | CCV @5ppb, IWST-181022C |
| 66 | CCB-5,CCB,1, | 13 | 1000 | Unknown | | 02/12/2019 18:20 | Finished | CCB R190115A |
| 67 | N034089-004A,SAMF | 14 | 1000 | Unknown | | 02/12/2019 18:56 | Finished | SAMP,10mL |
| 68 | N034089-004ADUP,D | 15 | 1000 | Unknown | | 02/12/2019 19:07 | Finished | SAMP,10mL |
| 69 | N034089-002AMS,MS | 16 | 1000 | Unknown | | 02/12/2019 19:16 | Finished | REP,10mL |
| 70 | N034089-002AMSD,M | 17 | 1000 | Unknown | | 02/12/2019 19:26 | Finished | SAMP,0.1>10mL |
| 71 | CCV-6,CCV,1, | 18 | 1000 | Unknown | | 02/12/2019 19:35 | Finished | CCV @10ppb, IWST-181022C |
| 72 | CCB-6,CCB,1, | 19 | 1000 | Unknown | | 02/12/2019 19:45 | Finished | CCB R190115A |
| 73 | BLANK | 20 | 1000 | Unknown | | 02/12/2019 20:14 | Finished | BLANK |
| 74 | SHUTDOWN | 21 | 1000 | Unknown | | n.a. | Running | |
| 75 | Eluent: R190208A | 22 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 76 | PCR: R190208B | 23 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# SAMPLE PREPARATION LOG

# Hexavalent Chromium Preparation and Runlog

## Sample Preparation

Date Prepared: 2/12/19
Time Prepared: 0830
Prepared By: HSG

Slope: 95.2%
pH 4: 4.03
7: 7.02
10: 10.02

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CINV-1811024
NH4OH + NH4SO4 eluent: R1902085A HSG
NH4OH + NH4SO4 buffer: R1901154

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | N034090-001A | 9.33 | – | ~250mL | ~250mL | | |
| 2) | 2A | 9.63 | – | | | | |
| 3) | 3A | 9.62 | – | | | | |
| 4) | 4A | 9.54 | – | | | | |
| 5) | 5A | 9.49 | – | | | | |
| 6) | 6A | 9.46 | – | | | | |
| 7) | 7A | 9.47 | – | | | | |
| 8) | 8A | 9.58 | – | | | | |
| 9) | 9A | 9.58 | – | | | | |
| 10) | 10A | 9.61 | – | | | | |
| 11) | 11A | 9.40 | – | | | | |
| 12) | 12A | 9.68 | – | | | | |
| 13) | 13A | 9.58 | – | | | | |
| 14) | 14A | 9.28 | 9.32 | | | +1 drop of 6N NaOH | 6N NaOH; R1809111C |
| 15) | 15A | 9.59 | – | | | | |
| | 16A | 9.58 | – | | | | |

## Sample Preparation

Date Prepared: 2/12/19
Time Prepared: 0830
Prepared By: HSG

Slope: 95.2%
pH 4: 4.03
7: 7.02
10: 10.02

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CINV-1811024
NH4OH + NH4SO4 eluent: R1902085A HSG
NH4OH + NH4SO4 buffer: R1901154

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | N034091-001A | 9.57 | – | ~250mL | ~250mL | | |
| 2) | 2A | 9.60 | – | | | | |
| 3) | 3A | 9.68 | – | | | | |
| 4) | 4A | 9.47 | – | | | | |
| 5) | N034089-001A | 9.32 | – | | | | |
| 6) | 2A | 9.12 | 9.35 | | | +3 drops of NaOH | 6N NaOH; R1809111C |
| 7) | 3A | 9.40 | – | | | | |
| 8) | 4A | 9.35 | – | | | | |
| 9) | 5A | 9.28 | 9.38 | | | +1 drop of 6N NaOH | 6N NaOH; R1809111C |
| 10) | 6A | 9.30 | – | | | | |
| 11) | 7A | 9.37 | – | | | | |
| 12) | 8A | 9.60 | – | | | | |
| 13) | 9A | 9.60 | – | | | | |
| 14) | | | | | | | |
| 15) | | | | | | | |
| | | | | | | | |

Logbook No. 15

# INITIAL CALIBRATION DATA SUMMARY

**(EPA 218.6) - INITIAL CALIBRATION**

Instrument ID: IC-07
Date Calibrated: 2/4/2019

Initial Calibration:

| Hexavalent Chromium | STD1 | STD2 | STD3 | STD4 | STD5 | STD6 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0.2 | 1 | 5 | 10 | 15 | 20 | $R^2$ |
| Area,mAU*min | 0.0689 | 0.3011 | 1.4144 | 2.8548 | 4.3509 | 5.7324 | 0.9999 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock | Working |
|---|---|---|
| Standard Concentration: | 1,000,000 PPB | 1,000 PPB |
| Standard ID: | ISST-170814H | IWST-181022C |

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/4/2019** | SeqNo: **3286717** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.780 | 0.20 | 5.000 | 0 | 95.6 | 90 | 110 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/4/2019** | SeqNo: **3286718** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.231 | 0.20 | 0.2000 | 0 | 115 | 80 | 120 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/12/2019** | SeqNo: **3286720** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.175 | 0.20 | 5.000 | 0 | 104 | 95 | 105 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/12/2019** | SeqNo: **3286722** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.2142 ~~0.191~~ | 0.20 | 0.2000 | 0 | 107.1% ~~95.4~~ | 80 | 120 | | | | |

| Sample ID **CCV-2** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/12/2019** | SeqNo: **3286733** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.095 | 0.20 | 10.00 | 0 | 101 | 95 | 105 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

2/25/2019

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/12/2019** | SeqNo: **3286744** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.157 | 0.20 | 5.000 | 0 | 103 | 95 | 105 | | | | |

| Sample ID **CCV-4** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/12/2019** | SeqNo: **3286755** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.117 | 0.20 | 10.00 | 0 | 101 | 95 | 105 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/4/2019** | SeqNo: **3286719** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/12/2019** | SeqNo: **3286721** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/12/2019** | SeqNo: **3286734** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/12/2019** | SeqNo: **3286745** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131774** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131774** | TestNo: **EPA 218.6** | | Analysis Date: **2/12/2019** | SeqNo: **3286756** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# RETENTION TIME SUMMARY

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/12/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.131 | |
| CCV-1 | 4.115 | |
| CCV-2 | 4.106 | |
| CCV-3 | 4.115 | |
| CCV-4 | 4.115 | |
| CCV-5 | 4.115 | |
| CCV-6 | 4.115 | |

| | |
|---|---|
| **Average** | 4.114 |
| **Actual RT Window** | 4.034 - 4.194 |
| **Applied RT Window** | 3.914 - 4.314 |

| | | |
|---|---|---|
| MB-R131774 | N.A. | N.A. |
| LCS-R131774 | 4.115 | PASS |
| N034090-001A | 4.106 | PASS |
| N034090-002A | 4.106 | PASS |
| N034090-003A | 4.106 | PASS |
| N034090-004A | 4.098 | PASS |
| N034090-005A | 4.106 | PASS |
| N034090-006A | N.A. | N.A. |
| N034090-007A | N.A. | N.A. |
| N034090-008A | 4.106 | PASS |
| N034090-009A | 4.098 | PASS |
| N034090-010A | 4.098 | PASS |
| N034090-011A | 4.115 | PASS |
| N034090-012A | 4.106 | PASS |
| N034090-013A | 4.098 | PASS |
| N034090-014A | 4.090 | PASS |
| N034090-015A | 4.081 | PASS |
| N034090-016A | 4.098 | PASS |
| N034091-001A | 4.106 | PASS |
| N034091-002A | 4.098 | PASS |
| N034091-003A | 4.090 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/12/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.131 | |
| CCV-1 | 4.115 | |
| CCV-2 | 4.106 | |
| CCV-3 | 4.115 | |
| CCV-4 | 4.115 | |
| CCV-5 | 4.115 | |
| CCV-6 | 4.115 | |
| **Average** | 4.114 | |
| **Actual RT Window** | 4.034 - 4.194 | |
| **Applied RT Window** | 3.914 - 4.314 | |
| N034091-004A | 4.115 | PASS |
| N034090-012A | 4.106 | PASS |
| N034090-012ADUP | 4.115 | PASS |
| N034091-001AMS | 4.115 | PASS |
| N034091-001AMSD | 4.115 | PASS |
| N034091-002AMS | 4.098 | PASS |
| N034091-003AMS | 4.090 | PASS |
| N034091-004AMS | 4.115 | PASS |
| LCS-R131775 | 4.115 | PASS |
| MB2-R131775 | N.A. | N.A. |
| N034089-001A | 4.106 | PASS |
| N034089-002A | 4.098 | PASS |
| N034089-003A | 4.098 | PASS |
| N034089-004A | 4.106 | PASS |
| N034089-005A | 4.098 | PASS |
| N034089-006A | 4.106 | PASS |
| N034089-007A | 4.073 | PASS |
| N034089-008A | N.A. | N.A. |
| N034089-009A | 4.090 | PASS |
| N034089-004A | 4.106 | PASS |
| N034089-004ADUP | 4.106 | PASS |
| N034089-002AMS | 4.090 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/12/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.131 | |
| CCV-1 | 4.115 | |
| CCV-2 | 4.106 | |
| CCV-3 | 4.115 | |
| CCV-4 | 4.115 | |
| CCV-5 | 4.115 | |
| CCV-6 | 4.115 | |
| **Average** | 4.114 | |
| **Actual RT Window** | 4.034 - 4.194 | |
| **Applied RT Window** | 3.914 - 4.314 | |
| N034089-002AMSD | 4.098 | PASS |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

| Datafile | 170505 | 170508 | 170509 | 170510 | 170511 | 170512 | 170515 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte** | **#1** | **#2** | **#3** | **#4** | **#5** | **#6** | **#7** | **Spike Conc., mg/L** | **SD** | **$t_{(n-1)}$ value** | **MDL** | **PQL** | **Remarks** |
| Hexavalent Chromium | 0.1949 | 0.2135 | 0.1840 | 0.1828 | 0.2011 | 0.1936 | 0.1911 | 0.20 | 0.0105 | 3.143 | **0.0331** | **0.20** | OK,meets criteria |

Students' **t** Values at 99% CL

| # | $t_{(n-1)}$ |
|---|---|
| 10 | 2.821 |
| 9 | 2.896 |
| 8 | 2.998 |
| 7 | 3.143 |

## LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

| Compound | MDL | LOD Spike Conc., µg/L | LOD actual Conc., µg/L |
|---|---|---|---|
| Hexavalent Chromium | 0.0331 | 0.100 | 0.116 |

| Compound | PQL | PQL Spike Conc., µg/L | PQL actual Conc., µg/L | % Recovery |
|---|---|---|---|---|
| Hexavalent Chromium | 0.200 | 0.200 | 0.201 | **100** |

# RAW DATA

# INITIAL CALIBRATION

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190204A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **04/Feb/19 15:07:18** |
| *No. of Injections:* | **18** | *Updated By:* | **ics 5000** |

## Injection Details

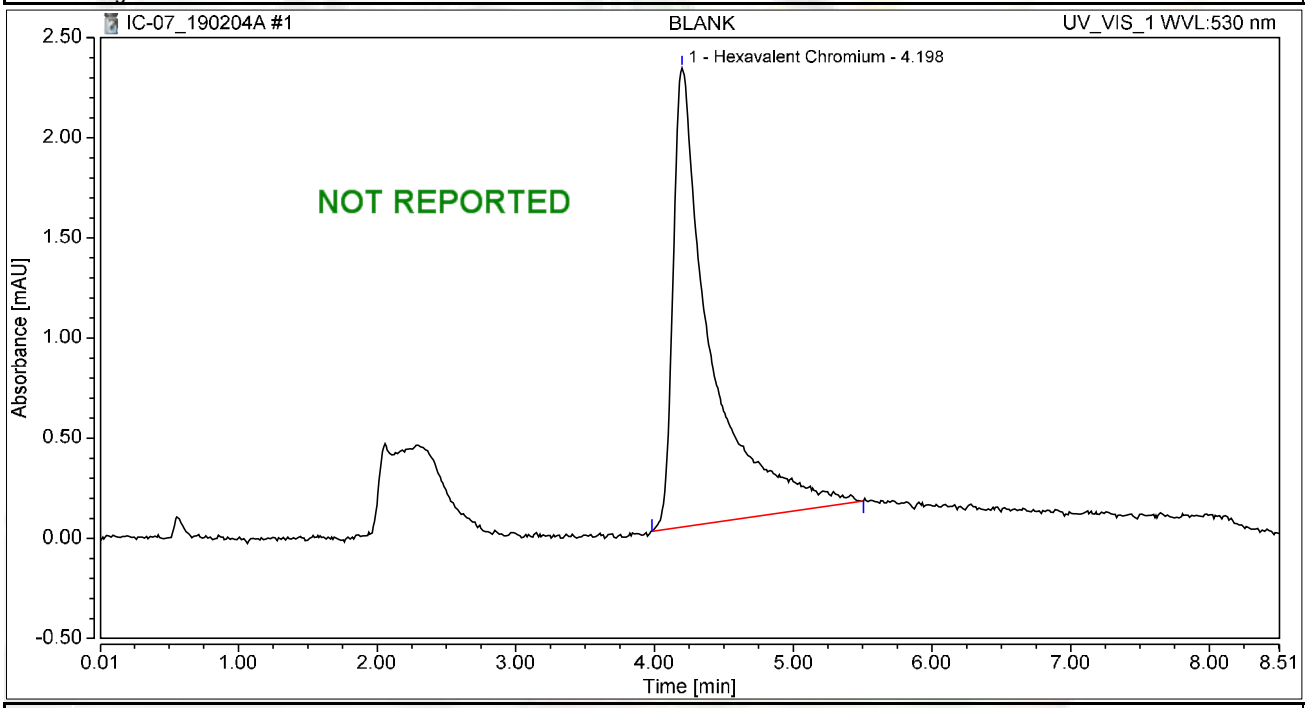
| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:31 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 02/04/2019 09:41 | Finished | BLANK |
| 3 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:54 | Finished | BLANK |
| 4 | iBLANK | 2 | 1000 | Unknown | | 02/04/2019 10:22 | Finished | INSTRUMENT BLANK |
| 5 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/04/2019 10:35 | Finished | 0.2 ppb, IWST-181022C |
| 6 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/04/2019 10:47 | Finished | 1.0 ppb, IWST-181022C |
| 7 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/04/2019 10:56 | Finished | 5.0 ppb, IWST-181022C |
| 8 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/04/2019 11:06 | Finished | 10 ppb, IWST-181022C |
| 9 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/04/2019 11:15 | Finished | 15 ppb, IWST-181022C |
| 10 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/04/2019 11:25 | Finished | 20 ppb, IWST-181022C |
| 11 | ICV,ICV,1, | 9 | 1000 | Unknown | | 02/04/2019 11:45 | Finished | ICV @5ppb, IWST-181022D |
| 12 | PQL@0.2ppb,CCV2,1 | 10 | 1000 | Unknown | | 02/04/2019 11:56 | Finished | PQL @ 0.2ppb |
| 13 | ICB,ICB,1, | 11 | 1000 | Unknown | | 02/04/2019 12:06 | Finished | ICB R190115A |
| 14 | ICB,ICB,1, | 12 | 1000 | Unknown | | 02/04/2019 12:19 | Finished | ICB R190115A |
| 15 | BLANK | 13 | 1000 | Unknown | | 02/04/2019 12:32 | Finished | BLANK |
| 16 | SHUTDOWN | 14 | 1000 | Unknown | | 02/04/2019 14:44 | Finished | |
| 17 | Eluent: R190130B | 15 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 18 | PCR: R190130A | 16 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 09:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

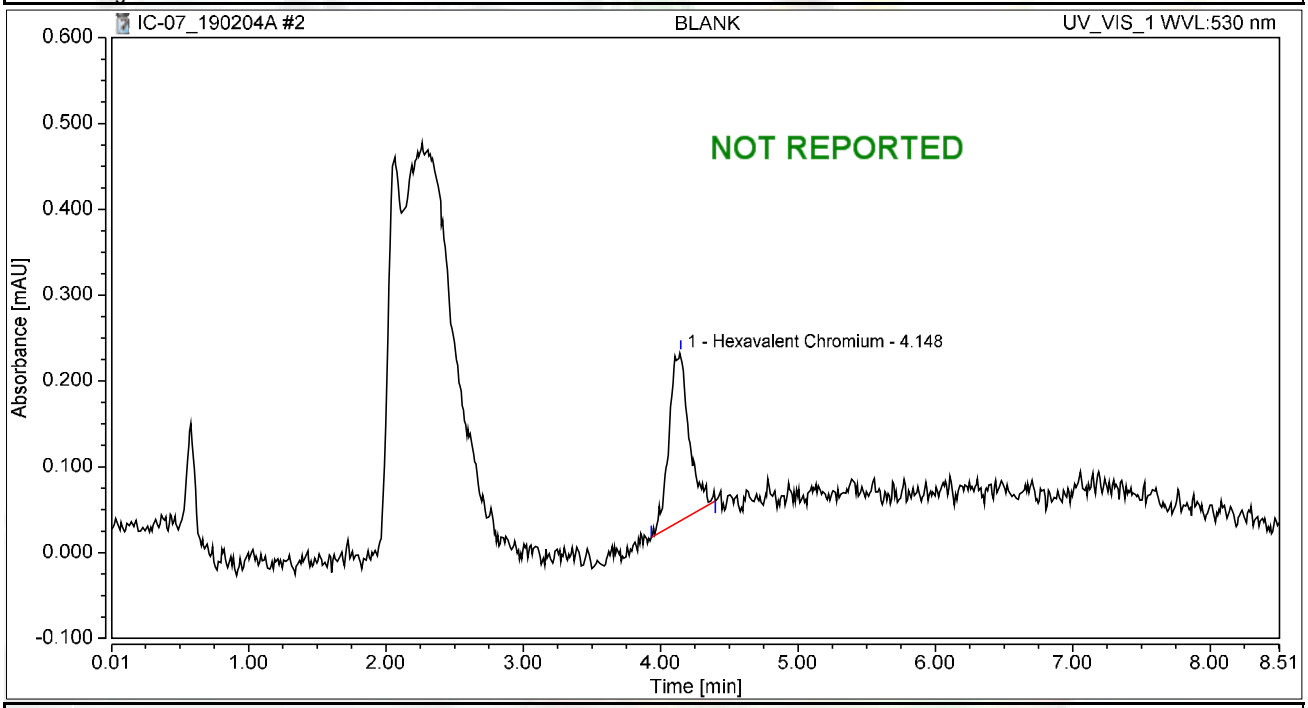
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.720 | 2.292 | 100.00 | 100.00 | 2.5055 |
| **Total:** | | | **0.720** | **2.292** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 09:41** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

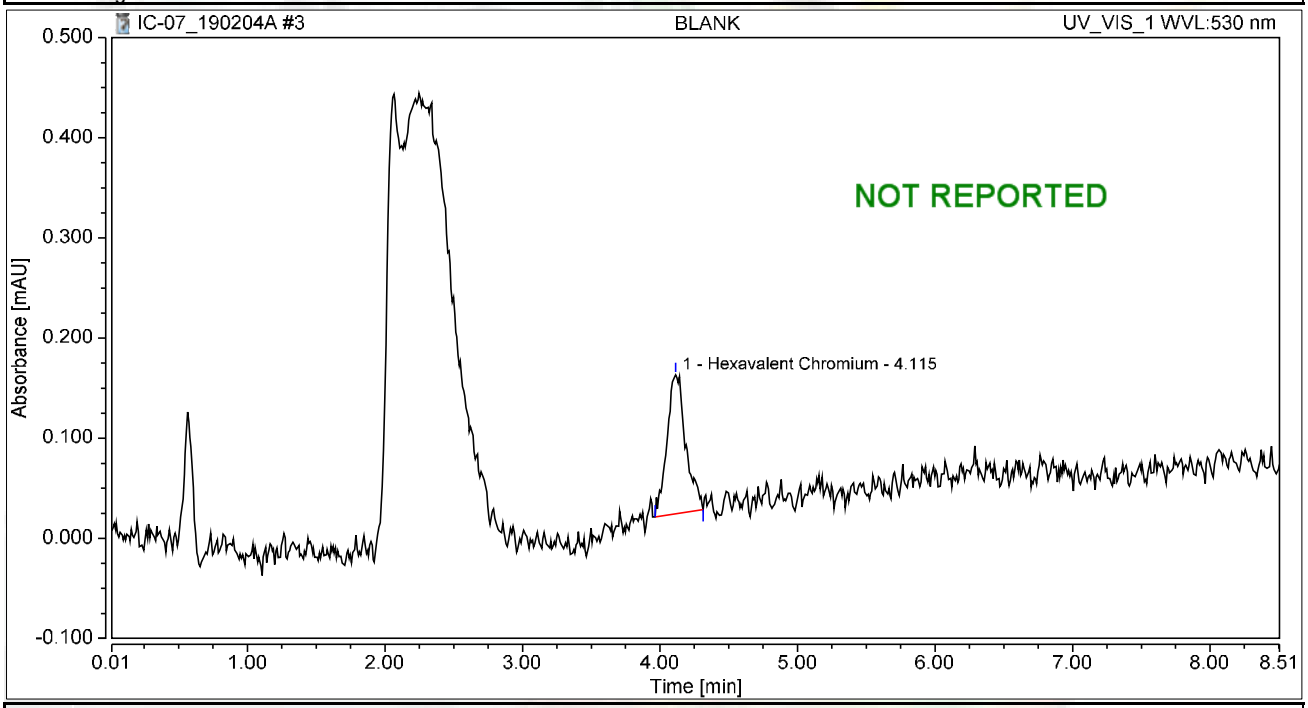
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.148 | 0.034 | 0.196 | 100.00 | 100.00 | 0.1167 |
| **Total:** | | | **0.034** | **0.196** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 09:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

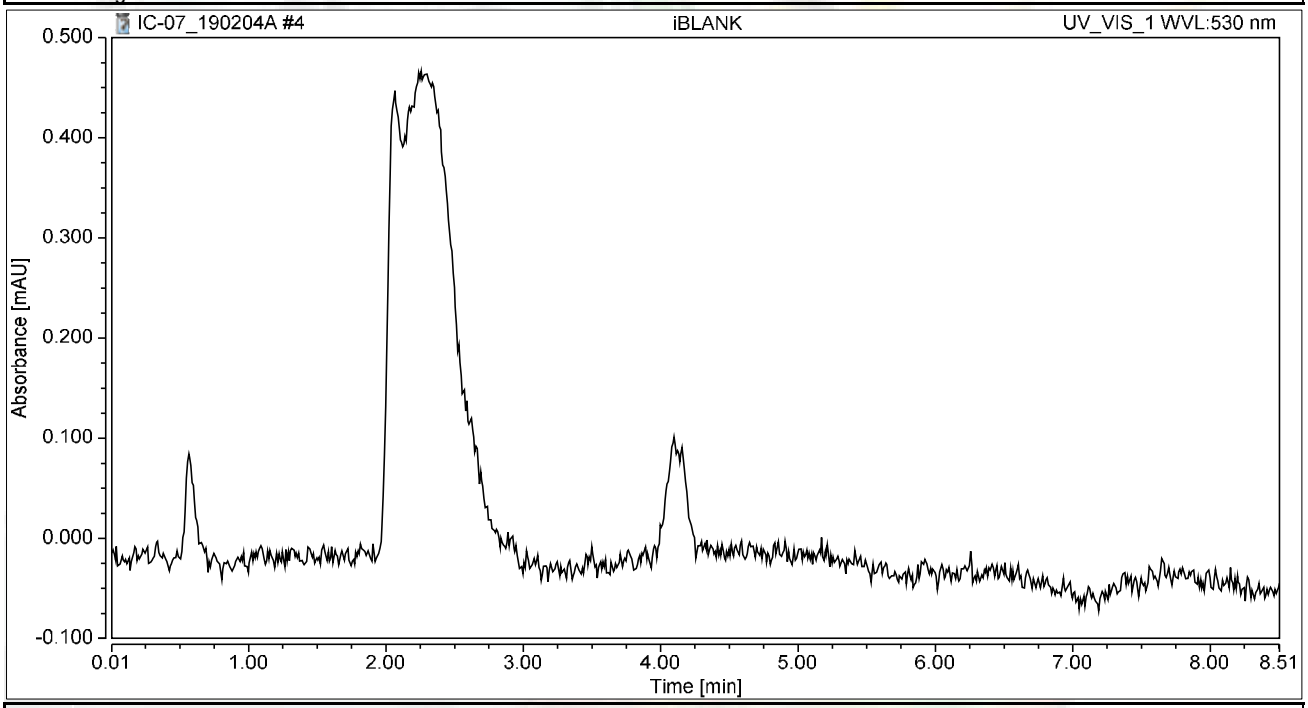
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 0.022 | 0.139 | 100.00 | 100.00 | 0.0765 |
| **Total:** | | | **0.022** | **0.139** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **iBLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 10:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

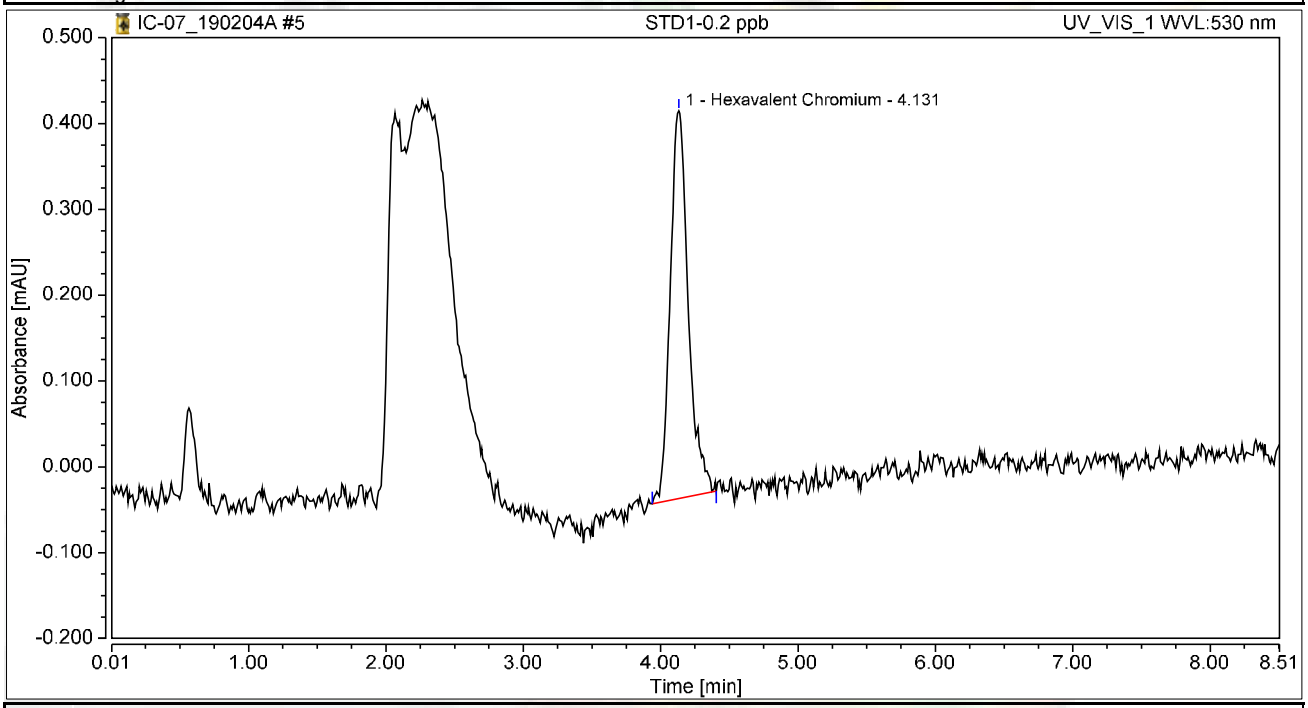
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD1-0.2 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **01** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 10:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

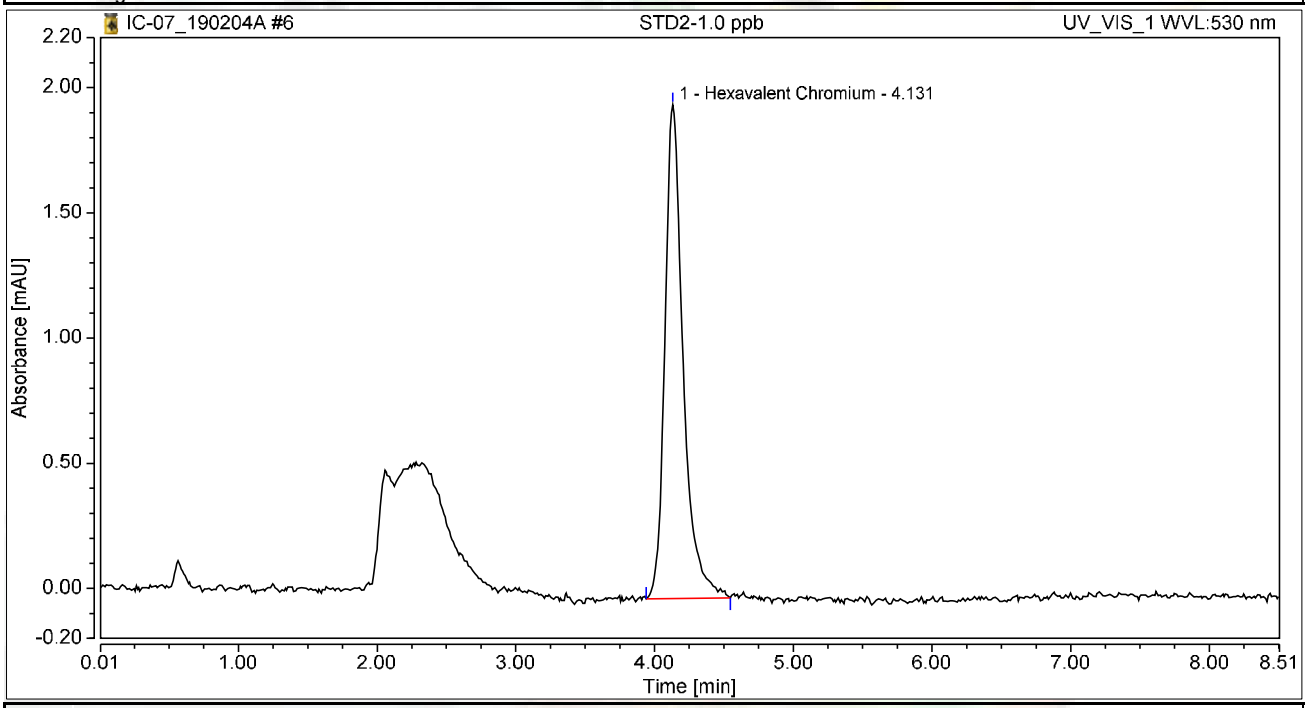
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 0.069 | 0.451 | 100.00 | 100.00 | 0.2397 |
| **Total:** | | | **0.069** | **0.451** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 10:47** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

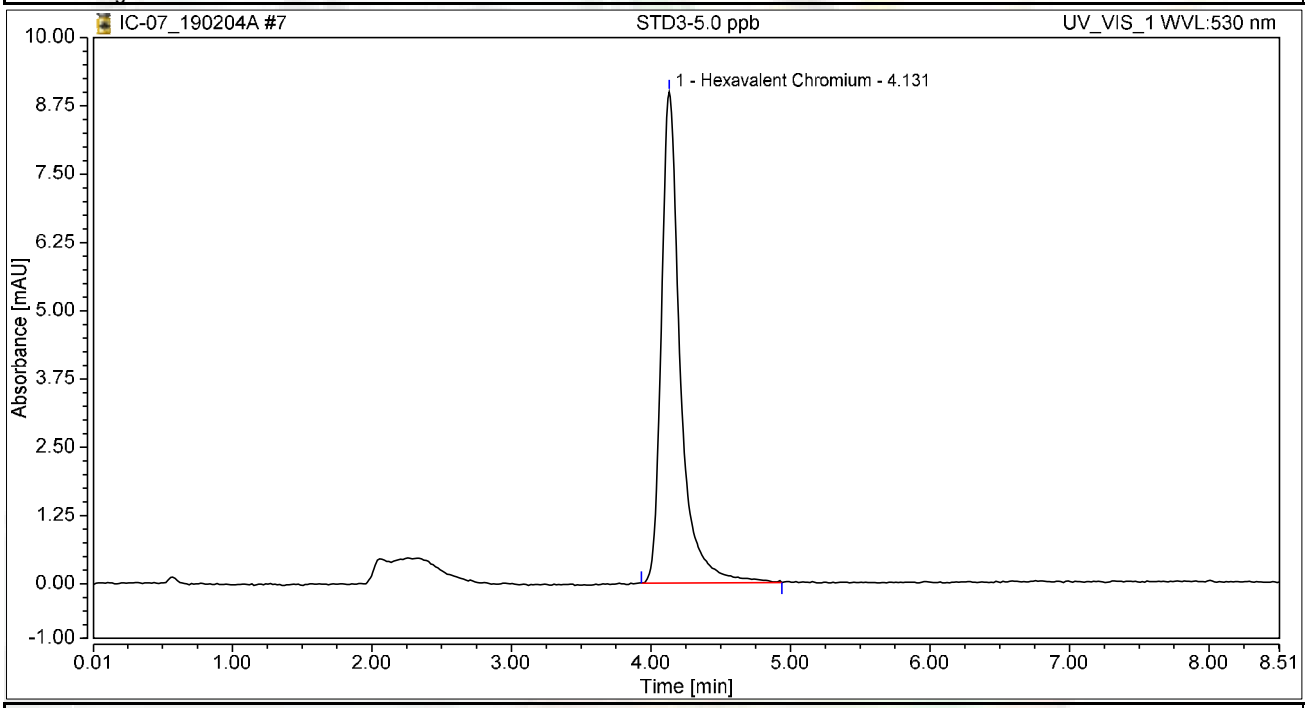
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 0.301 | 1.973 | 100.00 | 100.00 | 1.0477 |
| **Total:** | | | **0.301** | **1.973** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD3-5.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **03** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 10:56** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

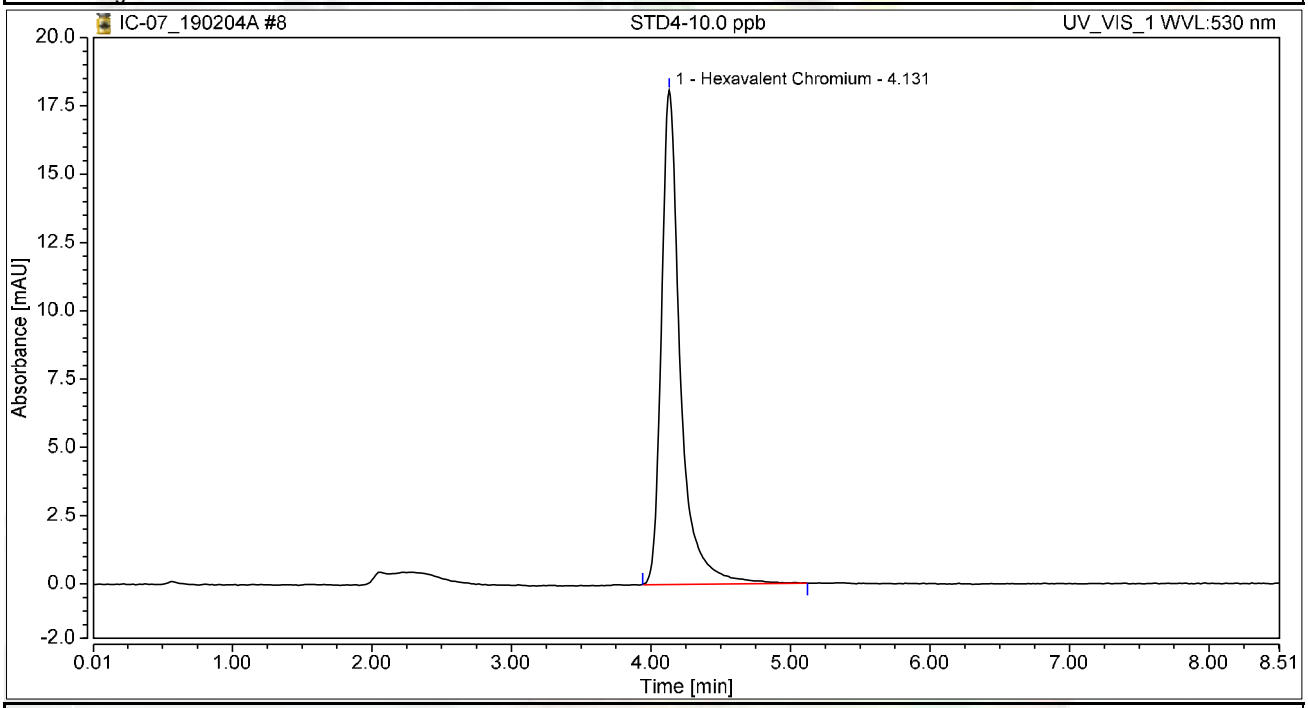
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 1.414 | 8.993 | 100.00 | 100.00 | 4.9215 |
| **Total:** | | | **1.414** | **8.993** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD4-10.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **04** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 11:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

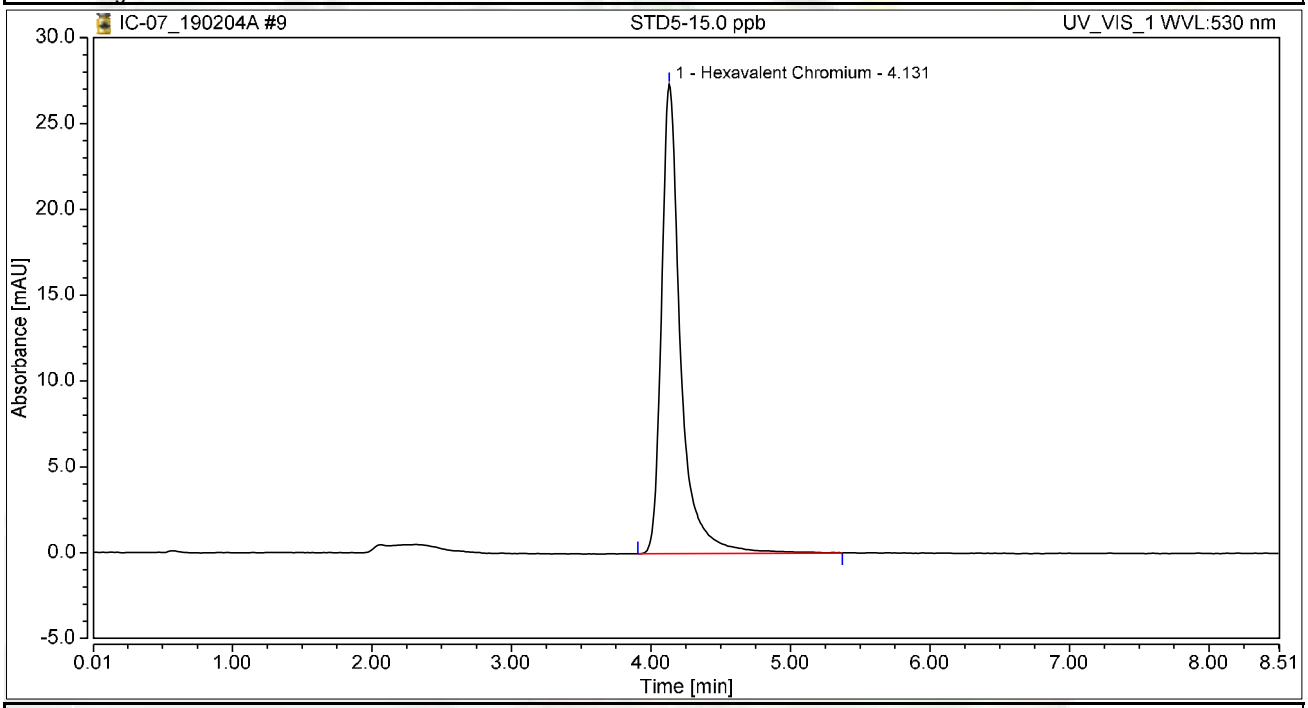
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 2.855 | 18.102 | 100.00 | 100.00 | 9.9332 |
| **Total:** | | | **2.855** | **18.102** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 11:15** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

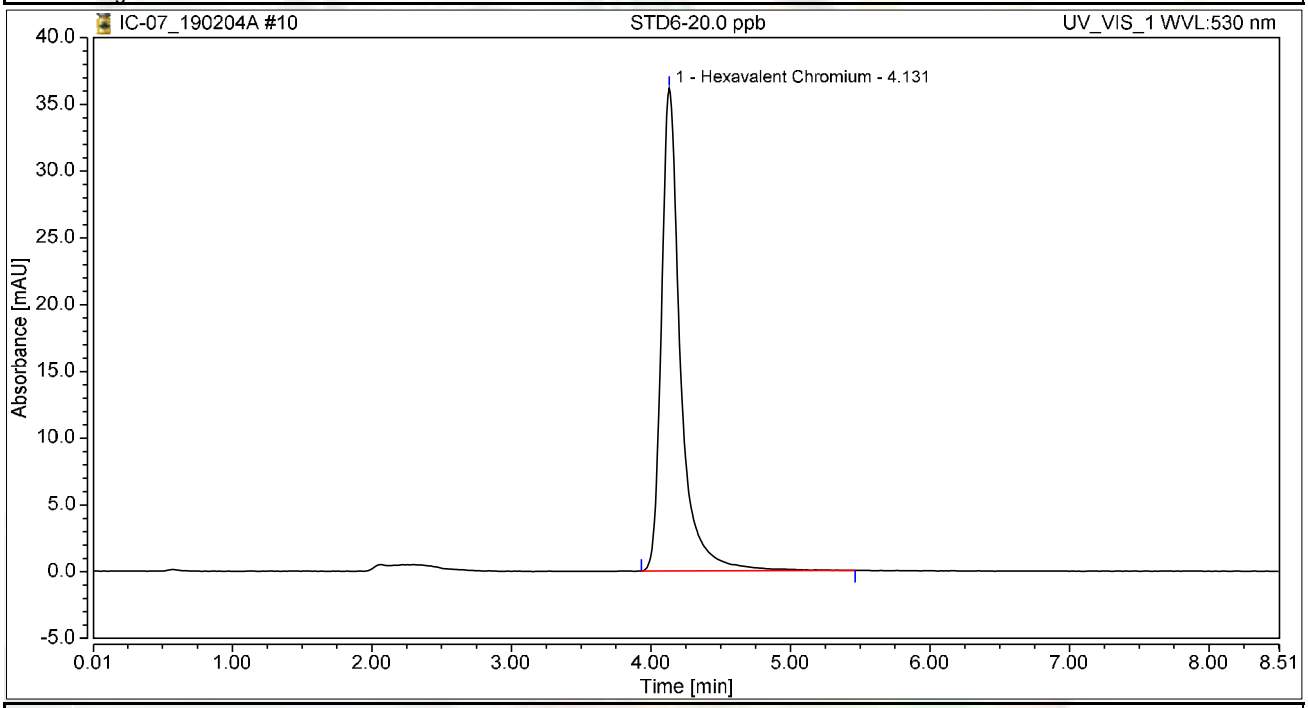
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 4.351 | 27.339 | 100.00 | 100.00 | 15.1391 |
| **Total:** | | | **4.351** | **27.339** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD6-20.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **06** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 11:25** | *Sample Weight:* | **1.0000** |

## Chromatogram



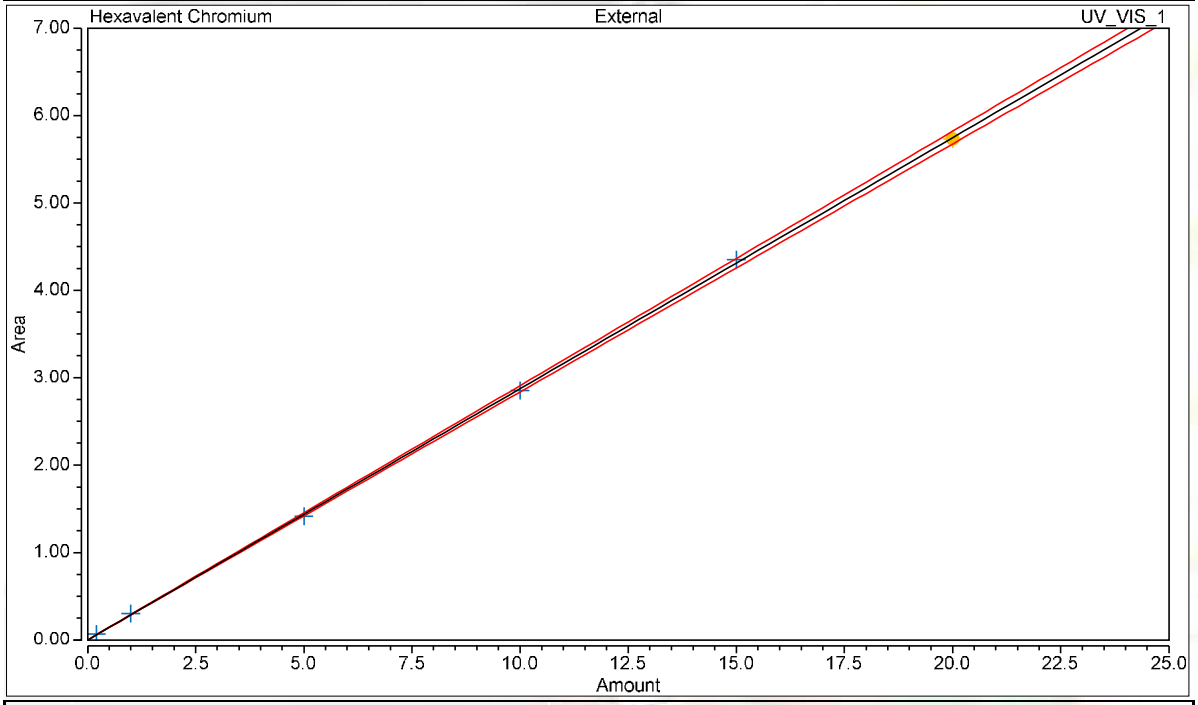

## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 5.732 | 36.163 | 100.00 | 100.00 | 19.9459 |
| **Total:** | | | **5.732** | **36.163** | **100.00** | **100.00** | |

# Initial Calibration Summary

| Calibration Details | Hexavalent Chromium | | |
|---|---|---|---|
| *Calibration Type* | Lin | *Offset (C0)* | 0.0000 |
| *Evaluation Type* | Area | *Slope (C1)* | 0.2874 |
| *Number of Calibration Points* | 6 | *Curve (C2)* | 0.0000 |
| *Number of disabled Calibration Points* | 0 | *R-Square* | 0.99988 |

Calibration Plot Hexavalent Chromium




Calibration Results Hexavalent Chromium

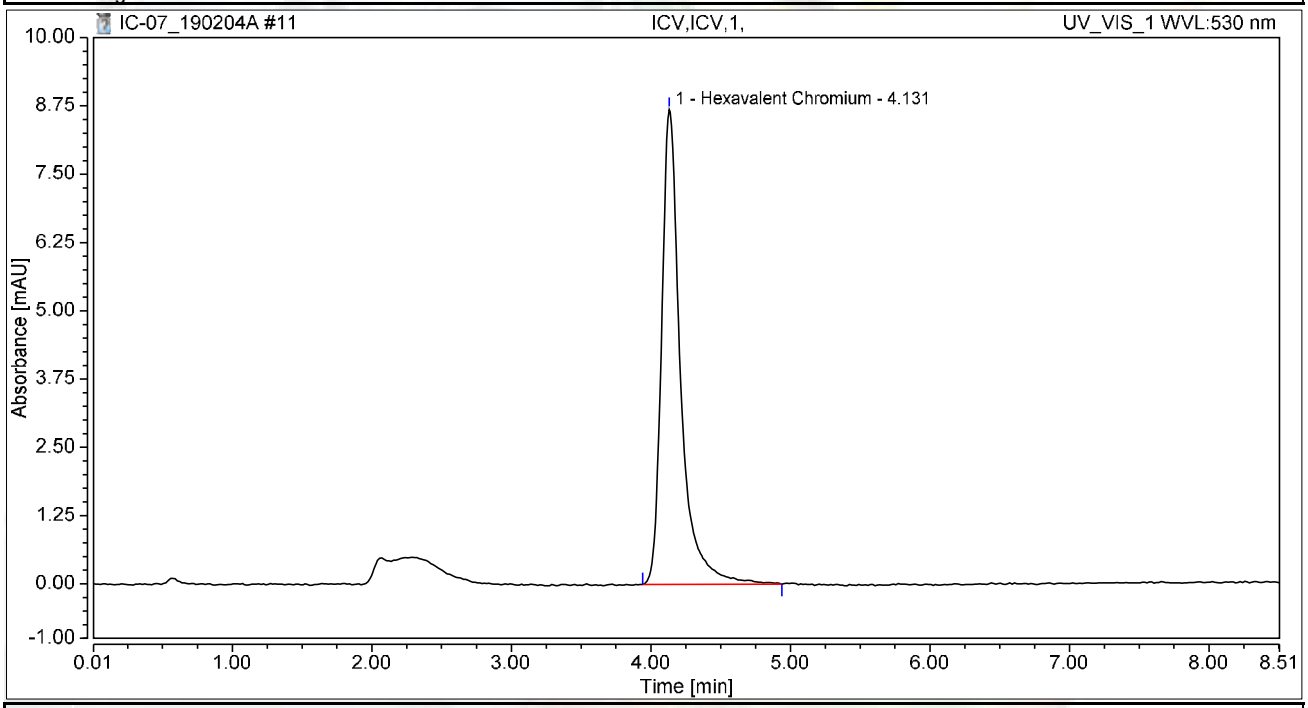
| No. | Injection Name | Calibration Level | X Value | Y Value | Area mAU*min | Height mAU |
|---|---|---|---|---|---|---|
| 5 | STD1-0.2 ppb | 01 | 0.2000 | 0.0689 | 0.069 | 0.451 |
| 6 | STD2-1.0 ppb | 02 | 1.0000 | 0.3011 | 0.301 | 1.973 |
| 7 | STD3-5.0 ppb | 03 | 5.0000 | 1.4144 | 1.414 | 8.993 |
| 8 | STD4-10.0 ppb | 04 | 10.0000 | 2.8548 | 2.855 | 18.102 |
| 9 | STD5-15.0 ppb | 05 | 15.0000 | 4.3509 | 4.351 | 27.339 |
| 10 | STD6-20.0 ppb | 06 | 20.0000 | 5.7324 | 5.732 | 36.163 |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICV,ICV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 11:45** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

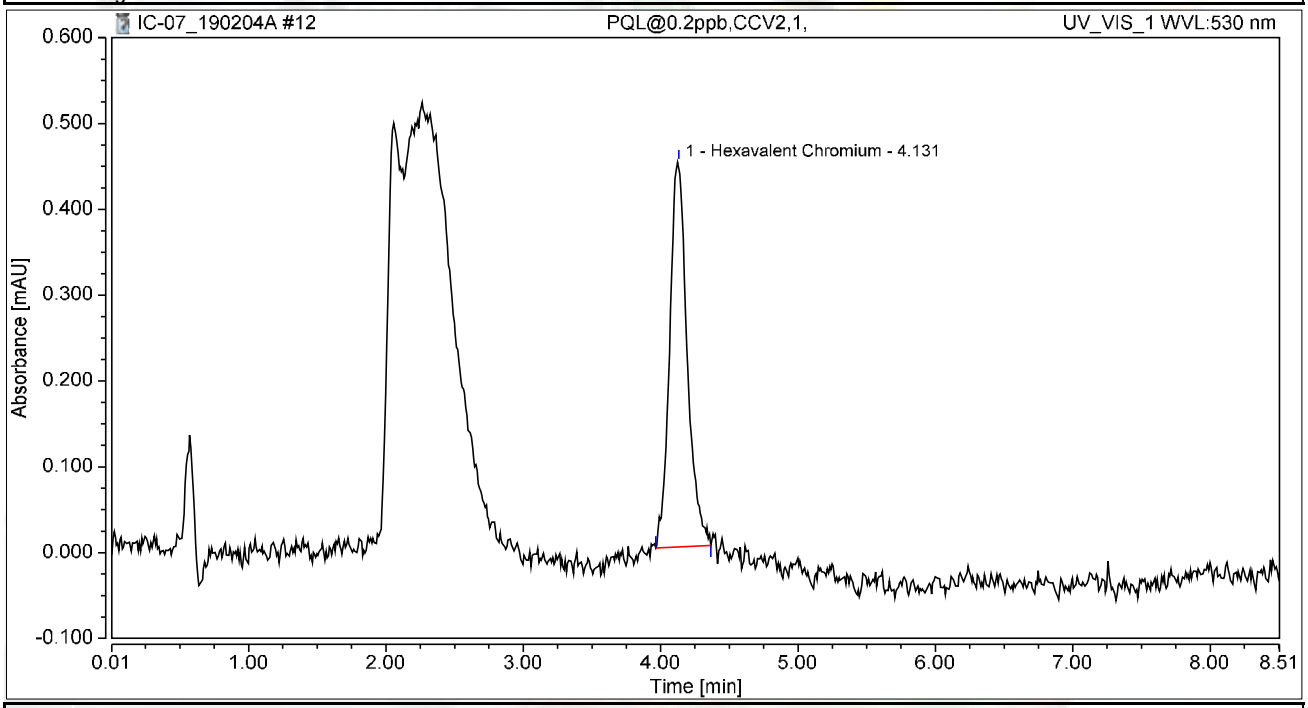
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 1.374 | 8.698 | 100.00 | 100.00 | 4.7795 |
| **Total:** | | | **1.374** | **8.698** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 11:56** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

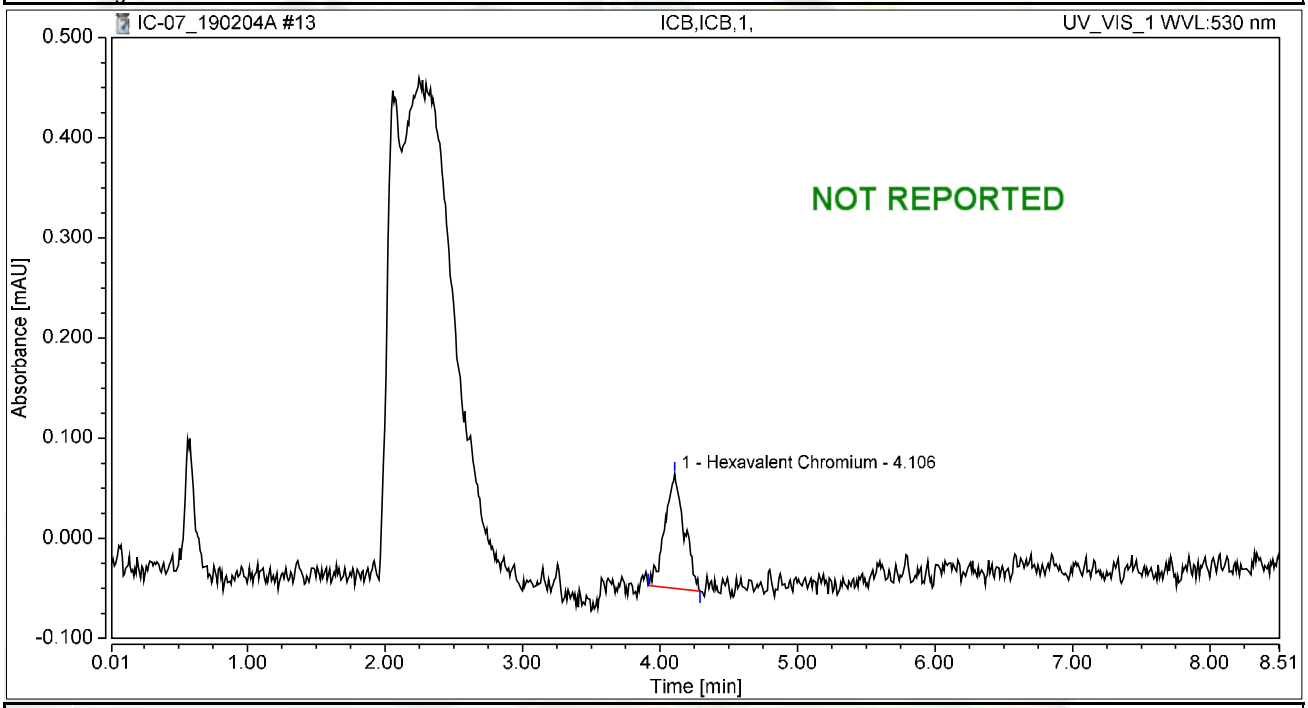
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 0.066 | 0.448 | 100.00 | 100.00 | 0.2307 |
| **Total:** | | | **0.066** | **0.448** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICB,ICB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 12:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

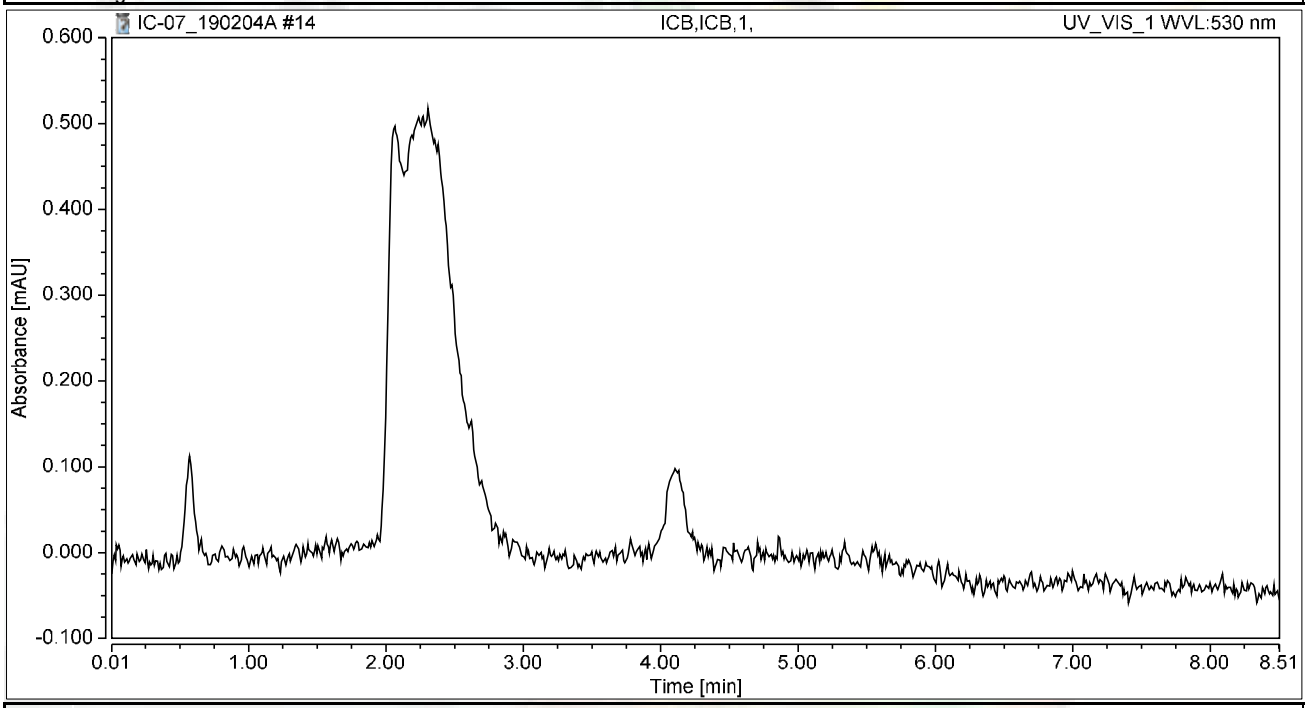
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.019 | 0.114 | 100.00 | 100.00 | 0.0647 |
| **Total:** | | | **0.019** | **0.114** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICB,ICB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 12:19** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

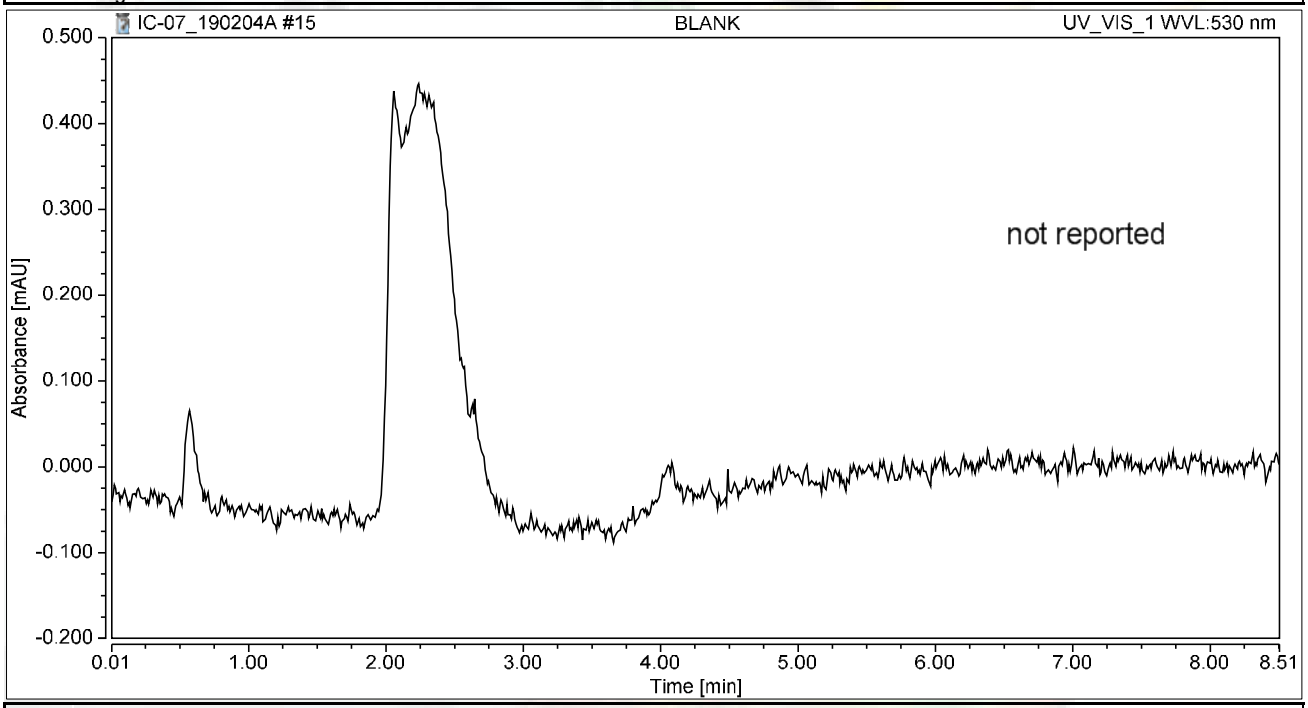
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 12:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# RAW DATA

**INJECTION LOG: 190212A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:31 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:41 AM | Not Reported |
| 3 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:54 AM | Not Reported |
| 4 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/04/19 10:22 AM | Reported |
| 5 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:35 AM | Reported |
| 6 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:47 AM | Reported |
| 7 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:56 AM | Reported |
| 8 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:06 AM | Reported |
| 9 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:15 AM | Reported |
| 10 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:25 AM | Reported |
| 11 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/12/19 8:56 AM | Not Reported |
| 12 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/12/19 9:06 AM | Not Reported |
| 13 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/12/19 9:22 AM | Not Reported |
| 14 | CCV-1 | CCV | 1 | Hexavalent Chromium | 02/12/19 9:33 AM | Reported |
| 15 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/12/19 9:43 AM | Not Reported |
| 16 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/12/19 9:52 AM | Reported |
| 17 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/12/19 10:12 AM | Reported |
| 18 | MB-R131774 | MBLK | 1 | Hexavalent Chromium | 02/12/19 10:23 AM | Reported |
| 19 | LCS-R131774 | LCS | 1 | Hexavalent Chromium | 02/12/19 10:33 AM | Reported |
| 20 | N034090-001A | SAMP | 1 | Hexavalent Chromium | 02/12/19 10:45 AM | Reported |
| 21 | N034090-002A | SAMP | 1 | Hexavalent Chromium | 02/12/19 10:54 AM | Reported |
| 22 | N034090-003A | SAMP | 1 | Hexavalent Chromium | 02/12/19 11:04 AM | Reported |
| 23 | N034090-004A | SAMP | 1 | Hexavalent Chromium | 02/12/19 11:13 AM | Reported |
| 24 | N034090-005A | SAMP | 1 | Hexavalent Chromium | 02/12/19 11:23 AM | Reported |
| 25 | N034090-006A | SAMP | 1 | Hexavalent Chromium | 02/12/19 11:32 AM | Reported |
| 26 | N034090-007A | SAMP | 1 | Hexavalent Chromium | 02/12/19 11:42 AM | Reported |
| 27 | N034090-008A | SAMP | 1 | Hexavalent Chromium | 02/12/19 11:51 AM | Reported |
| 28 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 02/12/19 12:01 PM | Reported |
| 29 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/12/19 12:10 PM | Reported |
| 30 | N034090-009A | SAMP | 1 | Hexavalent Chromium | 02/12/19 12:21 PM | Reported |
| 31 | N034090-010A | SAMP | 1 | Hexavalent Chromium | 02/12/19 12:33 PM | Reported |
| 32 | N034090-011A | SAMP | 1 | Hexavalent Chromium | 02/12/19 12:42 PM | Reported |
| 33 | N034090-012A | SAMP | 1 | Hexavalent Chromium | 02/12/19 12:52 PM | Not Reported |
| 34 | N034090-013A | SAMP | 1 | Hexavalent Chromium | 02/12/19 1:01 PM | Reported |
| 35 | N034090-014A | SAMP | 1 | Hexavalent Chromium | 02/12/19 1:11 PM | Reported |
| 36 | N034090-015A | SAMP | 1 | Hexavalent Chromium | 02/12/19 1:20 PM | Reported |
| 37 | N034090-016A | SAMP | 1 | Hexavalent Chromium | 02/12/19 1:30 PM | Reported |
| 38 | N034091-001A | SAMP | 1 | Hexavalent Chromium | 02/12/19 1:39 PM | Reported |
| 39 | N034091-002A | SAMP | 10 | Hexavalent Chromium | 02/12/19 1:48 PM | Reported |
| 40 | CCV-3 | CCV | 1 | Hexavalent Chromium | 02/12/19 1:58 PM | Reported |
| 41 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/12/19 2:07 PM | Reported |
| 42 | N034091-003A | SAMP | 10 | Hexavalent Chromium | 02/12/19 2:23 PM | Reported |

**INJECTION LOG: 190212A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034091-004A | SAMP | 100 | Hexavalent Chromium | 02/12/19 2:35 PM | Reported |
| 44 | N034090-012A | SAMP | 2 | Hexavalent Chromium | 02/12/19 2:44 PM | Reported |
| 45 | N034090-012ADUP | DUP | 2 | Hexavalent Chromium | 02/12/19 2:53 PM | Reported |
| 46 | N034091-001AMS | MS | 1 | Hexavalent Chromium | 02/12/19 3:03 PM | Reported |
| 47 | N034091-001AMSD | MSD | 1 | Hexavalent Chromium | 02/12/19 3:12 PM | Reported |
| 48 | N034091-002AMS | MS | 10 | Hexavalent Chromium | 02/12/19 3:22 PM | Reported |
| 49 | N034091-003AMS | MS | 10 | Hexavalent Chromium | 02/12/19 3:31 PM | Reported |
| 50 | N034091-004AMS | MS | 100 | Hexavalent Chromium | 02/12/19 3:41 PM | Reported |
| 51 | LCS-R131775 | LCS | 1 | Hexavalent Chromium | 02/12/19 3:52 PM | Reported |
| 52 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/12/19 4:04 PM | Reported |
| 53 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/12/19 4:13 PM | Not Reported |
| 54 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/12/19 4:26 PM | Reported |
| 55 | MB2-R131775 | MBLK | 1 | Hexavalent Chromium | 02/12/19 4:36 PM | Reported |
| 56 | N034089-001A | SAMP | 1 | Hexavalent Chromium | 02/12/19 4:46 PM | Reported |
| 57 | N034089-002A | SAMP | 1 | Hexavalent Chromium | 02/12/19 4:55 PM | Reported |
| 58 | N034089-003A | SAMP | 1 | Hexavalent Chromium | 02/12/19 5:05 PM | Reported |
| 59 | N034089-004A | SAMP | 5 | Hexavalent Chromium | 02/12/19 5:14 PM | Not Reported |
| 60 | N034089-005A | SAMP | 1 | Hexavalent Chromium | 02/12/19 5:24 PM | Reported |
| 61 | N034089-006A | SAMP | 1 | Hexavalent Chromium | 02/12/19 5:33 PM | Reported |
| 62 | N034089-007A | SAMP | 1 | Hexavalent Chromium | 02/12/19 5:43 PM | Reported |
| 63 | N034089-008A | SAMP | 1 | Hexavalent Chromium | 02/12/19 5:52 PM | Reported |
| 64 | N034089-009A | SAMP | 1 | Hexavalent Chromium | 02/12/19 6:02 PM | Reported |
| 65 | CCV-5 | CCV | 1 | Hexavalent Chromium | 02/12/19 6:11 PM | Reported |
| 66 | CCB-5 | CCB | 1 | Hexavalent Chromium | 02/12/19 6:20 PM | Reported |
| 67 | N034089-004A | SAMP | 1 | Hexavalent Chromium | 02/12/19 6:56 PM | Reported |
| 68 | N034089-004ADUP | DUP | 1 | Hexavalent Chromium | 02/12/19 7:07 PM | Reported |
| 69 | N034089-002AMS | MS | 1 | Hexavalent Chromium | 02/12/19 7:16 PM | Reported |
| 70 | N034089-002AMSD | MSD | 1 | Hexavalent Chromium | 02/12/19 7:26 PM | Reported |
| 71 | CCV-6 | CCV | 1 | Hexavalent Chromium | 02/12/19 7:35 PM | Reported |
| 72 | CCB-6 | CCB | 1 | Hexavalent Chromium | 02/12/19 7:45 PM | Reported |
| 73 | BLANK | BLANK | 1 | Hexavalent Chromium | N.A. | Not Reported |

2/23/2019

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190212A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **12/Feb/19 20:12:36** |
| *No. of Injections:* | **76** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:31 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 02/04/2019 09:41 | Finished | BLANK |
| 3 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:54 | Finished | BLANK |
| 4 | iBLANK | 2 | 1000 | Unknown | | 02/04/2019 10:22 | Finished | INSTRUMENT BLANK |
| 5 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/04/2019 10:35 | Finished | 0.2 ppb, IWST-181022C |
| 6 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/04/2019 10:47 | Finished | 1.0 ppb, IWST-181022C |
| 7 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/04/2019 10:56 | Finished | 5.0 ppb, IWST-181022C |
| 8 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/04/2019 11:06 | Finished | 10 ppb, IWST-181022C |
| 9 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/04/2019 11:15 | Finished | 15 ppb, IWST-181022C |
| 10 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/04/2019 11:25 | Finished | 20 ppb, IWST-181022C |
| 11 | BLANK | 1 | 1000 | Unknown | | 02/12/2019 08:56 | Finished | BLANK |
| 12 | BLANK | 2 | 1000 | Unknown | | 02/12/2019 09:06 | Finished | BLANK |
| 13 | BLANK | 3 | 1000 | Unknown | | 02/12/2019 09:22 | Finished | BLANK |
| 14 | CCV-1,CCV,1, | 4 | 1000 | Unknown | | 02/12/2019 09:33 | Finished | CCV @5ppb, IWST-181022C |
| 15 | PQL@0.2ppb,CCV2,1 | 5 | 1000 | Unknown | | 02/12/2019 09:43 | Finished | PQL @ 0.2ppb |
| 16 | CCB-1,CCB,1, | 6 | 1000 | Unknown | | 02/12/2019 09:52 | Finished | CCB R190115A |
| 17 | PQL@0.2ppb,CCV2,1 | 8 | 1000 | Unknown | | 02/12/2019 10:12 | Finished | PQL @ 0.2ppb |
| 18 | MB-H2O,MBLK,1, | 9 | 1000 | Unknown | | 02/12/2019 10:23 | Finished | MB R190115A |
| 19 | LCS-H2O,LCS,1, | 10 | 1000 | Unknown | | 02/12/2019 10:33 | Finished | LCS @5ppb, IWST-181022D |
| 20 | N034090-001A,SAMF | 11 | 1000 | Unknown | | 02/12/2019 10:45 | Finished | SAMP,10mL |
| 21 | N034090-002A,SAMF | 12 | 1000 | Unknown | | 02/12/2019 10:54 | Finished | SAMP,10mL |
| 22 | N034090-003A,SAMF | 13 | 1000 | Unknown | | 02/12/2019 11:04 | Finished | SAMP,10mL |
| 23 | N034090-004A,SAMF | 14 | 1000 | Unknown | | 02/12/2019 11:13 | Finished | SAMP,10mL |
| 24 | N034090-005A,SAMF | 15 | 1000 | Unknown | | 02/12/2019 11:23 | Finished | SAMP,10mL |
| 25 | N034090-006A,SAMF | 16 | 1000 | Unknown | | 02/12/2019 11:32 | Finished | SAMP,10mL |
| 26 | N034090-007A,SAMF | 17 | 1000 | Unknown | | 02/12/2019 11:42 | Finished | SAMP,10mL |
| 27 | N034090-008A,SAMF | 18 | 1000 | Unknown | | 02/12/2019 11:51 | Finished | SAMP,10mL |
| 28 | CCV-2,CCV1,1, | 19 | 1000 | Unknown | | 02/12/2019 12:01 | Finished | CCV @10ppb, IWST-181022C |
| 29 | CCB-2,CCB,1, | 20 | 1000 | Unknown | | 02/12/2019 12:10 | Finished | CCB R190115A |
| 30 | N034090-009A,SAMF | 21 | 1000 | Unknown | | 02/12/2019 12:21 | Finished | SAMP,10mL |
| 31 | N034090-010A,SAMF | 22 | 1000 | Unknown | | 02/12/2019 12:33 | Finished | SAMP,10mL |
| 32 | N034090-011A,SAMF | 23 | 1000 | Unknown | | 02/12/2019 12:42 | Finished | SAMP,10mL |
| 33 | N034090-012A,SAMF | 24 | 1000 | Unknown | | 02/12/2019 12:52 | Finished | SAMP,10mL |
| 34 | N034090-013A,SAMF | 25 | 1000 | Unknown | | 02/12/2019 13:01 | Finished | SAMP,10mL |
| 35 | N034090-014A,SAMF | 26 | 1000 | Unknown | | 02/12/2019 13:11 | Finished | SAMP,10mL |
| 36 | N034090-015A,SAMF | 27 | 1000 | Unknown | | 02/12/2019 13:20 | Finished | SAMP,10mL |
| 37 | N034090-016A,SAMF | 28 | 1000 | Unknown | | 02/12/2019 13:30 | Finished | SAMP,10mL |
| 38 | N034091-001A,SAMF | 29 | 1000 | Unknown | | 02/12/2019 13:39 | Finished | SAMP,10mL |
| 39 | N034091-002A,SAMF | 30 | 1000 | Unknown | | 02/12/2019 13:48 | Finished | SAMP,1>10mL |
| 40 | CCV-3,CCV,1, | 31 | 1000 | Unknown | | 02/12/2019 13:58 | Finished | CCV @5ppb, IWST-181022C |
| 41 | CCB-3,CCB,1, | 32 | 1000 | Unknown | | 02/12/2019 14:07 | Finished | CCB R190115A |
| 42 | N034091-003A,SAMF | 33 | 1000 | Unknown | | 02/12/2019 14:23 | Finished | SAMP,0.1>10mL |
| 43 | N034091-004A,SAMF | 34 | 1000 | Unknown | | 02/12/2019 14:35 | Finished | REP,0.1>10mL |
| 44 | N034090-012A,SAMF | 35 | 1000 | Unknown | | 02/12/2019 14:44 | Finished | SAMP,5>10mL |
| 45 | N034090-012ADUP,D | 36 | 1000 | Unknown | | 02/12/2019 14:53 | Finished | DUP,5>10mL |
| 46 | N034091-001AMS,MS | 37 | 1000 | Unknown | | 02/12/2019 15:03 | Finished | MS (1ppb), IWST-181022D,10 |
| 47 | N034091-001AMSD,M | 38 | 1000 | Unknown | | 02/12/2019 15:12 | Finished | MSD (1ppb), IWST-181022D,1( |
| 48 | N034091-002AMS,MS | 39 | 1000 | Unknown | | 02/12/2019 15:22 | Finished | MS (5ppb), IWST-181022D,10 |
| 49 | N034091-003AMS,MS | 40 | 1000 | Unknown | | 02/12/2019 15:31 | Finished | MS (5ppb), IWST-181022D,10 |
| 50 | N034091-004AMS,MS | 41 | 1000 | Unknown | | 02/12/2019 15:41 | Finished | REP,10mL |
| 51 | LCS-H2O,LCS,1, | 42 | 1000 | Unknown | | 02/12/2019 15:52 | Finished | LCS @5ppb, IWST-181022D |
| 52 | CCV-4,CCV1,1, | 43 | 1000 | Unknown | | 02/12/2019 16:04 | Finished | CCV @10ppb, IWST-181022C |
| 53 | CCB-4,CCB,1, | 44 | 1000 | Unknown | | 02/12/2019 16:13 | Interrupted | CCB R190115A |
| 54 | CCB-4,CCB,1, | 1 | 1000 | Unknown | | 02/12/2019 16:26 | Finished | CCB R190115A |
| 55 | MB2-H2O,MBLK,1, | 2 | 1000 | Unknown | | 02/12/2019 16:36 | Finished | MB R190115A |
| 56 | N034089-001A,SAMF | 3 | 1000 | Unknown | | 02/12/2019 16:46 | Finished | REP,2>10mL |
| 57 | N034089-002A,SAMF | 4 | 1000 | Unknown | | 02/12/2019 16:55 | Finished | SAMP,10mL |
| 58 | N034089-003A,SAMF | 5 | 1000 | Unknown | | 02/12/2019 17:05 | Finished | REP,10mL |
| 59 | N034089-004A,SAMF | 6 | 1000 | Unknown | | 02/12/2019 17:14 | Finished | SAMP,2>10mL |
| 60 | N034089-005A,SAMF | 7 | 1000 | Unknown | | 02/12/2019 17:24 | Finished | REP,2>10mL |

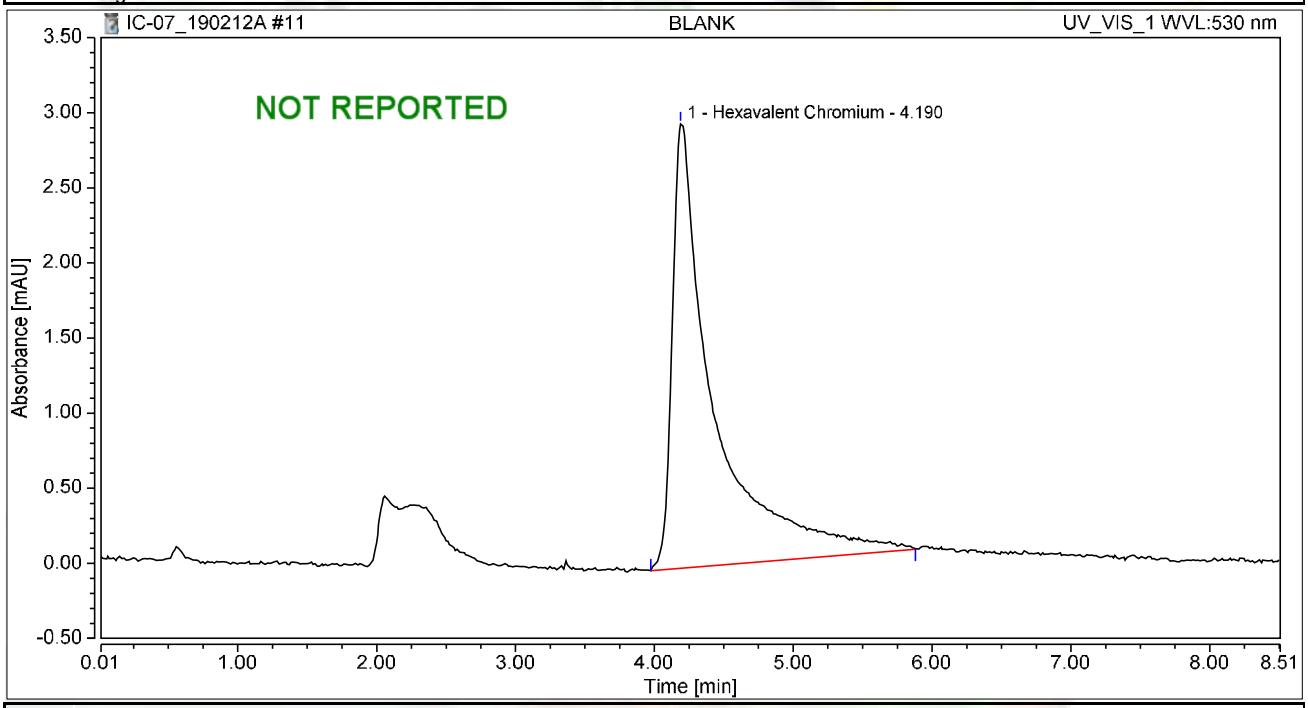
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | N034089-006A,SAMP | 8 | 1000 | Unknown | | 02/12/2019 17:33 | Finished | SAMP,0.5>10mL |
| 62 | N034089-007A,SAMP | 9 | 1000 | Unknown | | 02/12/2019 17:43 | Finished | REP,0.5>10mL |
| 63 | N034089-008A,SAMP | 10 | 1000 | Unknown | | 02/12/2019 17:52 | Finished | SAMP,10mL |
| 64 | N034089-009A,SAMP | 11 | 1000 | Unknown | | 02/12/2019 18:02 | Finished | REP,10mL |
| 65 | CCV-5,CCV,1, | 12 | 1000 | Unknown | | 02/12/2019 18:11 | Finished | CCV @5ppb, IWST-181022C |
| 66 | CCB-5,CCB,1, | 13 | 1000 | Unknown | | 02/12/2019 18:20 | Finished | CCB R190115A |
| 67 | N034089-004A,SAMP | 14 | 1000 | Unknown | | 02/12/2019 18:56 | Finished | SAMP,10mL |
| 68 | N034089-004ADUP,D | 15 | 1000 | Unknown | | 02/12/2019 19:07 | Finished | SAMP,10mL |
| 69 | N034089-002AMS,MS | 16 | 1000 | Unknown | | 02/12/2019 19:16 | Finished | REP,10mL |
| 70 | N034089-002AMSD,M | 17 | 1000 | Unknown | | 02/12/2019 19:26 | Finished | SAMP,0.1>10mL |
| 71 | CCV-6,CCV,1, | 18 | 1000 | Unknown | | 02/12/2019 19:35 | Finished | CCV @10ppb, IWST-181022C |
| 72 | CCB-6,CCB,1, | 19 | 1000 | Unknown | | 02/12/2019 19:45 | Finished | CCB R190115A |
| 73 | BLANK | 20 | 1000 | Unknown | | 02/12/2019 20:14 | Finished | BLANK |
| 74 | SHUTDOWN | 21 | 1000 | Unknown | | n.a. | Running | |
| 75 | Eluent: R190208A | 22 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 76 | PCR: R190208B | 23 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 08:56** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

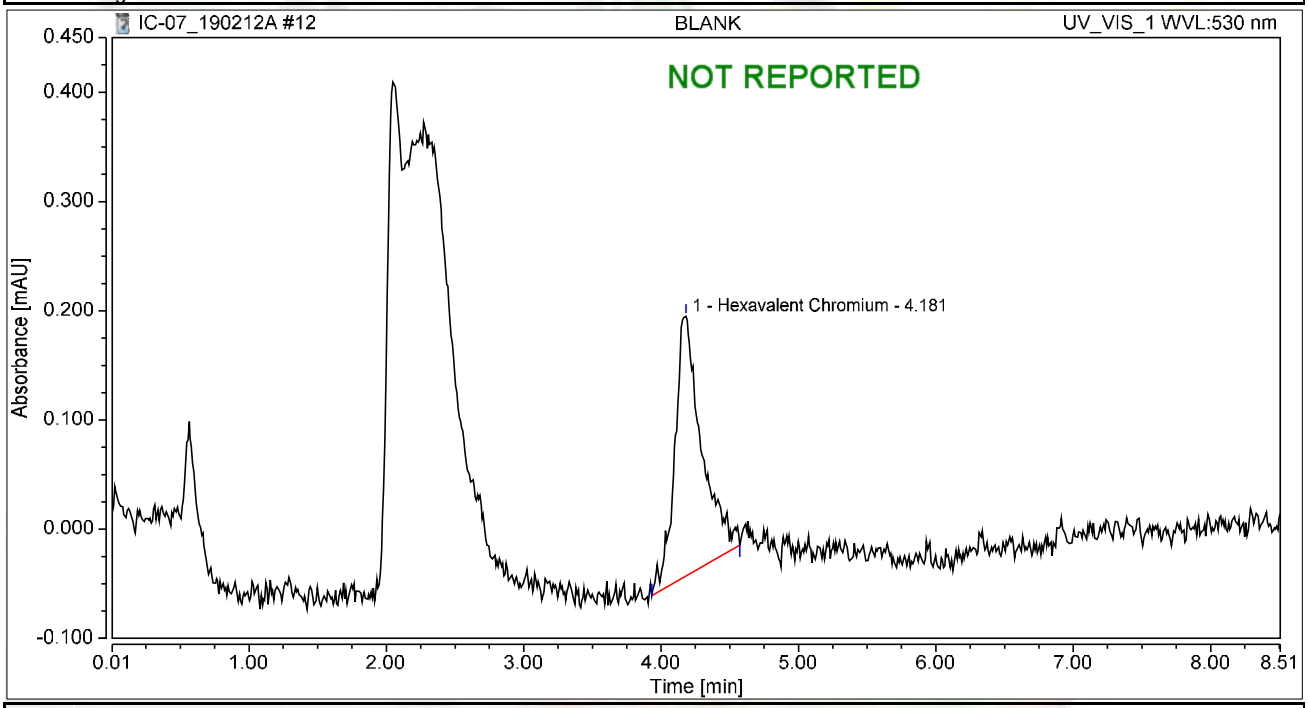
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.190 | 1.033 | 2.959 | 100.00 | 100.00 | 3.5949 |
| **Total:** | | | **1.033** | **2.959** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 09:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

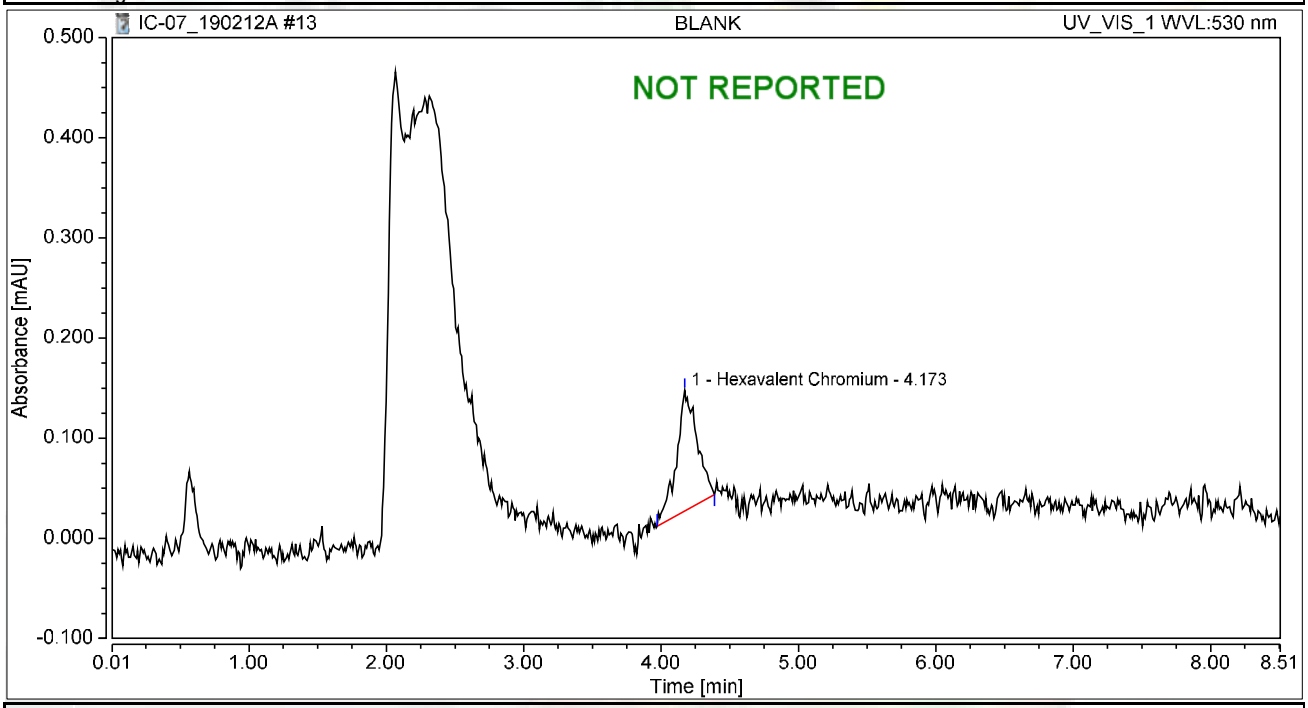
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.181 | 0.054 | 0.238 | 100.00 | 100.00 | 0.1877 |
| **Total:** | | | **0.054** | **0.238** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 09:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

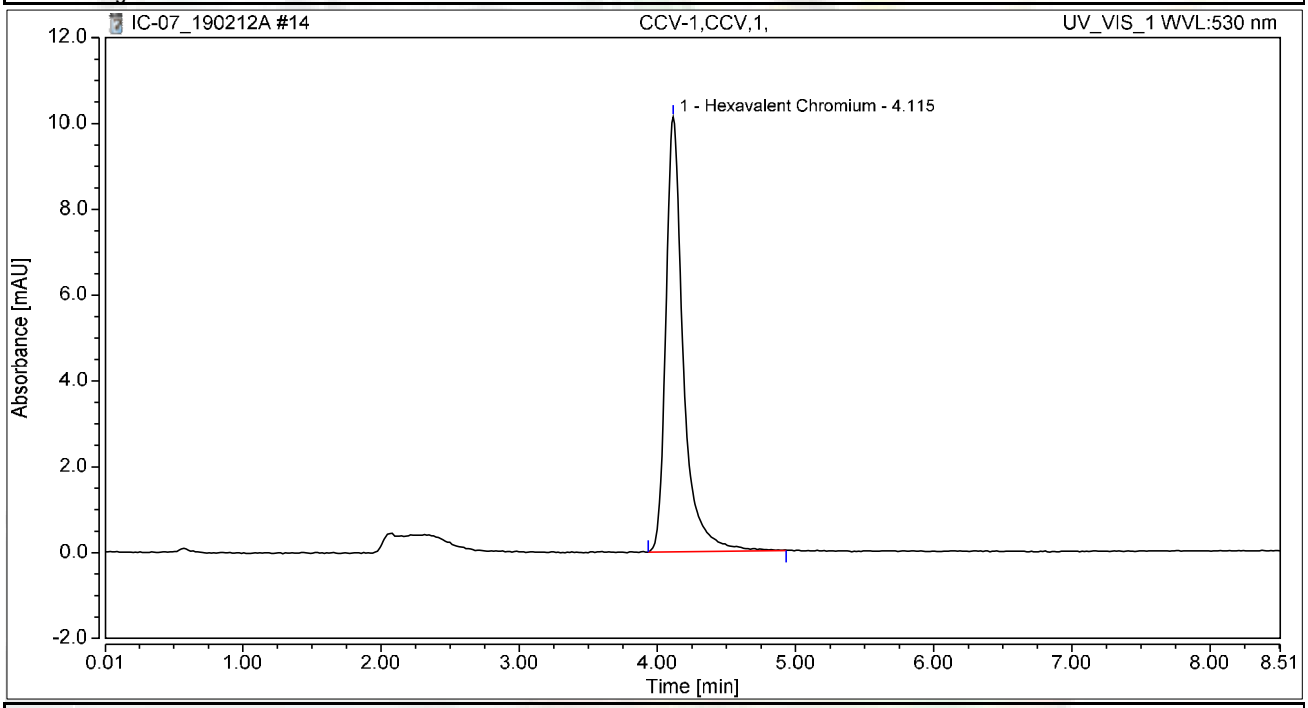
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.173 | 0.021 | 0.120 | 100.00 | 100.00 | 0.0726 |
| **Total:** | | | **0.021** | **0.120** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-1,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 09:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

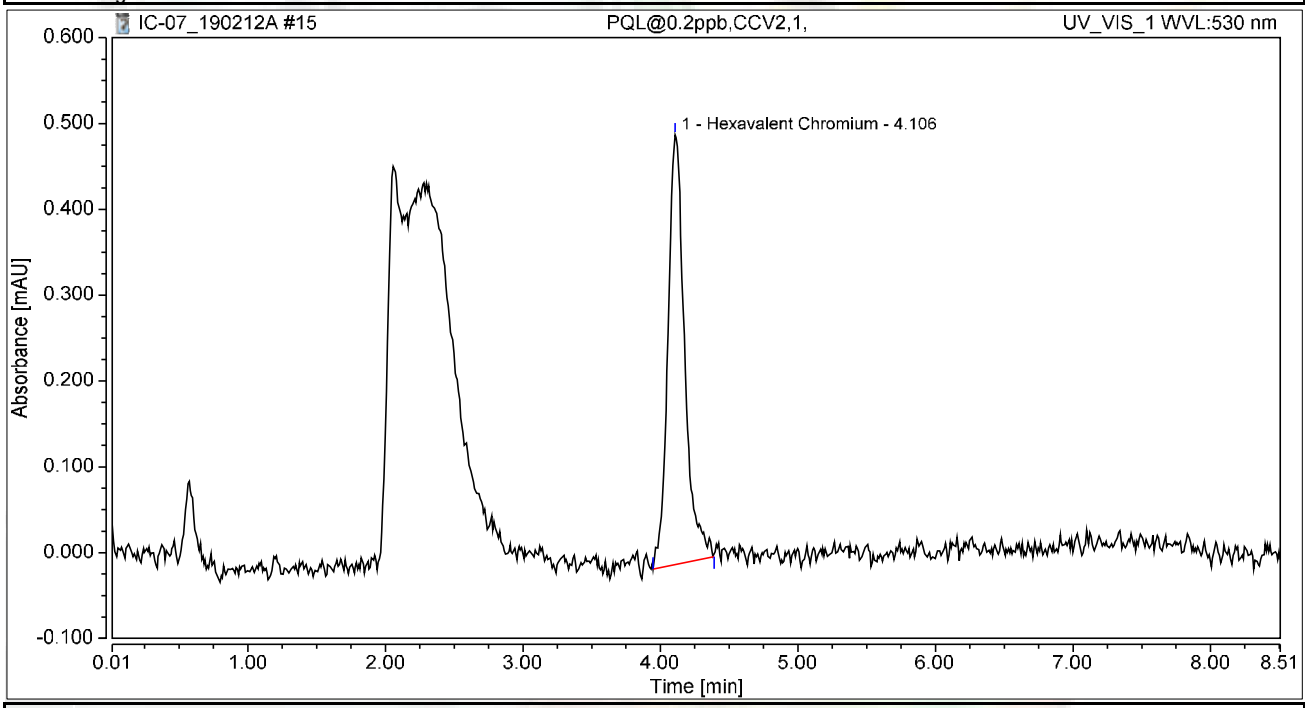
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 1.487 | 10.135 | 100.00 | 100.00 | 5.1751 |
| **Total:** | | | **1.487** | **10.135** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 09:43** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.071 | 0.501 | 100.00 | 100.00 | 0.2456 |
| **Total:** | | | **0.071** | **0.501** | **100.00** | **100.00** | |

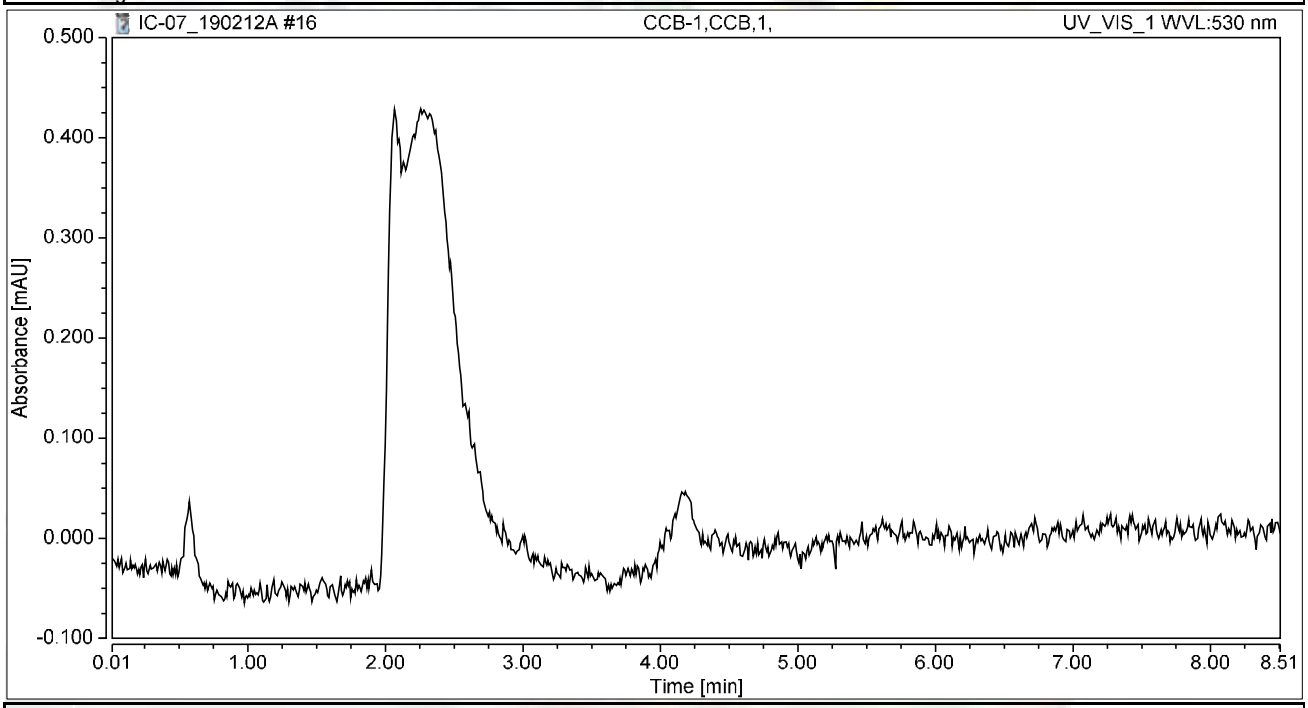
not reported

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-1,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 09:52** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

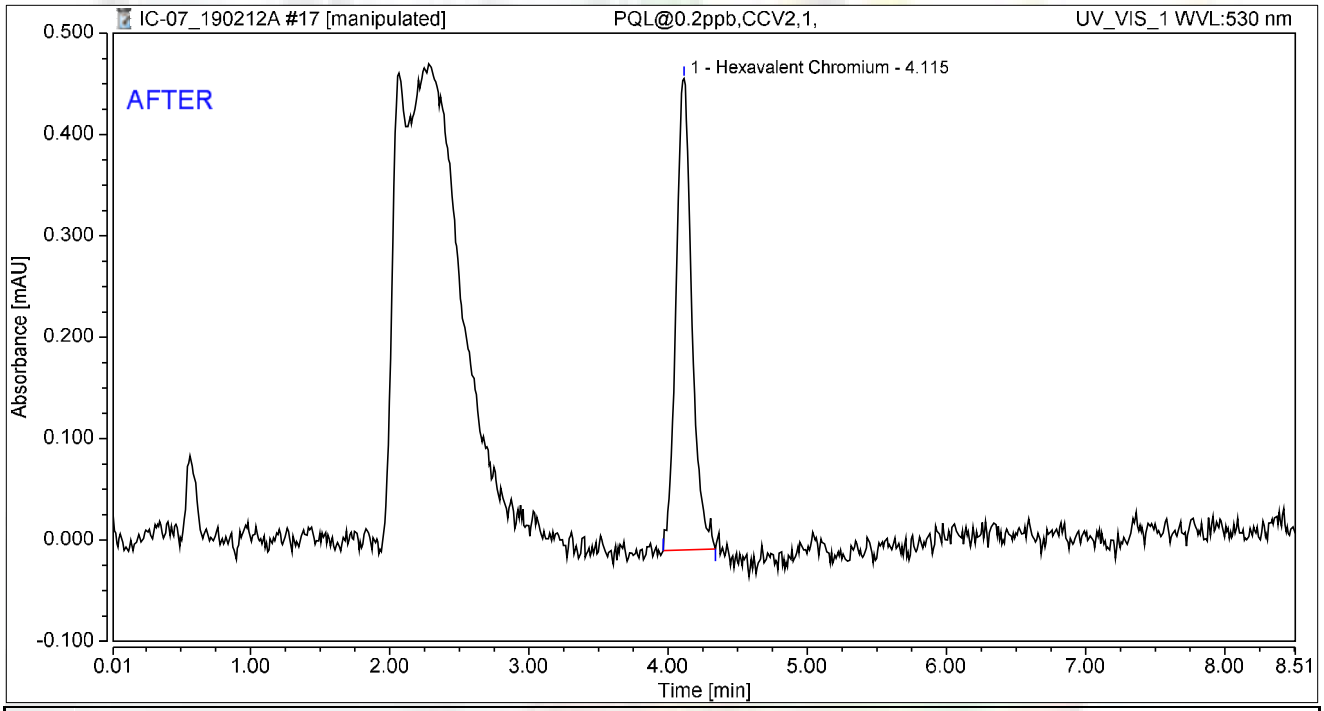
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 10:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 0.062 | 0.465 | 100.00 | 100.00 | 0.2142 |
| **Total:** | | | **0.062** | **0.465** | **100.00** | **100.00** | |

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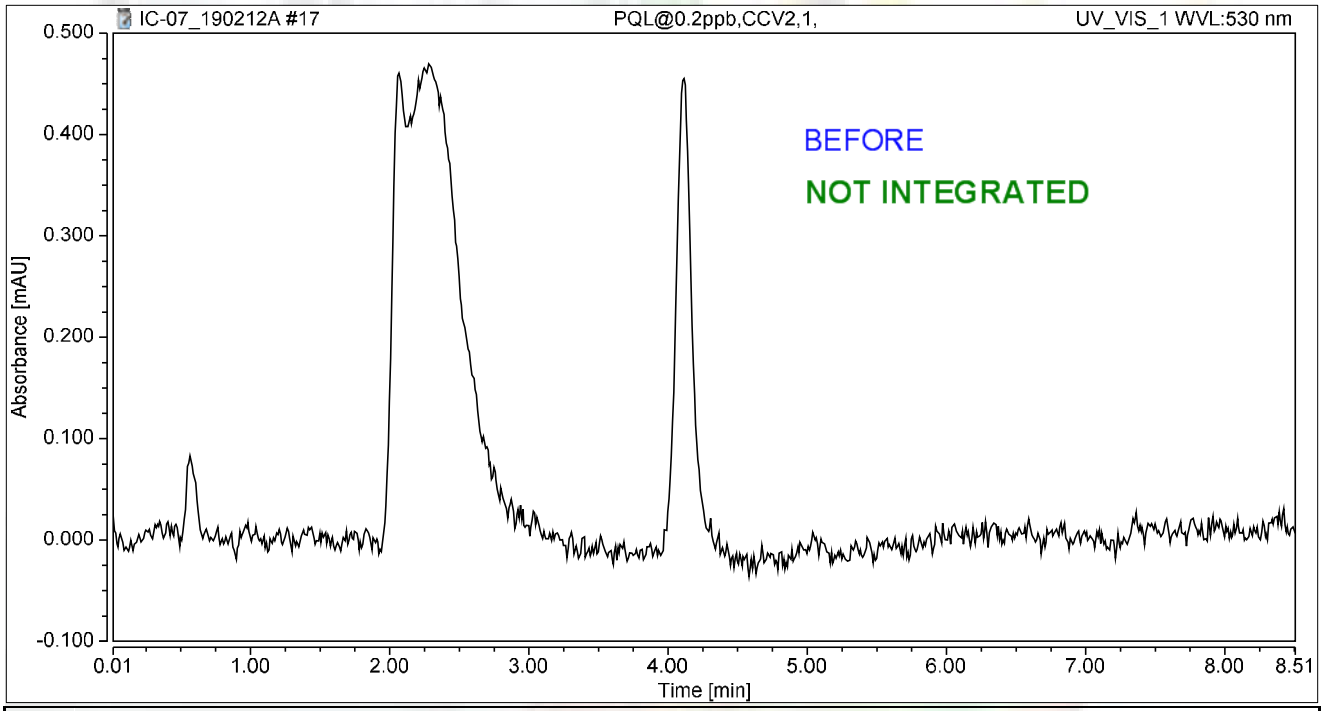
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 10:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

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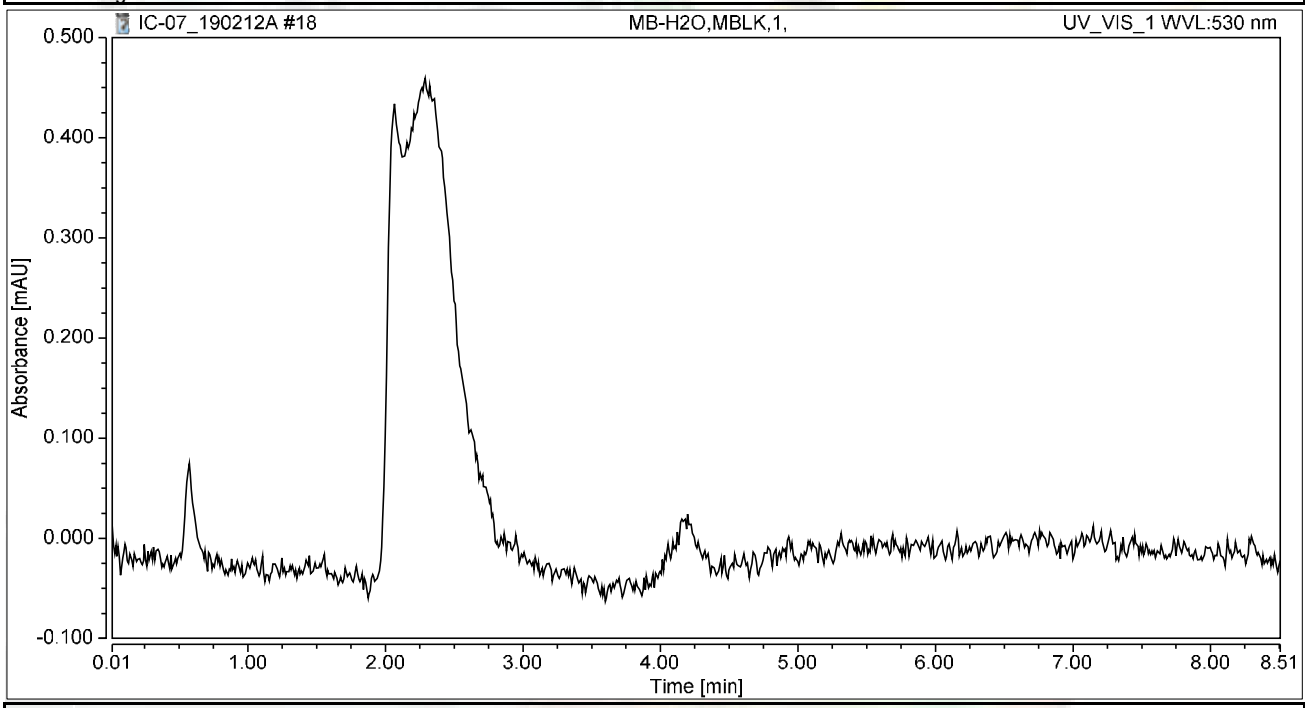
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **MB-H2O,MBLK,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 10:23** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

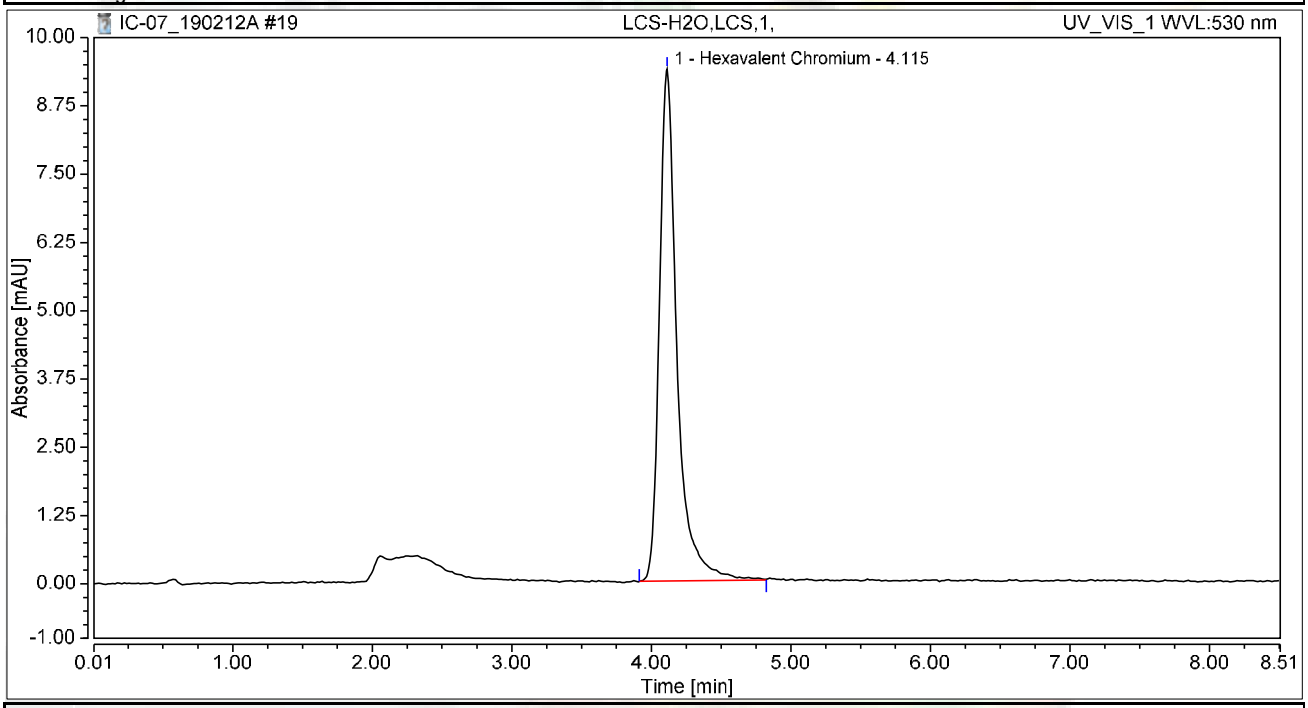
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **LCS-H2O,LCS,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 10:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

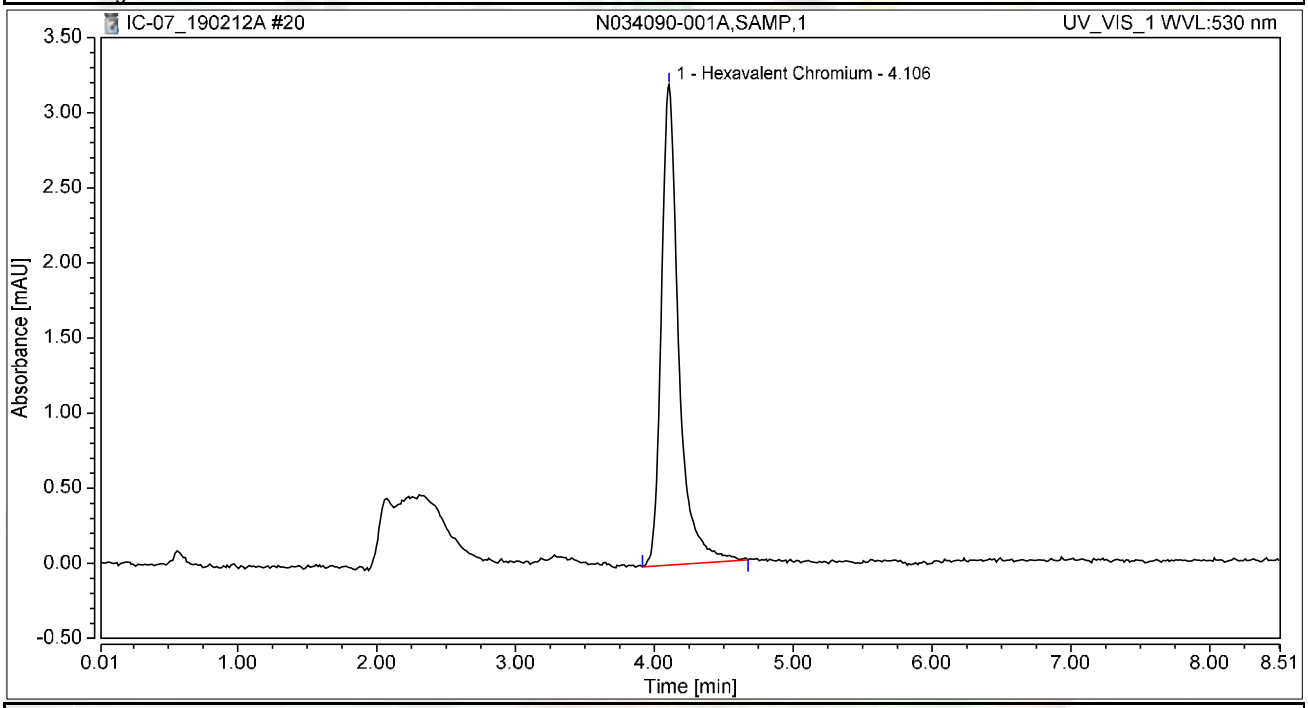
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 1.373 | 9.368 | 100.00 | 100.00 | 4.7782 |
| **Total:** | | | **1.373** | **9.368** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-001A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 10:45** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

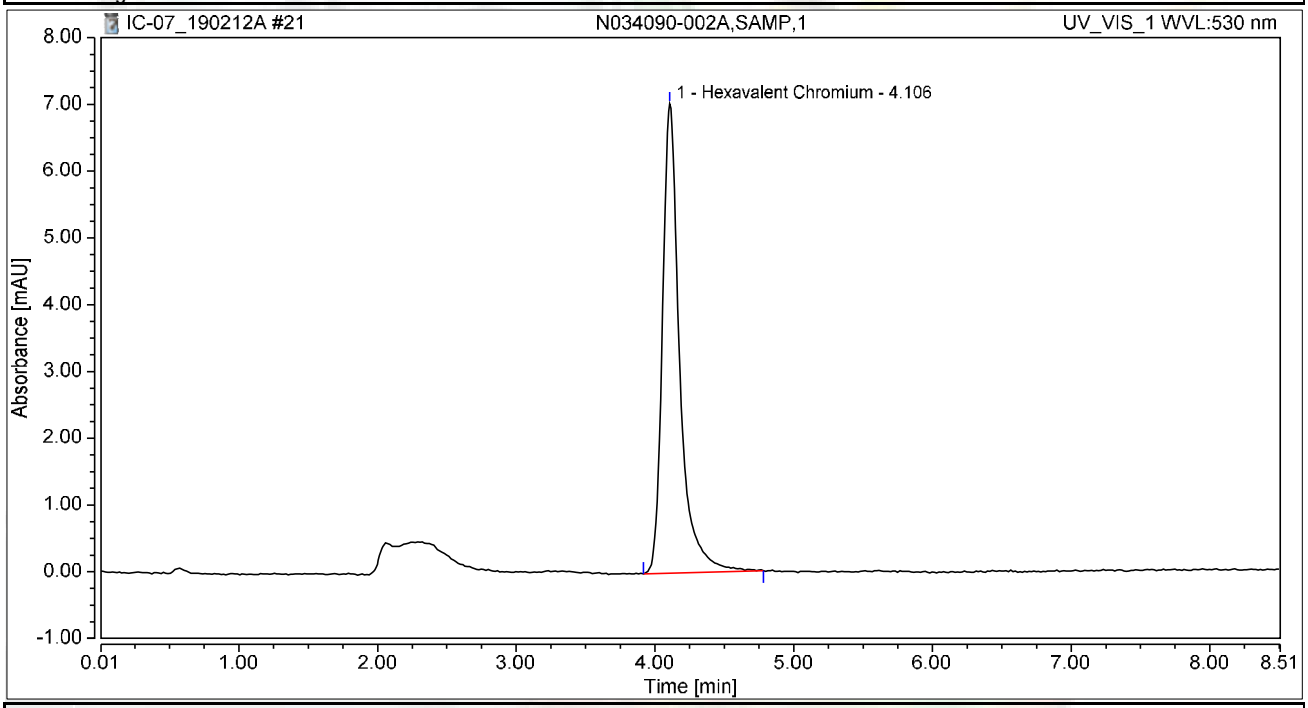
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.464 | 3.199 | 100.00 | 100.00 | 1.6147 |
| **Total:** | | | **0.464** | **3.199** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 10:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

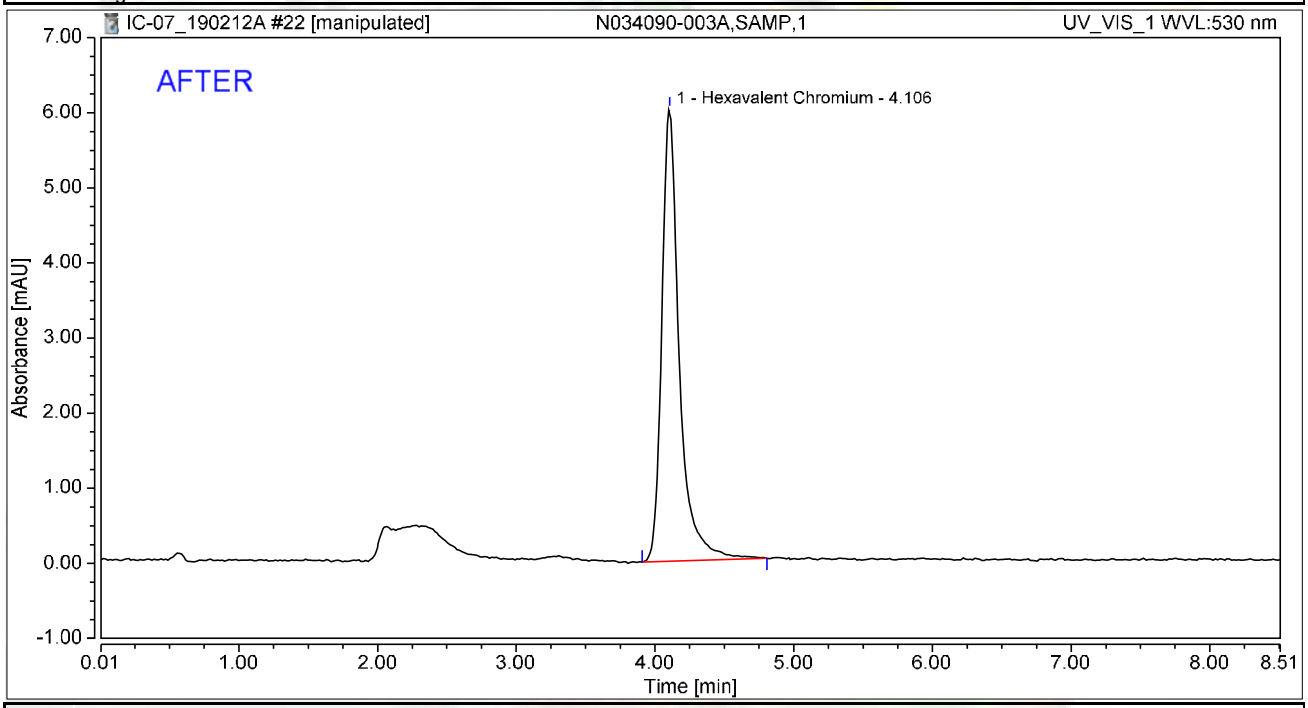
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.020 | 7.035 | 100.00 | 100.00 | 3.5481 |
| **Total:** | | | **1.020** | **7.035** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-003A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 11:04** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.886 | 6.021 | 100.00 | 100.00 | 3.0815 |
| **Total:** | | | **0.886** | **6.021** | **100.00** | **100.00** | |

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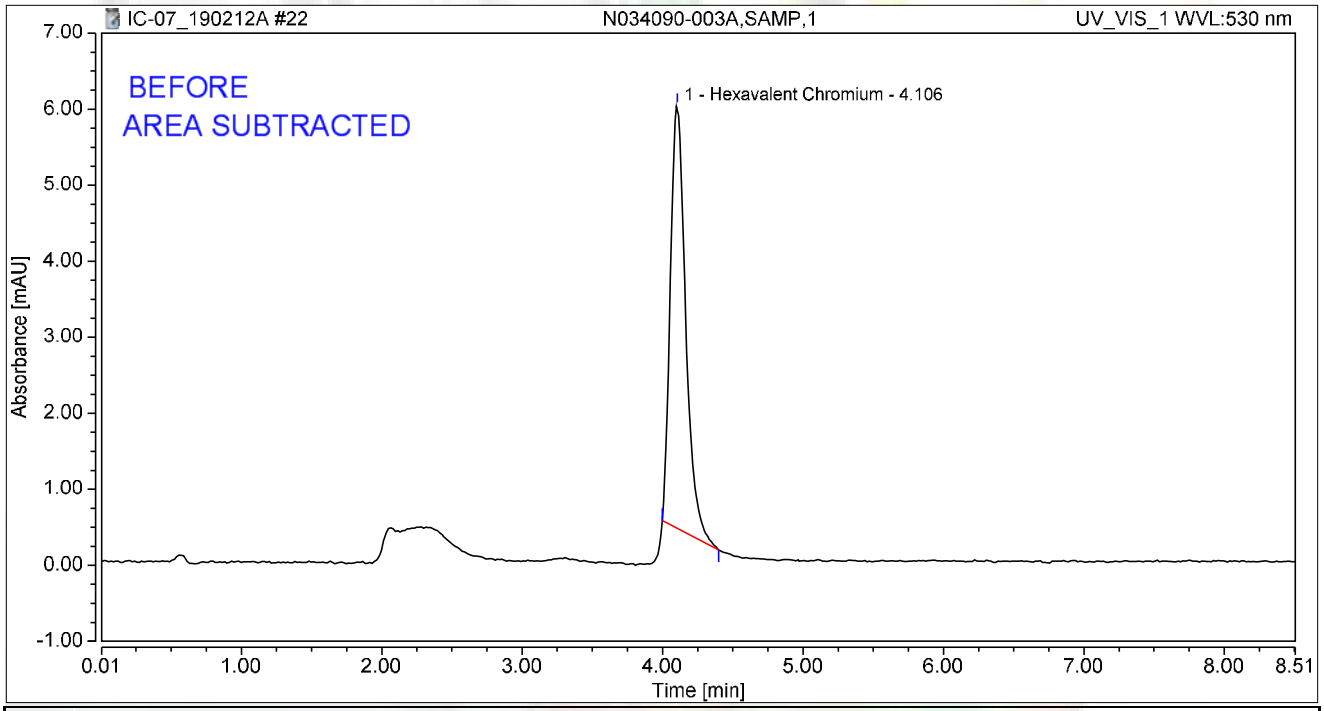
Reviewed by:
2/25/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-003A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 11:04** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.706 | 5.563 | 100.00 | 100.00 | 2.4577 |
| **Total:** | | | **0.706** | **5.563** | **100.00** | **100.00** | |

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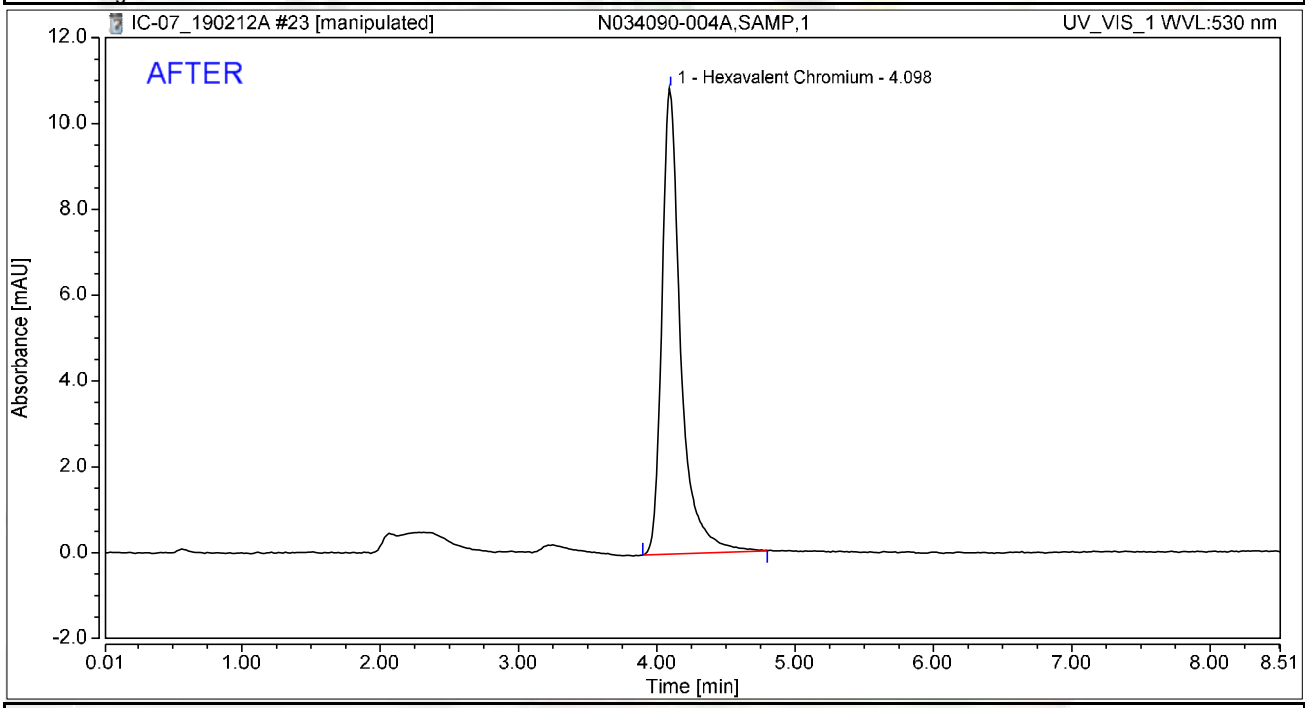
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-004A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 11:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.707 | 10.843 | 100.00 | 100.00 | 5.9387 |
| **Total:** | | | **1.707** | **10.843** | **100.00** | **100.00** | |

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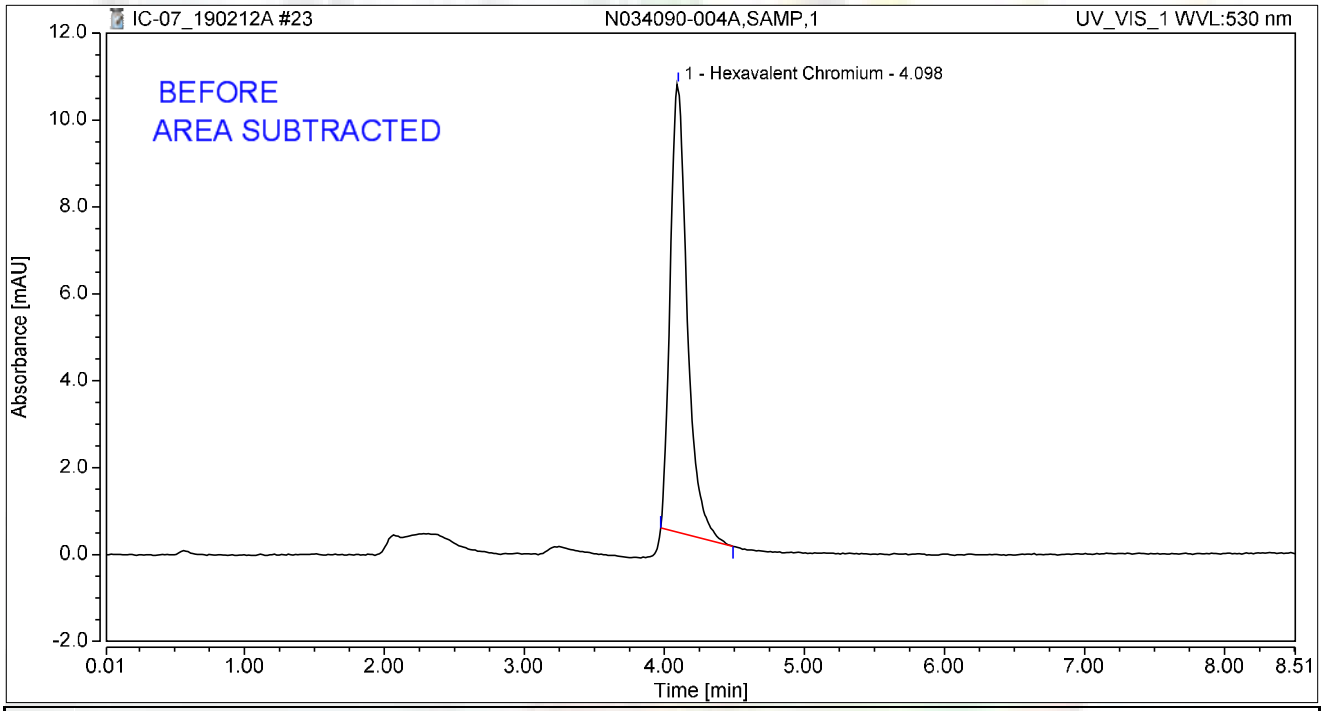
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-004A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 11:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.462 | 10.310 | 100.00 | 100.00 | 5.0865 |
| **Total:** | | | **1.462** | **10.310** | **100.00** | **100.00** | |

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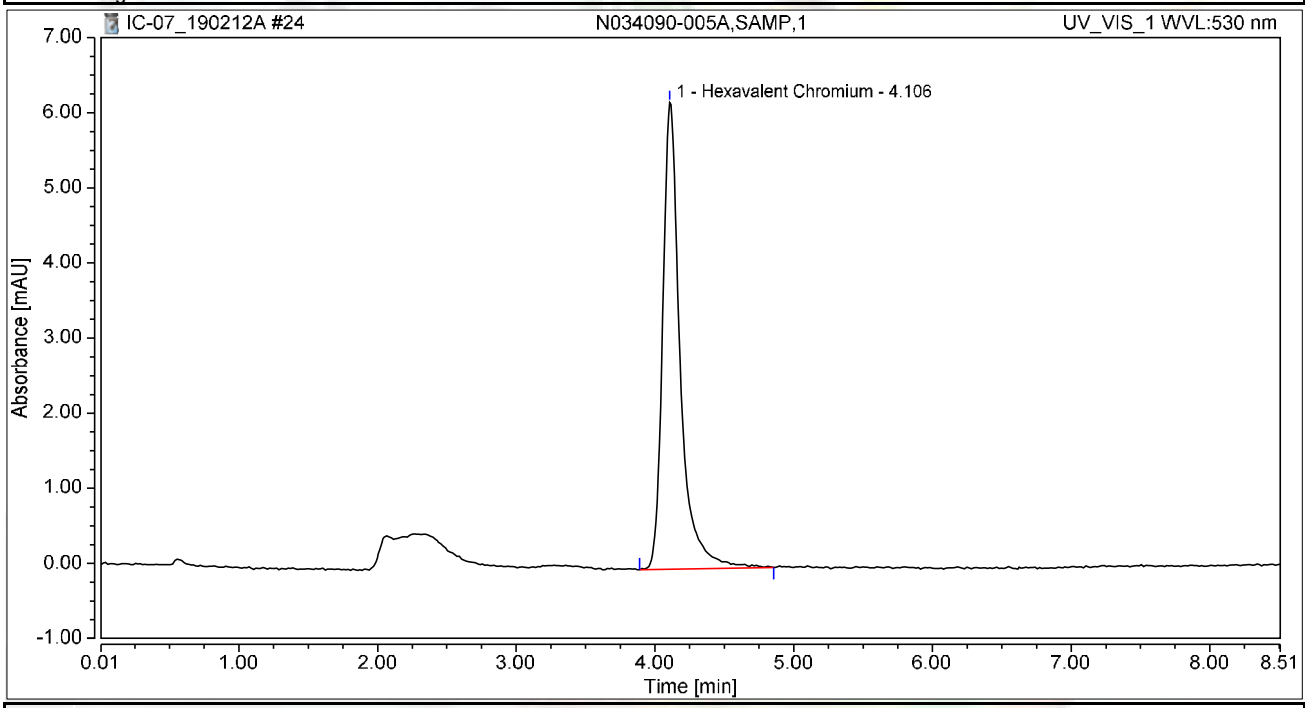
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-005A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 11:23** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

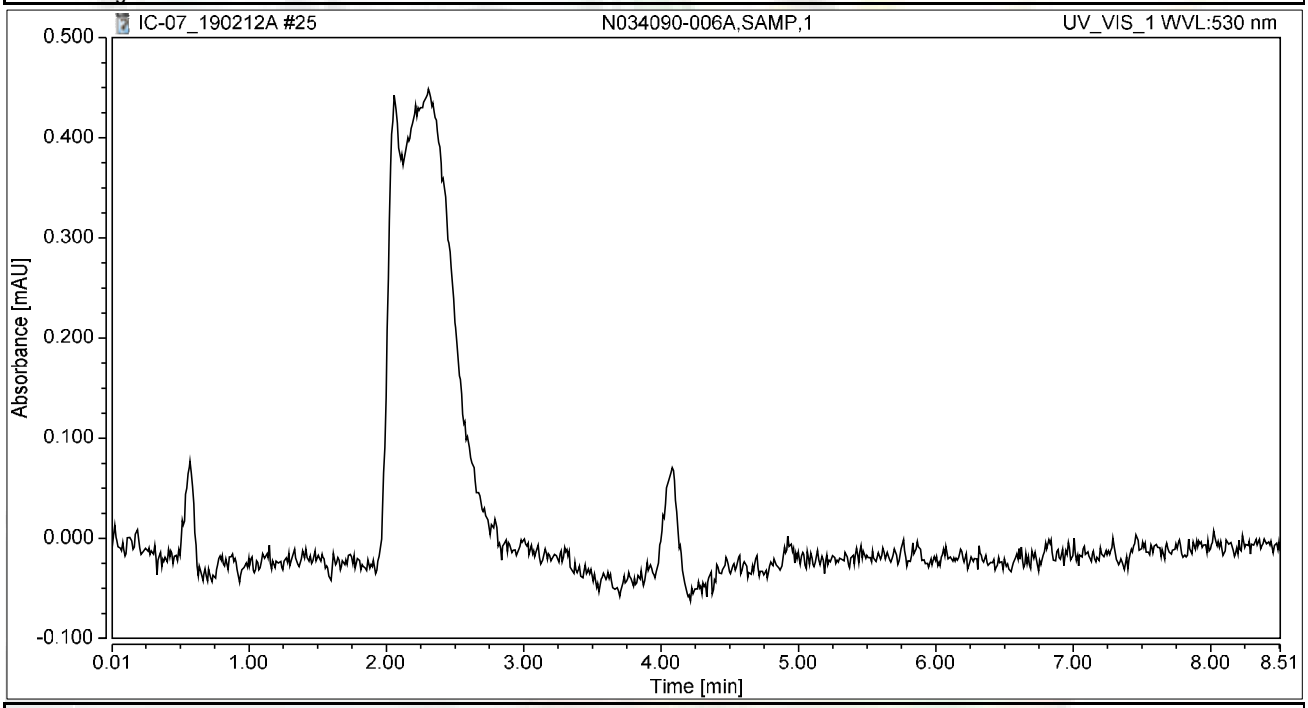
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.914 | 6.214 | 100.00 | 100.00 | 3.1790 |
| **Total:** | | | **0.914** | **6.214** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-006A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 11:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

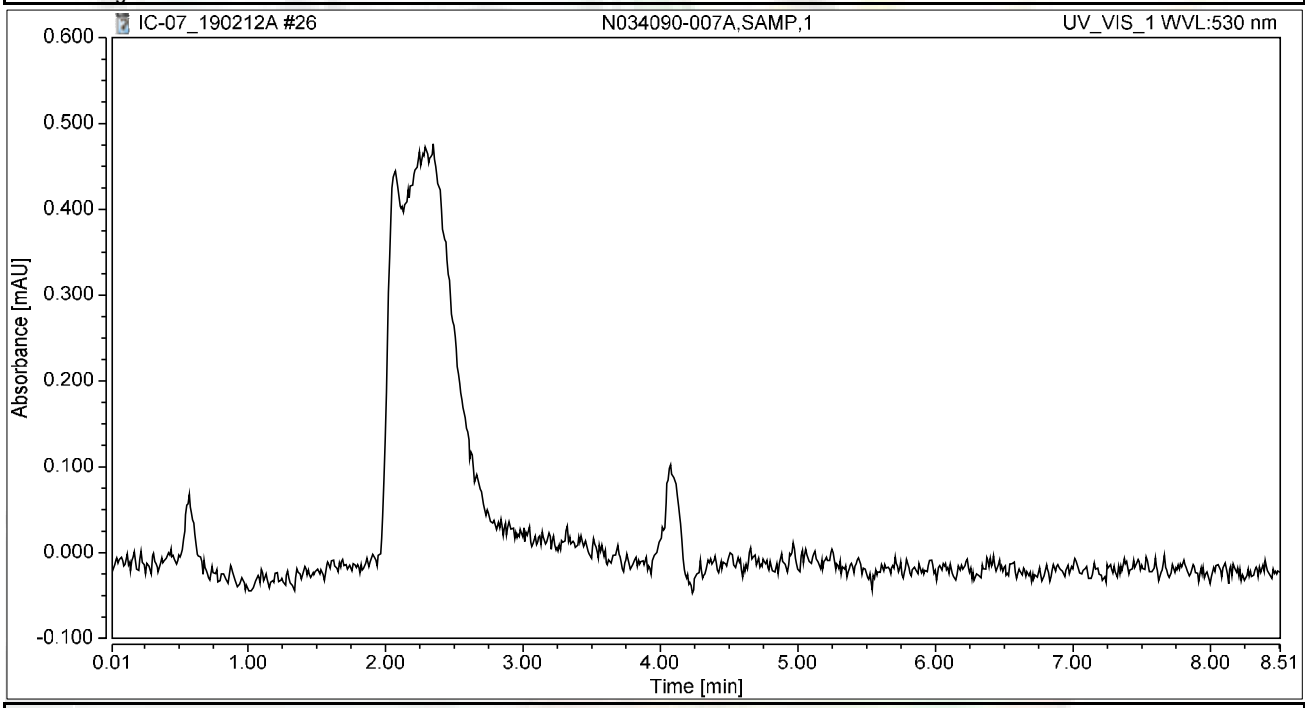
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-007A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 11:42** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

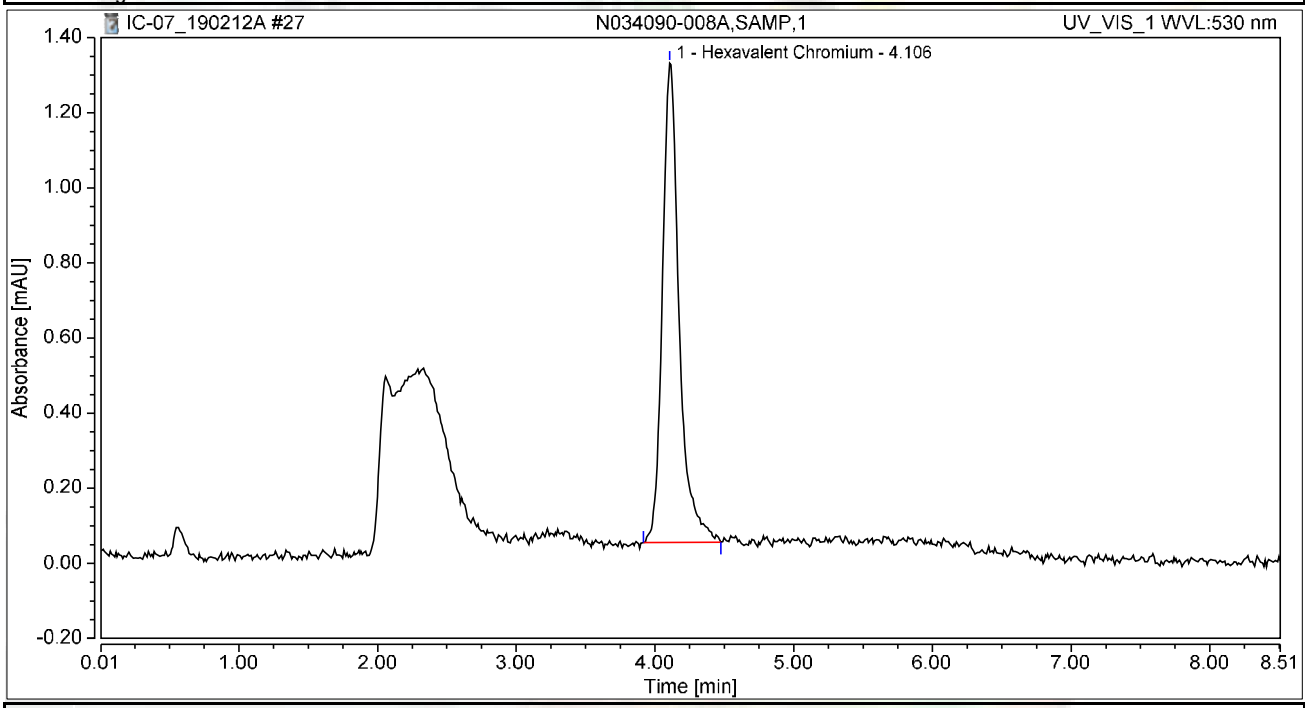
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-008A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 11:51** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

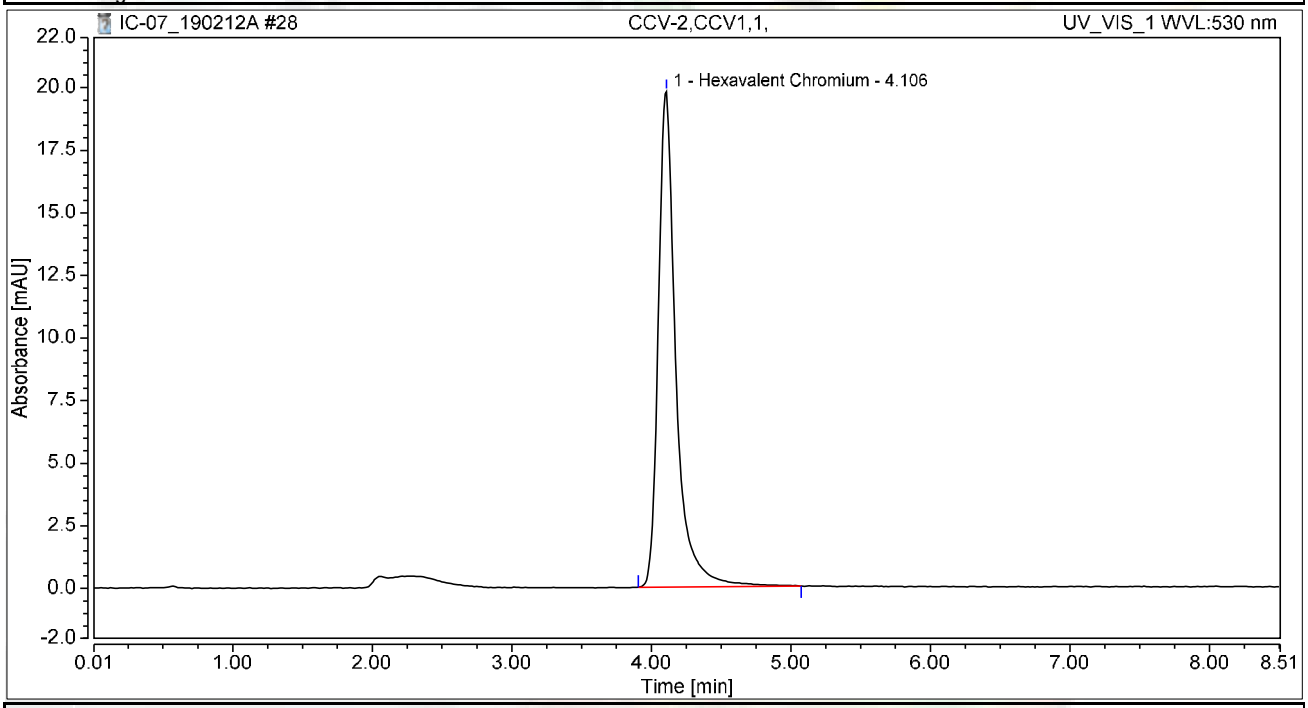
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.180 | 1.277 | 100.00 | 100.00 | 0.6270 |
| **Total:** | | | **0.180** | **1.277** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-2,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 12:01** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

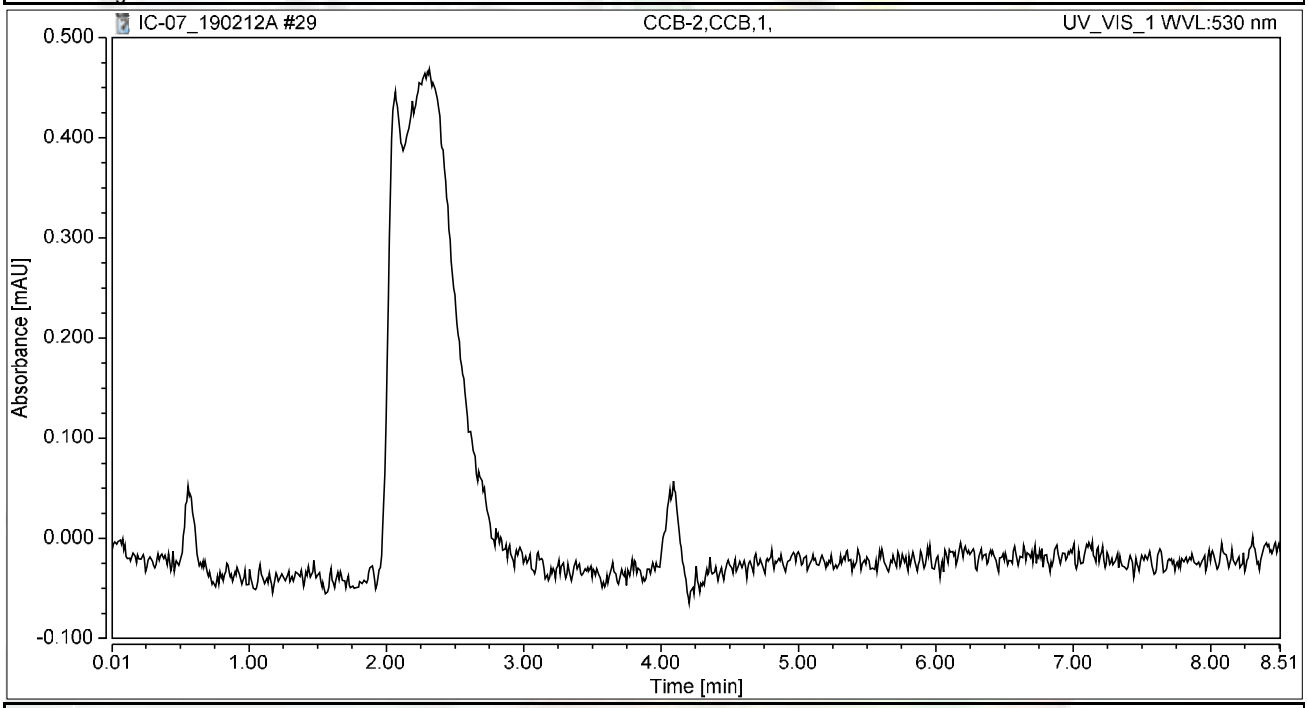
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 2.901 | 19.785 | 100.00 | 100.00 | 10.0947 |
| **Total:** | | | **2.901** | **19.785** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-2,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **20** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 12:10** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

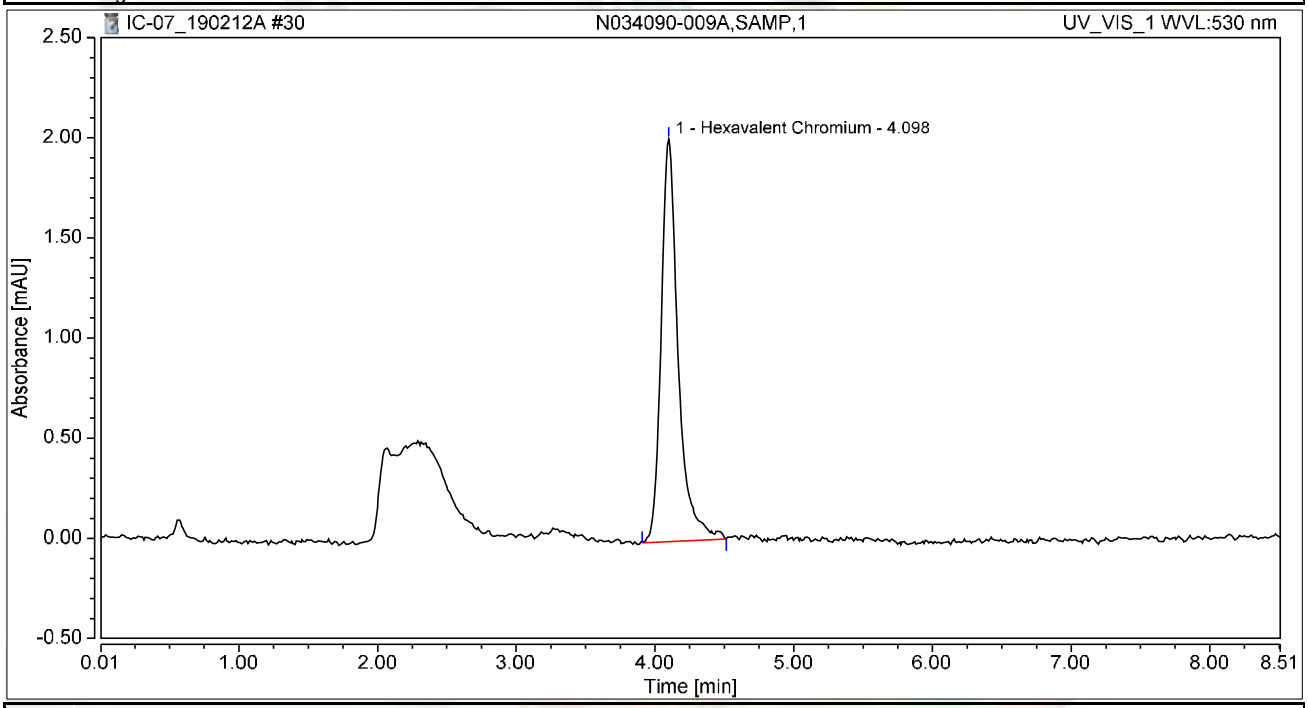
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-009A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 12:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

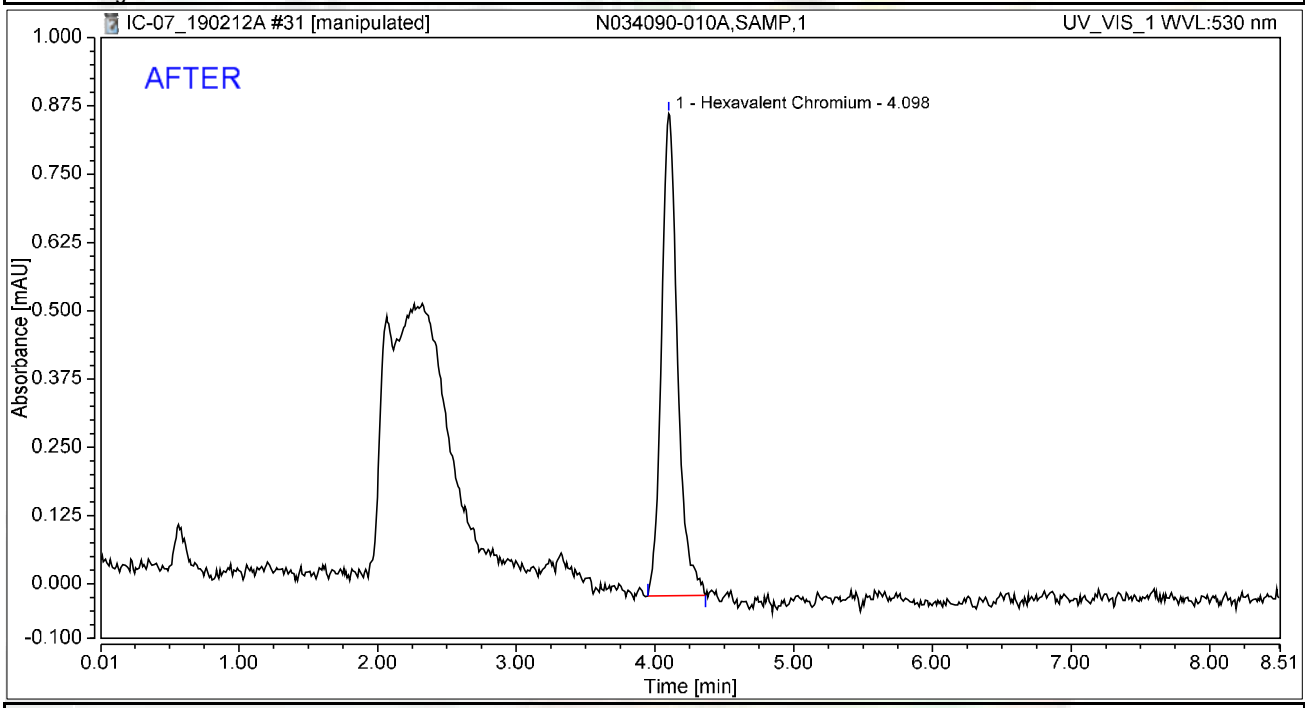
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.287 | 2.010 | 100.00 | 100.00 | 0.9994 |
| **Total:** | | | **0.287** | **2.010** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-010A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 12:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.119 | 0.882 | 100.00 | 100.00 | 0.4138 |
| **Total:** | | | **0.119** | **0.882** | **100.00** | **100.00** | |

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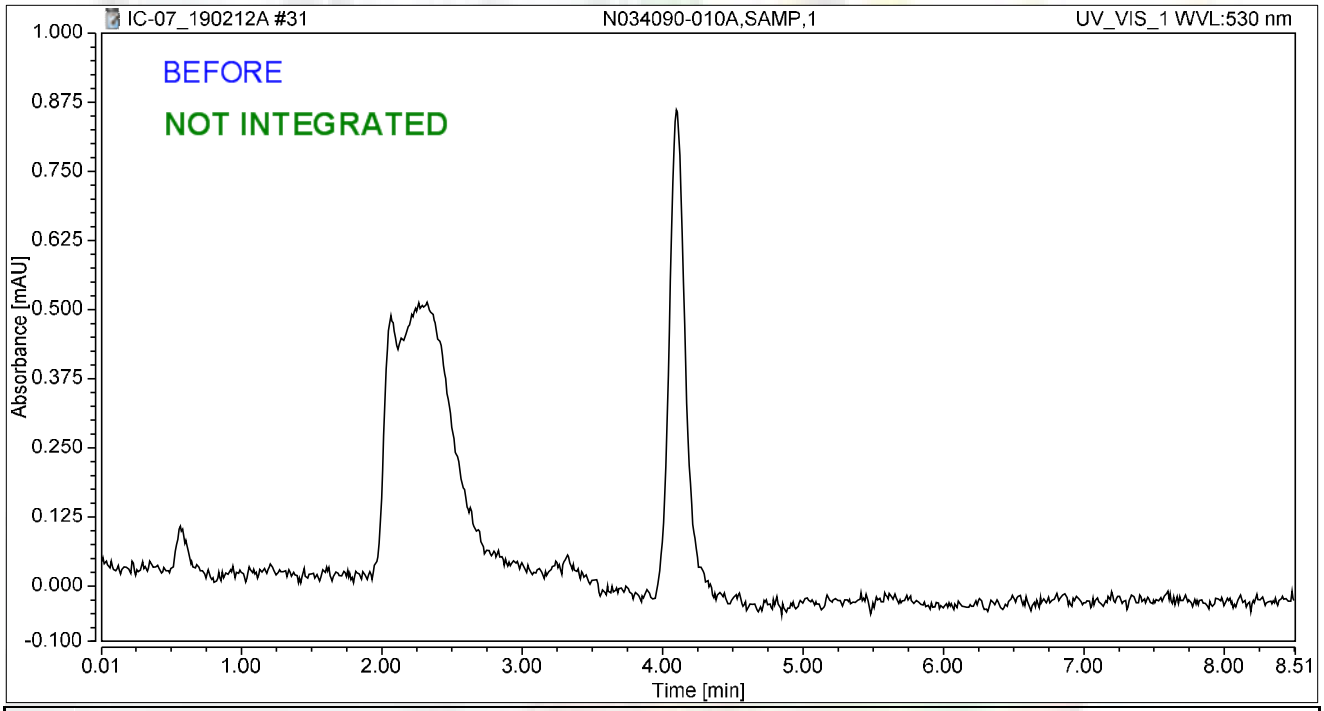
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-010A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 12:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

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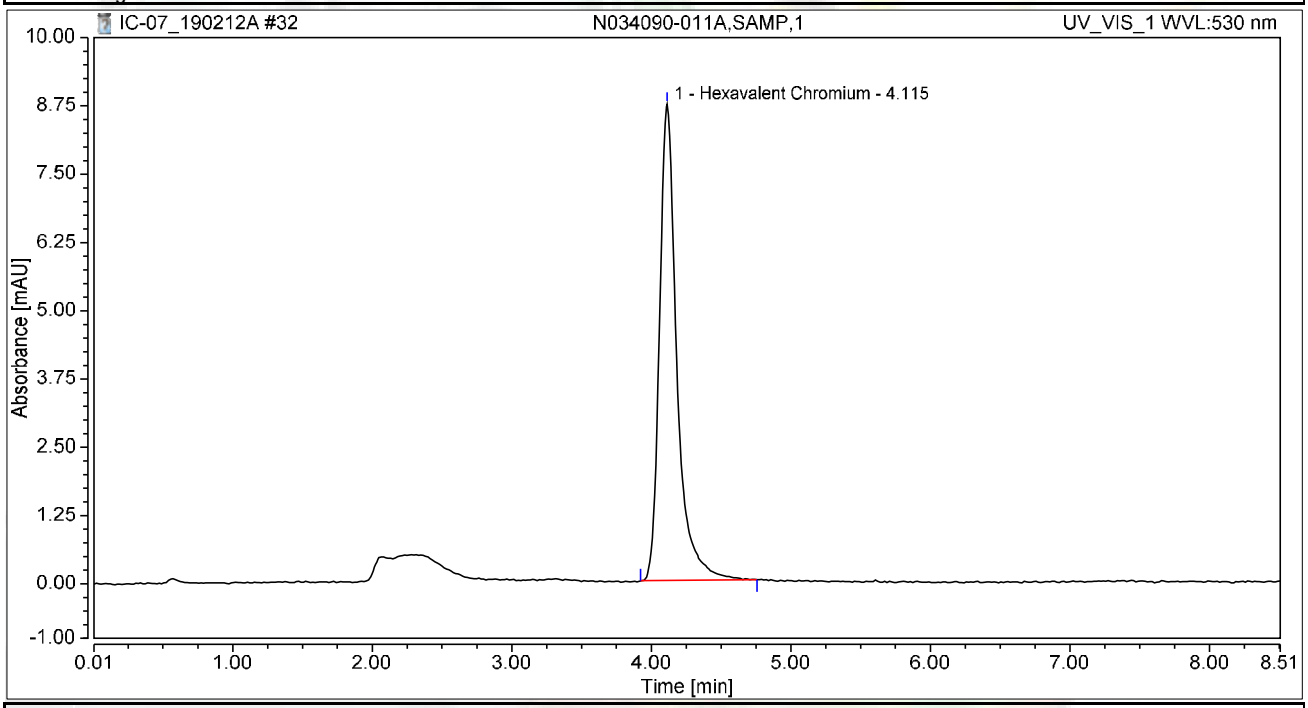
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-011A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **23** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 12:42** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

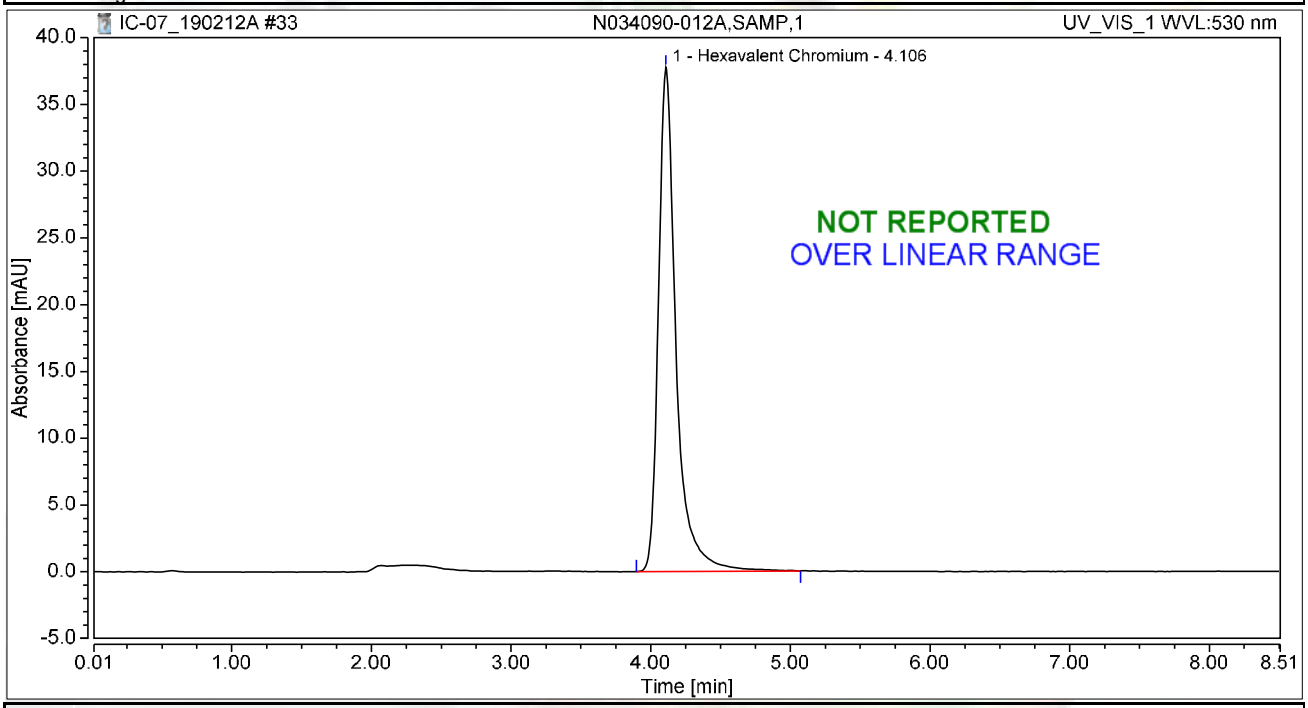
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 1.259 | 8.720 | 100.00 | 100.00 | 4.3801 |
| **Total:** | | | **1.259** | **8.720** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-012A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **24** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 12:52** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

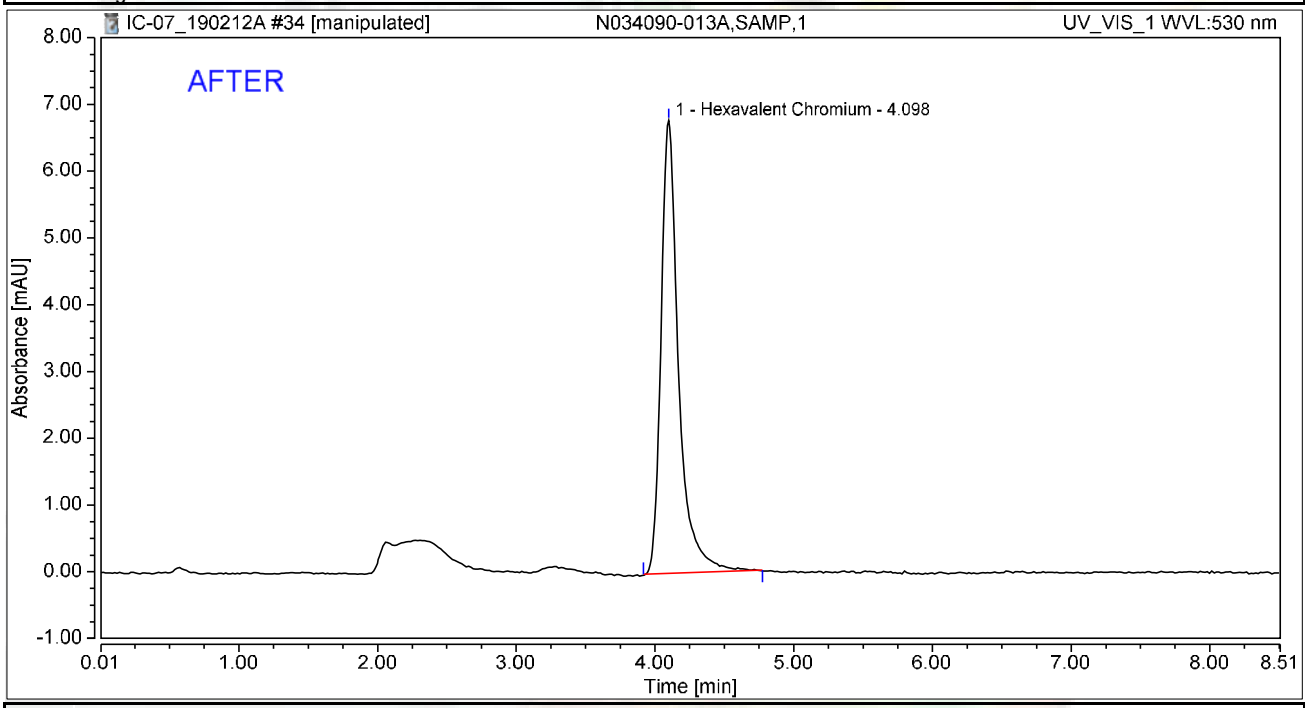
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 5.513 | 37.763 | 100.00 | 100.00 | 19.1826 |
| **Total:** | | | **5.513** | **37.763** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-013A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 13:01** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.998 | 6.785 | 100.00 | 100.00 | 3.4731 |
| **Total:** | | | **0.998** | **6.785** | **100.00** | **100.00** | |

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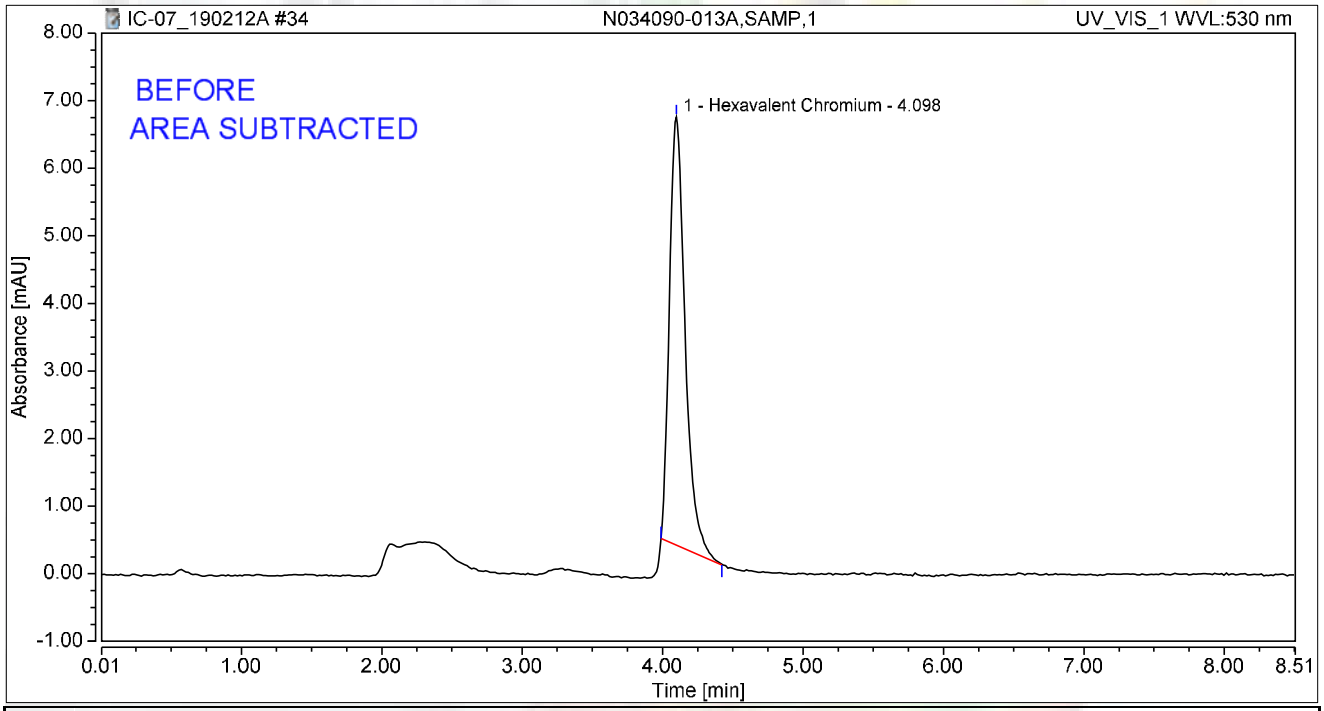
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-013A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 13:01** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.823 | 6.334 | 100.00 | 100.00 | 2.8637 |
| **Total:** | | | **0.823** | **6.334** | **100.00** | **100.00** | |

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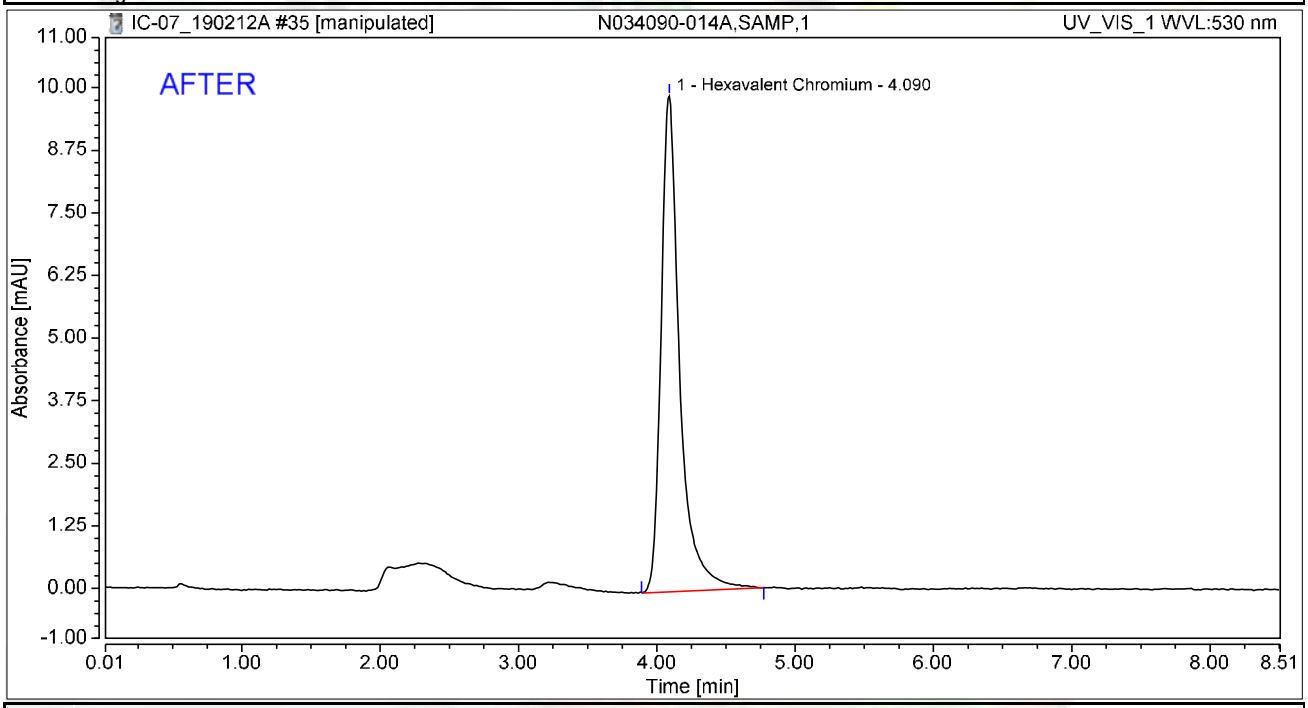
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-014A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **26** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 13:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 1.543 | 9.904 | 100.00 | 100.00 | 5.3691 |
| **Total:** | | | **1.543** | **9.904** | **100.00** | **100.00** | |

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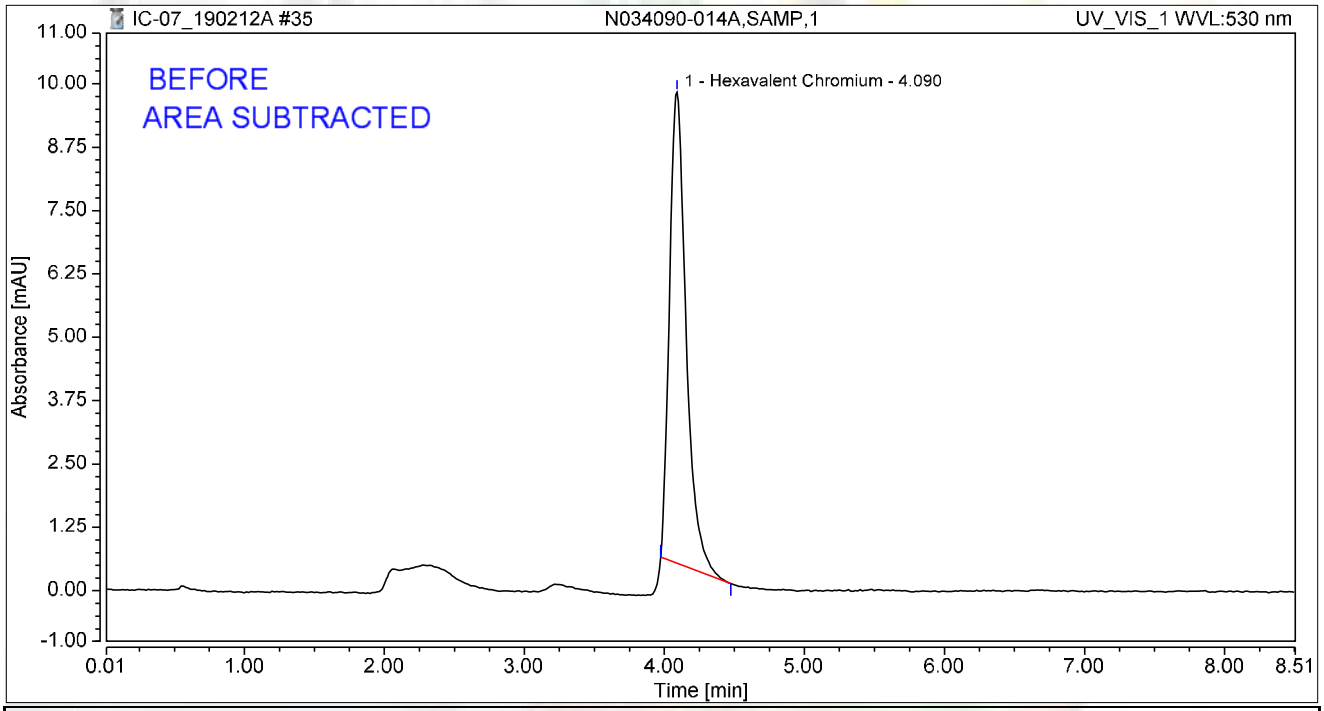
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-014A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **26** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 13:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 1.284 | 9.294 | 100.00 | 100.00 | 4.4679 |
| **Total:** | | | **1.284** | **9.294** | **100.00** | **100.00** | |

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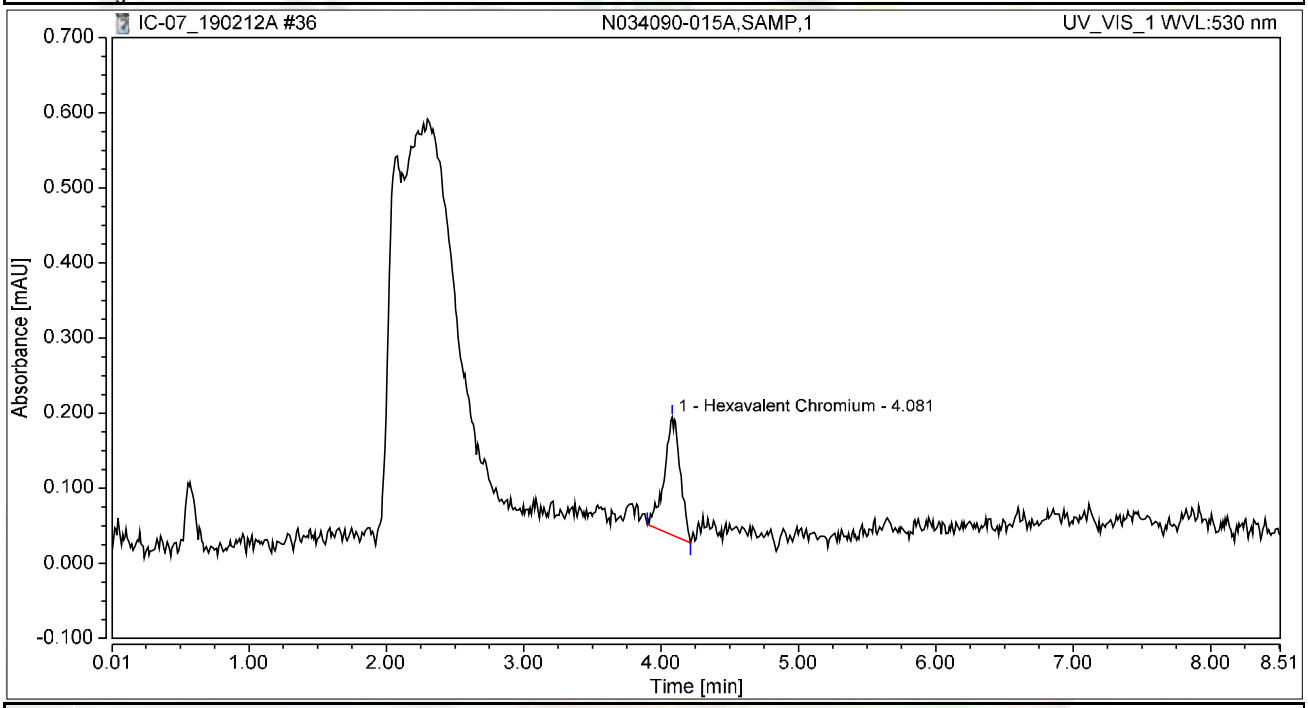
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-015A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 13:20** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

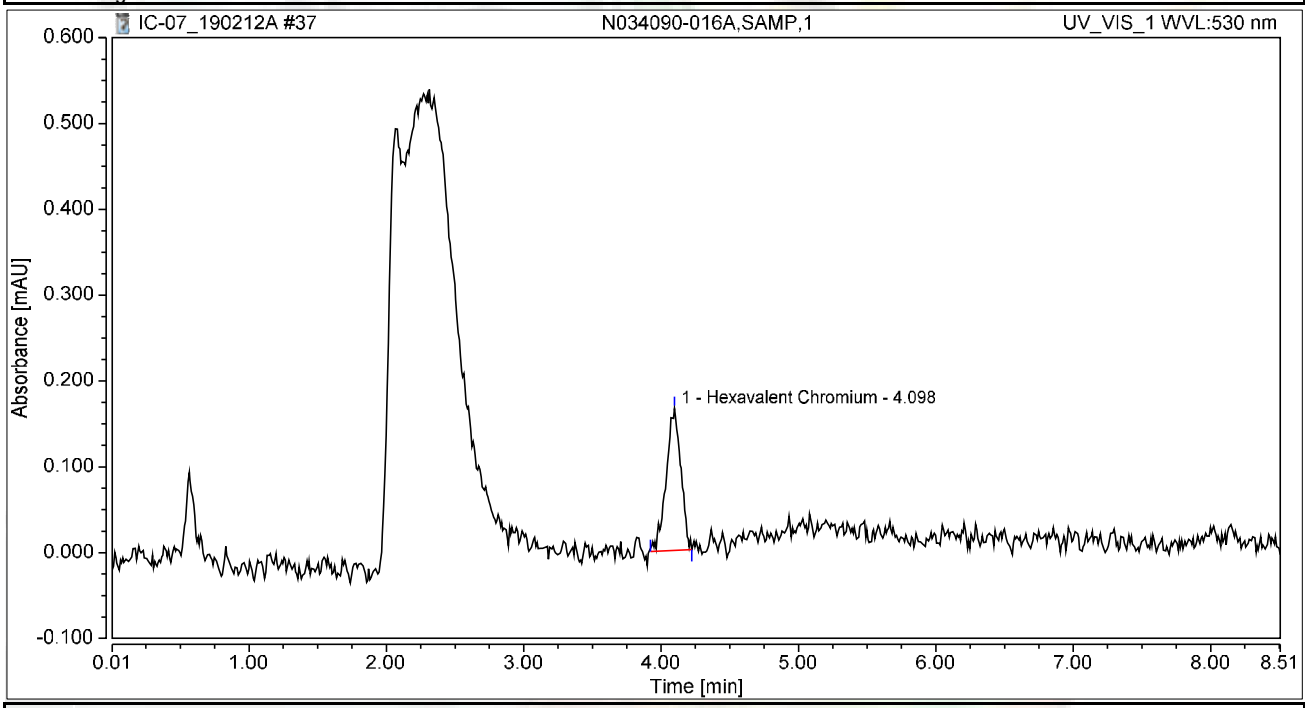
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.022 | 0.157 | 100.00 | 100.00 | 0.0749 |
| **Total:** | | | **0.022** | **0.157** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-016A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **28** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 13:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

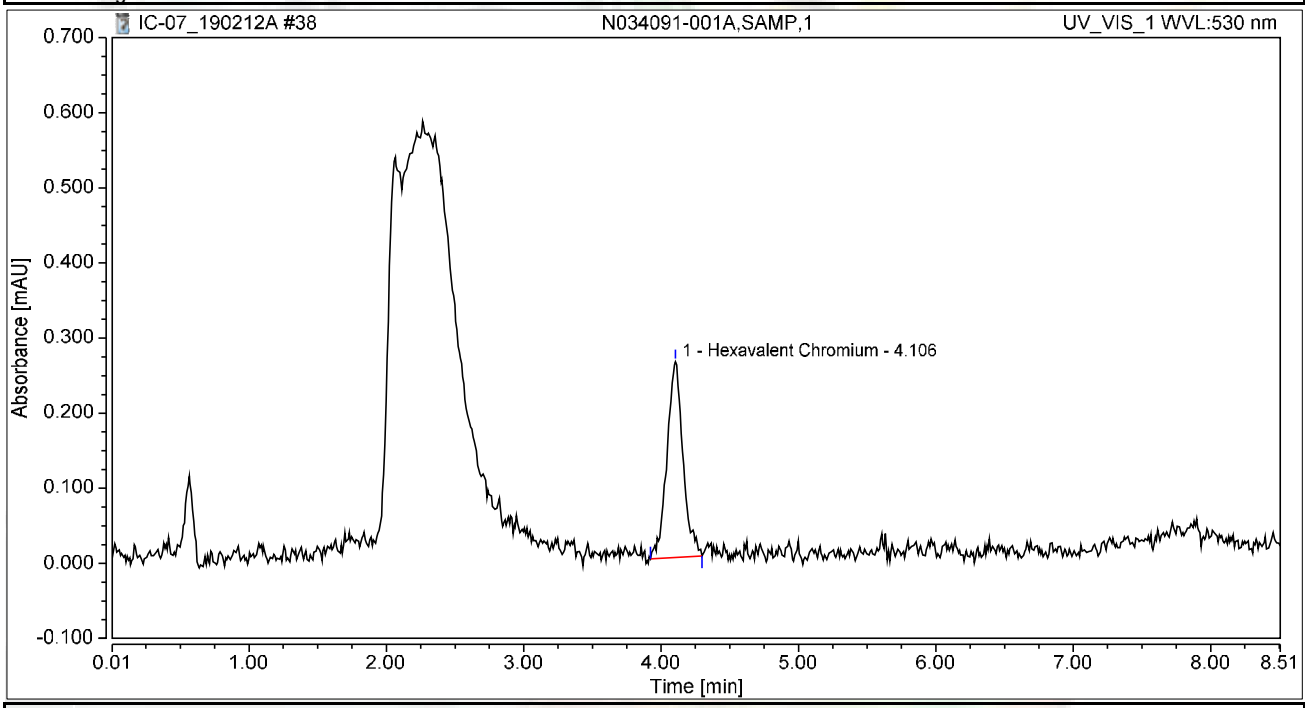
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.020 | 0.165 | 100.00 | 100.00 | 0.0707 |
| **Total:** | | | **0.020** | **0.165** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034091-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **29** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 13:39** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

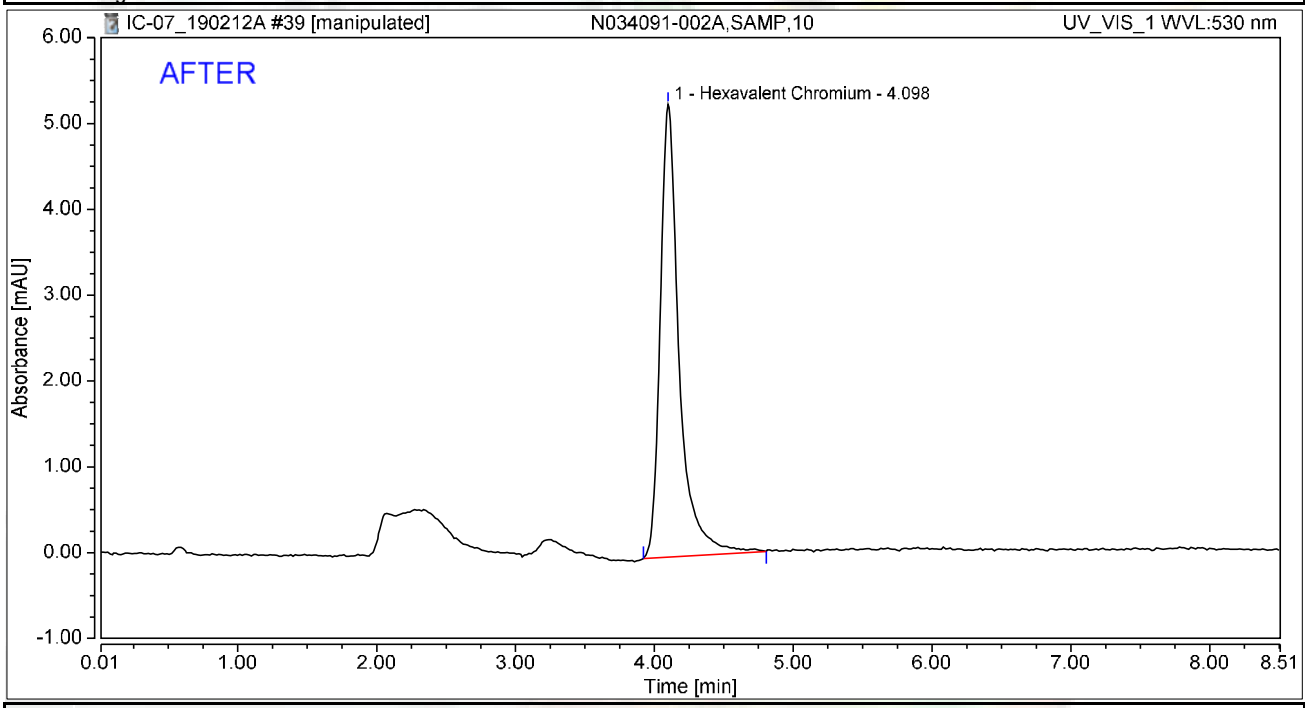
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.035 | 0.261 | 100.00 | 100.00 | 0.1224 |
| **Total:** | | | **0.035** | **0.261** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034091-002A,SAMP,10** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **30** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 13:48** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.835 | 5.275 | 100.00 | 100.00 | 2.9040 |
| **Total:** | | | **0.835** | **5.275** | **100.00** | **100.00** | |

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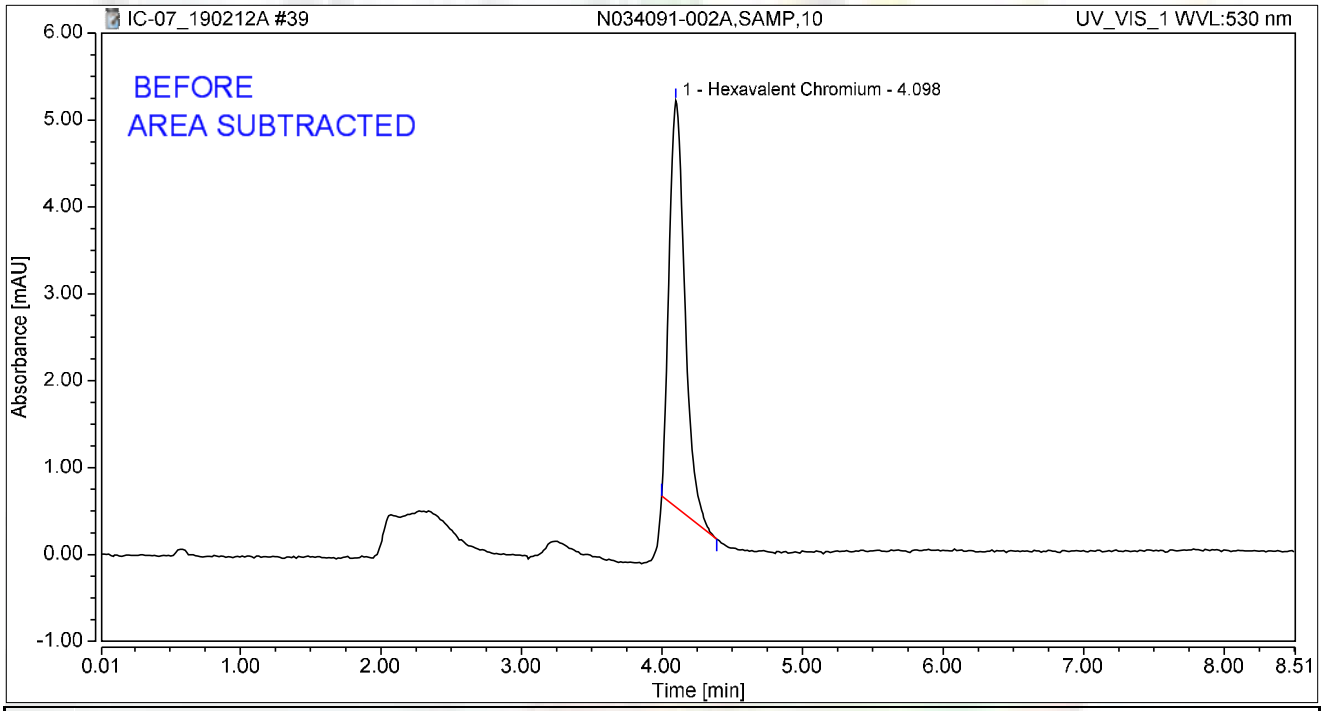
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034091-002A,SAMP,10** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **30** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 13:48** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.607 | 4.676 | 100.00 | 100.00 | 2.1117 |
| **Total:** | | | **0.607** | **4.676** | **100.00** | **100.00** | |

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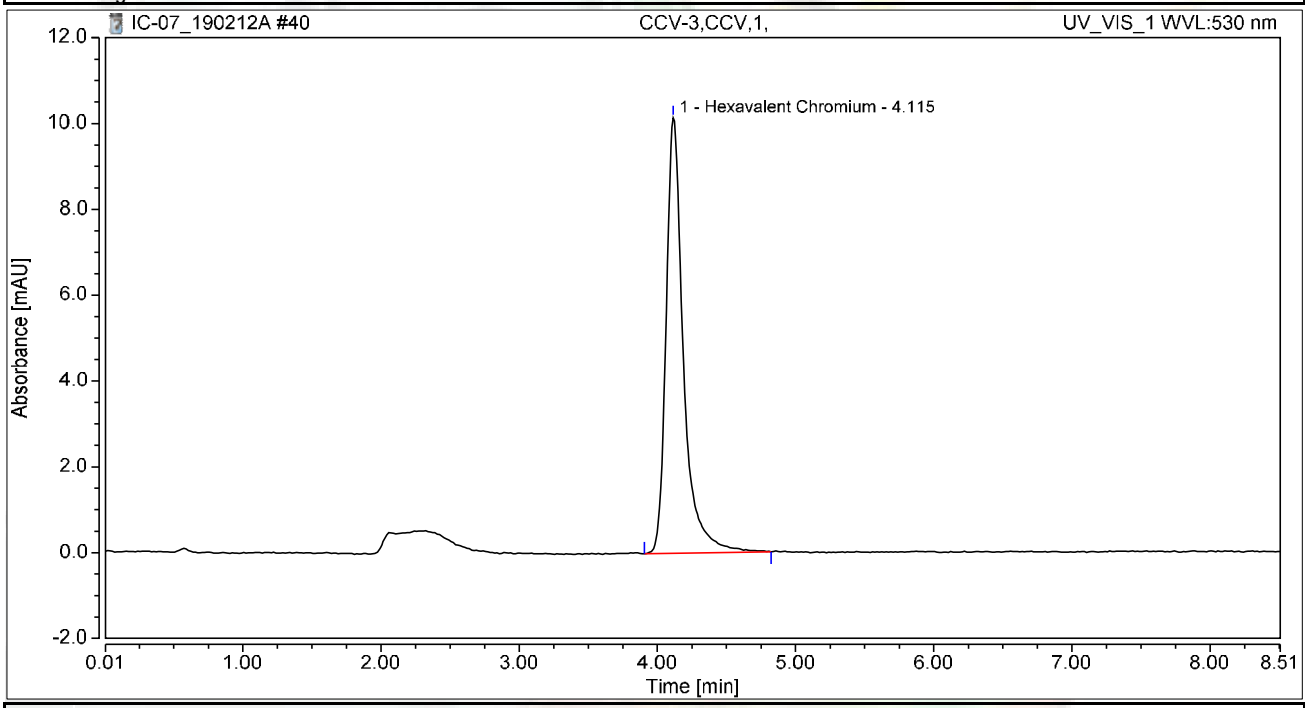
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-3,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **31** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 13:58** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

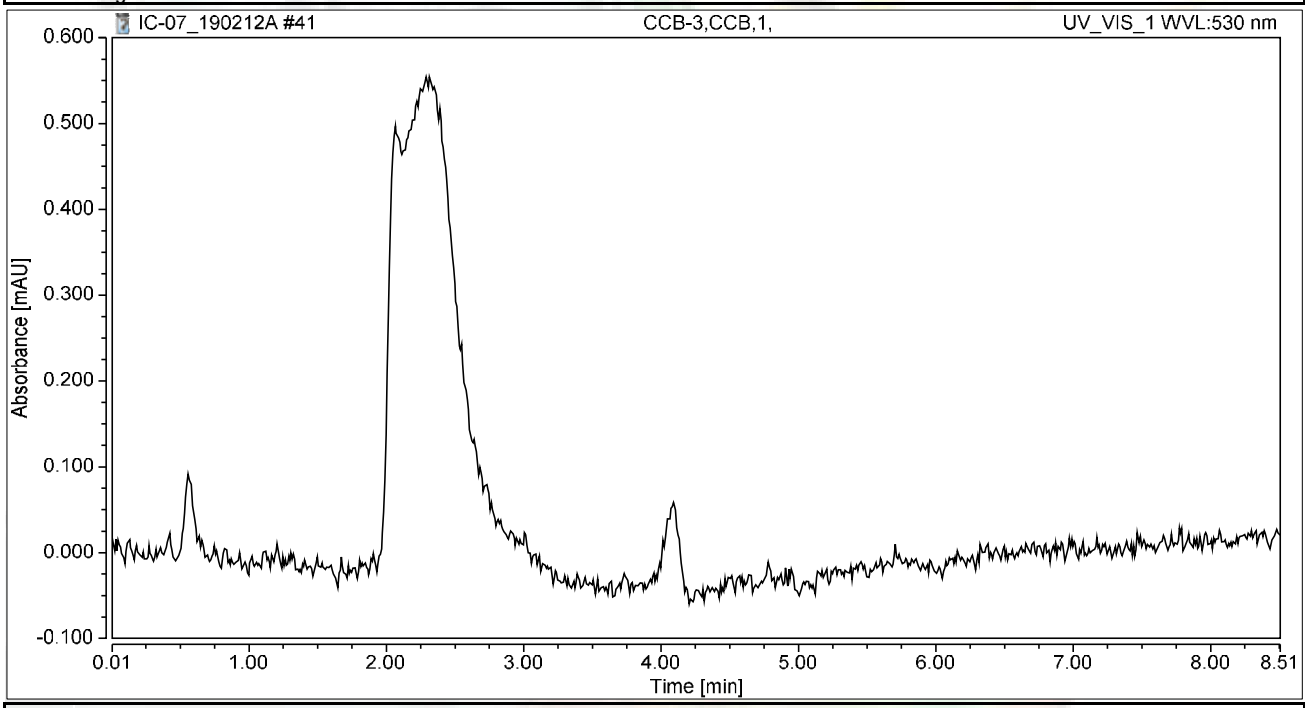
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 1.482 | 10.149 | 100.00 | 100.00 | 5.1568 |
| **Total:** | | | **1.482** | **10.149** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-3,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **32** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 14:07** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

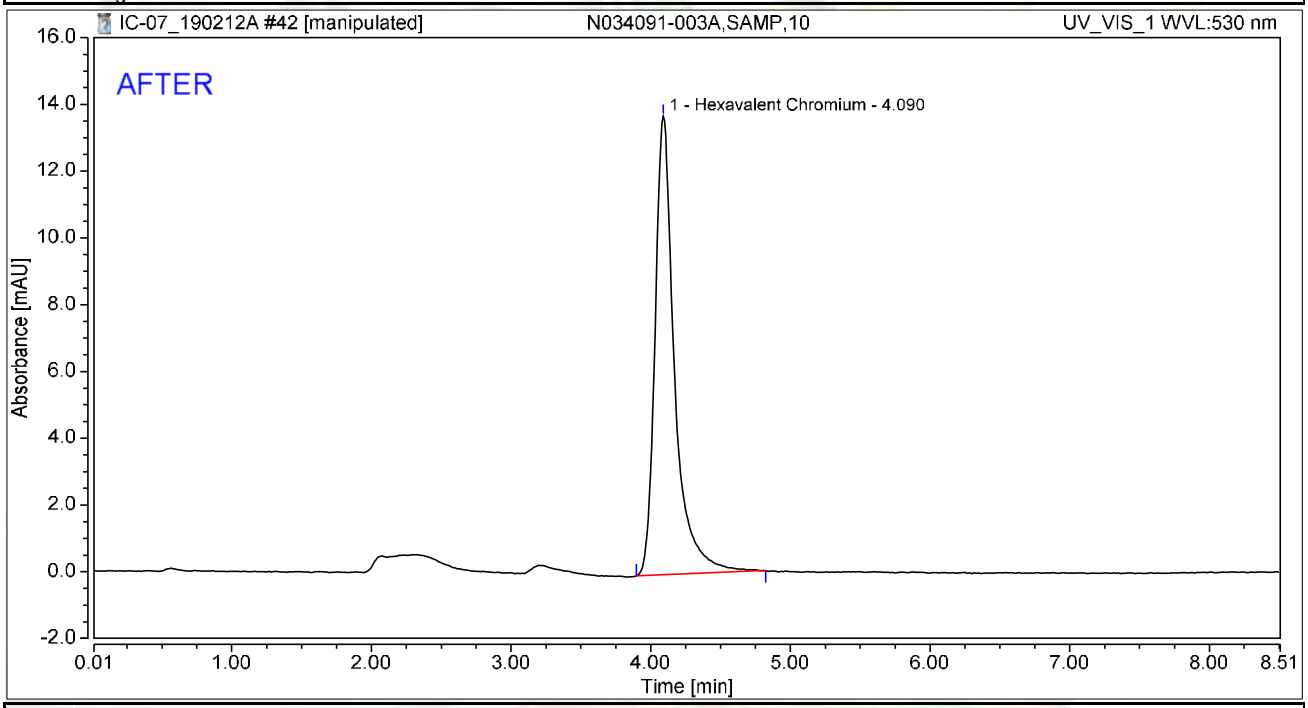
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034091-003A,SAMP,10** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **33** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 14:23** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 2.222 | 13.737 | 100.00 | 100.00 | 7.7327 |
| **Total:** | | | **2.222** | **13.737** | **100.00** | **100.00** | |

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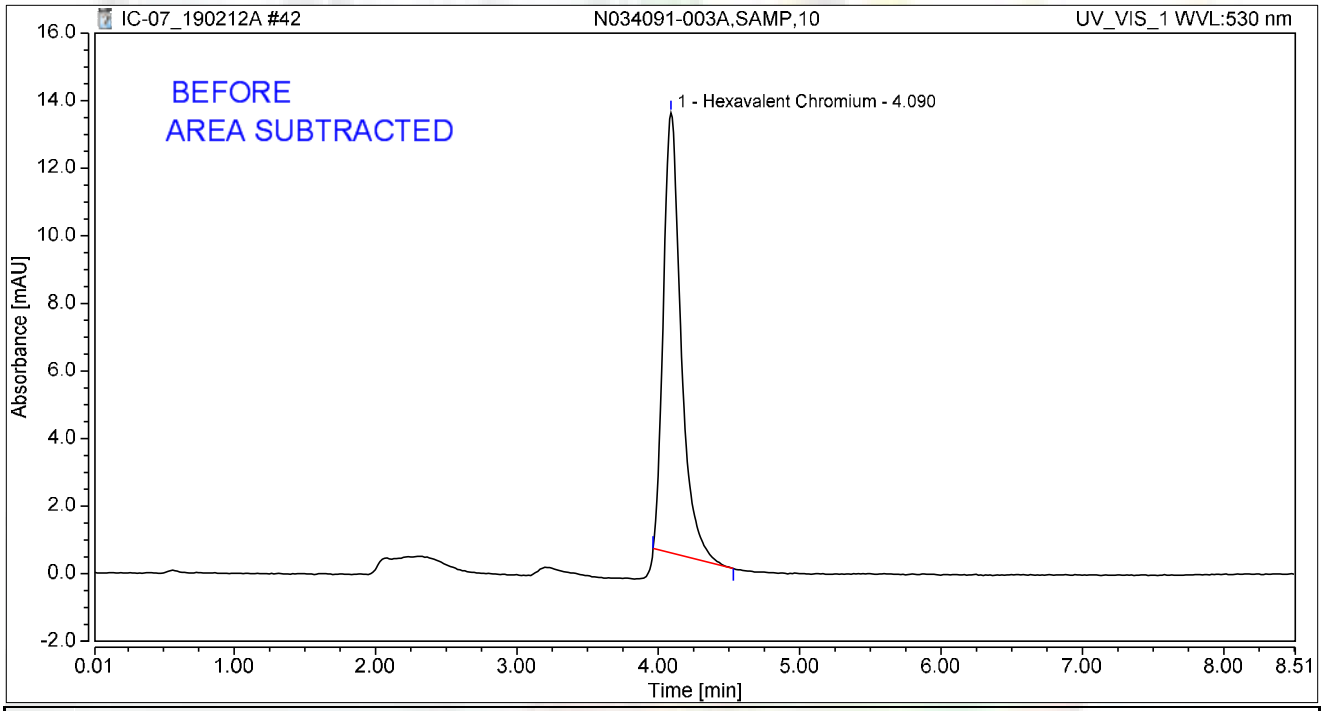
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034091-003A,SAMP,10** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **33** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 14:23** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 1.895 | 13.025 | 100.00 | 100.00 | 6.5933 |
| **Total:** | | | **1.895** | **13.025** | **100.00** | **100.00** | |

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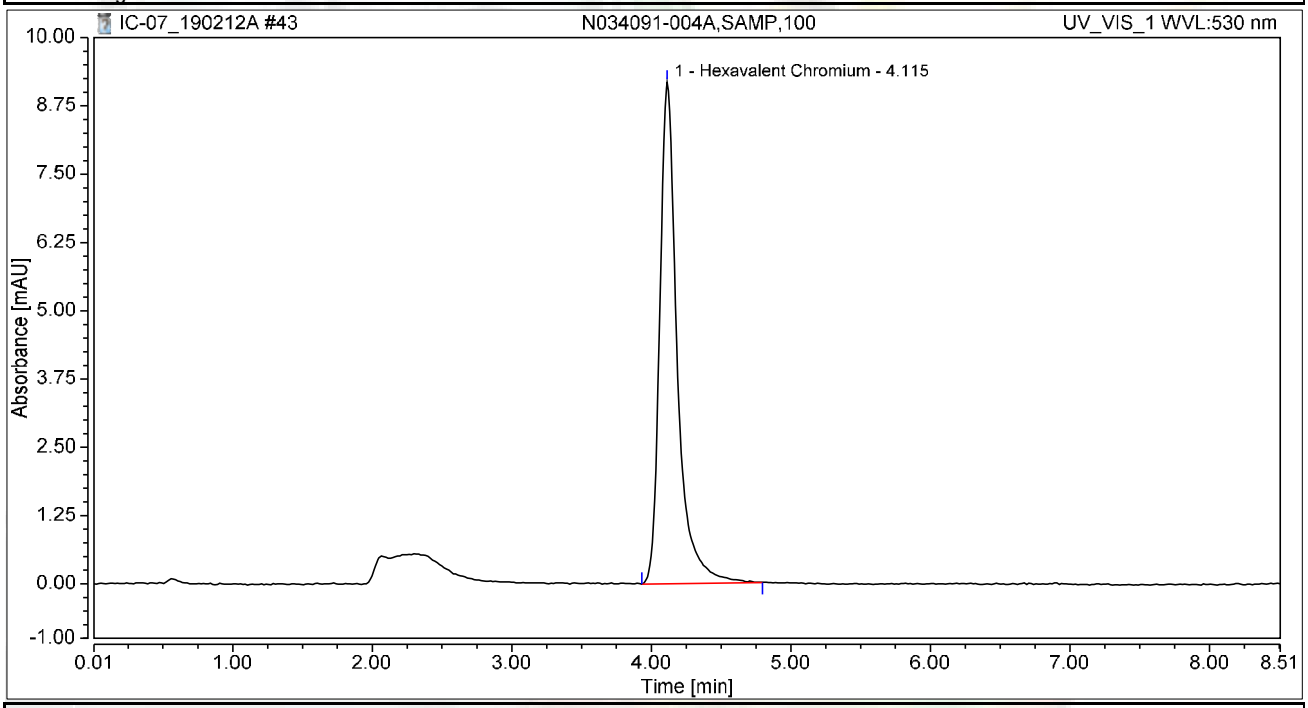
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034091-004A,SAMP,100** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **34** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 14:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

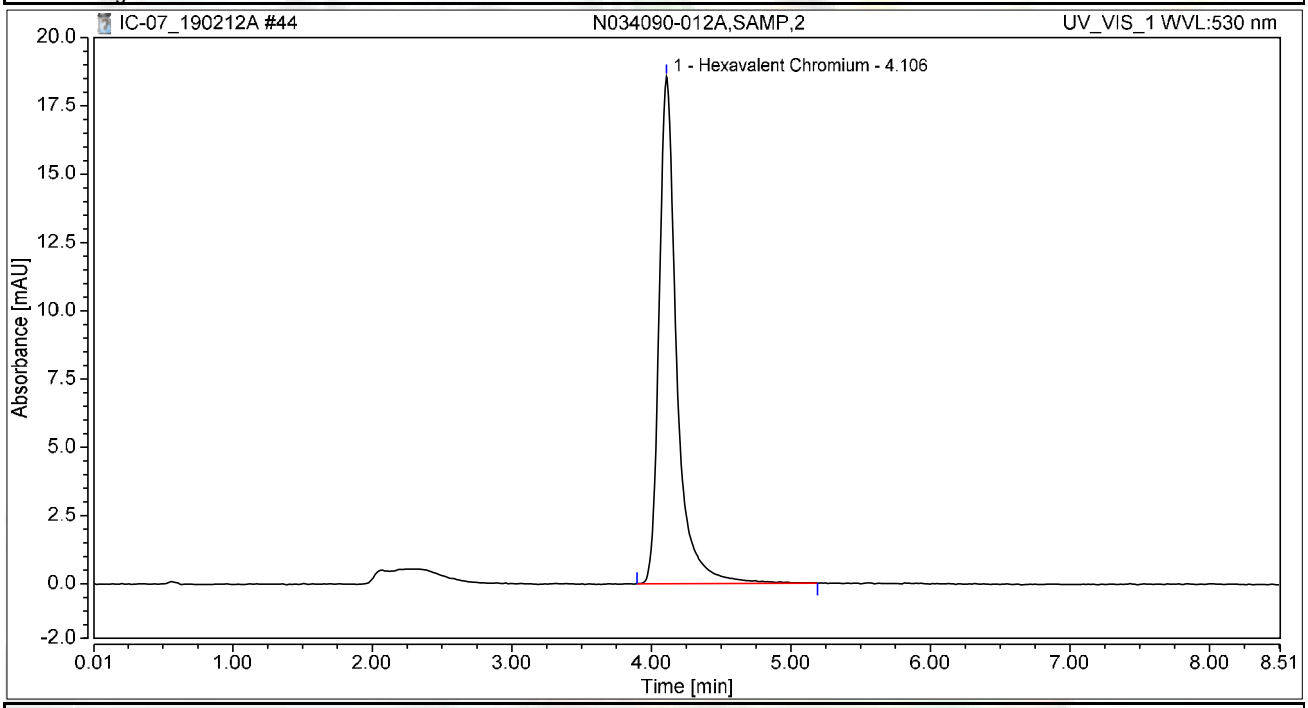
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 1.339 | 9.185 | 100.00 | 100.00 | 4.6575 |
| **Total:** | | | **1.339** | **9.185** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-012A,SAMP,2** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **35** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 14:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

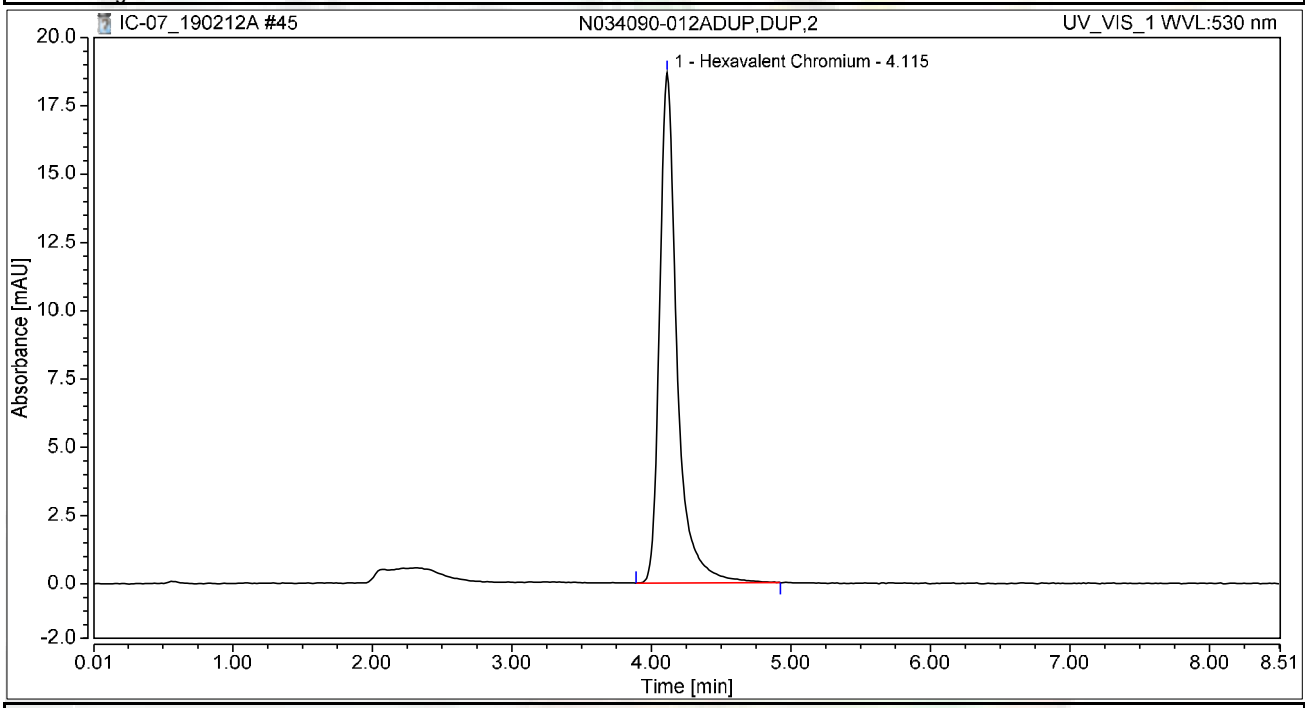
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 2.740 | 18.579 | 100.00 | 100.00 | 9.5338 |
| **Total:** | | | **2.740** | **18.579** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-012ADUP,DUP,2** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **36** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 14:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

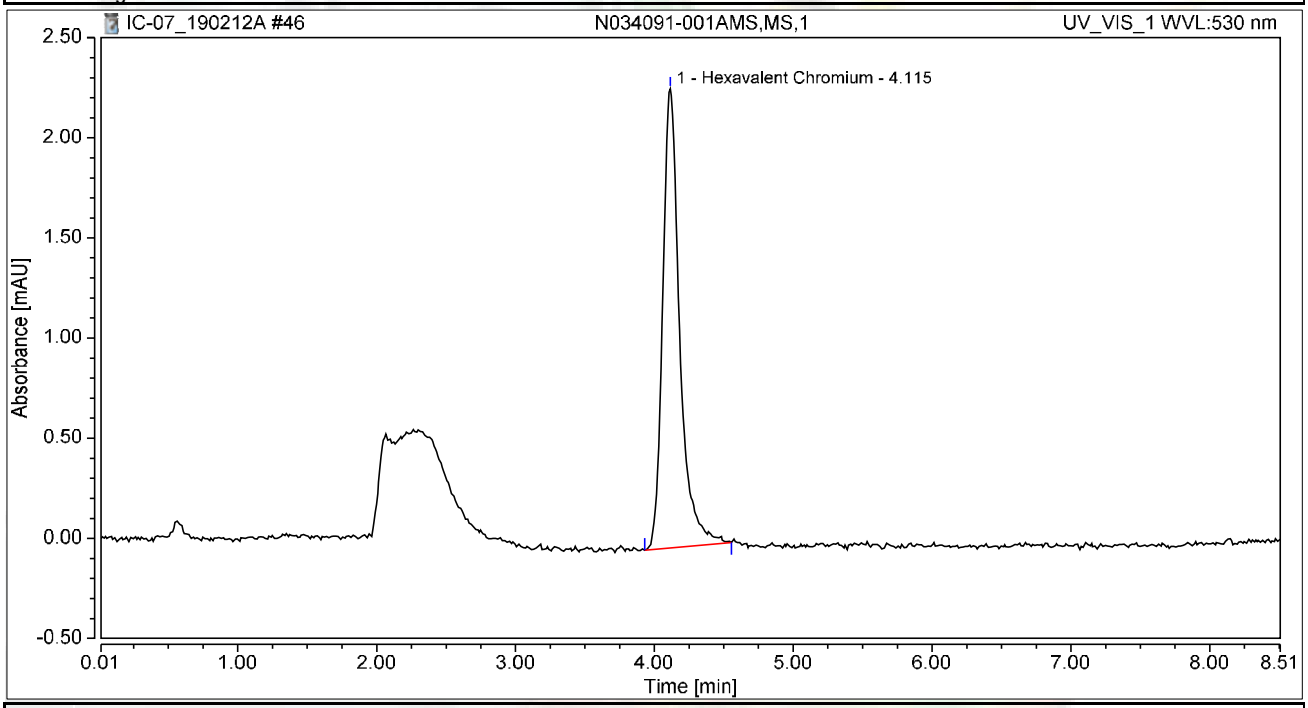
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 2.715 | 18.690 | 100.00 | 100.00 | 9.4465 |
| **Total:** | | | **2.715** | **18.690** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034091-001AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **37** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 15:03** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

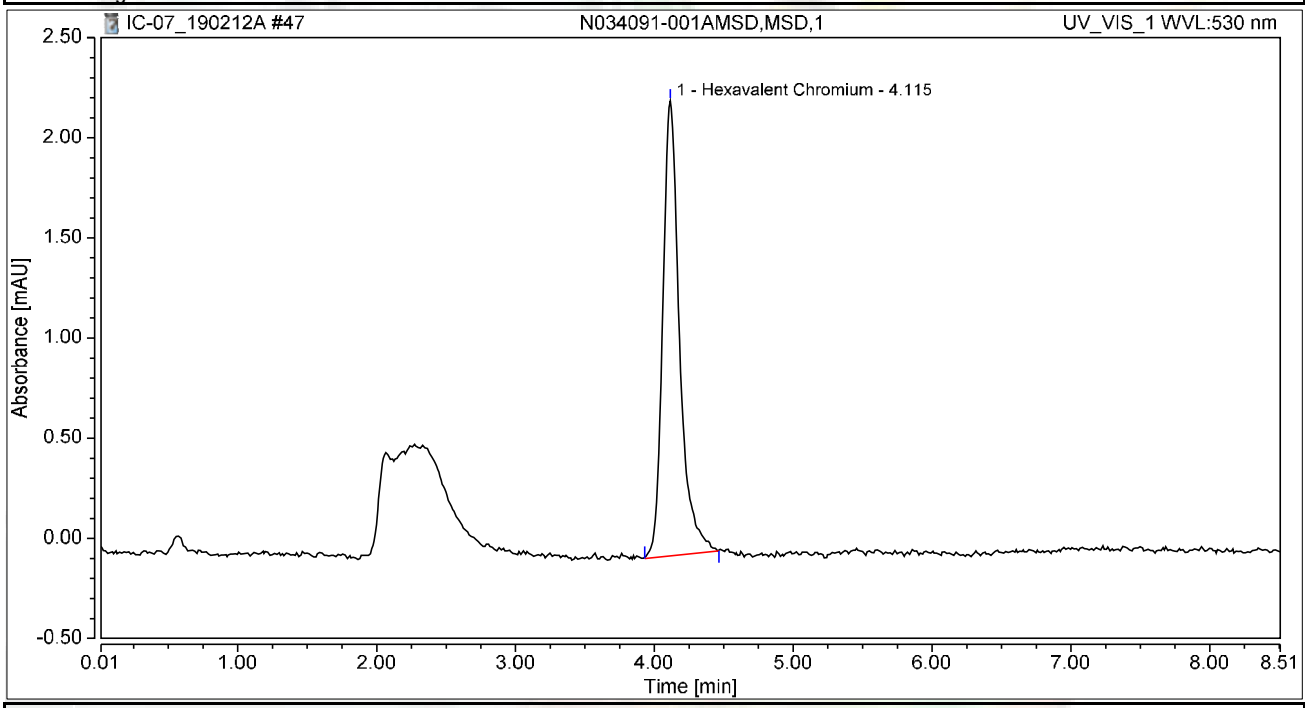
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 0.325 | 2.292 | 100.00 | 100.00 | 1.1314 |
| **Total:** | | | **0.325** | **2.292** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034091-001AMSD,MSD,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **38** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 15:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

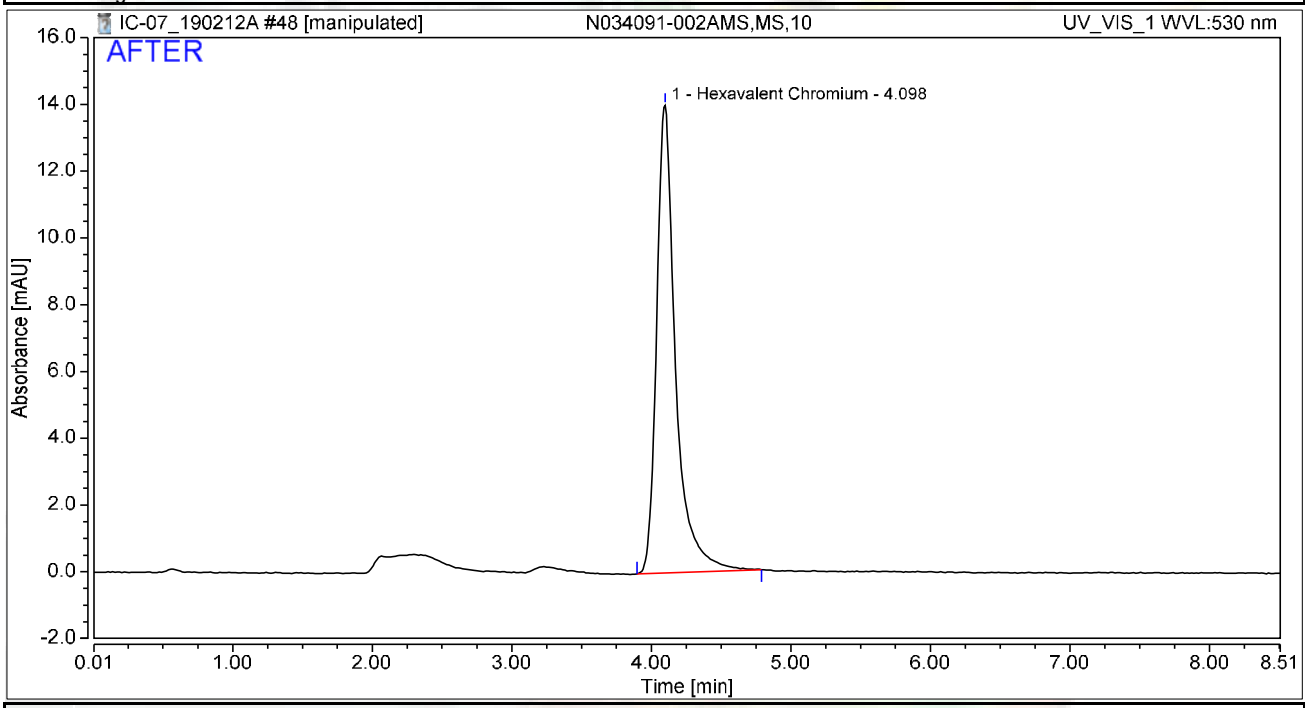
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 0.318 | 2.271 | 100.00 | 100.00 | 1.1049 |
| **Total:** | | | **0.318** | **2.271** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034091-002AMS,MS,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **39** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 15:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.204 | 14.010 | 100.00 | 100.00 | 7.6696 |
| **Total:** | | | **2.204** | **14.010** | **100.00** | **100.00** | |

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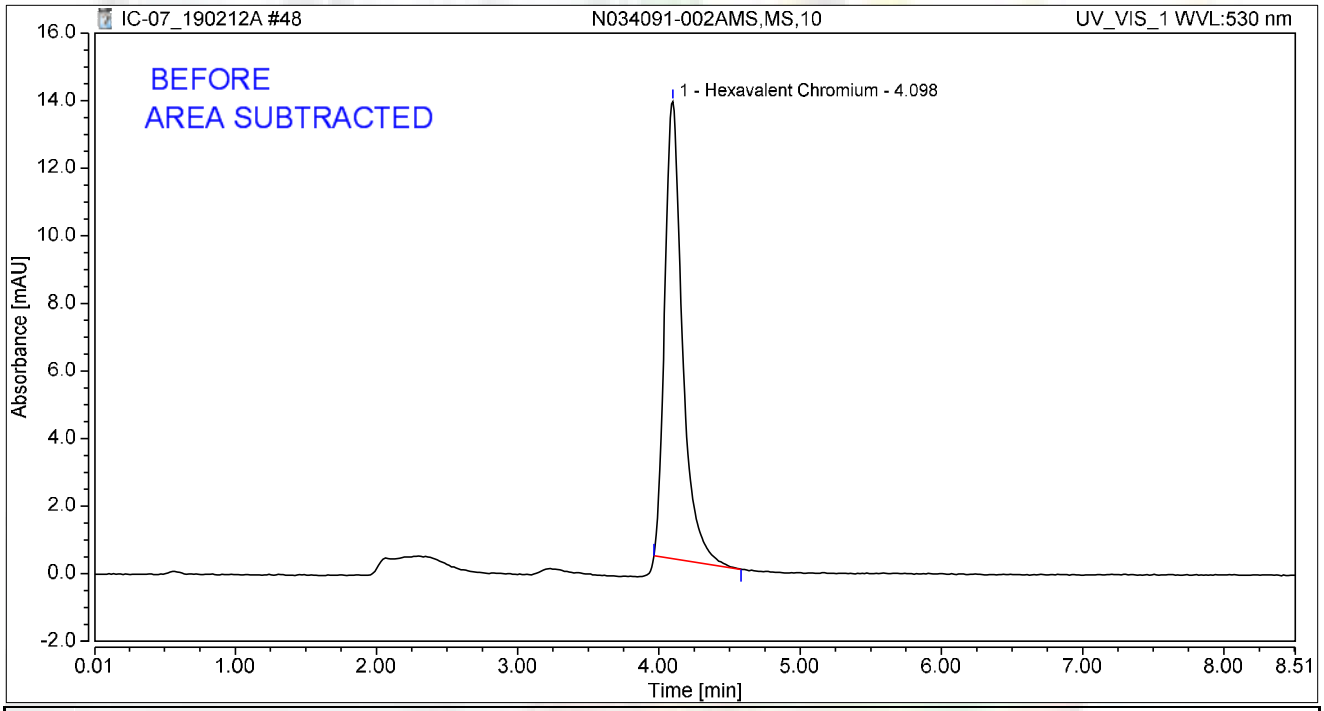
Reviewed by:
2/25/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034091-002AMS,MS,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **39** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 15:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.974 | 13.533 | 100.00 | 100.00 | 6.8691 |
| **Total:** | | | **1.974** | **13.533** | **100.00** | **100.00** | |

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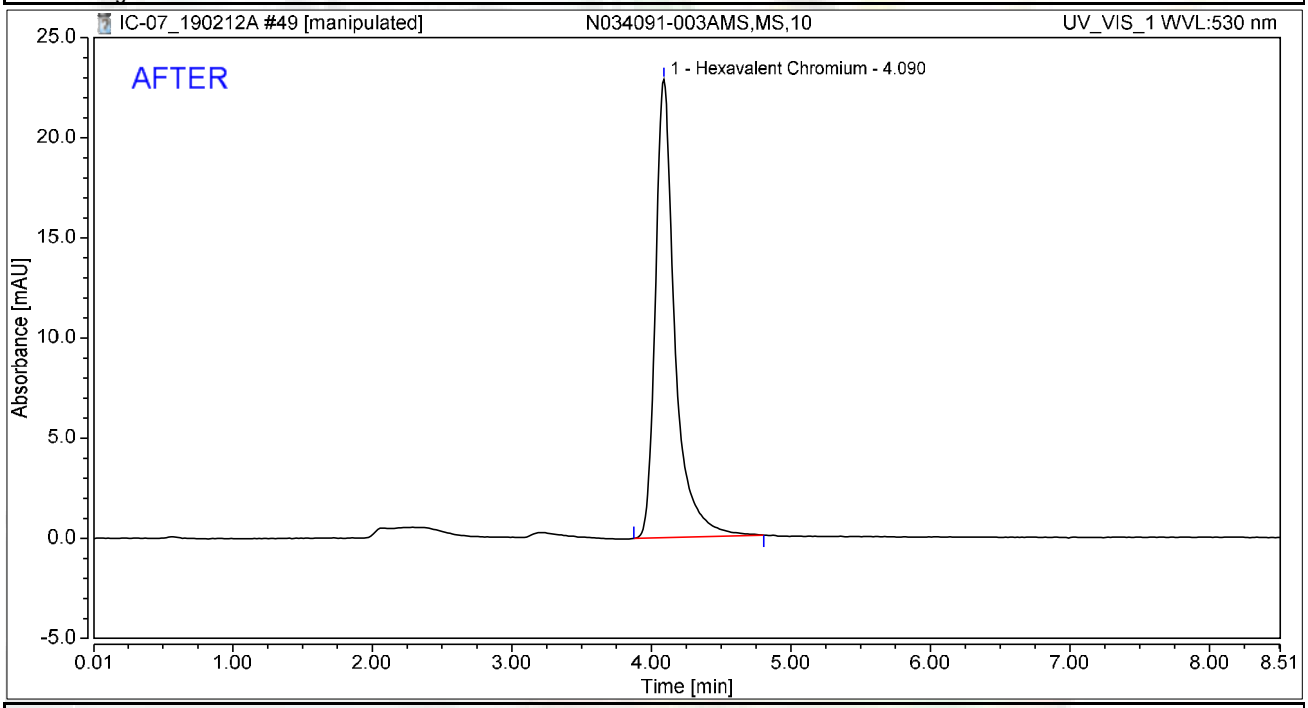
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034091-003AMS,MS,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **40** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 15:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 3.703 | 22.874 | 100.00 | 100.00 | 12.8856 |
| **Total:** | | | **3.703** | **22.874** | **100.00** | **100.00** | |

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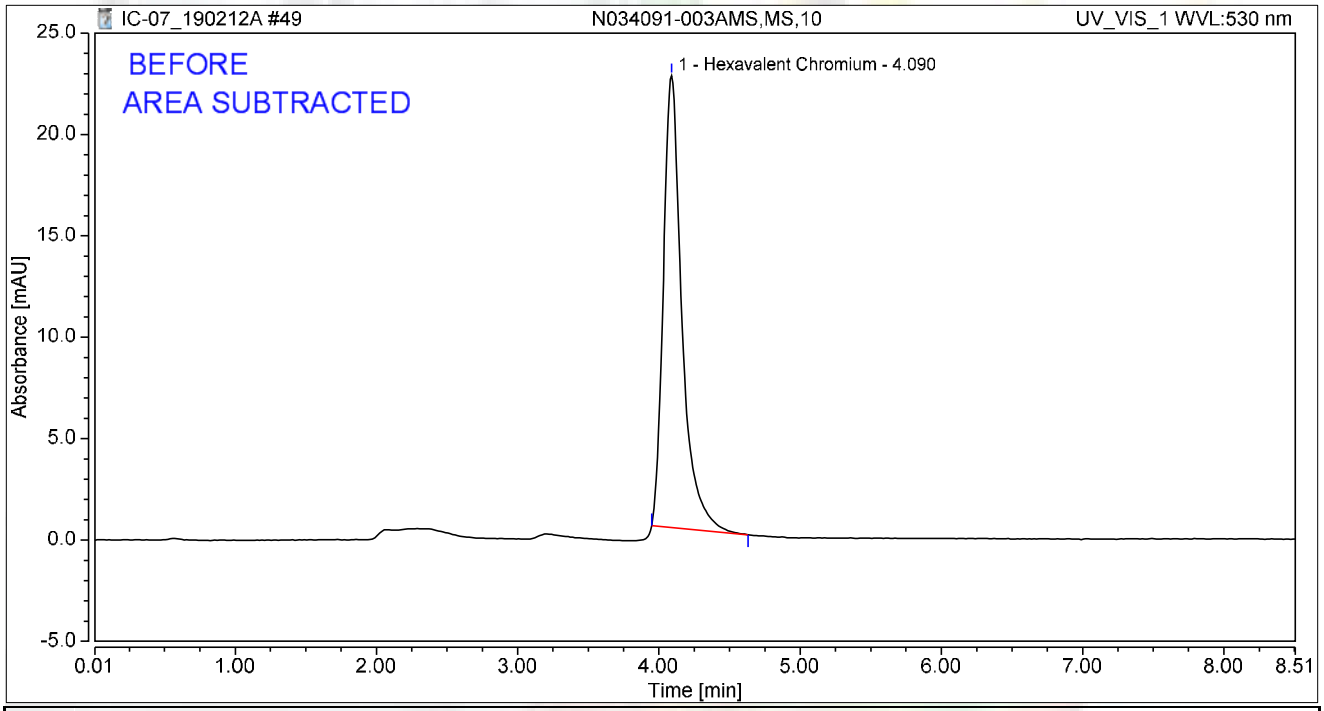
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034091-003AMS,MS,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **40** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 15:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 3.393 | 22.280 | 100.00 | 100.00 | 11.8061 |
| **Total:** | | | **3.393** | **22.280** | **100.00** | **100.00** | |

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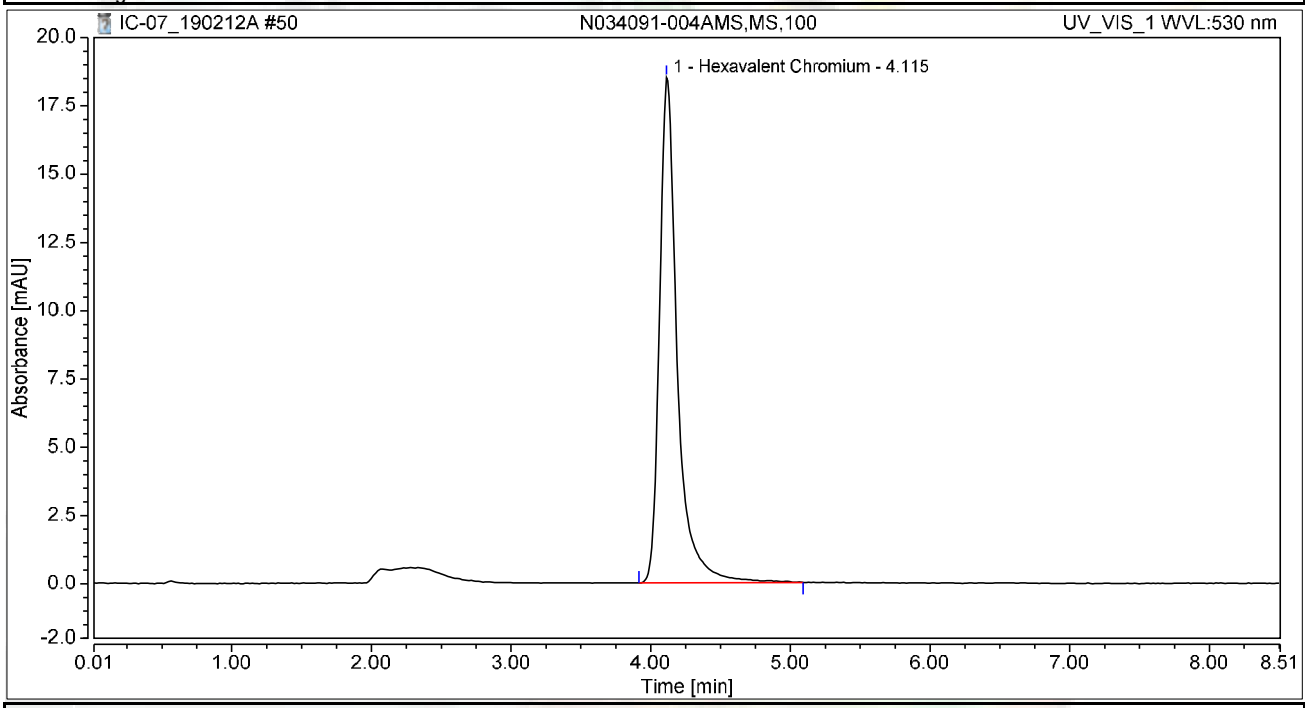
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034091-004AMS,MS,100** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **41** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 15:41** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

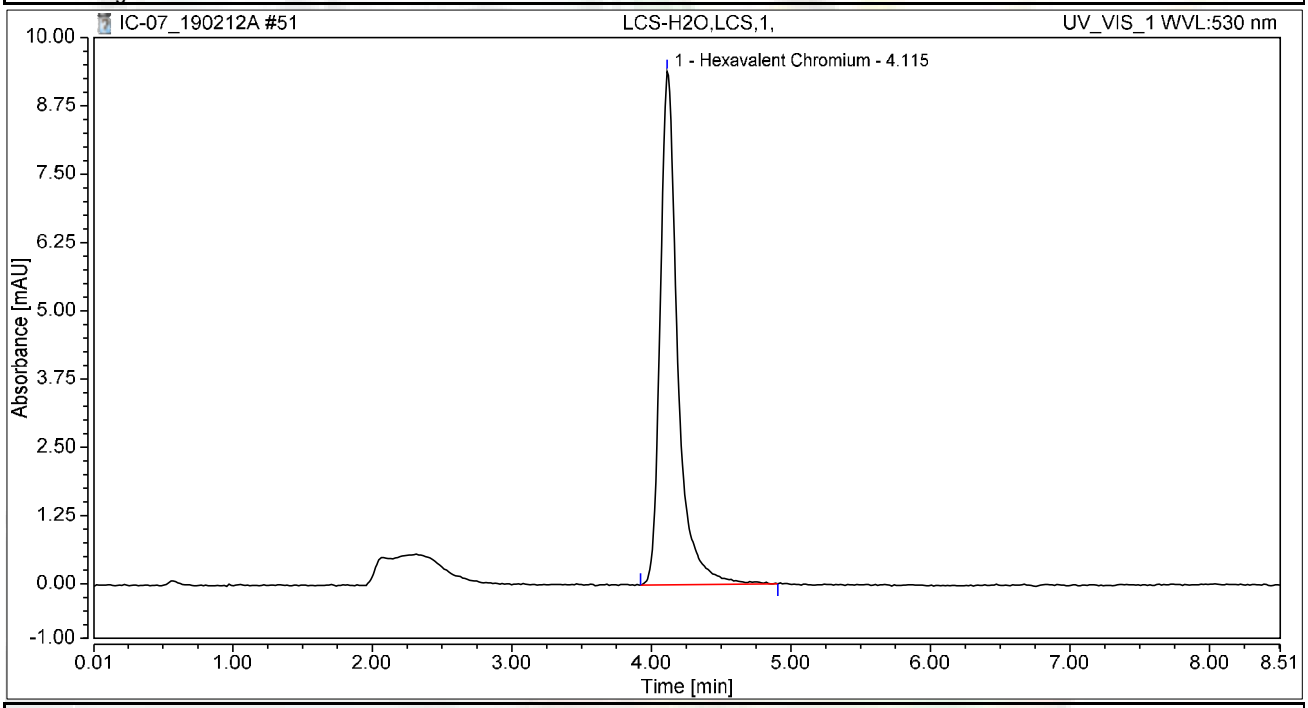
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 2.736 | 18.505 | 100.00 | 100.00 | 9.5198 |
| **Total:** | | | **2.736** | **18.505** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **LCS-H2O,LCS,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **42** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 15:52** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

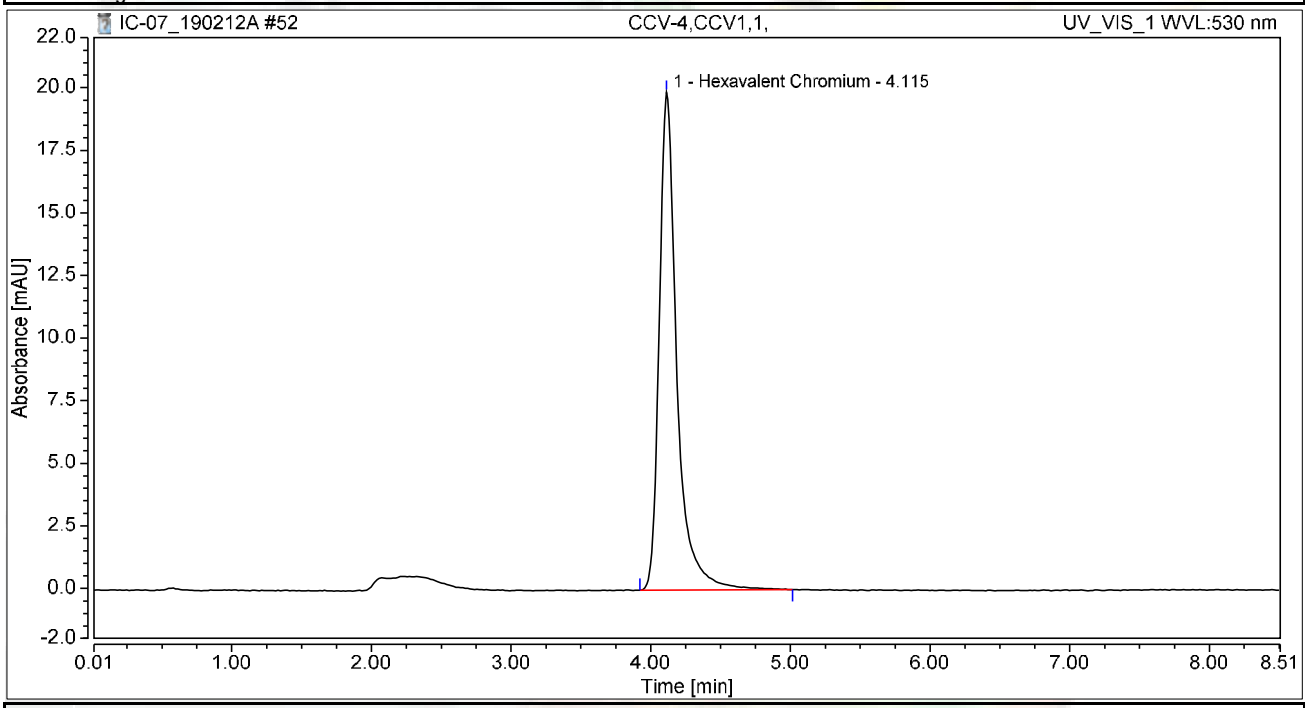
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 1.371 | 9.396 | 100.00 | 100.00 | 4.7721 |
| **Total:** | | | **1.371** | **9.396** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-4,CCV1,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **43** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 16:04** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

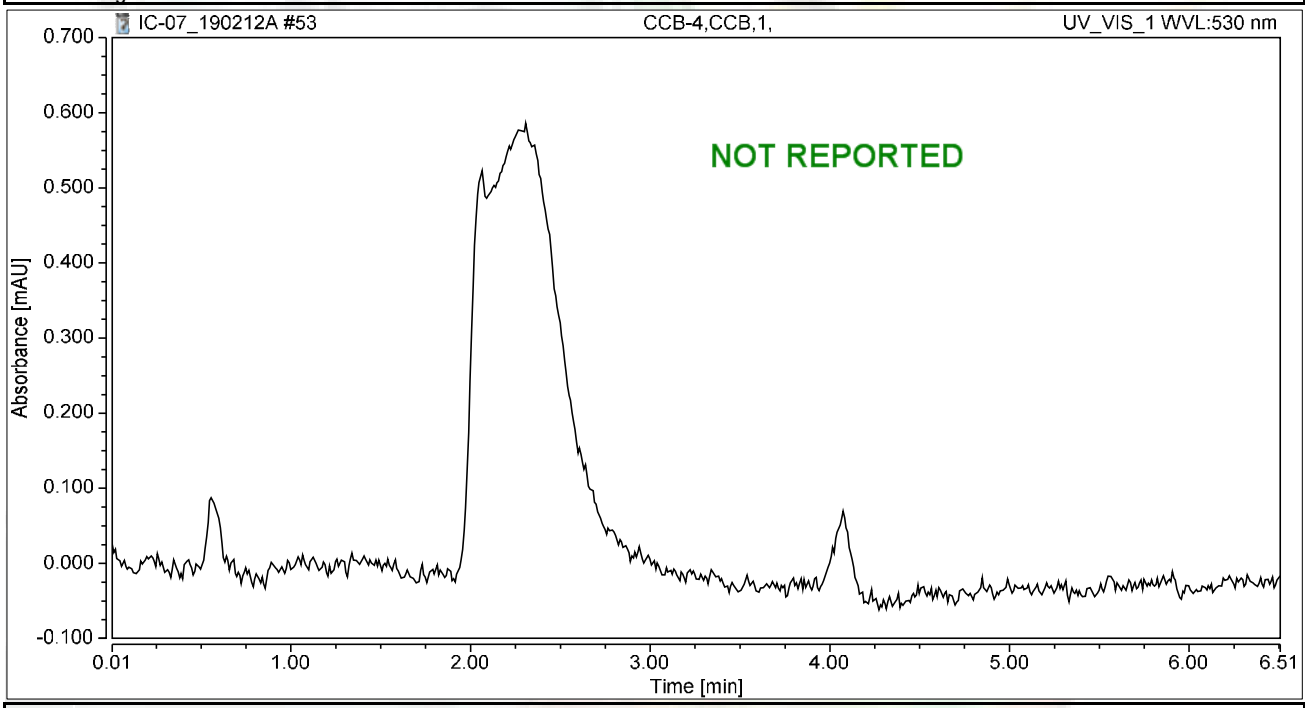
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 2.908 | 19.886 | 100.00 | 100.00 | 10.1172 |
| **Total:** | | | **2.908** | **19.886** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-4,CCB,1,** | *Run Time (min):* | **6.50** |
| *Vial Number:* | **44** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 16:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

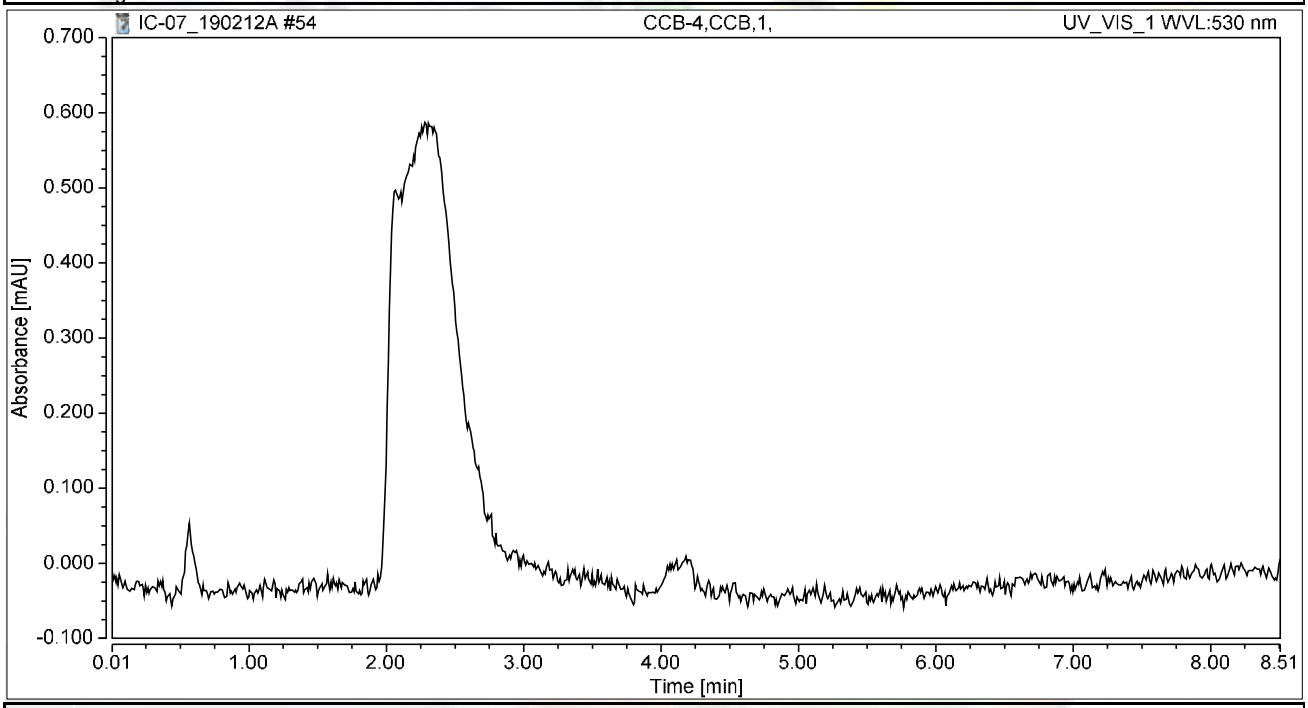
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-4,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 16:26** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

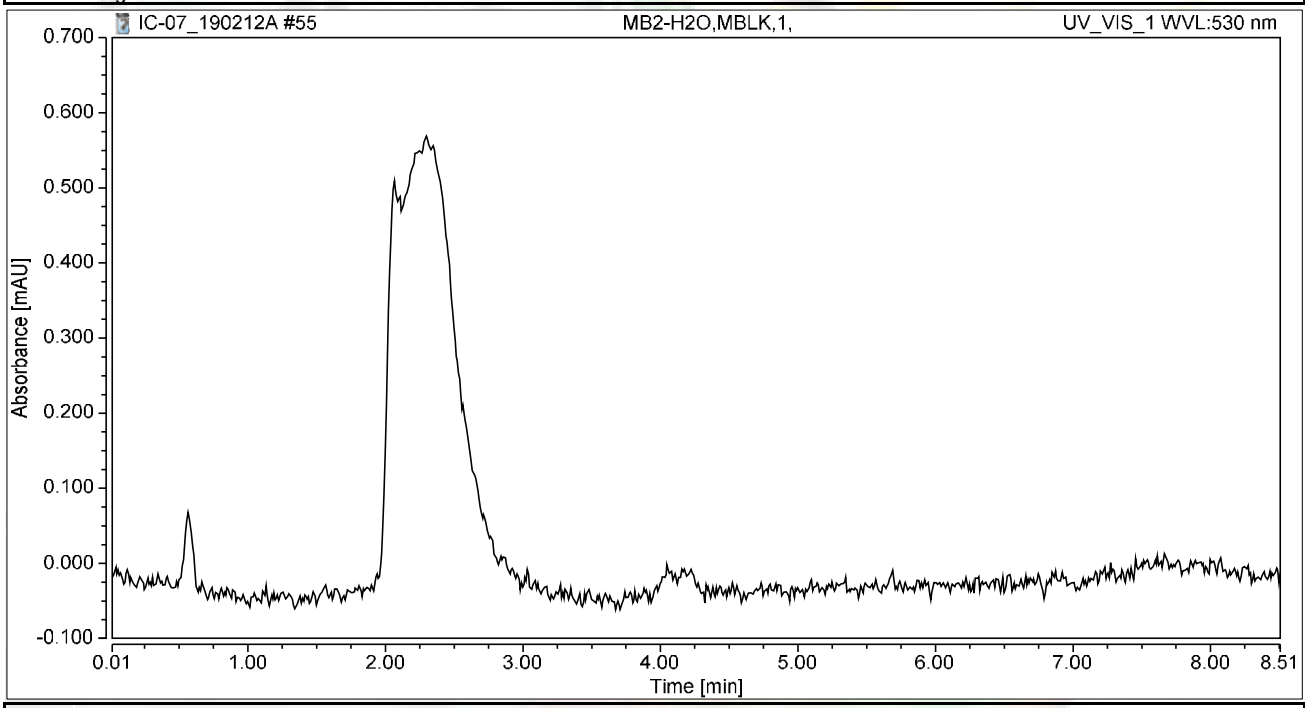
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **MB2-H2O,MBLK,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 16:36** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

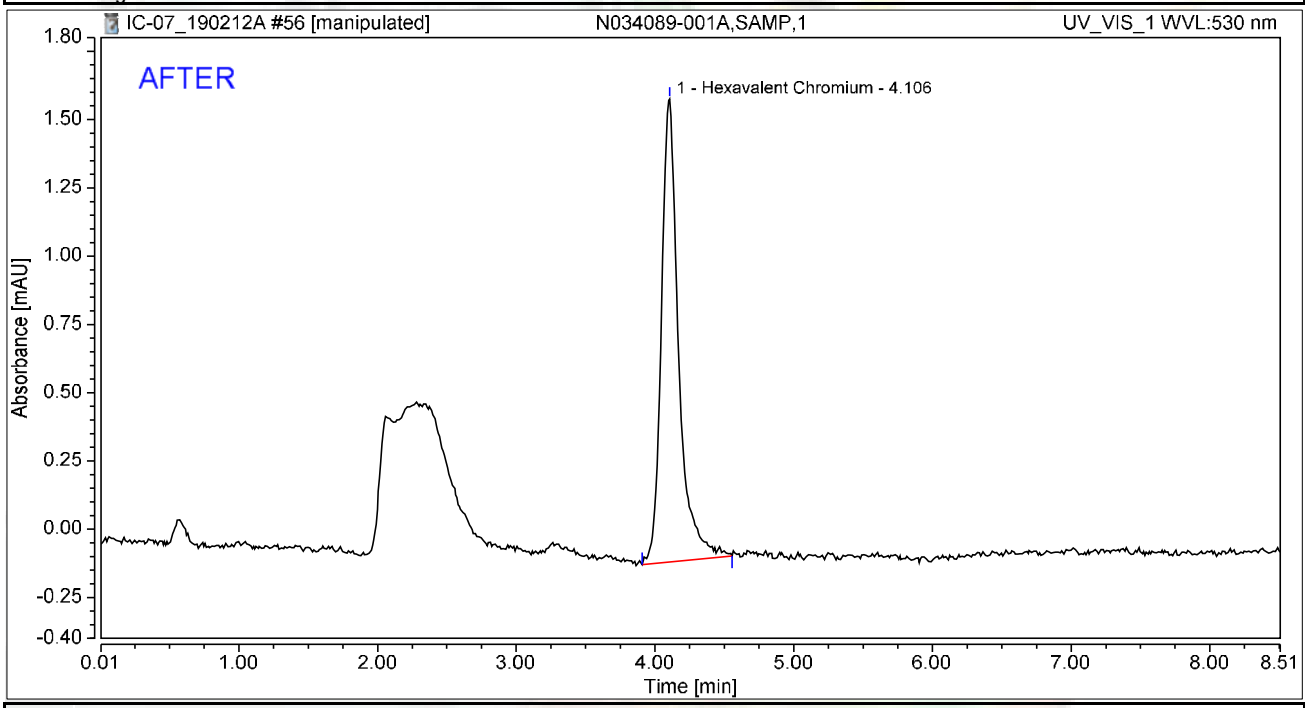
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034089-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 16:46** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.246 | 1.695 | 100.00 | 100.00 | 0.8547 |
| **Total:** | | | **0.246** | **1.695** | **100.00** | **100.00** | |

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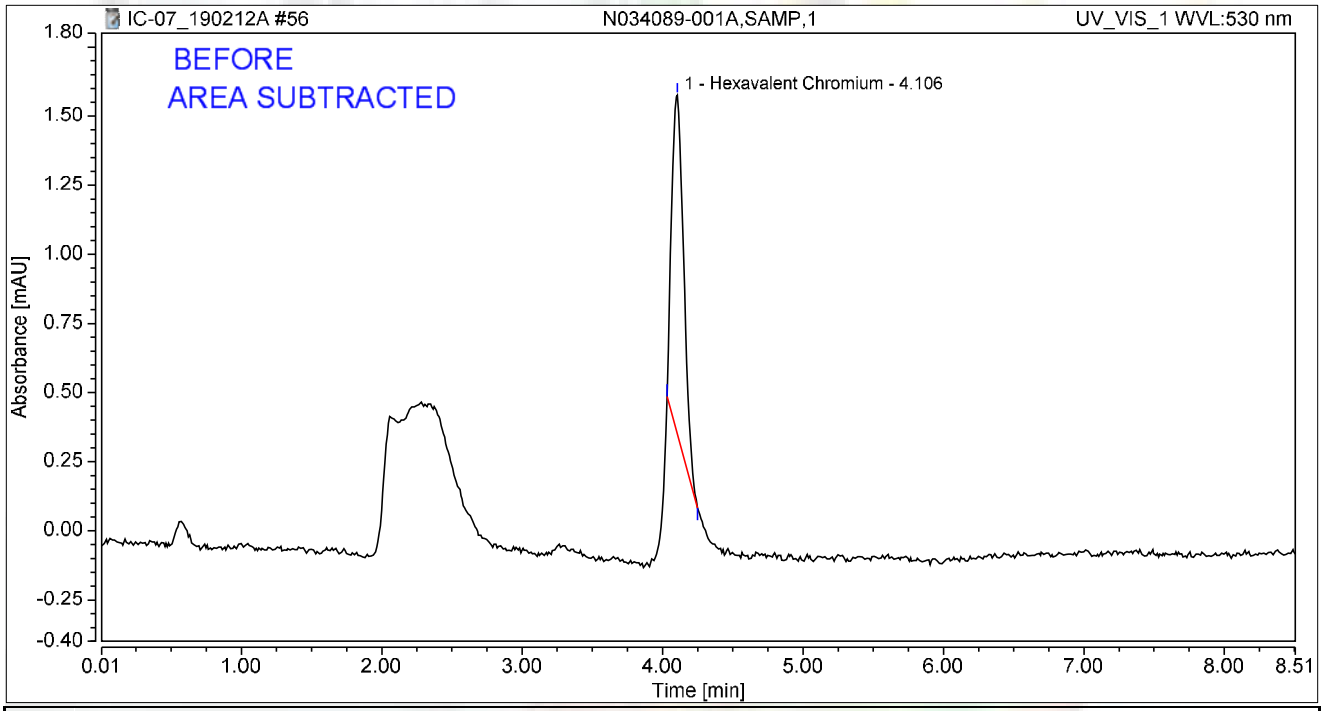
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034089-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 16:46** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.122 | 1.229 | 100.00 | 100.00 | 0.4244 |
| **Total:** | | | **0.122** | **1.229** | **100.00** | **100.00** | |

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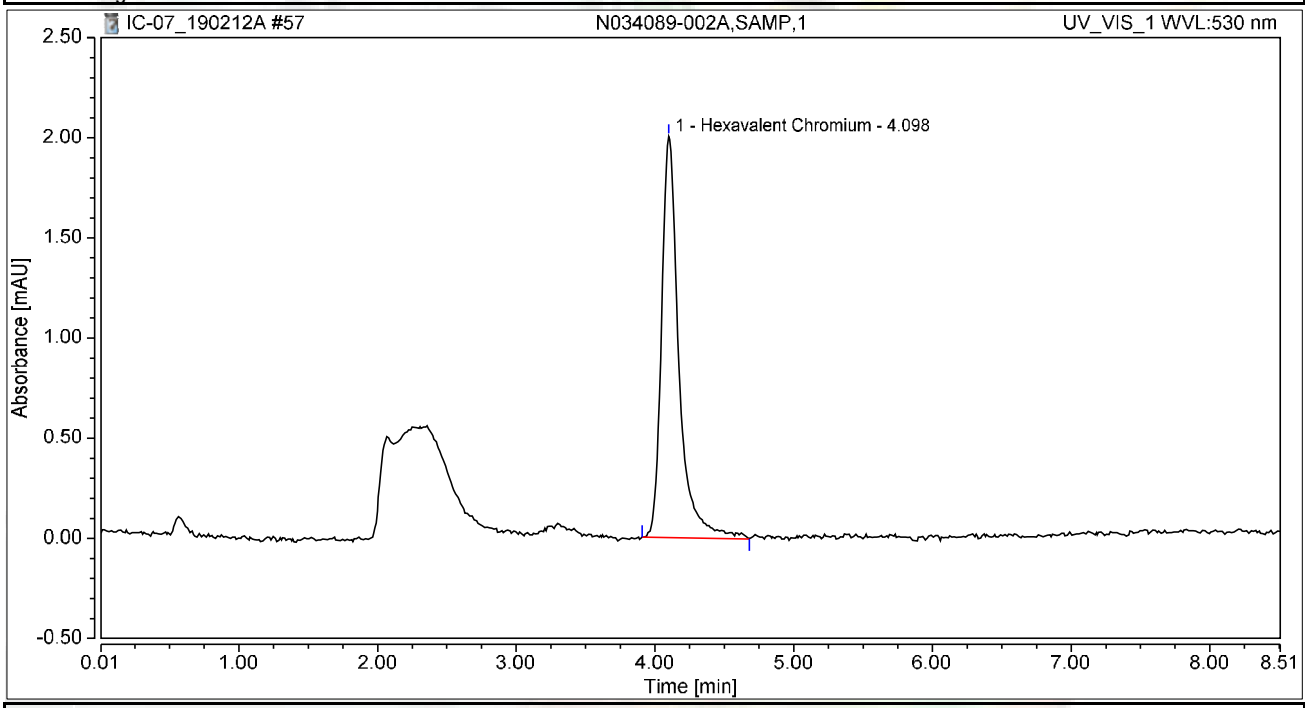
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034089-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 16:55** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

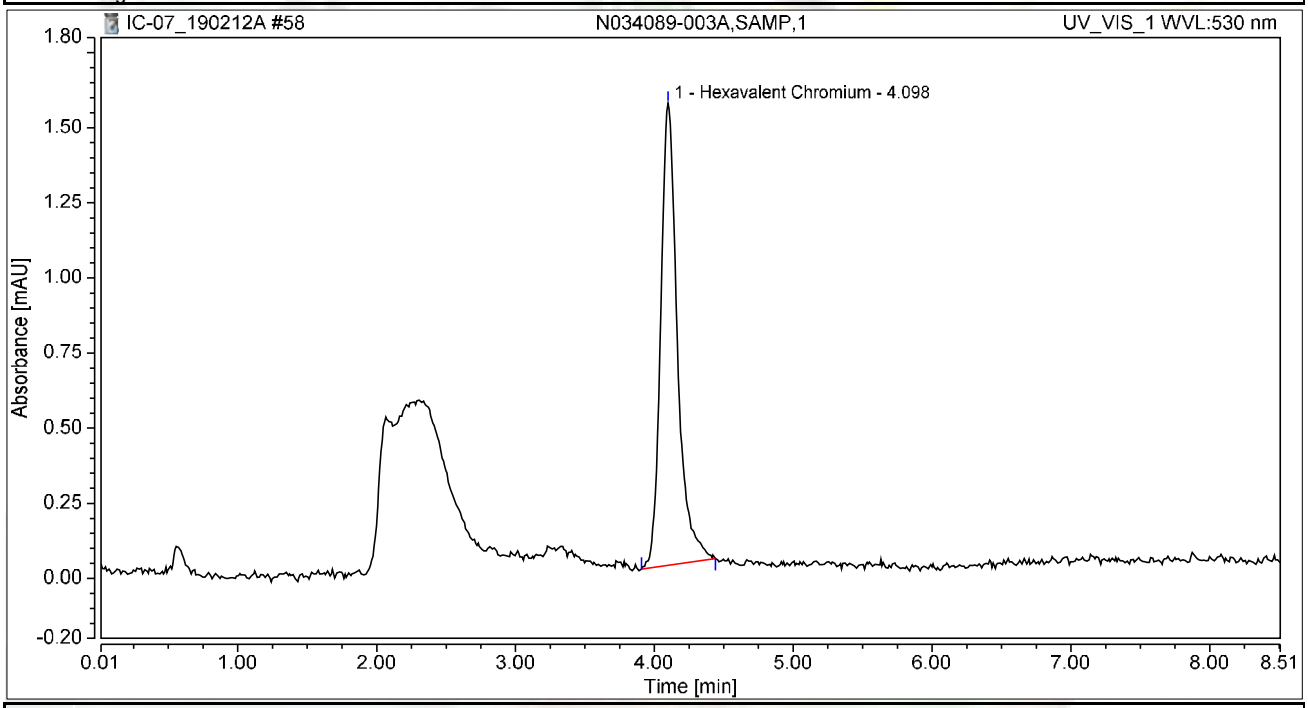
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.292 | 2.004 | 100.00 | 100.00 | 1.0166 |
| **Total:** | | | **0.292** | **2.004** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034089-003A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 17:05** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

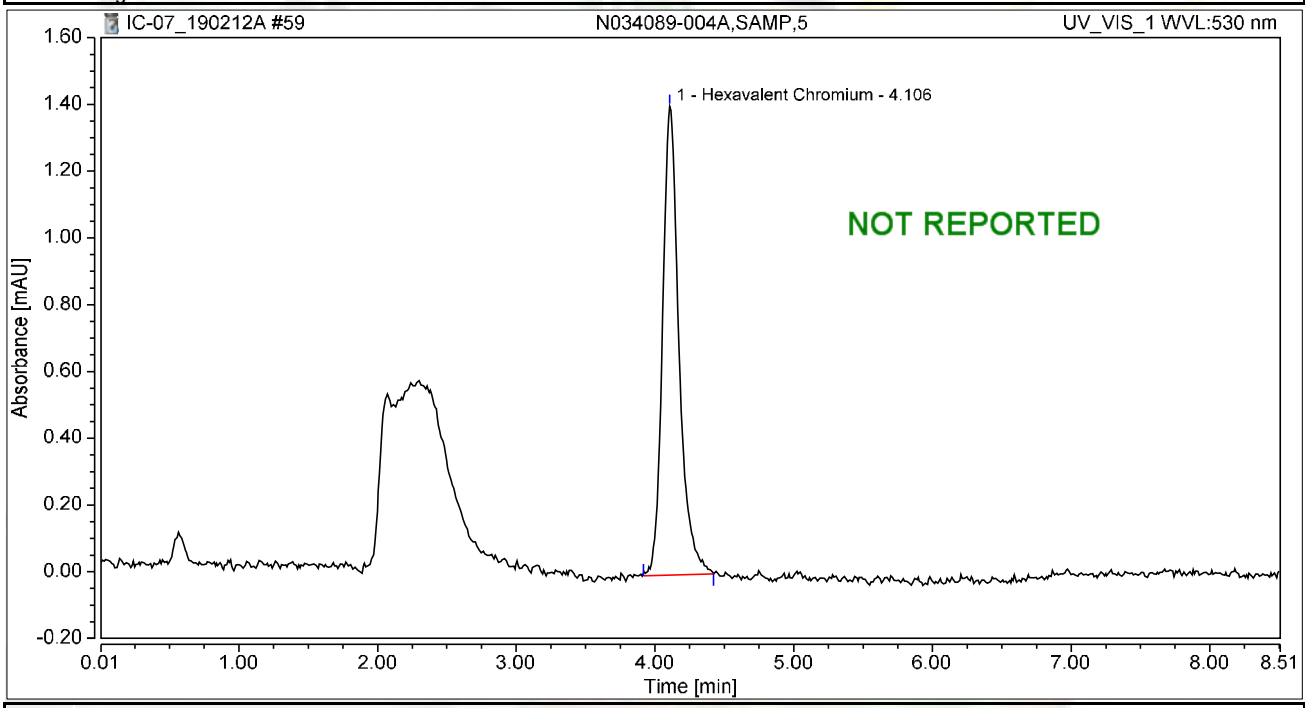
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.215 | 1.538 | 100.00 | 100.00 | 0.7468 |
| **Total:** | | | **0.215** | **1.538** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034089-004A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 17:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

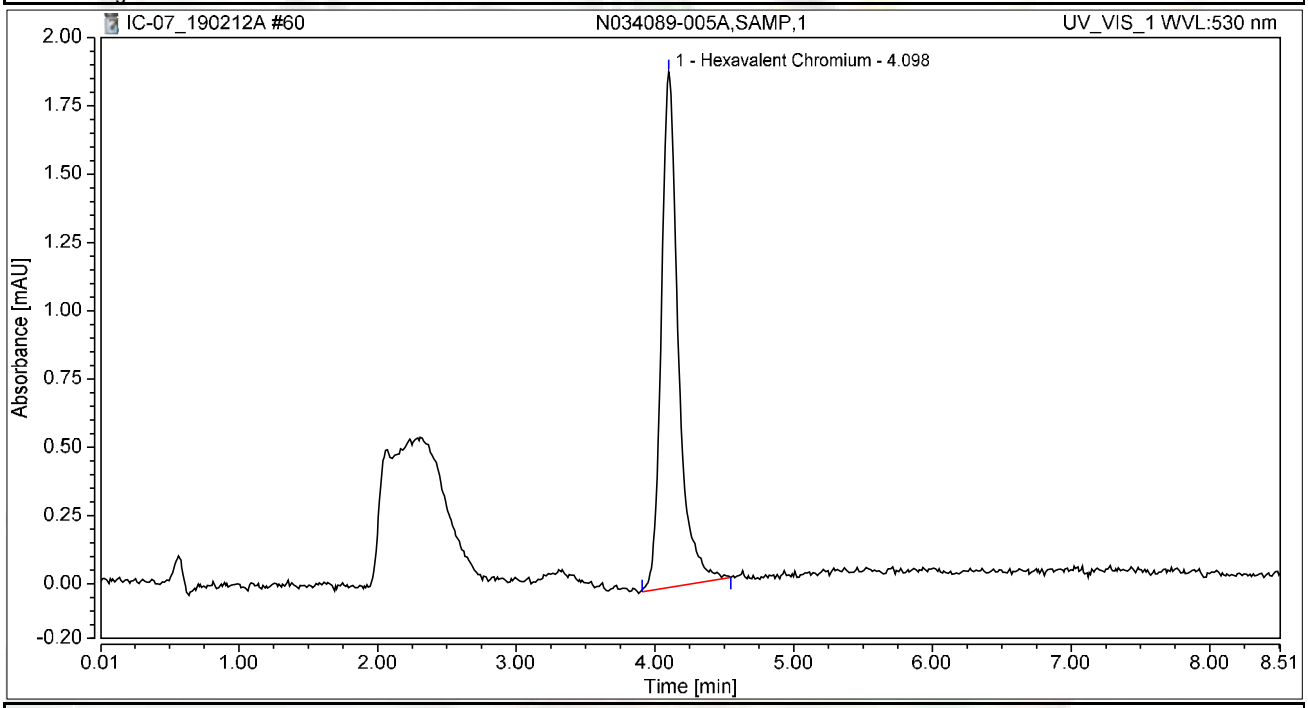
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.194 | 1.404 | 100.00 | 100.00 | 0.6750 |
| **Total:** | | | **0.194** | **1.404** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034089-005A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 17:24** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

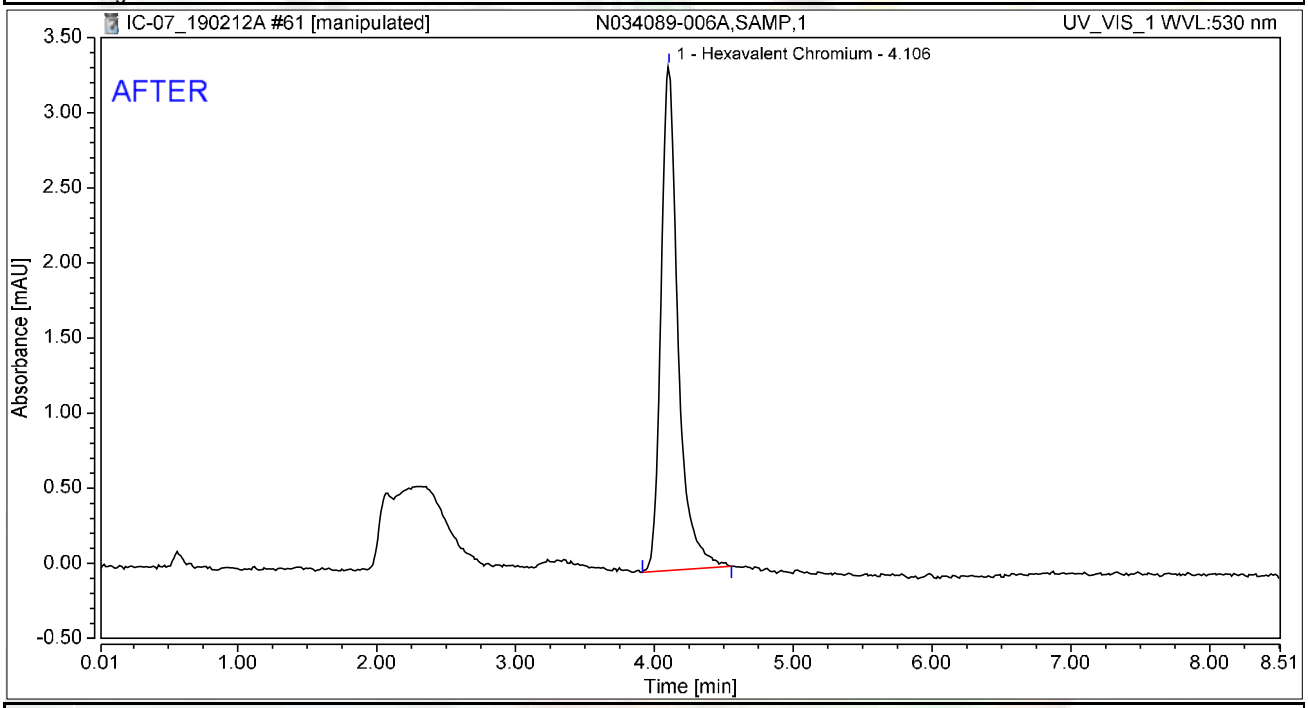
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.270 | 1.888 | 100.00 | 100.00 | 0.9397 |
| **Total:** | | | **0.270** | **1.888** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034089-006A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 17:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.479 | 3.361 | 100.00 | 100.00 | 1.6650 |
| **Total:** | | | **0.479** | **3.361** | **100.00** | **100.00** | |

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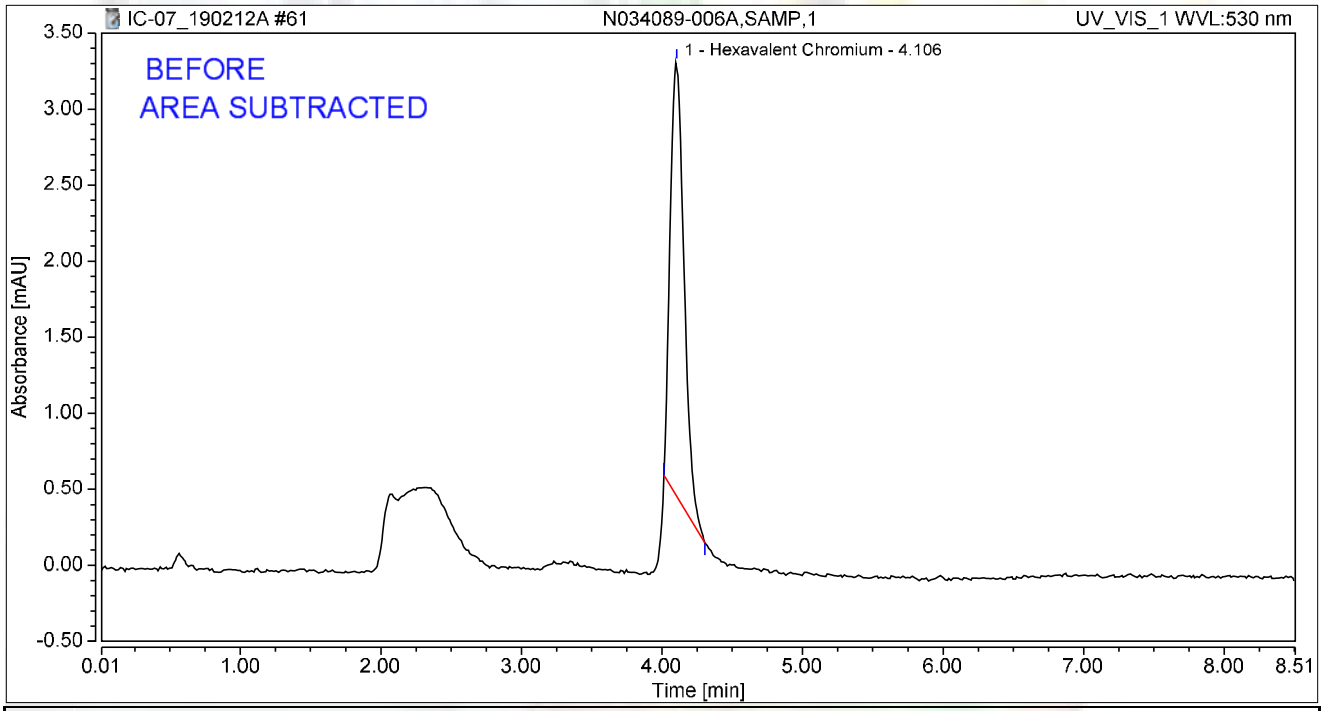
Reviewed by:
2/25/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034089-006A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 17:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.327 | 2.861 | 100.00 | 100.00 | 1.1373 |
| **Total:** | | | **0.327** | **2.861** | **100.00** | **100.00** | |

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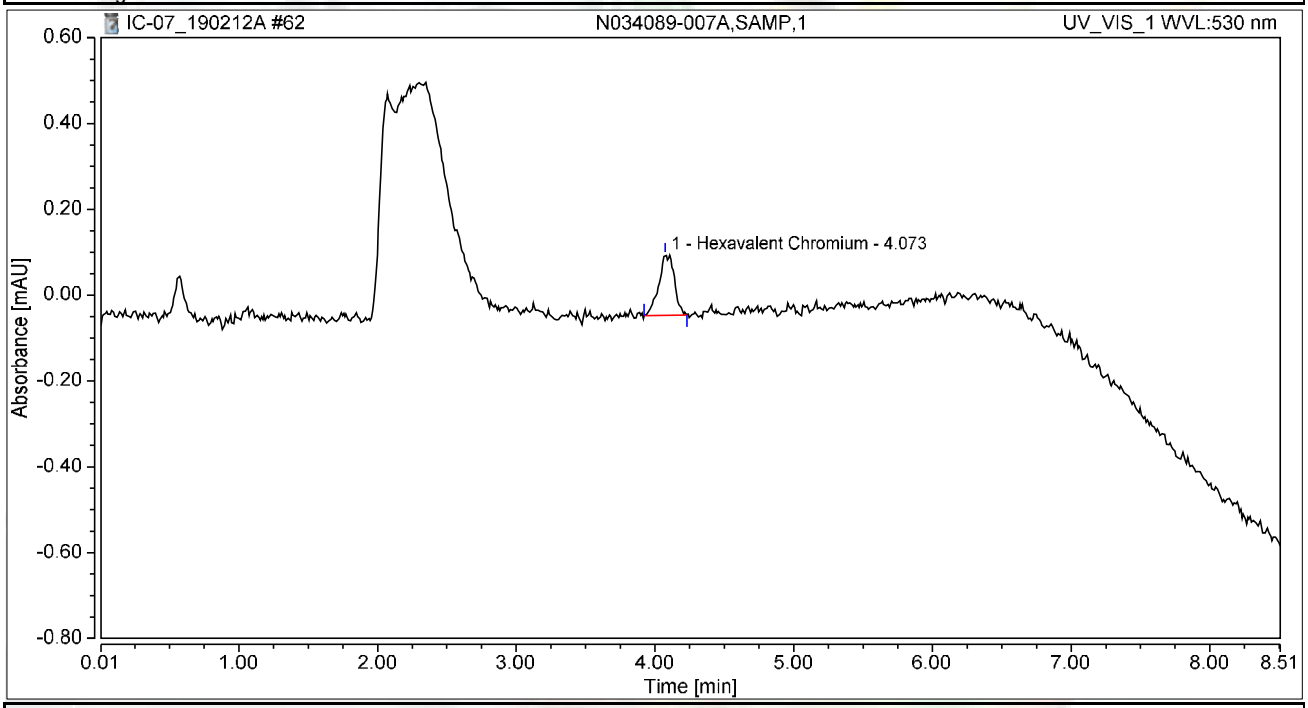
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034089-007A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 17:43** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

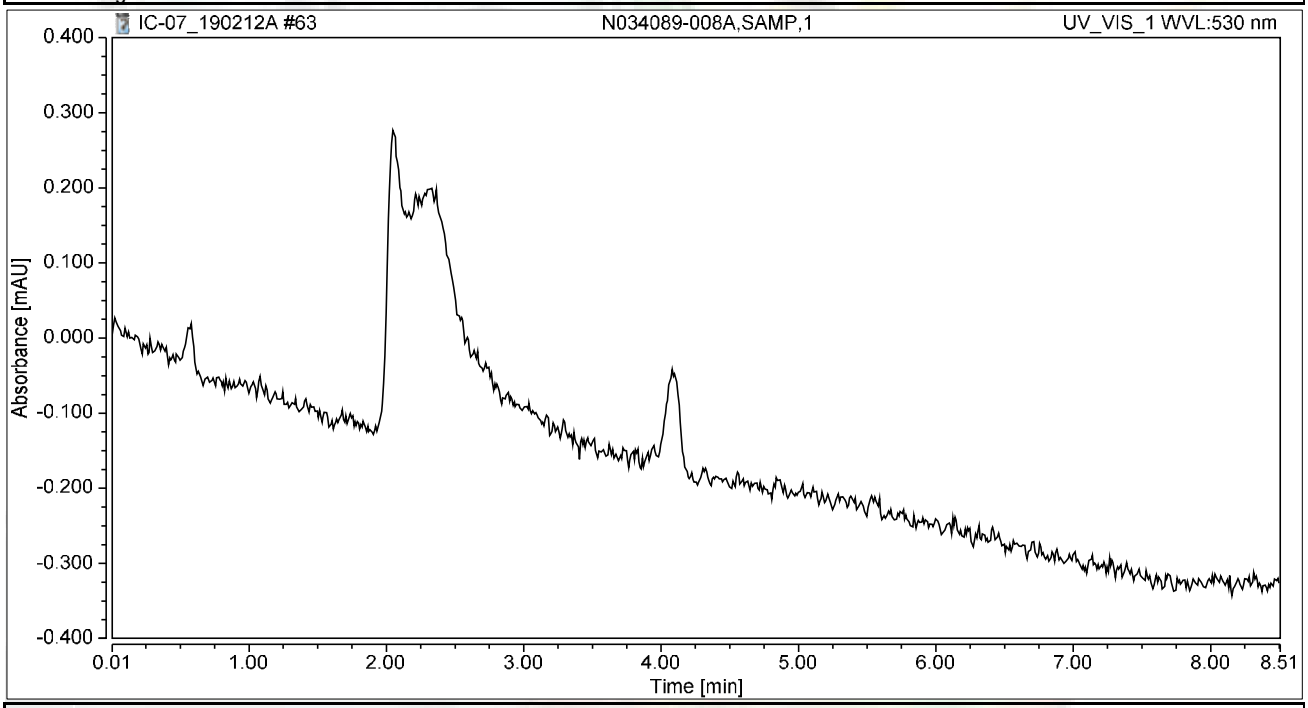
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 0.018 | 0.141 | 100.00 | 100.00 | 0.0641 |
| **Total:** | | | **0.018** | **0.141** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034089-008A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 17:52** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

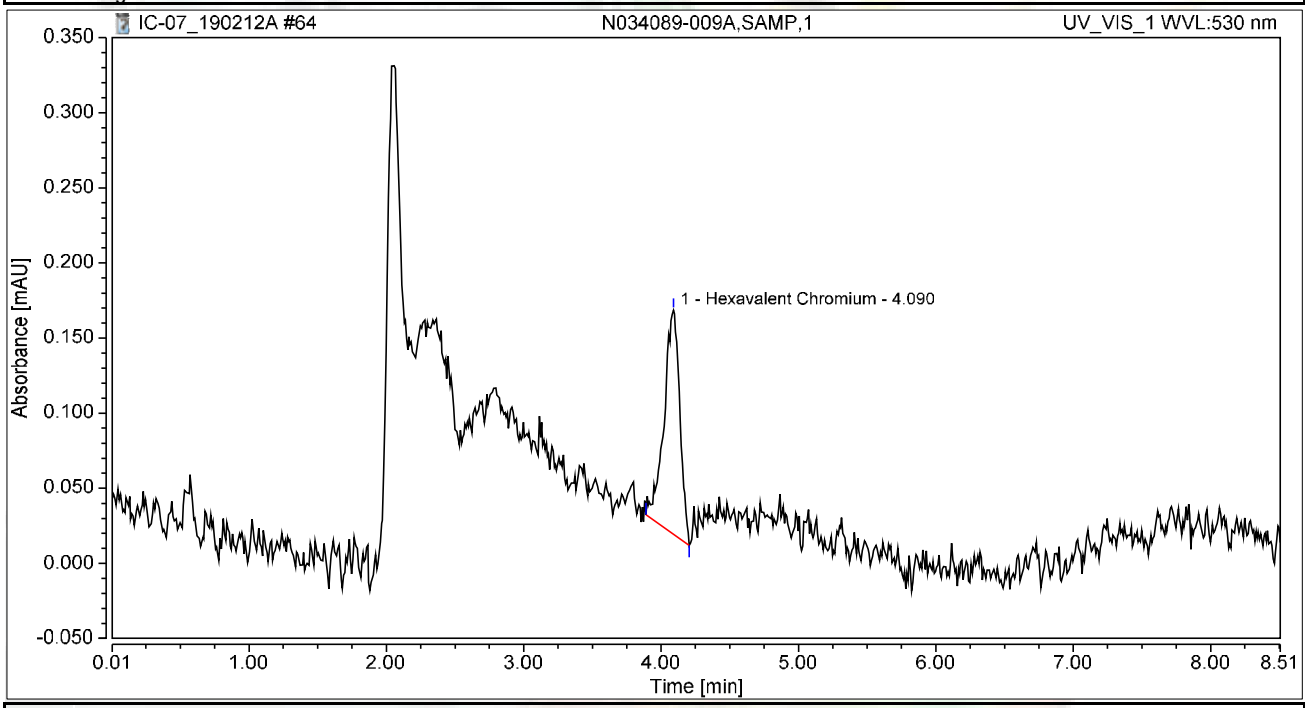
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034089-009A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 18:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

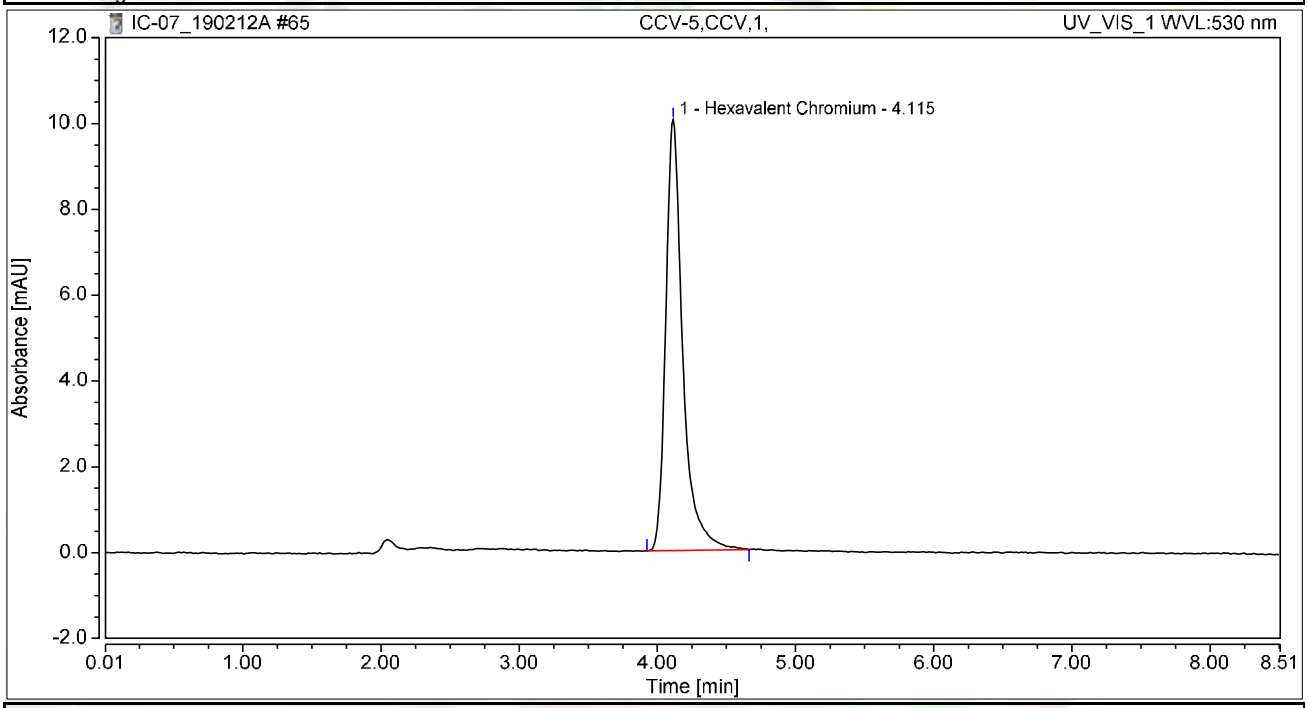
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.020 | 0.149 | 100.00 | 100.00 | 0.0689 |
| **Total:** | | | **0.020** | **0.149** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-5,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 18:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

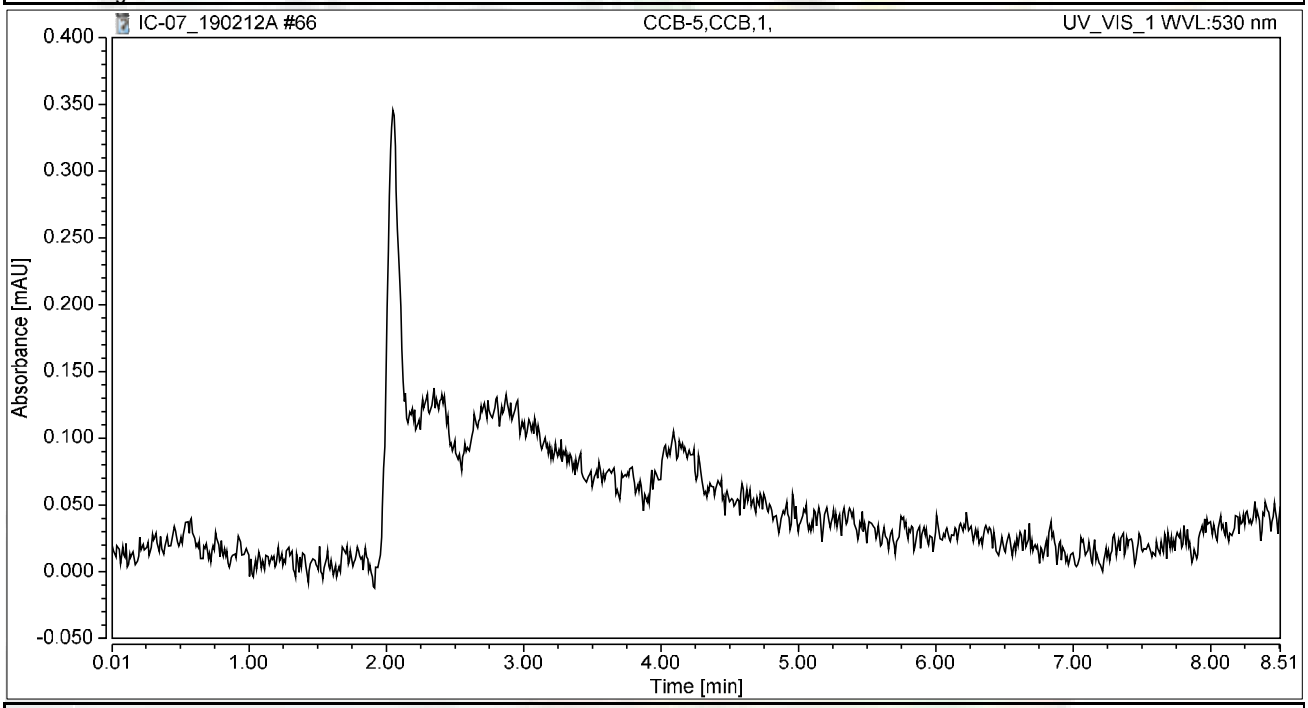
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 1.439 | 10.044 | 100.00 | 100.00 | 5.0059 |
| **Total:** | | | **1.439** | **10.044** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-5,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 18:20** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

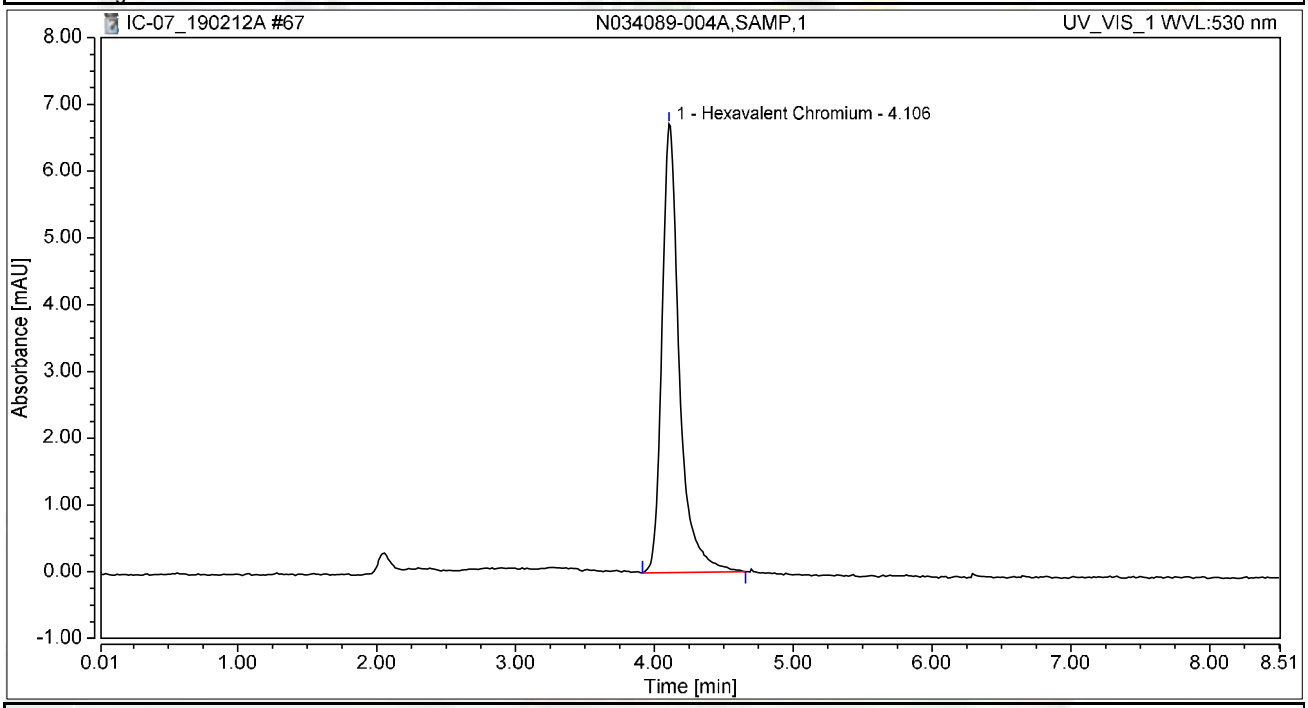
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034089-004A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 18:56** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

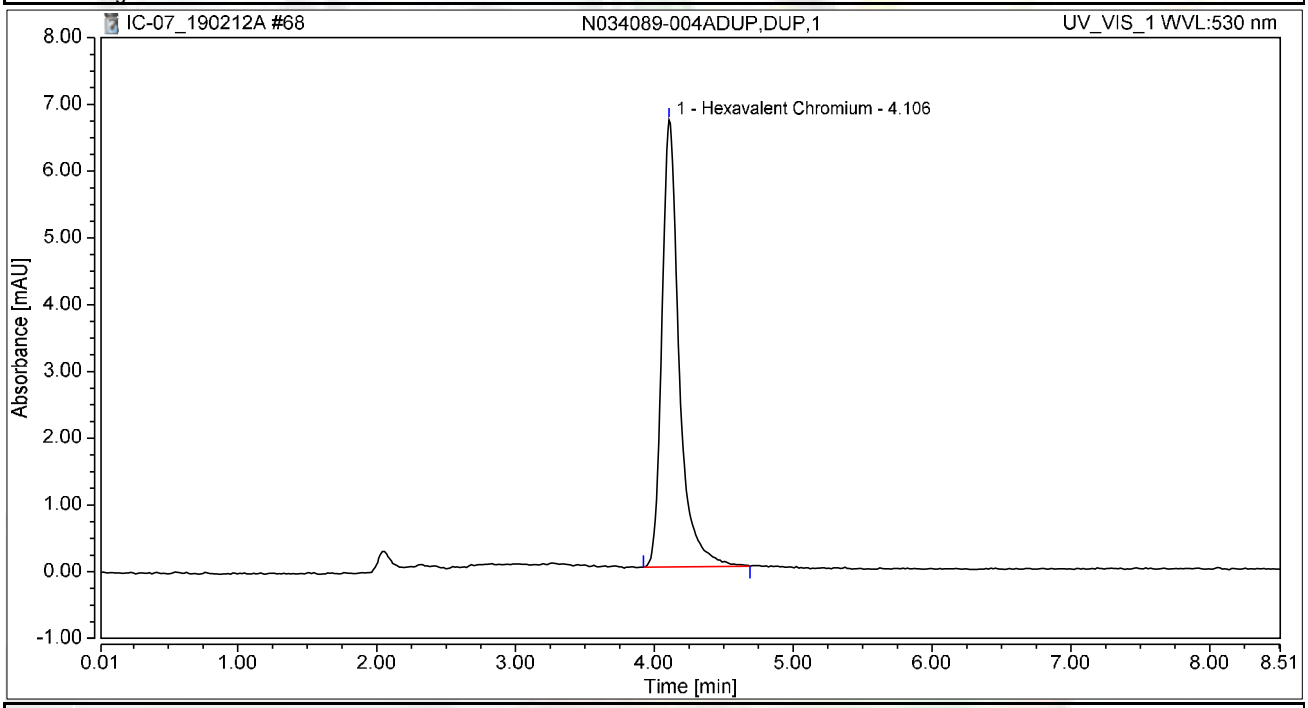
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.976 | 6.716 | 100.00 | 100.00 | 3.3949 |
| **Total:** | | | **0.976** | **6.716** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034089-004ADUP,DUP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 19:07** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

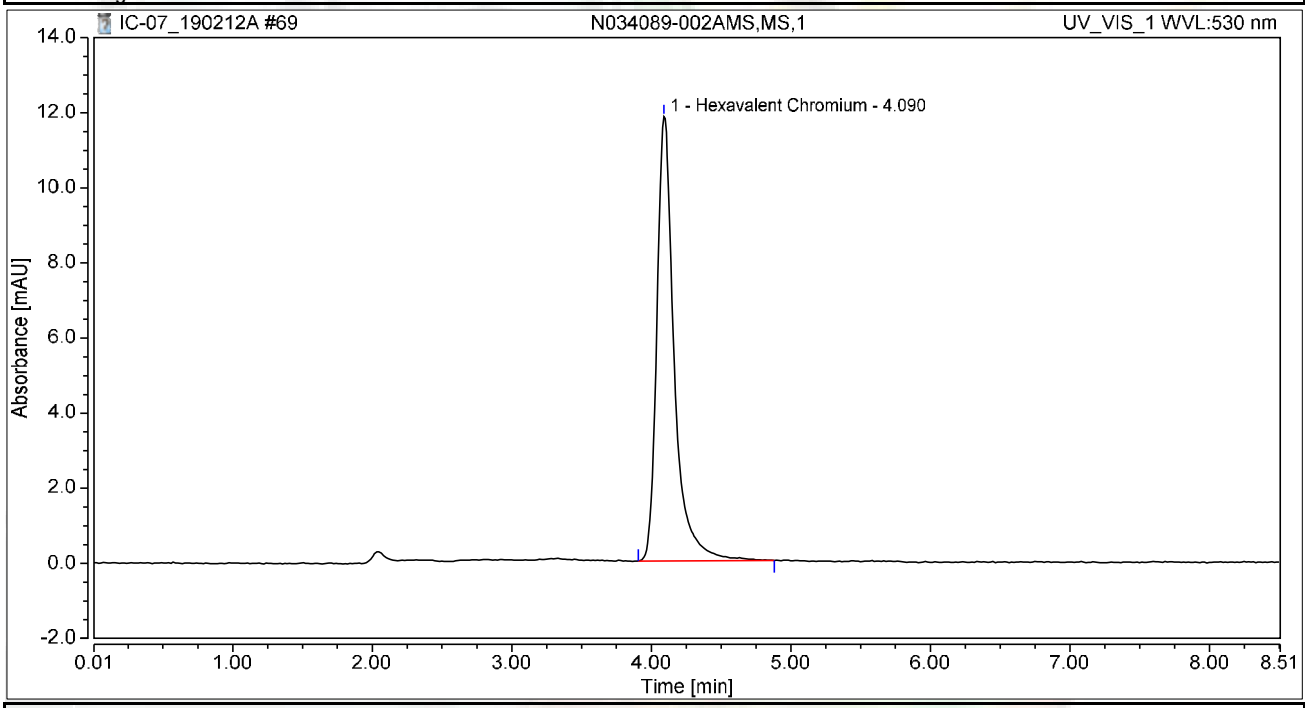
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.966 | 6.698 | 100.00 | 100.00 | 3.3615 |
| **Total:** | | | **0.966** | **6.698** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034089-002AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 19:16** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

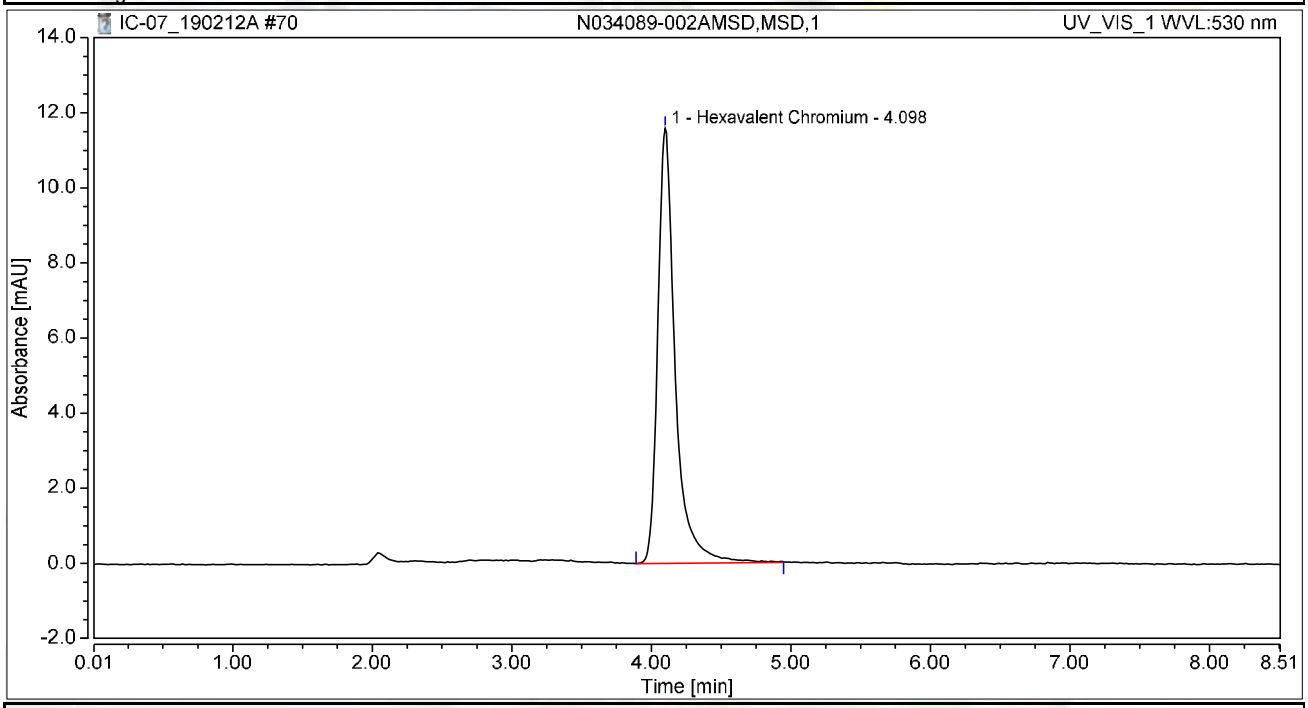
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 1.713 | 11.839 | 100.00 | 100.00 | 5.9620 |
| **Total:** | | | **1.713** | **11.839** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034089-002AMSD,MSD,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 19:26** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

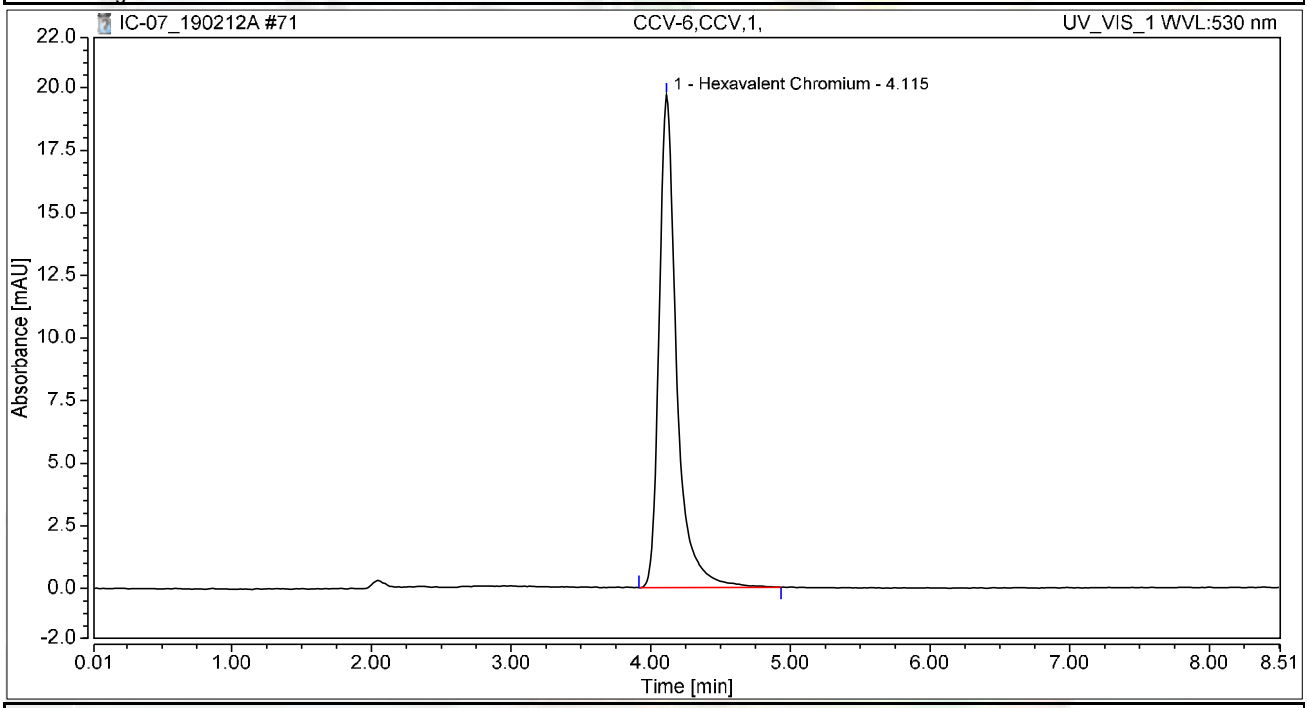
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.678 | 11.583 | 100.00 | 100.00 | 5.8403 |
| **Total:** | | | **1.678** | **11.583** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-6,CCV,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 19:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

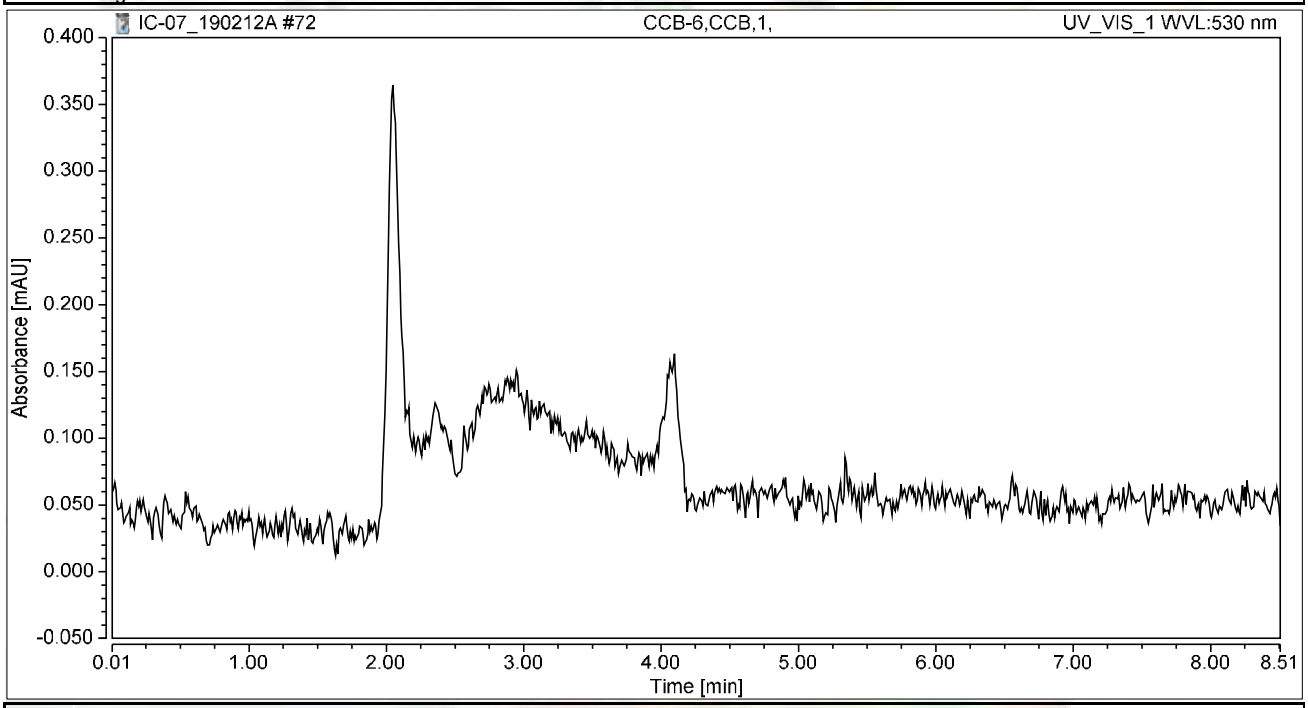
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 2.858 | 19.670 | 100.00 | 100.00 | 9.9459 |
| **Total:** | | | **2.858** | **19.670** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-6,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **12/Feb/19 19:45** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# SM 4500-NO3F

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R131800 **Analyst:** QBM

**ASSET #:** N034091 **Date Analyzed:** 2/13/2019

**Method:** SM 4500-NO3F

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | X | | | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | | | |
| 3. ICV within ± 15% of expected value. | X | | | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | X | | | | | |
| 5. CCV within ± 15% of expected value. | X | | | | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< PQL) | X | | | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | X | | | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | | | |
| 11. LCS compounds within control limits. | X | | | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer QBM Date: 2/22/19

2nd Level Reviewer 2/22/2019 Date:

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 4500N03F
**TEST NAME:** Nitrate/Nitrite-N by Automated Cadmium Reduction
**MATRIX:** Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

**Nitrate/Nitrite-N, mg/L= A * DF**

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N034091-002C**

The concentration in mg/L is calculated as follows:

**Nitrate/Nitrite-N** = 0.5549 * 5
= 2.7745 mg/L

Reporting result in two significant figures,

**Nitrate/Nitrite-N = 2.8 mg/L**

# INITIAL CALIBRATION DATA SUMMARY

## EPA 353.2 NO3 as N (NO3CD) - Endpoint

### General setup

| | |
|---|---|
| **Measuring unit** | **ppm** |
| **Number of decimals** | 4 |
| **Stabilization time (sec)** | 26 |
| **Measurement time (sec)** | 3 |
| **Sample volume (µl)** | 450 |
| **Filter** | 546 |
| **Reagent prime** | No |
| **CD Reduction** | Yes |

### Limits and dilution

| | |
|---|---|
| **Low level** | **-0.2** |
| **High level** | 4 |
| **Max linearity** | 4 |
| **Blank min** | 0 |
| **Blank max** | 0.049 |
| **Postdilution factor %** | 10 |
| **Factor Calculations** | No |

### Washes

| | |
|---|---|
| **Number of final washes** | 6 |
| **Wash every** | R1, R2 |

### O.D.Corrections

| | |
|---|---|
| **Carry Over** | **No** |
| **Carry Over value** | 0.0000 |
| **Blank** | No |
| **Gain** | No |

### Reagents

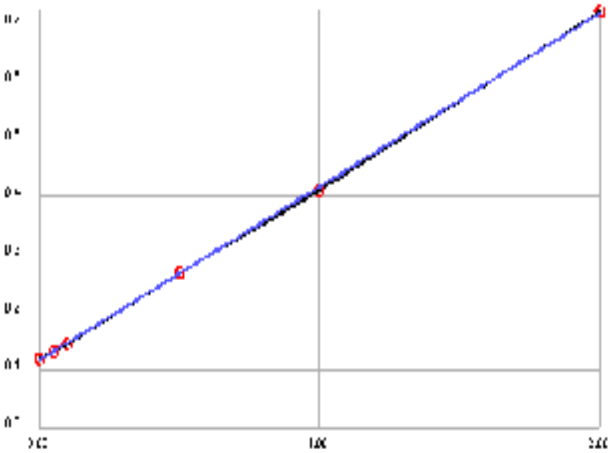
| N. | Volume (µl) | Incubation time (sec) |
|---|---|---|
| **1** | 200 | 102 |
| **2** | 300 | 663 |
| **3** | 0 | 0 |

### QC

| N. | Value | Tolerance |
|---|---|---|
| **1** | 1 | 0.1 |

## Calibration

| | |
|---|---|
| **Curve type** | Linear (Calibrants) |
| **Curve forced to zero** | No |
| **Blank inclusion** | No |



| | |
|---|---|
| **Formula** | y = 0.3004x + 0.1169 |
| **Correlation** | .999907 |

| Calibrant | Energy | Set | Conc |
|---|---|---|---|
| **1** | 0.1206 | 0.0000 | 0.0122 |
| **2** | 0.1320 | 0.0500 | 0.0502 |
| **3** | 0.1453 | 0.1000 | 0.0944 |
| **4** | 0.2678 | 0.5000 | 0.5023 |
| **5** | 0.4120 | 1.0000 | 0.9824 |
| **6** | 0.7202 | 2.0000 | 2.0085 |

**Notes:**

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131800** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131800** | TestNo: **SM4500-NO3** | | Analysis Date: **2/13/2019** | SeqNo: **3287841** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.518 | 0.050 | 0.5000 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131800** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131800** | TestNo: **SM4500-NO3** | | Analysis Date: **2/13/2019** | SeqNo: **3287851** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.461 | 0.050 | 0.5000 | 0 | 92.3 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131800** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131800** | TestNo: **SM4500-NO3** | | Analysis Date: **2/13/2019** | SeqNo: **3287842** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131800** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131800** | TestNo: **SM4500-NO3** | | Analysis Date: **2/13/2019** | SeqNo: **3287852** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

**Advanced Technology Laboratories, Inc.**

**3151 W. Post Rd.**
**Las Vegas, NV. 89118**
**702-307-2659**
**702-307-2691**
**www.atl-labs.com**

**Time start: 02-13-2019 15:36**
**Time end: 02-13-2019 17:11**

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 1 | <BLANK> | 16:52:21 | -0.0028 | | 0.1161 |
| 2 | <BLANK> | 16:53:21 | 0.0006 | | 0.1171 |
| 3 | <BLANK> | 16:54:15 | 0.0039 | | 0.1181 |
| 4 | <CAL1> | 16:55:17 | 0.0122 | [0] | 0.1206 |
| 5 | <CAL2> | 16:56:00 | 0.0502 | [0.05] | 0.1320 |
| 6 | <CAL3> | 16:56:48 | 0.0944 | [0.1] | 0.1453 |
| 7 | <CAL4> | 16:57:32 | 0.5023 | [0.5] | 0.2678 |
| 8 | <CAL5> | 16:58:21 | 0.9824 | [1] | 0.4120 |
| 9 | <CAL6> | 16:59:03 | 2.0085 | [2] | 0.7202 |
| 10 | ,BLANK,BLANK,1, NOT REPORTED | 16:59:46 | 0.0648 | | 0.1364 |
| 11 | ,ICV,ICV,1, | 17:00:34 | 0.5183 | | 0.2726 |
| 12 | ,ICB,ICB,1, | 17:01:18 | 0.0205 | | 0.1231 |
| 13 | ,MB-H2O,MBLK,1, | 17:02:00 | -0.0008 | | 0.1167 |
| 14 | ,LCS-H2O,LCS,1, | 17:02:49 | 0.5013 | | 0.2675 |
| 15 | ,N034091-002C,SAMP,5, | 17:03:31 | 0.5549 | | 0.2836 |
| 16 | ,N034091-003C,SAMP,1, | 17:04:15 | 0.7367 | | 0.3382 |
| 17 | ,N034091-003CDUP,DUP,1, | 17:05:04 | 0.6907 | | 0.3244 |
| 18 | ,N034091-004C,SAMP,10, | 17:05:46 | 0.4680 | | 0.2575 |
| 19 | ,N034091-004CMS,MS,10, | 17:06:29 | 0.9331 | | 0.3972 |
| 20 | ,N034091-004CMSD,MSD,10, | 17:07:17 | 0.9597 | | 0.4052 |
| 21 | ,BLANK, NOT REPORTED | 17:08:01 | 0.0202 | | 0.1230 |
| 22 | ,CCV-1,CCV,1, | 17:08:49 | 0.4613 | | 0.2555 |
| 23 | ,CCB-1,CCB,1, | 17:09:32 | 0.0085 | | 0.1195 |

**Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog**

## Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 2/13/2019
Time Analyzed: 3:36 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190129B
Color reagent: R190129C
2% Copper Sulfate: R190129A
Ammonium Hydroxide: CINV-190102A

| Sample ID. | Sample Wt./Vol. | Sample pH | Std Code | Spike Amt Added (mL) | Spike Conc.(PPM) | Final Volume (mL) | Dilution (F/I) | Reading & Calculations (mg/L) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| N034091-002C | | 8.73 | | | | | | | |
| N034091-003C | | 8.36 | | | | | | | |
| N034091-004C | | 8.25 | | | | | | | |
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Advanced Technology Laboratories, Inc.
Book # 1

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

| Analyte | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Ave | SD | $t_{(n-1)}$ value | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.0573 | 0.0562 | 0.0500 | 0.0730 | 0.0698 | 0.0637 | 0.0564 | 0.0609 | 0.0082 | 3.143 | 0.0259 | 0.05 |
| **Method Blank** | | | | | | | | | | | | |
| Nitrate/Nitrite as N | 0.0160 | 0.0067 | 0.0064 | 0.0204 | 0.0173 | 0.0036 | 0.0083 | 0.0112 | 0.0065 | 3.143 | 0.0317 | 0.05 |

**MDL:** **0.0317** **mg/L**

# EPA 6020
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72457
**ASSET #:** N034091
**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 2/14/2019

**Method:**

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | | X | | | X | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | | X | | | X | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | X | | | X | | |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | X | | | X | | |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | X | | | X | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

% Rec of Cr in N034091-002B PS/MS/MSD failed, low bias. However, LCS passed criteria.
% IS and RSD of Se in N034091-003B failed. For rerun
Cr is OLR in N034091-004B. For dilution.
Dilution test of Mn failed. However, PS passed criteria.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: —

2nd Level Reviewer 2/27/2019 Date: —

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72457
**ASSET #:** N034091

**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 2/15/2019

**Method:**

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | | X | | | X | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | X | | | X | | |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | X | | | X | | |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | X | | | X | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

Cr and Se rerun
% RSD of Se in ICV failed. Samples are for rerun.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: —

2nd Level Reviewer 2/27/2019 Date: —

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72457
**ASSET #:** N034091

**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 2/25/2019

**Method:**

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | X |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | X |
| 24. LCS compounds within control limits. | X | | | X | | X |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | X |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

Se rerun

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: ~

2nd Level Reviewer 2/27/2019 Date: →

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA 6020
**TEST NAME:** Heavy Metals by ICP-MS
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Molybdenum concentration, in ug/L , in the original sample as follows:

Molybdenum , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N034091-002B** , the concentration in ug/L is calculated as follows:

Molybdenum , ug/L = 38.289 * 1 *(25/25)

Molybdenum , ug/L = 38.289

Reporting results in two significant figures,

**Molybdenum, ug/L = 38**

NS 2/27/2019

# % RSD SUMMARY

**PERCENT RSD SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 52 Cr [2] | | | | 55 Mn [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.082 | 8.17 | 15 | PASS | 0.1 | 13.6 | 15 | PASS |
| Std2-0.5/5 ppb | ICAL | 1 | 0.5 | 0.8 | 15 | PASS | 0.49 | 11.13 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 5.063 | 2.05 | 15 | PASS | 4.98 | 0.89 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.15 | 1.086 | 15 | PASS | 10.17 | 3.017 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.31 | 1.82 | 15 | PASS | 20.59 | 2.23 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.43 | 1.29 | 15 | PASS | 40.65 | 0.5 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.86 | 0.7 | 15 | PASS | 100.22 | 1.54 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.44 | 1.81 | 15 | PASS | 199.7 | 1.31 | 15 | PASS |
| ICV | ICV | 1 | 10.4 | 0.08 | 15 | PASS | 106.21 | 1.025 | 15 | PASS |
| ICB | ICB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LLICV | CCV1 | 1 | 1.068 | 6.95 | 20 | PASS | 0.67 | 13.52 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 18.051 | 1.19 | 15 | PASS | 18.046 | 0.4 | 15 | PASS |
| LLICV | CCV1 | 1 | 1.051 | 4.44 | 20 | PASS | 0.55 | 15.28 | 20 | PASS |
| CCV1 | CCV | 1 | 20.062 | 0.49 | 15 | PASS | 20.34 | 1.19 | 15 | PASS |
| CCB1 | CCB | 1 | 0.0028 | 290.38 | 15 | <PQL | 0.0058 | 144.058 | 15 | <PQL |
| CCV2 | CCV | 1 | 20.038 | 2.65 | 15 | PASS | 20.18 | 2.45 | 15 | PASS |
| CCB2 | CCB | 1 | 0.013 | 89.46 | 15 | <PQL | 0.013 | 57.64 | 15 | <PQL |
| MB-72457 | MBLK | 1 | 0.018 | 79.37 | 15 | <PQL | 0.033 | 67.98 | 15 | <PQL |
| LCS-72457 | LCS | 1 | 9.92 | 1.82 | 15 | PASS | 104.94 | 1.58 | 15 | PASS |
| N034091-002B | SAMP | 1 | 34.0043 | 1.33 | 15 | PASS | 20.18 | 2.62 | 15 | PASS |
| N034091-002B | SAMP | 5 | 7.31 | 0.29 | 15 | PASS | 4.5 | 3.43 | 15 | PASS |
| CCV3 | CCV | 1 | 19.47 | 1.11 | 15 | PASS | 19.87 | 2.57 | 15 | PASS |
| CCB3 | CCB | 1 | 0.0079 | 103.63 | 15 | <PQL | 0.027 | 13.11 | 15 | PASS |
| N034091-002B-PS | PS | 1 | 39.42 | 1.33 | 15 | PASS | 117.37 | 1.14 | 15 | PASS |
| N034091-002B-MS | MS | 1 | 40.36 | 1.17 | 15 | PASS | 117.29 | 0.26 | 15 | PASS |
| N034091-002B-MSD | MSD | 1 | 40.44 | 2.64 | 15 | PASS | 117.24 | 1.99 | 15 | PASS |
| N034091-003B | SAMP | 1 | 91.51 | 1.93 | 15 | PASS | 48.16 | 2.073 | 15 | PASS |
| N034091-004B | SAMP | 1 | 541.018 | 1.19 | 15 | PASS | 2.52 | 2.88 | 15 | PASS |
| N034102-002B | SAMP | 1 | 1.29 | 2.94 | 15 | PASS | 136.3 | 0.69 | 15 | PASS |
| N034102-003B | SAMP | 1 | 0.073 | 35.39 | 15 | <PQL | 140.74 | 0.63 | 15 | PASS |
| N034102-004B | SAMP | 1 | 5.41 | 2.17 | 15 | PASS | 43.15 | 0.44 | 15 | PASS |
| N034105-001B | SAMP | 1 | 1.19 | 1.032 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034105-002B | SAMP | 1 | 5.73 | 1.19 | 15 | PASS | 8.9 | 2.091 | 15 | PASS |
| CCV4 | CCV | 1 | 20.089 | 0.59 | 15 | PASS | 19.63 | 1.85 | 15 | PASS |
| CCB4 | CCB | 1 | 0.015 | 93.85 | 15 | <PQL | 0.0087 | 71.95 | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 17.9 | 1.81 | 15 | PASS | 17.7 | 3.36 | 15 | PASS |
| N034105-003B | SAMP | 1 | 2 | 2.7 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034105-004B | SAMP | 1 | 5.97 | 0.83 | 15 | PASS | 8.92 | 3.32 | 15 | PASS |

**PERCENT RSD SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 52 Cr [2] | | | | 55 Mn [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034106-001B | SAMP | 1 | 5.21 | 1.54 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034106-002B | SAMP | 1 | 3.047 | 2.92 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034106-003B | SAMP | 1 | 9.68 | 0.91 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034106-004B | SAMP | 1 | 8.52 | 2.54 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034106-005B | SAMP | 1 | 10.13 | 1.3 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034106-006B | SAMP | 1 | 2.62 | 0.59 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034106-007B | SAMP | 1 | 4.29 | 1.93 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034106-008B | SAMP | 1 | 9.93 | 0.66 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV5 | CCV | 1 | 19.97 | 0.72 | 15 | PASS | 19.79 | 0.39 | 15 | PASS |
| CCB5 | CCB | 1 | 0.018 | 40.54 | 15 | <PQL | 0.011 | 38.33 | 15 | <PQL |
| N034106-009B | SAMP | 1 | 21.11 | 1.39 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV6 | CCV | 1 | 19.88 | 0.82 | 15 | PASS | 19.87 | 2.41 | 15 | PASS |
| CCB6 | CCB | 1 | 0.0089 | 52.87 | 15 | <PQL | 0.0062 | 63.094 | 15 | <PQL |
| CCV7 | CCV | 1 | 20.083 | 2.54 | 15 | PASS | 19.77 | 1.61 | 15 | PASS |
| CCB7 | CCB | 1 | 0.0034 | 106.92 | 15 | <PQL | 0.0065 | 115.38 | 15 | <PQL |
| CCV8 | CCV | 1 | 20.024 | 0.71 | 15 | PASS | 20.014 | 1.9 | 15 | PASS |
| CCB8 | CCB | 1 | 0.0074 | 67.28 | 15 | <PQL | 0.0078 | 86.52 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 18.23 | 1.17 | 15 | PASS | 17.76 | 2.19 | 15 | PASS |
| CCV9 | CCV | 1 | 19.61 | 2.26 | 15 | PASS | 19.52 | 1.58 | 15 | PASS |
| CCB9 | CCB | 1 | 0.019 | 40.53 | 15 | <PQL | 0.043 | 8.32 | 15 | PASS |
| CCV10 | CCV | 1 | 20.058 | 2.41 | 15 | PASS | 20.13 | 2.13 | 15 | PASS |
| CCB10 | CCB | 1 | 0.0085 | 98.12 | 15 | <PQL | 0.02 | 52.16 | 15 | <PQL |
| ICSA4 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 17.61 | 0.17 | 15 | PASS | 17.73 | 2.31 | 15 | PASS |

**PERCENT RSD SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 75 As [2] | | | | 78 Se [1] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.069 | 37.2 | 15 | <PQL | 0.17 | 95.13 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.55 | 10.25 | 15 | PASS | 0.56 | 30.9 | 15 | NR! |
| Std3-5/50 ppb | ICAL | 1 | 4.99 | 2.7 | 15 | PASS | 4.59 | 18.045 | 15 | NR! |
| Std4-10/100 ppb | ICAL | 1 | 9.98 | 1.51 | 15 | PASS | 9.56 | 3.62 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.65 | 1.6 | 15 | PASS | 21.48 | 7.7 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 39.77 | 1.27 | 15 | PASS | 39.71 | 4.47 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 101.19 | 1.25 | 15 | PASS | 99.89 | 1.93 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.49 | 0.78 | 15 | PASS | 204.5 | 2.083 | 15 | PASS |
| ICV | ICV | 1 | 9.96 | 1.14 | 15 | PASS | 10.3 | 8.74 | 15 | PASS |
| ICB | ICB | 1 | <0.000 | N/A | 15 | <PQL | 0.02 | 173.21 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.082 | 59.15 | 20 | <PQL | 0.5 | 5.79 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.059 | 173.21 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 19.13 | 2.12 | 15 | PASS | 17.74 | 2.67 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.062 | 26.78 | 20 | <PQL | 0.46 | 29.32 | 20 | <PQL |
| CCV1 | CCV | 1 | 19.66 | 2.35 | 15 | PASS | 19.69 | 5.14 | 15 | PASS |
| CCB1 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.053 | 99.92 | 15 | <PQL |
| CCV2 | CCV | 1 | 19.35 | 0.64 | 15 | PASS | 18.87 | 5.91 | 15 | PASS |
| CCB2 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.1 | 91.76 | 15 | <PQL |
| MB-72457 | MBLK | 1 | 0.0061 | 210.26 | 15 | <PQL | 0.024 | 173.21 | 15 | <PQL |
| LCS-72457 | LCS | 1 | 9.71 | 4.044 | 15 | PASS | 10.3 | 13.47 | 15 | PASS |
| N034091-002B | SAMP | 1 | 1.5 | 7.37 | 15 | PASS | 3.38 | 2.3 | 15 | PASS |
| N034091-002B | SAMP | 5 | 0.33 | 22.0011 | 15 | NR! | 0.91 | 32.71 | 15 | NR! |
| CCV3 | CCV | 1 | 18.85 | 3.12 | 15 | PASS | 19.35 | 2.19 | 15 | PASS |
| CCB3 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| N034091-002B-PS | PS | 1 | 12.027 | 3.38 | 15 | PASS | 13.47 | 8.76 | 15 | PASS |
| N034091-002B-MS | MS | 1 | 12.2 | 1.55 | 15 | PASS | 13.11 | 1.26 | 15 | PASS |
| N034091-002B-MSD | MSD | 1 | 11.86 | 0.066 | 15 | PASS | 13.061 | 7.54 | 15 | PASS |
| N034091-003B | SAMP | 1 | 11.41 | 2.31 | 15 | PASS | 1.031 | 44.75 | 15 | NR! |
| N034091-004B | SAMP | 1 | 1.67 | 3.11 | 15 | PASS | 4.59 | 10.41 | 15 | PASS |
| N034102-002B | SAMP | 1 | 11.62 | 3.77 | 15 | PASS | 0.13 | 47.72 | 15 | <PQL |
| N034102-003B | SAMP | 1 | 11.43 | 0.48 | 15 | PASS | 0.11 | 92.22 | 15 | <PQL |
| N034102-004B | SAMP | 1 | 16.28 | 2.23 | 15 | PASS | 0.41 | 48.94 | 15 | <PQL |
| N034105-001B | SAMP | 1 | 2.57 | 7.73 | 15 | PASS | 0.41 | 33.73 | 15 | <PQL |
| N034105-002B | SAMP | 1 | 1.46 | 3.62 | 15 | PASS | 0.28 | 42.96 | 15 | <PQL |
| CCV4 | CCV | 1 | 18.7 | 2.13 | 15 | PASS | 18.19 | 5.74 | 15 | PASS |
| CCB4 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.09 | 91.1 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 19.054 | 2.15 | 15 | PASS | 17.077 | 4.94 | 15 | PASS |
| N034105-003B | SAMP | 1 | 0.38 | 16.73 | 15 | NR! | 1.25 | 9.45 | 15 | PASS |
| N034105-004B | SAMP | 1 | 0.34 | 17.21 | 15 | NR! | 1.063 | 11.95 | 15 | PASS |

**PERCENT RSD SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 75 As [2] | | | | 78 Se [1] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034106-001B | SAMP | 1 | 0.31 | 18.95 | 15 | NR! | 0.81 | 28.45 | 15 | NR! |
| N034106-002B | SAMP | 1 | 0.41 | 13.8 | 15 | PASS | 1.15 | 28.086 | 15 | NR! |
| N034106-003B | SAMP | 1 | 0.43 | 12.71 | 15 | PASS | 0.66 | 10.033 | 15 | PASS |
| N034106-004B | SAMP | 1 | 0.51 | 5.96 | 15 | PASS | 0.45 | 38.53 | 15 | <PQL |
| N034106-005B | SAMP | 1 | 0.4 | 19.062 | 15 | NR! | 0.53 | 42.52 | 15 | NR! |
| N034106-006B | SAMP | 1 | 0.49 | 13.73 | 15 | PASS | 2.048 | 10.34 | 15 | PASS |
| N034106-007B | SAMP | 1 | 0.24 | 11.034 | 15 | PASS | 2.38 | 31.22 | 15 | NR! |
| N034106-008B | SAMP | 1 | 0.49 | 6.79 | 15 | PASS | 1.13 | 53.5 | 15 | NR! |
| CCV5 | CCV | 1 | 19.0076 | 1.11 | 15 | PASS | 18.45 | 8.22 | 15 | PASS |
| CCB5 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| N034106-009B | SAMP | 1 | 0.67 | 13.48 | 15 | PASS | 0.72 | 5.34 | 15 | PASS |
| CCV6 | CCV | 1 | 19.054 | 5.18 | 15 | PASS | 18.87 | 6.75 | 15 | PASS |
| CCB6 | CCB | 1 | 0.038 | 71.16 | 15 | <PQL | 0.037 | 173.21 | 15 | <PQL |
| CCV7 | CCV | 1 | 19.36 | 1.91 | 15 | PASS | 19.39 | 8.11 | 15 | PASS |
| CCB7 | CCB | 1 | 0.032 | 251.13 | 15 | <PQL | 0.036 | 86.63 | 15 | <PQL |
| CCV8 | CCV | 1 | 19.31 | 1.59 | 15 | PASS | 19.11 | 0.76 | 15 | PASS |
| CCB8 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.028 | 173.21 | 15 | <PQL |
| ICSA3 | ICSA | 1 | 0.012 | 451.013 | 15 | <PQL | 0.13 | 2.057 | 15 | PASS |
| ICSAB3 | ICSAB | 1 | 19.031 | 1.16 | 15 | PASS | 18.087 | 5.76 | 15 | PASS |
| CCV9 | CCV | 1 | 18.84 | 0.93 | 15 | PASS | 18.098 | 3.44 | 15 | PASS |
| CCB9 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.076 | 112.13 | 15 | <PQL |
| CCV10 | CCV | 1 | 19.95 | 2.045 | 15 | PASS | 20.084 | 4.56 | 15 | PASS |
| CCB10 | CCB | 1 | 0.022 | 130.014 | 15 | <PQL | 0.039 | 86.6 | 15 | <PQL |
| ICSA4 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.062 | 173.21 | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 19.047 | 2.24 | 15 | PASS | 18.083 | 5.54 | 15 | PASS |

**PERCENT RSD SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.056 | 24.43 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.37 | 6.4 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 4.64 | 2.71 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 9.39 | 1.8 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.8 | 0.14 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.3 | 0.84 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 105.13 | 1.014 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 215.37 | 0.13 | 15 | PASS |
| ICV | ICV | 1 | 10.14 | 1.93 | 15 | PASS |
| ICB | ICB | 1 | 0.056 | 72.9 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.47 | 9.57 | 20 | PASS |
| ICSA1 | ICSA | 1 | 0.14 | 30.33 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 19.57 | 1.57 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.32 | 8.77 | 20 | PASS |
| CCV1 | CCV | 1 | 19.33 | 1.98 | 15 | PASS |
| CCB1 | CCB | 1 | 0.33 | 23.92 | 15 | <PQL |
| CCV2 | CCV | 1 | 18.69 | 1.58 | 15 | PASS |
| CCB2 | CCB | 1 | 0.21 | 17.27 | 15 | <PQL |
| MB-72457 | MBLK | 1 | 0.22 | 9.25 | 15 | PASS |
| LCS-72457 | LCS | 1 | 9.97 | 2.73 | 15 | PASS |
| N034091-002B | SAMP | 1 | 38.29 | 2.077 | 15 | PASS |
| N034091-002B | SAMP | 5 | 7.46 | 1.2 | 15 | PASS |
| CCV3 | CCV | 1 | 19.81 | 1.93 | 15 | PASS |
| CCB3 | CCB | 1 | 0.13 | 15.26 | 15 | <PQL |
| N034091-002B-PS | PS | 1 | 48.75 | 1.29 | 15 | PASS |
| N034091-002B-MS | MS | 1 | 49.55 | 1.049 | 15 | PASS |
| N034091-002B-MSD | MSD | 1 | 49.95 | 0.61 | 15 | PASS |
| N034091-003B | SAMP | 1 | 83.36 | 1.14 | 15 | PASS |
| N034091-004B | SAMP | 1 | 15.76 | 0.7 | 15 | PASS |
| N034102-002B | SAMP | 1 | 81.67 | 0.16 | 15 | PASS |
| N034102-003B | SAMP | 1 | 82.24 | 0.24 | 15 | PASS |
| N034102-004B | SAMP | 1 | 85.15 | 1.014 | 15 | PASS |
| N034105-001B | SAMP | 1 | 3.18 | 4.6 | 15 | PASS |
| N034105-002B | SAMP | 1 | 3.47 | 6.32 | 15 | PASS |
| CCV4 | CCV | 1 | 19.28 | 1.42 | 15 | PASS |
| CCB4 | CCB | 1 | 0.14 | 25.53 | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0.16 | 28.54 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 19.75 | 0.98 | 15 | PASS |
| N034105-003B | SAMP | 1 | 0.77 | 12.66 | 15 | PASS |
| N034105-004B | SAMP | 1 | 0.64 | 3.63 | 15 | PASS |

**PERCENT RSD SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| N034106-001B | SAMP | 1 | 1 | 4.41 | 15 | PASS |
| N034106-002B | SAMP | 1 | 0.57 | 18.57 | 15 | NR! |
| N034106-003B | SAMP | 1 | 0.95 | 3.038 | 15 | PASS |
| N034106-004B | SAMP | 1 | 0.73 | 3.38 | 15 | PASS |
| N034106-005B | SAMP | 1 | 1.12 | 10.59 | 15 | PASS |
| N034106-006B | SAMP | 1 | 0.31 | 24.13 | 15 | <PQL |
| N034106-007B | SAMP | 1 | 0.36 | 10.4 | 15 | PASS |
| N034106-008B | SAMP | 1 | 0.6 | 13.67 | 15 | PASS |
| CCV5 | CCV | 1 | 18.71 | 3.68 | 15 | PASS |
| CCB5 | CCB | 1 | <0.000 | N/A | 15 | <PQL |
| N034106-009B | SAMP | 1 | 0.73 | 2.44 | 15 | PASS |
| CCV6 | CCV | 1 | 18.32 | 0.21 | 15 | PASS |
| CCB6 | CCB | 1 | 0.21 | 35.82 | 15 | <PQL |
| CCV7 | CCV | 1 | 19.32 | 1.48 | 15 | PASS |
| CCB7 | CCB | 1 | 0.22 | 36.16 | 15 | <PQL |
| CCV8 | CCV | 1 | 19.17 | 0.49 | 15 | PASS |
| CCB8 | CCB | 1 | 0.12 | 9.15 | 15 | PASS |
| ICSA3 | ICSA | 1 | 0.11 | 31.84 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 19.72 | 2.78 | 15 | PASS |
| CCV9 | CCV | 1 | 18.35 | 1.37 | 15 | PASS |
| CCB9 | CCB | 1 | 0.24 | 19.91 | 15 | <PQL |
| CCV10 | CCV | 1 | 19.3 | 1.58 | 15 | PASS |
| CCB10 | CCB | 1 | 0.27 | 19.79 | 15 | <PQL |
| ICSA4 | ICSA | 1 | 0.07 | 18.96 | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 19.62 | 0.92 | 15 | PASS |

**PERCENT RSD SUMMARY: 190215A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 52 Cr [2] | | | | 75 As [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.099 | 5.26 | 15 | PASS | 0.071 | 16.59 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.51 | 7.21 | 15 | PASS | 0.45 | 3.42 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 5.1 | 0.62 | 15 | PASS | 4.95 | 1.25 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.34 | 1.74 | 15 | PASS | 9.95 | 3.68 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.033 | 0.4 | 15 | PASS | 19.92 | 2.31 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.65 | 2.71 | 15 | PASS | 40.21 | 0.38 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.54 | 1.9 | 15 | PASS | 98.77 | 3.66 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.58 | 0.51 | 15 | PASS | 200.58 | 2.31 | 15 | PASS |
| ICV | ICV | 1 | 10.26 | 3.4 | 15 | PASS | 10.41 | 1.5 | 15 | PASS |
| ICB | ICB | 1 | 0.01 | 10.0076 | 15 | PASS | 0.093 | 44.31 | 15 | <PQL |
| LLICV | CCV1 | 1 | 1.053 | 0.68 | 20 | PASS | 0.14 | 21.037 | 20 | NR! |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.063 | 29.32 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 18.29 | 1.076 | 15 | PASS | 19.57 | 2.016 | 15 | PASS |
| LLICV | CCV1 | 1 | 1.02 | 7.18 | 20 | PASS | 0.13 | 10.44 | 20 | PASS |
| N034091-003B | SAMP | 1 | 91.79 | 1.11 | 15 | PASS | 11.69 | 3.83 | 15 | PASS |
| N034106-001B | SAMP | 1 | 5.31 | 1.82 | 15 | PASS | 0.38 | 18.25 | 15 | NR! |
| N034106-005B | SAMP | 1 | 10.048 | 1.33 | 15 | PASS | 0.37 | 3.99 | 15 | PASS |
| CCV1 | CCV | 1 | 20.41 | 1.15 | 15 | PASS | 20.14 | 2.35 | 15 | PASS |
| CCB1 | CCB | 1 | 0.0023 | 340.34 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034091-003B | SAMP | 1 | 90.79 | 0.79 | 15 | PASS | 11.77 | 1.013 | 15 | PASS |
| N034106-001B | SAMP | 1 | 5.25 | 1.9 | 15 | PASS | 0.25 | 10.34 | 15 | PASS |
| N034106-005B | SAMP | 1 | 10.34 | 1.58 | 15 | PASS | 0.48 | 4.91 | 15 | PASS |
| CCV2 | CCV | 1 | 19.87 | 1.17 | 15 | PASS | 20.3 | 2.15 | 15 | PASS |
| CCB2 | CCB | 1 | 0.0079 | 184.62 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034091-004B | SAMP | 5 | 109.94 | 0.49 | 15 | PASS | 0.29 | 14.46 | 15 | PASS |
| CCV3 | CCV | 1 | 20.049 | 1.26 | 15 | PASS | 20.25 | 1.23 | 15 | PASS |
| CCB3 | CCB | 1 | 0.012 | 154.006 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 18.31 | 1.44 | 15 | PASS | 19.18 | 0.98 | 15 | PASS |

**PERCENT RSD SUMMARY: 190215A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.059 | 62.28 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.52 | 37.1 | 15 | NR! |
| Std3-5/50 ppb | ICAL | 1 | 5.17 | 8.36 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 9.39 | 6.61 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.063 | 5.8 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 39.16 | 6.68 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 101.61 | 0.4 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.38 | 0.23 | 15 | PASS |
| ICV | ICV | 1 | 10.0056 | 15.055 | 15 | NR! |
| ICB | ICB | 1 | 0.11 | 58.21 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.42 | 38.5 | 20 | <PQL |
| ICSA1 | ICSA | 1 | 0.00096 | 3963.25 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 17.037 | 3.91 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.59 | 17.064 | 20 | PASS |
| N034091-003B | SAMP | 1 | 0.93 | 26.21 | 15 | NR! |
| N034106-001B | SAMP | 1 | 0.94 | 16.19 | 15 | NR! |
| N034106-005B | SAMP | 1 | 0.47 | 15.64 | 15 | <PQL |
| CCV1 | CCV | 1 | 20.24 | 8.49 | 15 | PASS |
| CCB1 | CCB | 1 | 0.063 | 152.73 | 15 | <PQL |
| N034091-003B | SAMP | 1 | 1.33 | 23.83 | 15 | NR! |
| N034106-001B | SAMP | 1 | 0.94 | 27.23 | 15 | NR! |
| N034106-005B | SAMP | 1 | 0.56 | 71.2 | 15 | NR! |
| CCV2 | CCV | 1 | 20.44 | 6.16 | 15 | PASS |
| CCB2 | CCB | 1 | 0.062 | 60.041 | 15 | <PQL |
| N034091-004B | SAMP | 5 | 1.24 | 14.5 | 15 | PASS |
| CCV3 | CCV | 1 | 18.18 | 0.92 | 15 | PASS |
| CCB3 | CCB | 1 | 0.086 | 40.91 | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0.022 | 340.49 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 17.46 | 6.0007 | 15 | PASS |

**PERCENT RSD SUMMARY: 190225A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 75 As [2] | | | | 78 Se [1] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.12 | 24.91 | 15 | NR! | 0.34 | 86.46 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.53 | 8.78 | 15 | PASS | 0.64 | 23.86 | 15 | NR! |
| Std3-5/50 ppb | ICAL | 1 | 5.16 | 0.73 | 15 | PASS | 4.75 | 11 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.05 | 5.63 | 15 | PASS | 9.89 | 6.23 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.86 | 0.48 | 15 | PASS | 19.84 | 1.43 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.28 | 2.27 | 15 | PASS | 39.78 | 1.16 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 99.9 | 3.2 | 15 | PASS | 101.58 | 4.62 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 197.26 | 0.75 | 15 | PASS | 199.28 | 3.31 | 15 | PASS |
| ICV | ICV | 1 | 9.73 | 5.092 | 15 | PASS | 10.68 | 12.85 | 15 | PASS |
| ICB | ICB | 1 | 0.018 | 106.57 | 15 | <PQL | 0.11 | 99.87 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.078 | 56.97 | 20 | <PQL | 0.52 | 35.015 | 20 | NR! |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.026 | 173.21 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 19.58 | 0.31 | 15 | PASS | 16.89 | 7.31 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.092 | 49.026 | 20 | <PQL | 0.71 | 7.06 | 20 | PASS |
| N034091-003B | SAMP | 1 | 12.037 | 2.48 | 15 | PASS | 1.24 | 8.22 | 15 | PASS |
| N034106-001B | SAMP | 1 | 0.32 | 24.71 | 15 | NR! | 0.91 | 21.99 | 15 | NR! |
| N034106-001B | SAMP | 1 | 0.27 | 32.04 | 15 | NR! | 0.95 | 49.17 | 15 | NR! |
| CCV1 | CCV | 1 | 19.48 | 2.62 | 15 | PASS | 20.62 | 6.47 | 15 | PASS |
| CCB1 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| CCV2 | CCV | 1 | 19.2 | 1.72 | 15 | PASS | 19.54 | 3.76 | 15 | PASS |
| CCB2 | CCB | 1 | 0.039 | 41.49 | 15 | <PQL | 0 | N/A | 15 | <PQL |
| CCV3 | CCV | 1 | 19.95 | 4.23 | 15 | PASS | 19.36 | 6.45 | 15 | PASS |
| CCB3 | CCB | 1 | 0.02 | 152.82 | 15 | <PQL | 0 | N/A | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.16 | 35.33 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 20.46 | 3.26 | 15 | PASS | 18.76 | 13.14 | 15 | PASS |
| CCV4 | CCV | 1 | 19.65 | 4.85 | 15 | PASS | 18.97 | 5.71 | 15 | PASS |
| CCB4 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| N034106-001B | SAMP | 1 | 0.32 | 28.48 | 15 | NR! | 0.88 | 51.54 | 15 | NR! |
| N034106-001B | SAMP | 1 | 0.35 | 8.067 | 15 | PASS | 1.095 | 25.79 | 15 | NR! |
| CCV5 | CCV | 1 | 19.09 | 4.17 | 15 | PASS | 19.56 | 6.13 | 15 | PASS |
| CCB5 | CCB | 1 | 0.044 | 94.74 | 15 | <PQL | 0.076 | 86.62 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.032 | 173.21 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 19.96 | 1.72 | 15 | PASS | 17.25 | 2.57 | 15 | PASS |
| CCV6 | CCV | 1 | 19.46 | 1.28 | 15 | PASS | 20.12 | 5.013 | 15 | PASS |
| CCB6 | CCB | 1 | 0.012 | 450 | 15 | <PQL | 0.077 | 86.62 | 15 | <PQL |
| CCV7 | CCV | 1 | 20.24 | 1.83 | 15 | PASS | 20.00091 | 8.89 | 15 | PASS |
| CCB7 | CCB | 1 | 0.049 | 212.63 | 15 | <PQL | 0 | N/A | 15 | <PQL |
| CCV8 | CCV | 1 | 20.06 | 2.91 | 15 | PASS | 19.83 | 5.34 | 15 | PASS |
| CCB8 | CCB | 1 | 0.016 | 403.89 | 15 | <PQL | 0.042 | 173.21 | 15 | <PQL |
| CCV9 | CCV | 1 | 19.21 | 5.87 | 15 | PASS | 18.41 | 6.16 | 15 | PASS |

**PERCENT RSD SUMMARY: 190225A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 75 As [2] | | | | 78 Se [1] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| CCB9 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| ICSA4 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 19.34 | 1.97 | 15 | PASS | 16.85 | 10.084 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190214A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0214001.D | RINSE | RINSE | 1 | 02/14/19 12:44 PM |
| A0214002.D | Cal Blank | IBLK | 1 | 02/14/19 12:50 PM |
| A0214003.D | Std1-0.1/1 ppb | ICAL | 1 | 02/14/19 12:55 PM |
| A0214004.D | Std2-0.5/5 ppb | ICAL | 1 | 02/14/19 1:01 PM |
| A0214005.D | Std3-5/50 ppb | ICAL | 1 | 02/14/19 1:06 PM |
| A0214006.D | Std4-10/100 ppb | ICAL | 1 | 02/14/19 1:12 PM |
| A0214007.D | Std5-20/200 ppb | ICAL | 1 | 02/14/19 1:18 PM |
| A0214008.D | Std6-40/400 ppb | ICAL | 1 | 02/14/19 1:23 PM |
| A0214009.D | Std7-100/1000 ppb | ICAL | 1 | 02/14/19 1:29 PM |
| A0214010.D | Std8-200/2000 ppb | ICAL | 1 | 02/14/19 1:34 PM |
| A0214011.D | ICV | ICV | 1 | 02/14/19 1:41 PM |
| A0214012.D | ICB | ICB | 1 | 02/14/19 1:47 PM |
| A0214013.D | LLICV | CCV1 | 1 | 02/14/19 1:53 PM |
| A0214014.D | ICSA1 | ICSA | 1 | 02/14/19 1:58 PM |
| A0214015.D | ICSAB1 | ICSAB | 1 | 02/14/19 2:03 PM |
| A0214016.D | LLICV | CCV1 | 1 | 02/14/19 2:10 PM |
| A0214017.D | MB-72455 | MBLK | 1 | 02/14/19 2:14 PM |
| A0214018.D | LCS-72455 | LCS | 1 | 02/14/19 2:20 PM |
| A0214019.D | N034089-001B | SAMP | 1 | 02/14/19 2:26 PM |
| A0214020.D | N034089-001B | SAMP | 5 | 02/14/19 2:31 PM |
| A0214021.D | N034089-001B-PS | PS | 1 | 02/14/19 2:37 PM |
| A0214022.D | N034089-001B-MS | MS | 1 | 02/14/19 2:42 PM |
| A0214023.D | N034089-001B-MSD | MSD | 1 | 02/14/19 2:48 PM |
| A0214024.D | N034089-002B | SAMP | 1 | 02/14/19 2:53 PM |
| A0214025.D | N034089-003B | SAMP | 1 | 02/14/19 2:59 PM |
| A0214026.D | N034089-004B | SAMP | 1 | 02/14/19 3:05 PM |
| A0214027.D | CCV1 | CCV | 1 | 02/14/19 3:10 PM |
| A0214028.D | CCB1 | CCB | 1 | 02/14/19 3:16 PM |
| A0214029.D | N034089-005B | SAMP | 1 | 02/14/19 3:21 PM |
| A0214030.D | N034089-006B | SAMP | 1 | 02/14/19 3:27 PM |
| A0214031.D | N034090-001B | SAMP | 1 | 02/14/19 3:32 PM |
| A0214032.D | N034090-002B | SAMP | 1 | 02/14/19 3:38 PM |
| A0214033.D | N034090-003B | SAMP | 1 | 02/14/19 3:44 PM |
| A0214034.D | N034090-004B | SAMP | 1 | 02/14/19 3:49 PM |
| A0214035.D | N034090-005B | SAMP | 1 | 02/14/19 3:55 PM |
| A0214036.D | N034090-006B | SAMP | 1 | 02/14/19 4:00 PM |
| A0214037.D | N034090-007B | SAMP | 1 | 02/14/19 4:06 PM |
| A0214038.D | N034090-008B | SAMP | 1 | 02/14/19 4:11 PM |
| A0214039.D | CCV2 | CCV | 1 | 02/14/19 4:17 PM |
| A0214040.D | CCB2 | CCB | 1 | 02/14/19 4:23 PM |
| A0214041.D | N034090-009B | SAMP | 1 | 02/14/19 4:28 PM |
| A0214042.D | N034090-010B | SAMP | 1 | 02/14/19 4:34 PM |

**INJECTION LOG: 190214A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0214043.D | N034090-011B | SAMP | 1 | 02/14/19 4:39 PM |
| A0214044.D | N034090-012B | SAMP | 1 | 02/14/19 4:45 PM |
| A0214045.D | N034090-013B | SAMP | 1 | 02/14/19 4:50 PM |
| A0214046.D | N034090-014B | SAMP | 1 | 02/14/19 4:56 PM |
| A0214047.D | MB-72457 | MBLK | 1 | 02/14/19 5:02 PM |
| A0214048.D | LCS-72457 | LCS | 1 | 02/14/19 5:07 PM |
| A0214049.D | N034091-002B | SAMP | 1 | 02/14/19 5:13 PM |
| A0214050.D | N034091-002B | SAMP | 5 | 02/14/19 5:18 PM |
| A0214051.D | CCV3 | CCV | 1 | 02/14/19 5:24 PM |
| A0214052.D | CCB3 | CCB | 1 | 02/14/19 5:30 PM |
| A0214053.D | N034091-002B-PS | PS | 1 | 02/14/19 5:35 PM |
| A0214054.D | N034091-002B-MS | MS | 1 | 02/14/19 5:40 PM |
| A0214055.D | N034091-002B-MSD | MSD | 1 | 02/14/19 5:46 PM |
| A0214056.D | N034091-003B | SAMP | 1 | 02/14/19 5:51 PM |
| A0214057.D | N034091-004B | SAMP | 1 | 02/14/19 5:57 PM |
| A0214058.D | N034102-002B | SAMP | 1 | 02/14/19 6:03 PM |
| A0214059.D | N034102-003B | SAMP | 1 | 02/14/19 6:08 PM |
| A0214060.D | N034102-004B | SAMP | 1 | 02/14/19 6:14 PM |
| A0214061.D | N034105-001B | SAMP | 1 | 02/14/19 6:19 PM |
| A0214062.D | N034105-002B | SAMP | 1 | 02/14/19 6:25 PM |
| A0214063.D | CCV4 | CCV | 1 | 02/14/19 6:32 PM |
| A0214064.D | CCB4 | CCB | 1 | 02/14/19 6:37 PM |
| A0214065.D | ICSA2 | ICSA | 1 | 02/14/19 6:42 PM |
| A0214066.D | ICSAB2 | ICSAB | 1 | 02/14/19 6:47 PM |
| A0214067.D | N034105-003B | SAMP | 1 | 02/14/19 6:53 PM |
| A0214068.D | N034105-004B | SAMP | 1 | 02/14/19 6:58 PM |
| A0214069.D | N034106-001B | SAMP | 1 | 02/14/19 7:04 PM |
| A0214070.D | N034106-002B | SAMP | 1 | 02/14/19 7:10 PM |
| A0214071.D | N034106-003B | SAMP | 1 | 02/14/19 7:15 PM |
| A0214072.D | N034106-004B | SAMP | 1 | 02/14/19 7:21 PM |
| A0214073.D | N034106-005B | SAMP | 1 | 02/14/19 7:26 PM |
| A0214074.D | N034106-006B | SAMP | 1 | 02/14/19 7:32 PM |
| A0214075.D | N034106-007B | SAMP | 1 | 02/14/19 7:38 PM |
| A0214076.D | N034106-008B | SAMP | 1 | 02/14/19 7:43 PM |
| A0214077.D | CCV5 | CCV | 1 | 02/14/19 7:49 PM |
| A0214078.D | CCB5 | CCB | 1 | 02/14/19 7:54 PM |
| A0214079.D | N034106-009B | SAMP | 1 | 02/14/19 8:00 PM |
| A0214080.D | MB-72458 | MBLK | 1 | 02/14/19 8:05 PM |
| A0214081.D | LCS-72458 | LCS | 1 | 02/14/19 8:11 PM |
| A0214082.D | N034104-001C | SAMP | 1 | 02/14/19 8:17 PM |
| A0214083.D | N034104-001C | SAMP | 5 | 02/14/19 8:22 PM |
| A0214084.D | N034104-001C-PS | PS | 1 | 02/14/19 8:28 PM |

**INJECTION LOG: 190214A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0214085.D | N034104-001C-MS | MS | 1 | 02/14/19 8:33 PM |
| A0214086.D | N034104-001C-MSD | MSD | 1 | 02/14/19 8:39 PM |
| A0214087.D | N034104-002C | SAMP | 1 | 02/14/19 8:44 PM |
| A0214088.D | N034104-003C | SAMP | 1 | 02/14/19 8:50 PM |
| A0214089.D | CCV6 | CCV | 1 | 02/14/19 8:54 PM |
| A0214090.D | CCB6 | CCB | 1 | 02/14/19 9:01 PM |
| A0214091.D | N034104-004C | SAMP | 1 | 02/14/19 9:06 PM |
| A0214092.D | N034104-005C | SAMP | 1 | 02/14/19 9:12 PM |
| A0214093.D | N034104-006C | SAMP | 1 | 02/14/19 9:17 PM |
| A0214094.D | N034104-007C | SAMP | 1 | 02/14/19 9:23 PM |
| A0214095.D | N034104-008C | SAMP | 1 | 02/14/19 9:28 PM |
| A0214096.D | N034104-009C | SAMP | 1 | 02/14/19 9:34 PM |
| A0214097.D | N034104-010C | SAMP | 1 | 02/14/19 9:40 PM |
| A0214098.D | N034104-011C | SAMP | 1 | 02/14/19 9:46 PM |
| A0214099.D | N034104-012C | SAMP | 1 | 02/14/19 9:51 PM |
| A0214100.D | N034104-013C | SAMP | 1 | 02/14/19 9:57 PM |
| A0214101.D | CCV7 | CCV | 1 | 02/14/19 10:02 PM |
| A0214102.D | CCB7 | CCB | 1 | 02/14/19 10:08 PM |
| A0214103.D | N034104-014C | SAMP | 1 | 02/14/19 10:13 PM |
| A0214104.D | N034104-015C | SAMP | 1 | 02/14/19 10:19 PM |
| A0214105.D | N034109-001B | SAMP | 1 | 02/14/19 10:25 PM |
| A0214106.D | MB-72459 | MBLK | 1 | 02/14/19 10:30 PM |
| A0214107.D | LCS-72459 | LCS | 1 | 02/14/19 10:36 PM |
| A0214108.D | N034107-001B | SAMP | 1 | 02/14/19 10:41 PM |
| A0214109.D | N034107-001B | SAMP | 5 | 02/14/19 10:47 PM |
| A0214110.D | N034107-001B-PS | PS | 1 | 02/14/19 10:52 PM |
| A0214111.D | N034107-001B-MS | MS | 1 | 02/14/19 10:58 PM |
| A0214112.D | N034107-001B-MSD | MSD | 1 | 02/14/19 11:04 PM |
| A0214113.D | CCV8 | CCV | 1 | 02/14/19 11:09 PM |
| A0214114.D | CCB8 | CCB | 1 | 02/14/19 11:14 PM |
| A0214115.D | ICSA3 | ICSA | 1 | 02/14/19 11:20 PM |
| A0214116.D | ICSAB3 | ICSAB | 1 | 02/14/19 11:26 PM |
| A0214117.D | N034107-002B | SAMP | 1 | 02/14/19 11:32 PM |
| A0214118.D | N034107-003B | SAMP | 1 | 02/14/19 11:37 PM |
| A0214119.D | N034107-004B | SAMP | 1 | 02/14/19 11:43 PM |
| A0214120.D | N034107-005B | SAMP | 1 | 02/14/19 11:48 PM |
| A0214121.D | N034107-006B | SAMP | 1 | 02/14/19 11:54 PM |
| A0214122.D | N034107-007B | SAMP | 1 | 02/15/19 12:00 AM |
| A0214123.D | N034107-010B | SAMP | 1 | 02/15/19 12:05 AM |
| A0214124.D | N034107-011B | SAMP | 1 | 02/15/19 12:11 AM |
| A0214125.D | N034107-012B | SAMP | 1 | 02/15/19 12:16 AM |
| A0214126.D | N034107-013B | SAMP | 1 | 02/15/19 12:22 AM |

**INJECTION LOG: 190214A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0214127.D | CCV9 | CCV | 1 | 02/15/19 12:29 AM |
| A0214128.D | CCB9 | CCB | 1 | 02/15/19 12:33 AM |
| A0214129.D | N034107-014B | SAMP | 1 | 02/15/19 12:39 AM |
| A0214130.D | N034107-015B | SAMP | 1 | 02/15/19 12:44 AM |
| A0214131.D | N034107-016B | SAMP | 1 | 02/15/19 12:50 AM |
| A0214132.D | N034107-017B | SAMP | 1 | 02/15/19 12:55 AM |
| A0214133.D | N034107-018B | SAMP | 1 | 02/15/19 1:01 AM |
| A0214134.D | N034107-019B | SAMP | 1 | 02/15/19 1:07 AM |
| A0214135.D | N034107-020B | SAMP | 1 | 02/15/19 1:12 AM |
| A0214136.D | N034107-021B | SAMP | 1 | 02/15/19 1:18 AM |
| A0214137.D | N034107-022B | SAMP | 1 | 02/15/19 1:23 AM |
| A0214138.D | CCV10 | CCV | 1 | 02/15/19 1:29 AM |
| A0214139.D | CCB10 | CCB | 1 | 02/15/19 1:35 AM |
| A0214140.D | ICSA4 | ICSA | 1 | 02/15/19 1:40 AM |
| A0214141.D | ICSAB4 | ICSAB | 1 | 02/15/19 1:46 AM |

**INJECTION LOG: 190215A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0215001.D | RINSE | RINSE | 1 | 02/15/19 5:18 PM |
| A0215002.D | Cal Blank | IBLK | 1 | 02/15/19 5:24 PM |
| A0215003.D | Std1-0.1/1 ppb | ICAL | 1 | 02/15/19 5:29 PM |
| A0215004.D | Std2-0.5/5 ppb | ICAL | 1 | 02/15/19 5:35 PM |
| A0215005.D | Std3-5/50 ppb | ICAL | 1 | 02/15/19 5:40 PM |
| A0215006.D | Std4-10/100 ppb | ICAL | 1 | 02/15/19 5:46 PM |
| A0215007.D | Std5-20/200 ppb | ICAL | 1 | 02/15/19 5:51 PM |
| A0215008.D | Std6-40/400 ppb | ICAL | 1 | 02/15/19 5:57 PM |
| A0215009.D | Std7-100/1000 ppb | ICAL | 1 | 02/15/19 6:02 PM |
| A0215010.D | Std8-200/2000 ppb | ICAL | 1 | 02/15/19 6:08 PM |
| A0215011.D | ICV | ICV | 1 | 02/15/19 6:14 PM |
| A0215012.D | ICB | ICB | 1 | 02/15/19 6:19 PM |
| A0215013.D | LLICV | CCV1 | 1 | 02/15/19 6:25 PM |
| A0215014.D | ICSA1 | ICSA | 1 | 02/15/19 6:30 PM |
| A0215015.D | ICSAB1 | ICSAB | 1 | 02/15/19 6:36 PM |
| A0215016.D | LLICV | CCV1 | 1 | 02/15/19 6:41 PM |
| A0215017.D | N034091-003B | SAMP | 1 | 02/15/19 6:47 PM |
| A0215018.D | N034106-001B | SAMP | 1 | 02/15/19 6:52 PM |
| A0215019.D | N034106-005B | SAMP | 1 | 02/15/19 6:58 PM |
| A0215020.D | N034104-004C | SAMP | 1 | 02/15/19 7:04 PM |
| A0215021.D | N034104-005C | SAMP | 1 | 02/15/19 7:09 PM |
| A0215022.D | N034104-006C | SAMP | 1 | 02/15/19 7:15 PM |
| A0215023.D | N034104-008C | SAMP | 1 | 02/15/19 7:20 PM |
| A0215024.D | N034104-012C | SAMP | 1 | 02/15/19 7:26 PM |
| A0215025.D | N034104-014C | SAMP | 1 | 02/15/19 7:31 PM |
| A0215026.D | N034104-015C | SAMP | 1 | 02/15/19 7:37 PM |
| A0215027.D | CCV1 | CCV | 1 | 02/15/19 7:42 PM |
| A0215028.D | CCB1 | CCB | 1 | 02/15/19 7:48 PM |
| A0215029.D | N034091-003B | SAMP | 1 | 02/15/19 7:54 PM |
| A0215030.D | N034106-001B | SAMP | 1 | 02/15/19 7:59 PM |
| A0215031.D | N034106-005B | SAMP | 1 | 02/15/19 8:05 PM |
| A0215032.D | N034104-004C | SAMP | 1 | 02/15/19 8:10 PM |
| A0215033.D | N034104-005C | SAMP | 1 | 02/15/19 8:16 PM |
| A0215034.D | N034104-006C | SAMP | 1 | 02/15/19 8:21 PM |
| A0215035.D | N034104-008C | SAMP | 1 | 02/15/19 8:27 PM |
| A0215036.D | N034104-012C | SAMP | 1 | 02/15/19 8:32 PM |
| A0215037.D | N034104-014C | SAMP | 1 | 02/15/19 8:38 PM |
| A0215038.D | N034104-015C | SAMP | 1 | 02/15/19 8:44 PM |
| A0215039.D | CCV2 | CCV | 1 | 02/15/19 8:49 PM |
| A0215040.D | CCB2 | CCB | 1 | 02/15/19 8:55 PM |
| A0215041.D | N034090-008B | SAMP | 5 | 02/15/19 9:00 PM |
| A0215042.D | N034091-004B | SAMP | 5 | 02/15/19 9:06 PM |

**INJECTION LOG: 190215A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0215043.D | N034107-003B | SAMP | 5 | 02/15/19 9:12 PM |
| A0215044.D | N034107-004B | SAMP | 5 | 02/15/19 9:17 PM |
| A0215045.D | N034107-005B | SAMP | 5 | 02/15/19 9:23 PM |
| A0215046.D | N034107-006B | SAMP | 5 | 02/15/19 9:28 PM |
| A0215047.D | N034107-007B | SAMP | 5 | 02/15/19 9:34 PM |
| A0215048.D | N034107-010B | SAMP | 5 | 02/15/19 9:39 PM |
| A0215049.D | N034107-011B | SAMP | 25 | 02/15/19 9:45 PM |
| A0215050.D | CCV3 | CCV | 1 | 02/15/19 9:51 PM |
| A0215051.D | CCB3 | CCB | 1 | 02/15/19 9:56 PM |
| A0215052.D | ICSA2 | ICSA | 1 | 02/15/19 10:02 PM |
| A0215053.D | ICSAB2 | ICSAB | 1 | 02/15/19 10:07 PM |

**INJECTION LOG: 190225A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0225001.D | RINSE | RINSE | 1 | 02/25/19 2:06 PM |
| A0225002.D | Cal Blank | IBLK | 1 | 02/25/19 2:12 PM |
| A0225003.D | Std1-0.1/1 ppb | ICAL | 1 | 02/25/19 2:18 PM |
| A0225004.D | Std2-0.5/5 ppb | ICAL | 1 | 02/25/19 2:22 PM |
| A0225005.D | Std3-5/50 ppb | ICAL | 1 | 02/25/19 2:28 PM |
| A0225006.D | Std4-10/100 ppb | ICAL | 1 | 02/25/19 2:35 PM |
| A0225007.D | Std5-20/200 ppb | ICAL | 1 | 02/25/19 2:41 PM |
| A0225008.D | Std6-40/400 ppb | ICAL | 1 | 02/25/19 2:47 PM |
| A0225009.D | Std7-100/1000 ppb | ICAL | 1 | 02/25/19 2:53 PM |
| A0225010.D | Std8-200/2000 ppb | ICAL | 1 | 02/25/19 2:59 PM |
| A0225011.D | ICV | ICV | 1 | 02/25/19 3:06 PM |
| A0225012.D | ICB | ICB | 1 | 02/25/19 3:12 PM |
| A0225013.D | LLICV | CCV1 | 1 | 02/25/19 3:18 PM |
| A0225014.D | ICSA1 | ICSA | 1 | 02/25/19 3:24 PM |
| A0225015.D | ICSAB1 | ICSAB | 1 | 02/25/19 3:30 PM |
| A0225016.D | LLICV | CCV1 | 1 | 02/25/19 3:36 PM |
| A0225017.D | N034091-003B | SAMP | 1 | 02/25/19 4:17 PM |
| A0225018.D | N034104-014C | SAMP | 1 | 02/25/19 4:22 PM |
| A0225019.D | N034104-014C | SAMP | 1 | 02/25/19 4:28 PM |
| A0225020.D | N034106-001B | SAMP | 1 | 02/25/19 4:34 PM |
| A0225021.D | N034106-001B | SAMP | 1 | 02/25/19 4:40 PM |
| A0225022.D | MB-72497 | MBLK | 1 | 02/25/19 4:46 PM |
| A0225023.D | LCS-72497 | LCS | 1 | 02/25/19 4:52 PM |
| A0225024.D | N034120-001B | SAMP | 1 | 02/25/19 4:58 PM |
| A0225025.D | N034120-001B | SAMP | 5 | 02/25/19 5:04 PM |
| A0225026.D | N034120-001B-PS | PS | 1 | 02/25/19 5:10 PM |
| A0225027.D | CCV1 | CCV | 1 | 02/25/19 5:17 PM |
| A0225028.D | CCB1 | CCB | 1 | 02/25/19 5:23 PM |
| A0225029.D | N034120-001B-MS | MS | 1 | 02/25/19 5:29 PM |
| A0225030.D | N034120-001B-MSD | MSD | 1 | 02/25/19 5:35 PM |
| A0225031.D | N034121-001B | SAMP | 1 | 02/25/19 5:41 PM |
| A0225032.D | N034121-002B | SAMP | 1 | 02/25/19 5:47 PM |
| A0225033.D | N034121-003B | SAMP | 1 | 02/25/19 5:53 PM |
| A0225034.D | N034121-004B | SAMP | 1 | 02/25/19 5:59 PM |
| A0225035.D | N034121-005B | SAMP | 1 | 02/25/19 6:04 PM |
| A0225036.D | N034121-006B | SAMP | 1 | 02/25/19 6:10 PM |
| A0225037.D | N034121-007B | SAMP | 1 | 02/25/19 6:16 PM |
| A0225038.D | N034121-008B | SAMP | 1 | 02/25/19 6:22 PM |
| A0225039.D | CCV2 | CCV | 1 | 02/25/19 6:28 PM |
| A0225040.D | CCB2 | CCB | 1 | 02/25/19 6:35 PM |
| A0225041.D | N034121-009B | SAMP | 1 | 02/25/19 6:41 PM |
| A0225042.D | N034121-010B | SAMP | 1 | 02/25/19 6:47 PM |

**INJECTION LOG: 190225A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0225043.D | N034121-011B | SAMP | 1 | 02/25/19 6:53 PM |
| A0225044.D | N034125-001A | SAMP | 1 | 02/25/19 6:58 PM |
| A0225045.D | N034126-002B | SAMP | 1 | 02/25/19 7:04 PM |
| A0225046.D | N034126-003B | SAMP | 1 | 02/25/19 7:10 PM |
| A0225047.D | N034126-004B | SAMP | 1 | 02/25/19 7:16 PM |
| A0225048.D | N034126-005B | SAMP | 1 | 02/25/19 7:22 PM |
| A0225049.D | N034126-006B | SAMP | 1 | 02/25/19 7:28 PM |
| A0225050.D | N034121-006B | SAMP | 1 | 02/25/19 7:33 PM |
| A0225051.D | CCV3 | CCV | 1 | 02/25/19 7:40 PM |
| A0225052.D | CCB3 | CCB | 1 | 02/25/19 7:59 PM |
| A0225053.D | ICSA2 | ICSA | 1 | 02/25/19 8:05 PM |
| A0225054.D | ICSAB2 | ICSAB | 1 | 02/25/19 8:10 PM |
| A0225055.D | N034121-010B | SAMP | 1 | 02/25/19 8:16 PM |
| A0225056.D | N034126-007B | SAMP | 250 | 02/25/19 8:22 PM |
| A0225057.D | N034126-007B | SAMP | 1 | 02/25/19 8:28 PM |
| A0225058.D | N034126-008B | SAMP | 1 | 02/25/19 8:34 PM |
| A0225059.D | N034120-001B | SAMP | 25 | 02/25/19 8:40 PM |
| A0225060.D | N034120-001B-PS | PS | 5 | 02/25/19 8:46 PM |
| A0225061.D | N034120-001B-MS | MS | 5 | 02/25/19 8:52 PM |
| A0225062.D | N034120-001B-MSD | MSD | 5 | 02/25/19 8:58 PM |
| A0225063.D | N034121-001B | SAMP | 25 | 02/25/19 9:04 PM |
| A0225064.D | N034121-002B | SAMP | 25 | 02/25/19 9:09 PM |
| A0225065.D | CCV4 | CCV | 1 | 02/25/19 9:15 PM |
| A0225066.D | CCB4 | CCB | 1 | 02/25/19 9:22 PM |
| A0225067.D | N034121-004B | SAMP | 5 | 02/25/19 9:27 PM |
| A0225068.D | N034121-007B | SAMP | 5 | 02/25/19 9:33 PM |
| A0225069.D | N034121-009B | SAMP | 25 | 02/25/19 9:39 PM |
| A0225070.D | N034121-010B | SAMP | 5 | 02/25/19 9:45 PM |
| A0225071.D | N034125-001A | SAMP | 5 | 02/25/19 9:51 PM |
| A0225072.D | N034126-002B | SAMP | 10 | 02/25/19 9:57 PM |
| A0225073.D | N034126-005B | SAMP | 5 | 02/25/19 10:02 PM |
| A0225074.D | N034126-006B | SAMP | 5 | 02/25/19 10:08 PM |
| A0225075.D | N034106-001B | SAMP | 1 | 02/25/19 10:14 PM |
| A0225076.D | N034106-001B | SAMP | 1 | 02/25/19 10:20 PM |
| A0225077.D | CCV5 | CCV | 1 | 02/25/19 10:26 PM |
| A0225078.D | CCB5 | CCB | 1 | 02/25/19 10:32 PM |
| A0225079.D | ICSA3 | ICSA | 1 | 02/25/19 10:38 PM |
| A0225080.D | ICSAB3 | ICSAB | 1 | 02/25/19 10:44 PM |
| A0225081.D | MB-72498 | MBLK | 1 | 02/25/19 10:50 PM |
| A0225082.D | LCS-72498 | LCS | 1 | 02/25/19 10:56 PM |
| A0225083.D | N034123-001B | SAMP | 1 | 02/25/19 11:01 PM |
| A0225084.D | N034123-001B | SAMP | 5 | 02/25/19 11:07 PM |

**INJECTION LOG: 190225A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0225085.D | N034123-001B-PS | PS | 1 | 02/25/19 11:13 PM |
| A0225086.D | N034123-001B-MS | MS | 1 | 02/25/19 11:19 PM |
| A0225087.D | N034123-001B-MSD | MSD | 1 | 02/25/19 11:25 PM |
| A0225088.D | N034123-002B | SAMP | 1 | 02/25/19 11:31 PM |
| A0225089.D | N034123-003B | SAMP | 1 | 02/25/19 11:37 PM |
| A0225090.D | N034123-004B | SAMP | 1 | 02/25/19 11:43 PM |
| A0225091.D | CCV6 | CCV | 1 | 02/25/19 11:49 PM |
| A0225092.D | CCB6 | CCB | 1 | 02/25/19 11:55 PM |
| A0225093.D | N034123-005B | SAMP | 1 | 02/26/19 12:00 AM |
| A0225094.D | N034123-006B | SAMP | 1 | 02/26/19 12:06 AM |
| A0225095.D | N034123-007B | SAMP | 1 | 02/26/19 12:12 AM |
| A0225096.D | N034123-008B | SAMP | 1 | 02/26/19 12:18 AM |
| A0225097.D | N034123-009B | SAMP | 1 | 02/26/19 12:24 AM |
| A0225098.D | N034123-010B | SAMP | 1 | 02/26/19 12:30 AM |
| A0225099.D | N034123-011B | SAMP | 1 | 02/26/19 12:36 AM |
| A0225100.D | N034123-012B | SAMP | 1 | 02/26/19 12:42 AM |
| A0225101.D | N034123-013B | SAMP | 1 | 02/26/19 12:48 AM |
| A0225102.D | N034123-014B | SAMP | 1 | 02/26/19 12:54 AM |
| A0225103.D | CCV7 | CCV | 1 | 02/26/19 12:59 AM |
| A0225104.D | CCB7 | CCB | 1 | 02/26/19 1:06 AM |
| A0225105.D | N034123-015B | SAMP | 1 | 02/26/19 1:11 AM |
| A0225106.D | N034123-016B | SAMP | 1 | 02/26/19 1:17 AM |
| A0225107.D | N034123-017B | SAMP | 1 | 02/26/19 1:23 AM |
| A0225108.D | N034123-018B | SAMP | 1 | 02/26/19 1:29 AM |
| A0225109.D | N034123-019B | SAMP | 1 | 02/26/19 1:35 AM |
| A0225110.D | N034123-020B | SAMP | 1 | 02/26/19 1:41 AM |
| A0225111.D | N034123-010B | SAMP | 5 | 02/26/19 1:46 AM |
| A0225112.D | N034123-017B | SAMP | 10 | 02/26/19 1:52 AM |
| A0225113.D | N034123-018B | SAMP | 25 | 02/26/19 1:58 AM |
| A0225114.D | N034123-019B | SAMP | 25 | 02/26/19 2:04 AM |
| A0225115.D | CCV8 | CCV | 1 | 02/26/19 2:10 AM |
| A0225116.D | CCB8 | CCB | 1 | 02/26/19 2:16 AM |
| A0225117.D | N034123-020B | SAMP | 25 | 02/26/19 2:22 AM |
| A0225118.D | CCV9 | CCV | 1 | 02/26/19 2:28 AM |
| A0225119.D | CCB9 | CCB | 1 | 02/26/19 2:34 AM |
| A0225120.D | ICSA4 | ICSA | 1 | 02/26/19 2:39 AM |
| A0225121.D | ICSAB4 | ICSAB | 1 | 02/26/19 2:45 AM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/13/2019 4:00:00**
Prep End Date: **2/13/2019 8:15:00**
Reviewed/ Date: NS 2/27/2019
Initials/ Date: for

Prep Batch **72457** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.6** | **02-14** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72457 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-72457 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034091-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034091-002B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034091-002B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034091-003B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034091-004B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034102-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034102-003B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034102-004B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034105-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034105-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034105-003B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034105-004B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10549 | NITRIC ACID |
| 10553 | HYDROCHLORIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/13/2019 4:00:00**
Prep End Date: **2/13/2019 8:15:00**
Reviewed/ Date: NS 2/27/2019
Initials/ Date: for
Prep Batch **72457** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.6** | **02-14** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| N034106-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034106-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034106-003B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034106-004B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034106-005B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034106-006B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034106-007B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034106-008B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034106-009B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10549 | NITRIC ACID |
| 10553 | HYDROCHLORIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

# INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 14 Feb 2019 10:02:37 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 110620.00 | 0.00 | |
| 24 Mg | 216739.00 | 0.00 | |
| 25 Mg | 27681.80 | 0.00 | |
| 26 Mg | 31834.00 | 0.00 | |
| 59 Co | 174914.00 | 0.00 | |
| 115 In | 232788.00 | 0.00 | |
| 206 Pb | 86499.40 | 0.00 | |
| 207 Pb | 75534.40 | 0.00 | |
| 208 Pb | 185435.00 | 0.00 | |

RSD (%)

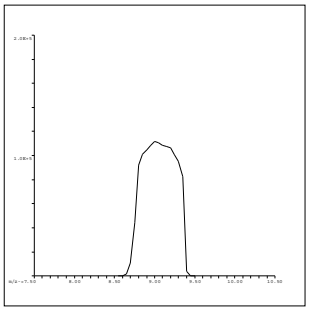
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 0.88 | 5.00 | |
| 24 Mg | 0.84 | 5.00 | |
| 25 Mg | 1.13 | 5.00 | |
| 26 Mg | 3.00 | 5.00 | |
| 59 Co | 1.09 | 5.00 | |
| 115 In | 0.96 | 5.00 | |
| 206 Pb | 0.82 | 5.00 | |
| 207 Pb | 1.10 | 5.00 | |
| 208 Pb | 1.56 | 5.00 | |

Ion Ratio

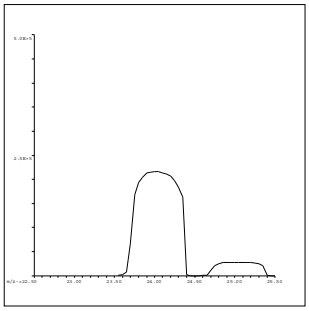
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | | | |
| 24 Mg | | | |
| 25 Mg | | | |
| 26 Mg | | | |
| 59 Co | | | |
| 115 In | | | |
| 206 Pb | | | |
| 207 Pb | | | |
| 208 Pb | | | |

Maximum Bkg. Count(CPS)

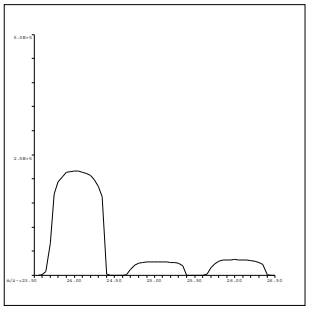
| Element | Actual | Required | Flag |
|---|---|---|---|



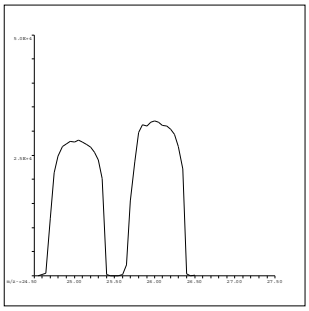
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



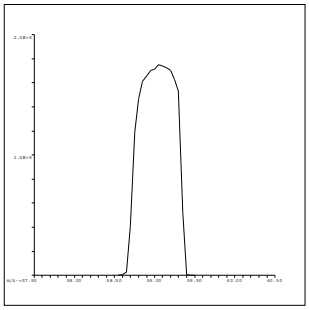
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



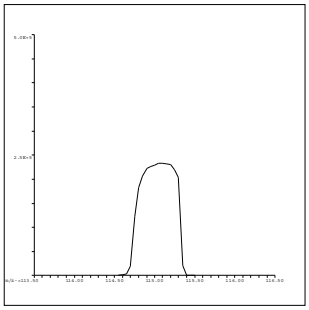
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



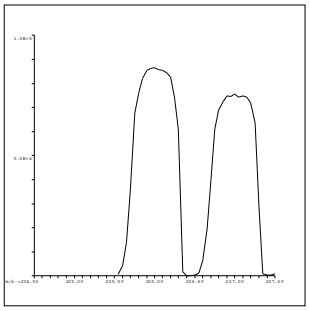
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



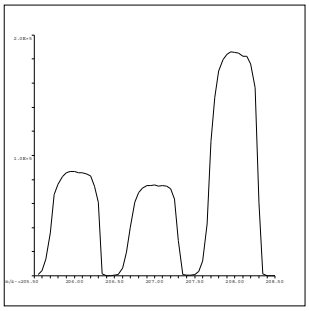
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



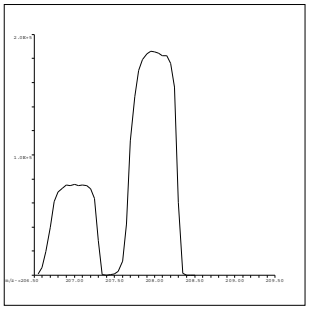
115 In
Mass Calib.
Actual: 115.10
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 15 Feb 2019 01:44:10 pm
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | | Actual | Required | Flag |
|---|---|---|---|---|
| 9 | Be | 101330.00 | 0.00 | |
| 24 | Mg | 335875.00 | 0.00 | |
| 25 | Mg | 42669.70 | 0.00 | |
| 26 | Mg | 46877.70 | 0.00 | |
| 59 | Co | 187306.00 | 0.00 | |
| 115 | In | 280767.00 | 0.00 | |
| 206 | Pb | 92917.50 | 0.00 | |
| 207 | Pb | 80556.70 | 0.00 | |
| 208 | Pb | 198897.00 | 0.00 | |

RSD (%)

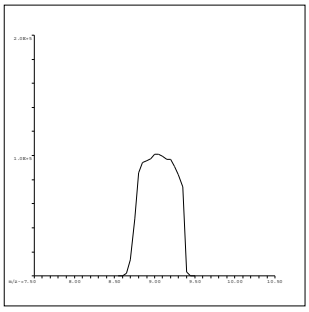
| Element | | Actual | Required | Flag |
|---|---|---|---|---|
| 9 | Be | 1.71 | 5.00 | |
| 24 | Mg | 2.62 | 5.00 | |
| 25 | Mg | 2.81 | 5.00 | |
| 26 | Mg | 1.56 | 5.00 | |
| 59 | Co | 0.59 | 5.00 | |
| 115 | In | 0.96 | 5.00 | |
| 206 | Pb | 1.55 | 5.00 | |
| 207 | Pb | 1.04 | 5.00 | |
| 208 | Pb | 1.16 | 5.00 | |

Ion Ratio

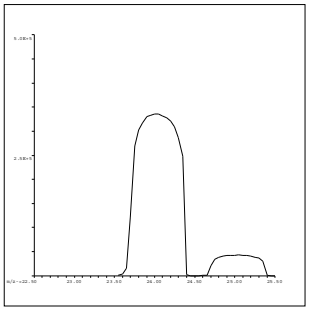
| Element | | Actual | Required | Flag |
|---|---|---|---|---|
| 9 | Be | | | |
| 24 | Mg | | | |
| 25 | Mg | | | |
| 26 | Mg | | | |
| 59 | Co | | | |
| 115 | In | | | |
| 206 | Pb | | | |
| 207 | Pb | | | |
| 208 | Pb | | | |

Maximum Bkg. Count(CPS)

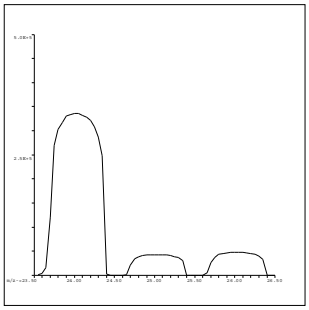
| Element | Actual | Required | Flag |
|---|---|---|---|



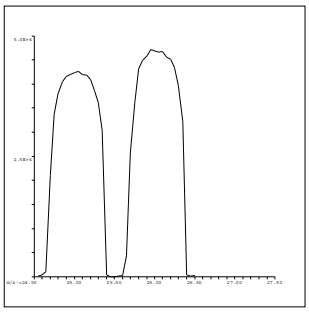
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



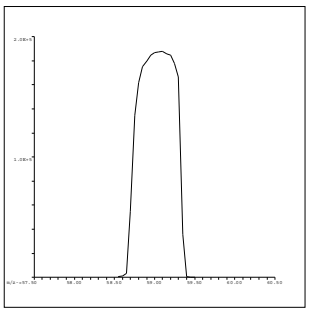
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



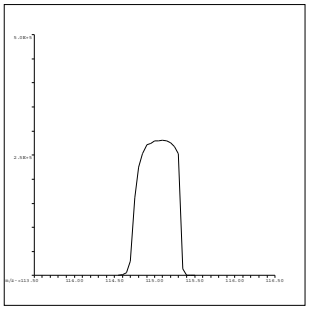
25 Mg
Mass Calib.
Actual: 25.05
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



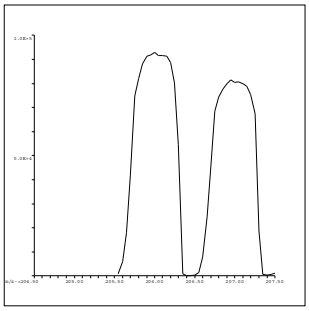
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



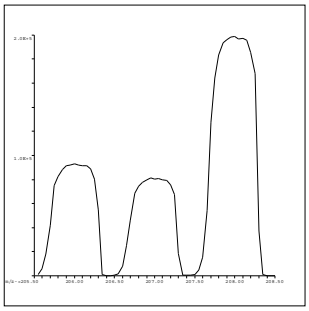
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



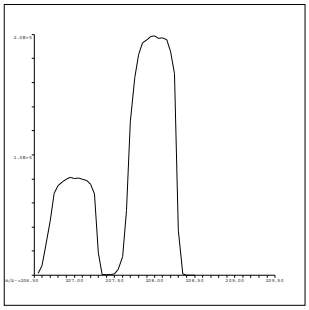
115 In
Mass Calib.
Actual: 115.10
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 25 Feb 2019 01:43:48 pm
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 109756.00 | 0.00 | |
| 24 Mg | 184182.00 | 0.00 | |
| 25 Mg | 23363.20 | 0.00 | |
| 26 Mg | 26834.40 | 0.00 | |
| 59 Co | 129646.00 | 0.00 | |
| 115 In | 150446.00 | 0.00 | |
| 206 Pb | 57419.50 | 0.00 | |
| 207 Pb | 50616.90 | 0.00 | |
| 208 Pb | 125079.00 | 0.00 | |

RSD (%)

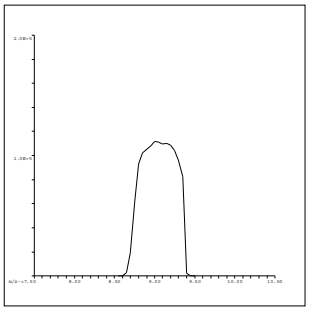
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 0.69 | 5.00 | |
| 24 Mg | 0.96 | 5.00 | |
| 25 Mg | 1.22 | 5.00 | |
| 26 Mg | 2.50 | 5.00 | |
| 59 Co | 0.57 | 5.00 | |
| 115 In | 0.77 | 5.00 | |
| 206 Pb | 1.02 | 5.00 | |
| 207 Pb | 1.15 | 5.00 | |
| 208 Pb | 0.92 | 5.00 | |

Ion Ratio

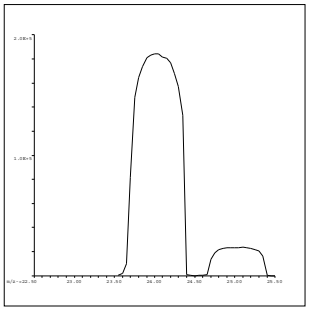
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | | | |
| 24 Mg | | | |
| 25 Mg | | | |
| 26 Mg | | | |
| 59 Co | | | |
| 115 In | | | |
| 206 Pb | | | |
| 207 Pb | | | |
| 208 Pb | | | |

Maximum Bkg. Count(CPS)

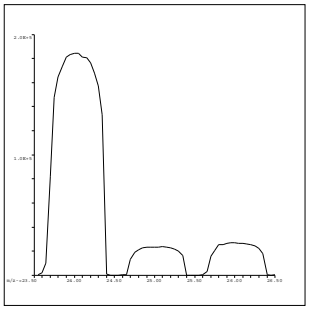
| Element | Actual | Required | Flag |
|---|---|---|---|



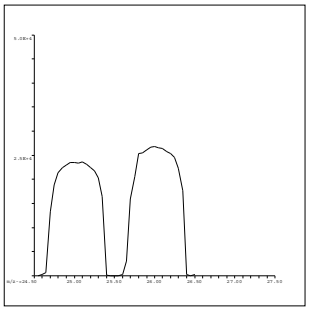
9 Be
Mass Calib.
Actual: 9.10
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



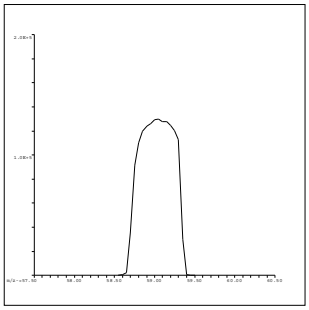
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



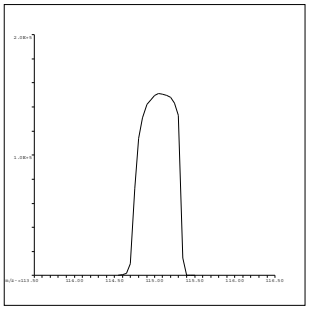
25 Mg
Mass Calib.
Actual: 25.05
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



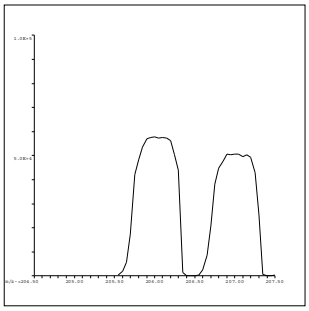
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



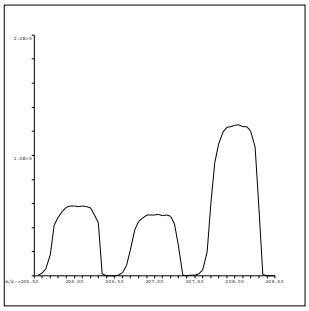
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



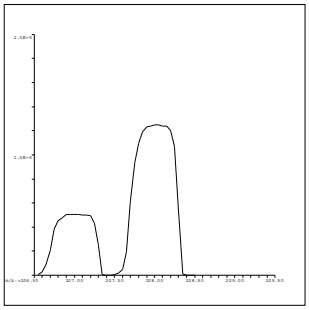
115 In
Mass Calib.
Actual: 115.10
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.05
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Analyte | Data File | A0214002.D | A0214003.D | A0214004.D | A0214005.D | A0214006.D | A0214007.D | A0214008.D | A0214009.D | A0214010.D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 02/14/2019 12:50 PM | 02/14/2019 12:55 PM | 02/14/2019 01:01 PM | 02/14/2019 01:06 PM | 02/14/2019 01:12 PM | 02/14/2019 01:18 PM | 02/14/2019 01:23 PM | 02/14/2019 01:29 PM | 02/14/2019 01:34 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std1-0.1/1 ppb | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.1/1 ug/L | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 45 Sc ( ISTD ) [ 2 ] | CPS | 38266.9 | | 37298 | 37725.6 | 38020.9 | 37397.2 | 37615.5 | 37717.7 | 37974.1 | |
| 55 Mn [ 2 ] | CPS | 14.2 | | 614.7 | 6191.5 | 12719.8 | 25315.5 | 50275.8 | 124258.1 | 249266.1 | 1.0000 |
| 52 Cr [ 2 ] | CPS | 111.1 | | 1394.5 | 13236.5 | 26633.7 | 52298.7 | 104634.4 | 261547.9 | 520544.7 | 1.0000 |
| 72 Ge ( ISTD ) [ 1 ] | CPS | 15508.8 | | 15107.4 | 15139.7 | 15169.8 | 15106.4 | 15210.9 | 15505.6 | 15179.7 | |
| 78 Se [ 1 ] | CPS | 0 | | 28.9 | 237.8 | 496.7 | 1111.2 | 2068 | 5302.2 | 10627.2 | 0.9998 |
| 72 Ge ( ISTD ) [ 2 ] | CPS | 18785.8 | 18907 | 18571.1 | 18656.7 | 18854.7 | 18574.4 | 18369.7 | 18320.8 | 18568.9 | |
| 75 As [ 2 ] | CPS | 28.4 | 44.9 | 154.7 | 1187.6 | 2371.7 | 4573.1 | 9125.7 | 23114.1 | 46160.6 | 1.0000 |
| 103 Rh ( ISTD ) [ 2 ] | CPS | 538422.1 | | 527575.5 | 528380.3 | 525282.6 | 523419.5 | 523257.3 | 519921.5 | 517230 | |
| 95 Mo [ 2 ] | CPS | 178.9 | | 576.7 | 5183.2 | 10244.7 | 21340.3 | 43247.8 | 111822.2 | 227706.3 | 0.9999 |

| Standard Code | |
|---|---|
| ICAL: 2MSST-180608B | |
| ICAL: 2MSST-~~170620B~~ | 180205B |
| ICAL: 2MWST-~~180403H~~ | 181001C |
| IS Mix: 2MWST-~~180618C~~ | 181126B |

Calibration Acceptance Criteria: > 0.995 Correlation

NS 2/27/2019
for CEI

**INITIAL CALIBRATION SUMMARY: 190215A**

**Instrument ID: ICPMS-02**

| Analyte | Data File | A0215002.D | A0215003.D | A0215004.D | A0215005.D | A0215006.D | A0215007.D | A0215008.D | A0215009.D | A0215010.D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 02/15/2019 05:24 PM | 02/15/2019 05:29 PM | 02/15/2019 05:35 PM | 02/15/2019 05:40 PM | 02/15/2019 05:46 PM | 02/15/2019 05:51 PM | 02/15/2019 05:57 PM | 02/15/2019 06:02 PM | 02/15/2019 06:08 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std1-0.1/1 ppb | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.1/1 ug/L | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 45 Sc ( ISTD ) [ 2 ] | CPS | 35594.3 | | 36536.4 | 35650 | 35323.7 | 34615.6 | 35155.6 | 34655.7 | 34594.4 | |
| 52 Cr [ 2 ] | CPS | 127.5 | | 1386.5 | 12273.3 | 24509.2 | 46443.5 | 95548.7 | 232811.6 | 461294.9 | 1.0000 |
| 72 Ge ( ISTD ) [ 1 ] | CPS | 15732.5 | | 15924.9 | 15665.8 | 15951.6 | 15356.5 | 15734.7 | 15435.5 | 15532.3 | |
| 78 Se [ 1 ] | CPS | 1.1 | | 28.9 | 274.5 | 506.7 | 1041.2 | 2081.3 | 5294.4 | 10452.5 | 0.9999 |
| 72 Ge ( ISTD ) [ 2 ] | CPS | 18611.1 | 19893.8 | 19129.5 | 18910.2 | 19101.7 | 18360.8 | 18393.2 | 18676.7 | 18428.7 | |
| 75 As [ 2 ] | CPS | 30.2 | 49.3 | 135.1 | 1163.6 | 2330.8 | 4453.5 | 8978.1 | 22337.5 | 44740.8 | 1.0000 |

| Standard Code | |
|---|---|
| ICAL: 2MSST-180608B | 180205B |
| ICAL: 2MSST-~~180620B~~ | 181001C |
| ICAL: 2MWST-~~180409H~~ | 181126B |
| IS Mix: 2MWST-~~180618C~~ | |

Calibration Acceptance Criteria: > 0.995 Correlation

NS 2/27/2019
for CEI

**INITIAL CALIBRATION SUMMARY: 190225A**

**Instrument ID: ICPMS-02**

| Analyte | Data File | A0225002.D | A0225003.D | A0225004.D | A0225005.D | A0225006.D | A0225007.D | A0225008.D | A0225009.D | A0225010.D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 02/25/2019 02:12 PM | 02/25/2019 02:18 PM | 02/25/2019 02:22 PM | 02/25/2019 02:28 PM | 02/25/2019 02:35 PM | 02/25/2019 02:41 PM | 02/25/2019 02:47 PM | 02/25/2019 02:53 PM | 02/25/2019 02:59 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std1-0.1/1 ppb | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.1/1 ug/L | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 72 Ge ( ISTD ) [ 1 ] | CPS | 10057.8 | | 10067.8 | 9957.8 | 10241.3 | 9835.5 | 9925.5 | 9585.3 | 9622 | |
| 78 Se [ 1 ] | CPS | 0 | | 23.3 | 171.1 | 366.7 | 706.7 | 1430.1 | 3523.8 | 6941.7 | 1.0000 |
| 72 Ge ( ISTD ) [ 2 ] | CPS | 12555.2 | 13582.6 | 13000 | 13115.7 | 12878.7 | 12646.4 | 12659.7 | 12221.6 | 11973.6 | |
| 75 As [ 2 ] | CPS | 17.3 | 39.1 | 104 | 867.6 | 1642.3 | 3171 | 6418.1 | 15337.4 | 29668.9 | 1.0000 |

| Standard Code |
|---|
| ICAL: 2MSST-180608B |
| ICAL: 2MSST-180205B |
| ICAL: 2MWST-181001C |
| IS Mix: 2MWST-181126B |

Calibration Acceptance Criteria: > 0.995 Correlation

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293429** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.961 | 0.10 | 10.00 | 0 | 99.6 | 90 | 110 | | | | |
| Manganese | 106.209 | 0.50 | 100.0 | 0 | 106 | 90 | 110 | | | | |
| Molybdenum | 10.140 | 0.50 | 10.00 | 0 | 101 | 90 | 110 | | | | |
| Selenium | 10.296 | 0.50 | 10.00 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293431** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.082 | 0.10 | 0.1000 | 0 | 81.6 | 80 | 120 | | | | |
| Molybdenum | 0.472 | 0.50 | 0.5000 | 0 | 94.3 | 80 | 120 | | | | |
| Selenium | 0.499 | 0.50 | 0.5000 | 0 | 99.8 | 80 | 120 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293434** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 0.545 | 0.50 | 0.5000 | 0 | 109 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293445** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.656 | 0.10 | 20.00 | 0 | 98.3 | 90 | 110 | | | | |
| Manganese | 20.343 | 0.50 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Molybdenum | 19.328 | 0.50 | 20.00 | 0 | 96.6 | 90 | 110 | | | | |
| Selenium | 19.688 | 0.50 | 20.00 | 0 | 98.4 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293457** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.352 | 0.10 | 20.00 | 0 | 96.8 | 90 | 110 | | | | |
| Manganese | 20.184 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Molybdenum | 18.695 | 0.50 | 20.00 | 0 | 93.5 | 90 | 110 | | | | |
| Selenium | 18.868 | 0.50 | 20.00 | 0 | 94.3 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293469** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 18.845 | 0.10 | 20.00 | 0 | 94.2 | 90 | 110 | | | | |
| Manganese | 19.871 | 0.50 | 20.00 | 0 | 99.4 | 90 | 110 | | | | |
| Molybdenum | 19.813 | 0.50 | 20.00 | 0 | 99.1 | 90 | 110 | | | | |
| Selenium | 19.351 | 0.50 | 20.00 | 0 | 96.8 | 90 | 110 | | | | |

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293481** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 18.703 | 0.10 | 20.00 | 0 | 93.5 | 90 | 110 | | | | |
| Manganese | 19.626 | 0.50 | 20.00 | 0 | 98.1 | 90 | 110 | | | | |
| Molybdenum | 19.275 | 0.50 | 20.00 | 0 | 96.4 | 90 | 110 | | | | |
| Selenium | 18.189 | 0.50 | 20.00 | 0 | 90.9 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293495** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.008 | 0.10 | 20.00 | 0 | 95.0 | 90 | 110 | | | | |
| Manganese | 19.789 | 0.50 | 20.00 | 0 | 98.9 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293495** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 18.714 | 0.50 | 20.00 | 0 | 93.6 | 90 | 110 | | | | |
| Selenium | 18.452 | 0.50 | 20.00 | 0 | 92.3 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293507** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.054 | 0.10 | 20.00 | 0 | 95.3 | 90 | 110 | | | | |
| Manganese | 19.866 | 0.50 | 20.00 | 0 | 99.3 | 90 | 110 | | | | |
| Molybdenum | 18.320 | 0.50 | 20.00 | 0 | 91.6 | 90 | 110 | | | | |
| Selenium | 18.870 | 0.50 | 20.00 | 0 | 94.3 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293519** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.356 | 0.10 | 20.00 | 0 | 96.8 | 90 | 110 | | | | |
| Manganese | 19.766 | 0.50 | 20.00 | 0 | 98.8 | 90 | 110 | | | | |
| Molybdenum | 19.322 | 0.50 | 20.00 | 0 | 96.6 | 90 | 110 | | | | |
| Selenium | 19.387 | 0.50 | 20.00 | 0 | 96.9 | 90 | 110 | | | | |

| Sample ID **CCV8** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293531** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.314 | 0.10 | 20.00 | 0 | 96.6 | 90 | 110 | | | | |
| Manganese | 20.014 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Molybdenum | 19.173 | 0.50 | 20.00 | 0 | 95.9 | 90 | 110 | | | | |
| Selenium | 19.112 | 0.50 | 20.00 | 0 | 95.6 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **CCV9** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **131940**
Client ID: **CCV** Batch ID: **R131940** TestNo: **EPA 6020** Analysis Date: **2/15/2019** SeqNo: **3293545**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 18.843 | 0.10 | 20.00 | 0 | 94.2 | 90 | 110 | | | | |
| Manganese | 19.521 | 0.50 | 20.00 | 0 | 97.6 | 90 | 110 | | | | |
| Molybdenum | 18.346 | 0.50 | 20.00 | 0 | 91.7 | 90 | 110 | | | | |
| Selenium | 18.098 | 0.50 | 20.00 | 0 | 90.5 | 90 | 110 | | | | |

Sample ID **CCV10** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **131940**
Client ID: **CCV** Batch ID: **R131940** TestNo: **EPA 6020** Analysis Date: **2/15/2019** SeqNo: **3293556**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.950 | 0.10 | 20.00 | 0 | 99.8 | 90 | 110 | | | | |
| Manganese | 20.134 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Molybdenum | 19.297 | 0.50 | 20.00 | 0 | 96.5 | 90 | 110 | | | | |
| Selenium | 20.084 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301516** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.728 | 0.10 | 10.00 | 0 | 97.3 | 90 | 110 | | | | |
| Manganese | 106.620 | 0.50 | 100.0 | 0 | 107 | 90 | 110 | | | | |
| Molybdenum | 9.420 | 0.50 | 10.00 | 0 | 94.2 | 90 | 110 | | | | |
| Selenium | 10.680 | 0.50 | 10.00 | 0 | 107 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301518** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 0.557 | 0.50 | 0.5000 | 0 | 111 | 80 | 120 | | | | |
| Molybdenum | 0.491 | 0.50 | 0.5000 | 0 | 98.1 | 80 | 120 | | | | |
| Selenium | 0.519 | 0.50 | 0.5000 | 0 | 104 | 80 | 120 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301521** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.092 | 0.10 | 0.1000 | 0 | 92.0 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301532** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.476 | 0.10 | 20.00 | 0 | 97.4 | 90 | 110 | | | | |
| Manganese | 20.882 | 0.50 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Molybdenum | 18.887 | 0.50 | 20.00 | 0 | 94.4 | 90 | 110 | | | | |
| Selenium | 20.620 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301544** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.199 | 0.10 | 20.00 | 0 | 96.0 | 90 | 110 | | | | |
| Manganese | 20.747 | 0.50 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Molybdenum | 18.573 | 0.50 | 20.00 | 0 | 92.9 | 90 | 110 | | | | |
| Selenium | 19.540 | 0.50 | 20.00 | 0 | 97.7 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301556** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.946 | 0.10 | 20.00 | 0 | 99.7 | 90 | 110 | | | | |
| Manganese | 20.831 | 0.50 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Molybdenum | 19.347 | 0.50 | 20.00 | 0 | 96.7 | 90 | 110 | | | | |
| Selenium | 19.362 | 0.50 | 20.00 | 0 | 96.8 | 90 | 110 | | | | |

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301570** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.647 | 0.10 | 20.00 | 0 | 98.2 | 90 | 110 | | | | |
| Manganese | 20.702 | 0.50 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Molybdenum | 18.576 | 0.50 | 20.00 | 0 | 92.9 | 90 | 110 | | | | |
| Selenium | 18.971 | 0.50 | 20.00 | 0 | 94.9 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301582** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.090 | 0.10 | 20.00 | 0 | 95.4 | 90 | 110 | | | | |
| Manganese | 20.579 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301582** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 19.059 | 0.50 | 20.00 | 0 | 95.3 | 90 | 110 | | | | |
| Selenium | 19.557 | 0.50 | 20.00 | 0 | 97.8 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301596** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.465 | 0.10 | 20.00 | 0 | 97.3 | 90 | 110 | | | | |
| Manganese | 20.900 | 0.50 | 20.00 | 0 | 105 | 90 | 110 | | | | |
| Molybdenum | 18.260 | 0.50 | 20.00 | 0 | 91.3 | 90 | 110 | | | | |
| Selenium | 20.117 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301608** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.236 | 0.10 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Manganese | 20.830 | 0.50 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Molybdenum | 18.895 | 0.50 | 20.00 | 0 | 94.5 | 90 | 110 | | | | |
| Selenium | 20.001 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV8** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301620** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.060 | 0.10 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Manganese | 20.655 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |
| Molybdenum | 18.508 | 0.50 | 20.00 | 0 | 92.5 | 90 | 110 | | | | |
| Selenium | 19.833 | 0.50 | 20.00 | 0 | 99.2 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **CCV9** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132107**
Client ID: **CCV** Batch ID: **R132107** TestNo: **EPA 6020** Analysis Date: **2/26/2019** SeqNo: **3301623**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.208 | 0.10 | 20.00 | 0 | 96.0 | 90 | 110 | | | | |
| Manganese | 20.662 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |
| Molybdenum | 18.612 | 0.50 | 20.00 | 0 | 93.1 | 90 | 110 | | | | |
| Selenium | 18.407 | 0.50 | 20.00 | 0 | 92.0 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293560** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.405 | 1.0 | 10.00 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293562** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 1.068 | 1.0 | 1.000 | 0 | 107 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293576** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.062 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293588** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.038 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293600** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.466 | 1.0 | 20.00 | 0 | 97.3 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293612** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.089 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293626** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.970 | 1.0 | 20.00 | 0 | 99.9 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293638** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.876 | 1.0 | 20.00 | 0 | 99.4 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293650** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.083 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV8** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293662** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.024 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCV9** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293676** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.611 | 1.0 | 20.00 | 0 | 98.1 | 90 | 110 | | | | |

| Sample ID **CCV10** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293687** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.058 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131945** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131945** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293833** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.262 | 1.0 | 10.00 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131945** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131945** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293835** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 1.053 | 1.0 | 1.000 | 0 | 105 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131945** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131945** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293849** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.411 | 1.0 | 20.00 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131945** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131945** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293861** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.868 | 1.0 | 20.00 | 0 | 99.3 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131945** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131945** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293872** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.049 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293430** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293446** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.325 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293458** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293470** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293470** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293482** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293496** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293508** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293508** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293520** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.216 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293532** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB9** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293546** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.240 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **CCB10** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **131940**
Client ID: **CCB** Batch ID: **R131940** TestNo: **EPA 6020** Analysis Date: **2/15/2019** SeqNo: **3293557**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.271 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

Mo detection in CCB-1 and CCB-10 are > 1/2 RL. However, N034091 samples were enclosed between CCV2/CCB2 and CCV4/CCB4/ICSA2/ICSAB2.

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference


NS 2/27/2019

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301517** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301533** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301545** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301557** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301557** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301571** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301583** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301597** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301609** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301621** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB9** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301624** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293561** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293577** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293589** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293601** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293613** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293627** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293639** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293651** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293663** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB9** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293677** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCB10** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293688** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131945** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131945** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293834** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131945** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131945** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293850** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131945** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131945** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293862** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131945** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131945** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293873** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **131940**
Client ID: **ICSA** Batch ID: **R131940** TestNo: **EPA 6020** Analysis Date: **2/14/2019** SeqNo: **3293432**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **131940**
Client ID: **ICSAB** Batch ID: **R131940** TestNo: **EPA 6020** Analysis Date: **2/14/2019** SeqNo: **3293433**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.129 | 0.10 | 20.00 | 0 | 95.6 | 80 | 120 | | | | |
| Manganese | 18.046 | 0.50 | 20.00 | 0 | 90.2 | 80 | 120 | | | | |
| Molybdenum | 19.566 | 0.50 | 20.00 | 0 | 97.8 | 80 | 120 | | | | |
| Selenium | 17.741 | 0.50 | 20.00 | 0 | 88.7 | 80 | 120 | | | | |

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **131940**
Client ID: **ICSA** Batch ID: **R131940** TestNo: **EPA 6020** Analysis Date: **2/14/2019** SeqNo: **3293483**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **131940**
Client ID: **ICSAB** Batch ID: **R131940** TestNo: **EPA 6020** Analysis Date: **2/14/2019** SeqNo: **3293484**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.054 | 0.10 | 20.00 | 0 | 95.3 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293484** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 17.700 | 0.50 | 20.00 | 0 | 88.5 | 80 | 120 | | | | |
| Molybdenum | 19.745 | 0.50 | 20.00 | 0 | 98.7 | 80 | 120 | | | | |
| Selenium | 17.077 | 0.50 | 20.00 | 0 | 85.4 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293533** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293534** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.031 | 0.10 | 20.00 | 0 | 95.2 | 80 | 120 | | | | |
| Manganese | 17.760 | 0.50 | 20.00 | 0 | 88.8 | 80 | 120 | | | | |
| Molybdenum | 19.720 | 0.50 | 20.00 | 0 | 98.6 | 80 | 120 | | | | |
| Selenium | 18.087 | 0.50 | 20.00 | 0 | 90.4 | 80 | 120 | | | | |

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293558** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293558** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB4** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293559** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.047 | 0.10 | 20.00 | 0 | 95.2 | 80 | 120 | | | | |
| Manganese | 17.735 | 0.50 | 20.00 | 0 | 88.7 | 80 | 120 | | | | |
| Molybdenum | 19.615 | 0.50 | 20.00 | 0 | 98.1 | 80 | 120 | | | | |
| Selenium | 18.083 | 0.50 | 20.00 | 0 | 90.4 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301519** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301520** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.581 | 0.10 | 20.00 | 0 | 97.9 | 80 | 120 | | | | |
| Manganese | 16.018 | 0.50 | 20.00 | 0 | 80.1 | 80 | 120 | | | | |
| Molybdenum | 19.294 | 0.50 | 20.00 | 0 | 96.5 | 80 | 120 | | | | |
| Selenium | 16.885 | 0.50 | 20.00 | 0 | 84.4 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301558** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301559** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.457 | 0.10 | 20.00 | 0 | 102 | 80 | 120 | | | | |
| Manganese | 16.578 | 0.50 | 20.00 | 0 | 82.9 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301559** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 19.790 | 0.50 | 20.00 | 0 | 99.0 | 80 | 120 | | | | |
| Selenium | 18.763 | 0.50 | 20.00 | 0 | 93.8 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301584** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301585** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.955 | 0.10 | 20.00 | 0 | 99.8 | 80 | 120 | | | | |
| Manganese | 17.132 | 0.50 | 20.00 | 0 | 85.7 | 80 | 120 | | | | |
| Molybdenum | 20.178 | 0.50 | 20.00 | 0 | 101 | 80 | 120 | | | | |
| Selenium | 17.247 | 0.50 | 20.00 | 0 | 86.2 | 80 | 120 | | | | |

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301625** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSAB4** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301626** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.344 | 0.10 | 20.00 | 0 | 96.7 | 80 | 120 | | | | |
| Manganese | 17.025 | 0.50 | 20.00 | 0 | 85.1 | 80 | 120 | | | | |
| Molybdenum | 19.969 | 0.50 | 20.00 | 0 | 99.8 | 80 | 120 | | | | |
| Selenium | 16.846 | 0.50 | 20.00 | 0 | 84.2 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293563** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293564** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 18.051 | 1.0 | 20.00 | 0 | 90.3 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293614** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293615** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 17.899 | 1.0 | 20.00 | 0 | 89.5 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293664** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293665** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 18.229 | 1.0 | 20.00 | 0 | 91.1 | 80 | 120 | | | | |

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293689** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB4** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293690** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 17.613 | 1.0 | 20.00 | 0 | 88.1 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131945** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131945** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293836** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131945** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131945** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293837** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 18.292 | 1.0 | 20.00 | 0 | 91.5 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131945** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131945** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293874** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131945** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131945** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293875** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 18.306 | 1.0 | 20.00 | 0 | 91.5 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 38266.9 | 38266.9 | 100 | PASS | 70-125 | 18785.8 | 18785.8 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 37827.1 | 38266.9 | 98.85 | PASS | 70-125 | 18907 | 18785.8 | 100.65 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 37298 | 38266.9 | 97.47 | PASS | 70-125 | 18571.1 | 18785.8 | 98.86 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 37725.6 | 38266.9 | 98.59 | PASS | 70-125 | 18656.7 | 18785.8 | 99.31 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 38020.9 | 38266.9 | 99.36 | PASS | 70-125 | 18854.7 | 18785.8 | 100.37 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 37397.2 | 38266.9 | 97.73 | PASS | 70-125 | 18574.4 | 18785.8 | 98.87 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 37615.5 | 38266.9 | 98.3 | PASS | 70-125 | 18369.7 | 18785.8 | 97.79 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 37717.7 | 38266.9 | 98.56 | PASS | 70-125 | 18320.8 | 18785.8 | 97.52 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 37974.1 | 38266.9 | 99.23 | PASS | 70-125 | 18568.9 | 18785.8 | 98.85 | PASS | 70-125 |
| ICV | ICV | 1 | 38025.3 | 38266.9 | 99.37 | PASS | 70-125 | 18878.1 | 18785.8 | 100.49 | PASS | 70-125 |
| ICB | ICB | 1 | 39034.2 | 38266.9 | 102.01 | PASS | 70-125 | 19611.3 | 18785.8 | 104.39 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 42338.9 | 38266.9 | 110.64 | PASS | 70-125 | 21641.6 | 18785.8 | 115.2 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 42882.4 | 38266.9 | 112.06 | PASS | 70-125 | 20755.9 | 18785.8 | 110.49 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 43786 | 38266.9 | 114.42 | PASS | 70-125 | 21028.6 | 18785.8 | 111.94 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 36098.7 | 38266.9 | 94.33 | PASS | 70-125 | 19070.6 | 18785.8 | 101.52 | PASS | 70-125 |
| CCV1 | CCV | 1 | 44269.4 | 38266.9 | 115.69 | PASS | 70-125 | 22511.6 | 18785.8 | 119.83 | PASS | 70-125 |
| CCB1 | CCB | 1 | 40788.5 | 38266.9 | 106.59 | PASS | 70-125 | 20828.3 | 18785.8 | 110.87 | PASS | 70-125 |
| CCV2 | CCV | 1 | 34009.8 | 38266.9 | 88.88 | PASS | 70-125 | 17808 | 18785.8 | 94.8 | PASS | 70-125 |
| CCB2 | CCB | 1 | 35791.4 | 38266.9 | 93.53 | PASS | 70-125 | 19001.6 | 18785.8 | 101.15 | PASS | 70-125 |
| MB-72457 | MBLK | 1 | 33018 | 38266.9 | 86.28 | PASS | 70-125 | 17921.4 | 18785.8 | 95.4 | PASS | 70-125 |
| LCS-72457 | LCS | 1 | 38309.2 | 38266.9 | 100.11 | PASS | 70-125 | 20256.5 | 18785.8 | 107.83 | PASS | 70-125 |
| N034091-002B | SAMP | 1 | 34955.2 | 38266.9 | 91.35 | PASS | 70-125 | 17290.8 | 18785.8 | 92.042 | PASS | 70-125 |
| N034091-002B | SAMP | 5 | 35694.4 | 38266.9 | 93.28 | PASS | 70-125 | 17912.5 | 18785.8 | 95.35 | PASS | 70-125 |
| CCV3 | CCV | 1 | 40400.8 | 38266.9 | 105.58 | PASS | 70-125 | 21177.6 | 18785.8 | 112.73 | PASS | 70-125 |
| CCB3 | CCB | 1 | 34304.9 | 38266.9 | 89.65 | PASS | 70-125 | 18226.3 | 18785.8 | 97.022 | PASS | 70-125 |
| N034091-002B-PS | PS | 1 | 42419.1 | 38266.9 | 110.85 | PASS | 70-125 | 20452.3 | 18785.8 | 108.87 | PASS | 70-125 |
| N034091-002B-MS | MS | 1 | 43454.1 | 38266.9 | 113.56 | PASS | 70-125 | 20520.2 | 18785.8 | 109.23 | PASS | 70-125 |
| N034091-002B-MSD | MSD | 1 | 43354.8 | 38266.9 | 113.3 | PASS | 70-125 | 20804.9 | 18785.8 | 110.75 | PASS | 70-125 |
| N034091-003B | SAMP | 1 | 35036.4 | 38266.9 | 91.56 | PASS | 70-125 | 16773.6 | 18785.8 | 89.29 | PASS | 70-125 |
| N034091-004B | SAMP | 1 | 43453 | 38266.9 | 113.55 | PASS | 70-125 | 21479.1 | 18785.8 | 114.34 | PASS | 70-125 |
| N034102-002B | SAMP | 1 | 41474.6 | 38266.9 | 108.38 | PASS | 70-125 | 20508.9 | 18785.8 | 109.17 | PASS | 70-125 |
| N034102-003B | SAMP | 1 | 42430.4 | 38266.9 | 110.88 | PASS | 70-125 | 20886.1 | 18785.8 | 111.18 | PASS | 70-125 |
| N034102-004B | SAMP | 1 | 42182 | 38266.9 | 110.23 | PASS | 70-125 | 20810.5 | 18785.8 | 110.78 | PASS | 70-125 |
| N034105-001B | SAMP | 1 | 44851.1 | 38266.9 | 117.21 | PASS | 70-125 | 22975.6 | 18785.8 | 122.3 | PASS | 70-125 |
| N034105-002B | SAMP | 1 | 43925.2 | 38266.9 | 114.79 | PASS | 70-125 | 21885.2 | 18785.8 | 116.5 | PASS | 70-125 |
| CCV4 | CCV | 1 | 36743.6 | 38266.9 | 96.019 | PASS | 70-125 | 19396.5 | 18785.8 | 103.25 | PASS | 70-125 |
| CCB4 | CCB | 1 | 32969.1 | 38266.9 | 86.16 | PASS | 70-125 | 17215.1 | 18785.8 | 91.64 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 44858.9 | 38266.9 | 117.23 | PASS | 70-125 | 22748.6 | 18785.8 | 121.1 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 44961.6 | 38266.9 | 117.49 | PASS | 70-125 | 21972 | 18785.8 | 116.96 | PASS | 70-125 |
| N034105-003B | SAMP | 1 | 40634.8 | 38266.9 | 106.19 | PASS | 70-125 | 20194.2 | 18785.8 | 107.5 | PASS | 70-125 |
| N034105-004B | SAMP | 1 | 42458.1 | 38266.9 | 110.95 | PASS | 70-125 | 20879.5 | 18785.8 | 111.15 | PASS | 70-125 |

**INTERNAL STANDARD: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| N034106-001B | SAMP | 1 | 32921.1 | 38266.9 | 86.03 | PASS | 70-125 | 17407.6 | 18785.8 | 92.66 | PASS | 70-125 |
| N034106-002B | SAMP | 1 | 40858.6 | 38266.9 | 106.77 | PASS | 70-125 | 20349.9 | 18785.8 | 108.33 | PASS | 70-125 |
| N034106-003B | SAMP | 1 | 40918.6 | 38266.9 | 106.93 | PASS | 70-125 | 20750.4 | 18785.8 | 110.46 | PASS | 70-125 |
| N034106-004B | SAMP | 1 | 38520.9 | 38266.9 | 100.66 | PASS | 70-125 | 19595.5 | 18785.8 | 104.31 | PASS | 70-125 |
| N034106-005B | SAMP | 1 | 33033.3 | 38266.9 | 86.32 | PASS | 70-125 | 17266.2 | 18785.8 | 91.91 | PASS | 70-125 |
| N034106-006B | SAMP | 1 | 36196.9 | 38266.9 | 94.59 | PASS | 70-125 | 18541.1 | 18785.8 | 98.7 | PASS | 70-125 |
| N034106-007B | SAMP | 1 | 40623.6 | 38266.9 | 106.16 | PASS | 70-125 | 20633.6 | 18785.8 | 109.84 | PASS | 70-125 |
| N034106-008B | SAMP | 1 | 39765.9 | 38266.9 | 103.92 | PASS | 70-125 | 19897.1 | 18785.8 | 105.92 | PASS | 70-125 |
| CCV5 | CCV | 1 | 34899.5 | 38266.9 | 91.2 | PASS | 70-125 | 18409.8 | 18785.8 | 98 | PASS | 70-125 |
| CCB5 | CCB | 1 | 27500 | 38266.9 | 71.86 | PASS | 70-125 | 14681.4 | 18785.8 | 78.15 | PASS | 70-125 |
| N034106-009B | SAMP | 1 | 38869.4 | 38266.9 | 101.57 | PASS | 70-125 | 19460 | 18785.8 | 103.59 | PASS | 70-125 |
| CCV6 | CCV | 1 | 33258.3 | 38266.9 | 86.91 | PASS | 70-125 | 17650.1 | 18785.8 | 93.95 | PASS | 70-125 |
| CCB6 | CCB | 1 | 41288.5 | 38266.9 | 107.9 | PASS | 70-125 | 21709.5 | 18785.8 | 115.56 | PASS | 70-125 |
| CCV7 | CCV | 1 | 32022.7 | 38266.9 | 83.68 | PASS | 70-125 | 16801.3 | 18785.8 | 89.44 | PASS | 70-125 |
| CCB7 | CCB | 1 | 41951.6 | 38266.9 | 109.63 | PASS | 70-125 | 22033.2 | 18785.8 | 117.29 | PASS | 70-125 |
| CCV8 | CCV | 1 | 31700.8 | 38266.9 | 82.84 | PASS | 70-125 | 16782.4 | 18785.8 | 89.34 | PASS | 70-125 |
| CCB8 | CCB | 1 | 26961.4 | 38266.9 | 70.46 | PASS | 70-125 | 14752.7 | 18785.8 | 78.53 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 38721.3 | 38266.9 | 101.19 | PASS | 70-125 | 19633.5 | 18785.8 | 104.51 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 39603.4 | 38266.9 | 103.49 | PASS | 70-125 | 20055.1 | 18785.8 | 106.76 | PASS | 70-125 |
| CCV9 | CCV | 1 | 30936.2 | 38266.9 | 80.84 | PASS | 70-125 | 16290.8 | 18785.8 | 86.72 | PASS | 70-125 |
| CCB9 | CCB | 1 | 39046.6 | 38266.9 | 102.04 | PASS | 70-125 | 20307.6 | 18785.8 | 108.1 | PASS | 70-125 |
| CCV10 | CCV | 1 | 39330.7 | 38266.9 | 102.78 | PASS | 70-125 | 20832.8 | 18785.8 | 110.9 | PASS | 70-125 |
| CCB10 | CCB | 1 | 38379.4 | 38266.9 | 100.29 | PASS | 70-125 | 20334.3 | 18785.8 | 108.24 | PASS | 70-125 |
| ICSA4 | ICSA | 1 | 39018.7 | 38266.9 | 101.96 | PASS | 70-125 | 19910.5 | 18785.8 | 105.99 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 39815 | 38266.9 | 104.05 | PASS | 70-125 | 19664.6 | 18785.8 | 104.68 | PASS | 70-125 |

**INTERNAL STANDARD: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 15508.8 | 15508.8 | 100 | PASS | 70-125 | 538422.1 | 538422.1 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 15684.7 | 15508.8 | 101.13 | PASS | 70-125 | 535561.2 | 538422.1 | 99.47 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 15107.4 | 15508.8 | 97.41 | PASS | 70-125 | 527575.5 | 538422.1 | 97.99 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 15139.7 | 15508.8 | 97.62 | PASS | 70-125 | 528380.3 | 538422.1 | 98.13 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 15169.8 | 15508.8 | 97.81 | PASS | 70-125 | 525282.6 | 538422.1 | 97.56 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 15106.4 | 15508.8 | 97.41 | PASS | 70-125 | 523419.5 | 538422.1 | 97.21 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 15210.9 | 15508.8 | 98.079 | PASS | 70-125 | 523257.3 | 538422.1 | 97.18 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 15505.6 | 15508.8 | 99.98 | PASS | 70-125 | 519921.5 | 538422.1 | 96.56 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 15179.7 | 15508.8 | 97.88 | PASS | 70-125 | 517230 | 538422.1 | 96.064 | PASS | 70-125 |
| ICV | ICV | 1 | 14846.1 | 15508.8 | 95.73 | PASS | 70-125 | 550495.5 | 538422.1 | 102.24 | PASS | 70-125 |
| ICB | ICB | 1 | 16386.5 | 15508.8 | 105.66 | PASS | 70-125 | 560935.4 | 538422.1 | 104.18 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 18207.3 | 15508.8 | 117.4 | PASS | 70-125 | 601173 | 538422.1 | 111.65 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 16639 | 15508.8 | 107.29 | PASS | 70-125 | 533596.4 | 538422.1 | 99.1 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 17900.3 | 15508.8 | 115.42 | PASS | 70-125 | 545370.5 | 538422.1 | 101.29 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 15648 | 15508.8 | 100.9 | PASS | 70-125 | 527312.6 | 538422.1 | 97.94 | PASS | 70-125 |
| CCV1 | CCV | 1 | 19325.3 | 15508.8 | 124.61 | PASS | 70-125 | 602254.9 | 538422.1 | 111.86 | PASS | 70-125 |
| CCB1 | CCB | 1 | 18057.2 | 15508.8 | 116.43 | PASS | 70-125 | 569829.5 | 538422.1 | 105.83 | PASS | 70-125 |
| CCV2 | CCV | 1 | 14333.4 | 15508.8 | 92.42 | PASS | 70-125 | 502990.7 | 538422.1 | 93.42 | PASS | 70-125 |
| CCB2 | CCB | 1 | 15960.5 | 15508.8 | 102.91 | PASS | 70-125 | 514921.2 | 538422.1 | 95.64 | PASS | 70-125 |
| MB-72457 | MBLK | 1 | 13992 | 15508.8 | 90.22 | PASS | 70-125 | 496598.4 | 538422.1 | 92.23 | PASS | 70-125 |
| LCS-72457 | LCS | 1 | 16496.5 | 15508.8 | 106.37 | PASS | 70-125 | 550298.4 | 538422.1 | 102.21 | PASS | 70-125 |
| N034091-002B | SAMP | 1 | 12772 | 15508.8 | 82.35 | PASS | 70-125 | 420521.4 | 538422.1 | 78.1 | PASS | 70-125 |
| N034091-002B | SAMP | 5 | 13566.1 | 15508.8 | 87.47 | PASS | 70-125 | 466286.2 | 538422.1 | 86.6 | PASS | 70-125 |
| CCV3 | CCV | 1 | 17496.6 | 15508.8 | 112.82 | PASS | 70-125 | 565200.7 | 538422.1 | 104.97 | PASS | 70-125 |
| CCB3 | CCB | 1 | 14166.5 | 15508.8 | 91.34 | PASS | 70-125 | 500551.6 | 538422.1 | 92.97 | PASS | 70-125 |
| N034091-002B-PS | PS | 1 | 16891.5 | 15508.8 | 108.92 | PASS | 70-125 | 492606.2 | 538422.1 | 91.49 | PASS | 70-125 |
| N034091-002B-MS | MS | 1 | 17357.5 | 15508.8 | 111.92 | PASS | 70-125 | 505222.6 | 538422.1 | 93.83 | PASS | 70-125 |
| N034091-002B-MSD | MSD | 1 | 16870.3 | 15508.8 | 108.78 | PASS | 70-125 | 508240.2 | 538422.1 | 94.39 | PASS | 70-125 |
| N034091-003B | SAMP | 1 | 10393.6 | 15508.8 | 67.017 | NR! | 70-125 | 419159.9 | 538422.1 | 77.85 | PASS | 70-125 |
| N034091-004B | SAMP | 1 | 17912.6 | 15508.8 | 115.5 | PASS | 70-125 | 537061.9 | 538422.1 | 99.75 | PASS | 70-125 |
| N034102-002B | SAMP | 1 | 14898.3 | 15508.8 | 96.064 | PASS | 70-125 | 487312.2 | 538422.1 | 90.51 | PASS | 70-125 |
| N034102-003B | SAMP | 1 | 15374.4 | 15508.8 | 99.13 | PASS | 70-125 | 509836.2 | 538422.1 | 94.69 | PASS | 70-125 |
| N034102-004B | SAMP | 1 | 15031.8 | 15508.8 | 96.92 | PASS | 70-125 | 503757.5 | 538422.1 | 93.56 | PASS | 70-125 |
| N034105-001B | SAMP | 1 | 19535.5 | 15508.8 | 125.96 | NR! | 70-125 | 594366.9 | 538422.1 | 110.39 | PASS | 70-125 |
| N034105-002B | SAMP | 1 | 18387.5 | 15508.8 | 118.56 | PASS | 70-125 | 562988.3 | 538422.1 | 104.56 | PASS | 70-125 |
| CCV4 | CCV | 1 | 15015.1 | 15508.8 | 96.82 | PASS | 70-125 | 530972.4 | 538422.1 | 98.62 | PASS | 70-125 |
| CCB4 | CCB | 1 | 13316.9 | 15508.8 | 85.87 | PASS | 70-125 | 472959.9 | 538422.1 | 87.84 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 17902.5 | 15508.8 | 115.43 | PASS | 70-125 | 573730.6 | 538422.1 | 106.56 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 18361.9 | 15508.8 | 118.4 | PASS | 70-125 | 571205.5 | 538422.1 | 106.09 | PASS | 70-125 |
| N034105-003B | SAMP | 1 | 15882.6 | 15508.8 | 102.41 | PASS | 70-125 | 512940.1 | 538422.1 | 95.27 | PASS | 70-125 |
| N034105-004B | SAMP | 1 | 16808 | 15508.8 | 108.38 | PASS | 70-125 | 529989.4 | 538422.1 | 98.43 | PASS | 70-125 |

**INTERNAL STANDARD: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| N034106-001B | SAMP | 1 | 13246.9 | 15508.8 | 85.42 | PASS | 70-125 | 440124.7 | 538422.1 | 81.74 | PASS | 70-125 |
| N034106-002B | SAMP | 1 | 16045 | 15508.8 | 103.46 | PASS | 70-125 | 505654.4 | 538422.1 | 93.91 | PASS | 70-125 |
| N034106-003B | SAMP | 1 | 16330.9 | 15508.8 | 105.3 | PASS | 70-125 | 518201.4 | 538422.1 | 96.24 | PASS | 70-125 |
| N034106-004B | SAMP | 1 | 15811.5 | 15508.8 | 101.95 | PASS | 70-125 | 491623.1 | 538422.1 | 91.31 | PASS | 70-125 |
| N034106-005B | SAMP | 1 | 13476 | 15508.8 | 86.89 | PASS | 70-125 | 441448.2 | 538422.1 | 81.99 | PASS | 70-125 |
| N034106-006B | SAMP | 1 | 14419 | 15508.8 | 92.97 | PASS | 70-125 | 456170.5 | 538422.1 | 84.72 | PASS | 70-125 |
| N034106-007B | SAMP | 1 | 15603.4 | 15508.8 | 100.61 | PASS | 70-125 | 505115 | 538422.1 | 93.81 | PASS | 70-125 |
| N034106-008B | SAMP | 1 | 15366.6 | 15508.8 | 99.083 | PASS | 70-125 | 498361.2 | 538422.1 | 92.56 | PASS | 70-125 |
| CCV5 | CCV | 1 | 13937.5 | 15508.8 | 89.87 | PASS | 70-125 | 507212.7 | 538422.1 | 94.2 | PASS | 70-125 |
| CCB5 | CCB | 1 | 11531.1 | 15508.8 | 74.35 | PASS | 70-125 | 407237.9 | 538422.1 | 75.64 | PASS | 70-125 |
| N034106-009B | SAMP | 1 | 15294.2 | 15508.8 | 98.62 | PASS | 70-125 | 495379.7 | 538422.1 | 92.006 | PASS | 70-125 |
| CCV6 | CCV | 1 | 13750.7 | 15508.8 | 88.66 | PASS | 70-125 | 486172.4 | 538422.1 | 90.3 | PASS | 70-125 |
| CCB6 | CCB | 1 | 17610 | 15508.8 | 113.55 | PASS | 70-125 | 580601.9 | 538422.1 | 107.83 | PASS | 70-125 |
| CCV7 | CCV | 1 | 13229.1 | 15508.8 | 85.3 | PASS | 70-125 | 473870 | 538422.1 | 88.011 | PASS | 70-125 |
| CCB7 | CCB | 1 | 17938.2 | 15508.8 | 115.66 | PASS | 70-125 | 588292.1 | 538422.1 | 109.26 | PASS | 70-125 |
| CCV8 | CCV | 1 | 12990 | 15508.8 | 83.76 | PASS | 70-125 | 469579.9 | 538422.1 | 87.21 | PASS | 70-125 |
| CCB8 | CCB | 1 | 11455.5 | 15508.8 | 73.86 | PASS | 70-125 | 409836.1 | 538422.1 | 76.12 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 15247.5 | 15508.8 | 98.32 | PASS | 70-125 | 498593 | 538422.1 | 92.6 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 16022.8 | 15508.8 | 103.31 | PASS | 70-125 | 511299.3 | 538422.1 | 94.96 | PASS | 70-125 |
| CCV9 | CCV | 1 | 12801 | 15508.8 | 82.54 | PASS | 70-125 | 460006.1 | 538422.1 | 85.44 | PASS | 70-125 |
| CCB9 | CCB | 1 | 16687.9 | 15508.8 | 107.6 | PASS | 70-125 | 548782 | 538422.1 | 101.92 | PASS | 70-125 |
| CCV10 | CCV | 1 | 17338.6 | 15508.8 | 111.8 | PASS | 70-125 | 549145.1 | 538422.1 | 101.99 | PASS | 70-125 |
| CCB10 | CCB | 1 | 16496.6 | 15508.8 | 106.37 | PASS | 70-125 | 539750.4 | 538422.1 | 100.25 | PASS | 70-125 |
| ICSA4 | ICSA | 1 | 15812.6 | 15508.8 | 101.96 | PASS | 70-125 | 496902.8 | 538422.1 | 92.29 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 15831.5 | 15508.8 | 102.08 | PASS | 70-125 | 500666.8 | 538422.1 | 92.99 | PASS | 70-125 |

**INTERNAL STANDARD: 190215A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 35594.3 | 35594.3 | 100 | PASS | 70-125 | 18611.1 | 18611.1 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 37400.6 | 35594.3 | 105.08 | PASS | 70-125 | 19893.8 | 18611.1 | 106.89 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 36536.4 | 35594.3 | 102.65 | PASS | 70-125 | 19129.5 | 18611.1 | 102.79 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 35650 | 35594.3 | 100.16 | PASS | 70-125 | 18910.2 | 18611.1 | 101.61 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 35323.7 | 35594.3 | 99.24 | PASS | 70-125 | 19101.7 | 18611.1 | 102.64 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 34615.6 | 35594.3 | 97.25 | PASS | 70-125 | 18360.8 | 18611.1 | 98.66 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 35155.6 | 35594.3 | 98.77 | PASS | 70-125 | 18393.2 | 18611.1 | 98.83 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 34655.7 | 35594.3 | 97.36 | PASS | 70-125 | 18676.7 | 18611.1 | 100.35 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 34594.4 | 35594.3 | 97.19 | PASS | 70-125 | 18428.7 | 18611.1 | 99.02 | PASS | 70-125 |
| ICV | ICV | 1 | 35603.2 | 35594.3 | 100.03 | PASS | 70-125 | 19146.2 | 18611.1 | 102.88 | PASS | 70-125 |
| ICB | ICB | 1 | 32386.7 | 35594.3 | 90.99 | PASS | 70-125 | 17414.2 | 18611.1 | 93.57 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 32630.5 | 35594.3 | 91.67 | PASS | 70-125 | 17696.7 | 18611.1 | 95.087 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 36187.7 | 35594.3 | 101.67 | PASS | 70-125 | 18862.5 | 18611.1 | 101.35 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 36612 | 35594.3 | 102.86 | PASS | 70-125 | 18919.2 | 18611.1 | 101.66 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 37655.6 | 35594.3 | 105.79 | PASS | 70-125 | 19953.9 | 18611.1 | 107.22 | PASS | 70-125 |
| N034091-003B | SAMP | 1 | 31256.7 | 35594.3 | 87.81 | PASS | 70-125 | 15531.2 | 18611.1 | 83.45 | PASS | 70-125 |
| N034106-001B | SAMP | 1 | 34008.8 | 35594.3 | 95.55 | PASS | 70-125 | 17810.2 | 18611.1 | 95.7 | PASS | 70-125 |
| N034106-005B | SAMP | 1 | 33973.2 | 35594.3 | 95.45 | PASS | 70-125 | 17862.5 | 18611.1 | 95.98 | PASS | 70-125 |
| CCV1 | CCV | 1 | 36574.1 | 35594.3 | 102.75 | PASS | 70-125 | 19594.5 | 18611.1 | 105.28 | PASS | 70-125 |
| CCB1 | CCB | 1 | 35986.1 | 35594.3 | 101.1 | PASS | 70-125 | 18979.4 | 18611.1 | 101.98 | PASS | 70-125 |
| N034091-003B | SAMP | 1 | 33416.4 | 35594.3 | 93.88 | PASS | 70-125 | 16253 | 18611.1 | 87.33 | PASS | 70-125 |
| N034106-001B | SAMP | 1 | 36539.8 | 35594.3 | 102.66 | PASS | 70-125 | 19171.8 | 18611.1 | 103.01 | PASS | 70-125 |
| N034106-005B | SAMP | 1 | 35813.7 | 35594.3 | 100.62 | PASS | 70-125 | 19062.8 | 18611.1 | 102.43 | PASS | 70-125 |
| CCV2 | CCV | 1 | 38341.5 | 35594.3 | 107.72 | PASS | 70-125 | 19944.9 | 18611.1 | 107.17 | PASS | 70-125 |
| CCB2 | CCB | 1 | 35964.1 | 35594.3 | 101.04 | PASS | 70-125 | 18937.1 | 18611.1 | 101.75 | PASS | 70-125 |
| N034091-004B | SAMP | 5 | 34901.7 | 35594.3 | 98.054 | PASS | 70-125 | 18432 | 18611.1 | 99.038 | PASS | 70-125 |
| CCV3 | CCV | 1 | 33464.4 | 35594.3 | 94.016 | PASS | 70-125 | 17702.3 | 18611.1 | 95.12 | PASS | 70-125 |
| CCB3 | CCB | 1 | 32815.2 | 35594.3 | 92.19 | PASS | 70-125 | 17809.1 | 18611.1 | 95.69 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 34925.1 | 35594.3 | 98.12 | PASS | 70-125 | 18191.8 | 18611.1 | 97.75 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 35205.7 | 35594.3 | 98.91 | PASS | 70-125 | 18169.6 | 18611.1 | 97.63 | PASS | 70-125 |

**INTERNAL STANDARD: 190215A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 15732.5 | 15732.5 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 16586.7 | 15732.5 | 105.43 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 15924.9 | 15732.5 | 101.22 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 15665.8 | 15732.5 | 99.58 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 15951.6 | 15732.5 | 101.39 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 15356.5 | 15732.5 | 97.61 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 15734.7 | 15732.5 | 100.01 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 15435.5 | 15732.5 | 98.11 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 15532.3 | 15732.5 | 98.73 | PASS | 70-125 |
| ICV | ICV | 1 | 16234.1 | 15732.5 | 103.19 | PASS | 70-125 |
| ICB | ICB | 1 | 14739.3 | 15732.5 | 93.69 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 14774.9 | 15732.5 | 93.91 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 15127.4 | 15732.5 | 96.15 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 16087.3 | 15732.5 | 102.26 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 17723.5 | 15732.5 | 112.66 | PASS | 70-125 |
| N034091-003B | SAMP | 1 | 12131.6 | 15732.5 | 77.11 | PASS | 70-125 |
| N034106-001B | SAMP | 1 | 14699.2 | 15732.5 | 93.43 | PASS | 70-125 |
| N034106-005B | SAMP | 1 | 14719.3 | 15732.5 | 93.56 | PASS | 70-125 |
| CCV1 | CCV | 1 | 16843.7 | 15732.5 | 107.06 | PASS | 70-125 |
| CCB1 | CCB | 1 | 15969.3 | 15732.5 | 101.51 | PASS | 70-125 |
| N034091-003B | SAMP | 1 | 11934.7 | 15732.5 | 75.86 | PASS | 70-125 |
| N034106-001B | SAMP | 1 | 15387.7 | 15732.5 | 97.81 | PASS | 70-125 |
| N034106-005B | SAMP | 1 | 15631.3 | 15732.5 | 99.36 | PASS | 70-125 |
| CCV2 | CCV | 1 | 16820.3 | 15732.5 | 106.91 | PASS | 70-125 |
| CCB2 | CCB | 1 | 15980.5 | 15732.5 | 101.58 | PASS | 70-125 |
| N034091-004B | SAMP | 5 | 14906.1 | 15732.5 | 94.75 | PASS | 70-125 |
| CCV3 | CCV | 1 | 15318.7 | 15732.5 | 97.37 | PASS | 70-125 |
| CCB3 | CCB | 1 | 15307.6 | 15732.5 | 97.3 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 15534.5 | 15732.5 | 98.74 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 15417.7 | 15732.5 | 98 | PASS | 70-125 |

**INTERNAL STANDARD: 190225A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 12555.2 | 12555.2 | 100 | PASS | 70-125 | 10057.8 | 10057.8 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 13582.6 | 12555.2 | 108.18 | PASS | 70-125 | 10832.8 | 10057.8 | 107.71 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 13000 | 12555.2 | 103.54 | PASS | 70-125 | 10067.8 | 10057.8 | 100.1 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 13115.7 | 12555.2 | 104.46 | PASS | 70-125 | 9957.8 | 10057.8 | 99.006 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 12878.7 | 12555.2 | 102.58 | PASS | 70-125 | 10241.3 | 10057.8 | 101.82 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 12646.4 | 12555.2 | 100.73 | PASS | 70-125 | 9835.5 | 10057.8 | 97.79 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 12659.7 | 12555.2 | 100.83 | PASS | 70-125 | 9925.5 | 10057.8 | 98.68 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 12221.6 | 12555.2 | 97.34 | PASS | 70-125 | 9585.3 | 10057.8 | 95.3 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 11973.6 | 12555.2 | 95.37 | PASS | 70-125 | 9622 | 10057.8 | 95.67 | PASS | 70-125 |
| ICV | ICV | 1 | 11940.3 | 12555.2 | 95.1 | PASS | 70-125 | 8595.9 | 10057.8 | 85.47 | PASS | 70-125 |
| ICB | ICB | 1 | 10755 | 12555.2 | 85.66 | PASS | 70-125 | 8048.9 | 10057.8 | 80.026 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 11471 | 12555.2 | 91.36 | PASS | 70-125 | 8876 | 10057.8 | 88.25 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 14486.8 | 12555.2 | 115.38 | PASS | 70-125 | 11700.1 | 10057.8 | 116.33 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 13314.7 | 12555.2 | 106.05 | PASS | 70-125 | 9886.6 | 10057.8 | 98.3 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 13316.9 | 12555.2 | 106.07 | PASS | 70-125 | 10863.9 | 10057.8 | 108.02 | PASS | 70-125 |
| N034091-003B | SAMP | 1 | 12697.5 | 12555.2 | 101.13 | PASS | 70-125 | 7166.3 | 10057.8 | 71.25 | PASS | 70-125 |
| N034106-001B | SAMP | 1 | 11734.5 | 12555.2 | 93.46 | PASS | 70-125 | 7818.8 | 10057.8 | 77.74 | PASS | 70-125 |
| N034106-001B | SAMP | 1 | 11956.9 | 12555.2 | 95.23 | PASS | 70-125 | 8621.4 | 10057.8 | 85.72 | PASS | 70-125 |
| CCV1 | CCV | 1 | 11812.4 | 12555.2 | 94.084 | PASS | 70-125 | 8101.2 | 10057.8 | 80.55 | PASS | 70-125 |
| CCB1 | CCB | 1 | 10262.4 | 12555.2 | 81.74 | PASS | 70-125 | 7152.9 | 10057.8 | 71.12 | PASS | 70-125 |
| CCV2 | CCV | 1 | 13308 | 12555.2 | 106 | PASS | 70-125 | 9733.2 | 10057.8 | 96.77 | PASS | 70-125 |
| CCB2 | CCB | 1 | 11625.6 | 12555.2 | 92.6 | PASS | 70-125 | 8577 | 10057.8 | 85.28 | PASS | 70-125 |
| CCV3 | CCV | 1 | 15157.4 | 12555.2 | 120.73 | PASS | 70-125 | 10861.7 | 10057.8 | 107.99 | PASS | 70-125 |
| CCB3 | CCB | 1 | 13046.7 | 12555.2 | 103.91 | PASS | 70-125 | 8838.2 | 10057.8 | 87.87 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 13996.4 | 12555.2 | 111.48 | PASS | 70-125 | 9757.7 | 10057.8 | 97.016 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 12841 | 12555.2 | 102.28 | PASS | 70-125 | 9237.3 | 10057.8 | 91.84 | PASS | 70-125 |
| CCV4 | CCV | 1 | 11353.2 | 12555.2 | 90.43 | PASS | 70-125 | 8281.3 | 10057.8 | 82.34 | PASS | 70-125 |
| CCB4 | CCB | 1 | 10140.1 | 12555.2 | 80.76 | PASS | 70-125 | 7517.5 | 10057.8 | 74.74 | PASS | 70-125 |
| N034106-001B | SAMP | 1 | 9055 | 12555.2 | 72.12 | PASS | 70-125 | 6640.4 | 10057.8 | 66.022 | NR! | 70-125 |
| N034106-001B | SAMP | 1 | 9732.1 | 12555.2 | 77.51 | PASS | 70-125 | 7236.3 | 10057.8 | 71.95 | PASS | 70-125 |
| CCV5 | CCV | 1 | 11504.4 | 12555.2 | 91.63 | PASS | 70-125 | 8647 | 10057.8 | 85.97 | PASS | 70-125 |
| CCB5 | CCB | 1 | 10793.9 | 12555.2 | 85.97 | PASS | 70-125 | 8042.2 | 10057.8 | 79.96 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 12617.5 | 12555.2 | 100.5 | PASS | 70-125 | 9175.1 | 10057.8 | 91.22 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 11511.1 | 12555.2 | 91.68 | PASS | 70-125 | 8642.6 | 10057.8 | 85.93 | PASS | 70-125 |
| CCV6 | CCV | 1 | 11273.1 | 12555.2 | 89.79 | PASS | 70-125 | 8498 | 10057.8 | 84.49 | PASS | 70-125 |
| CCB6 | CCB | 1 | 10698.3 | 12555.2 | 85.21 | PASS | 70-125 | 8082.3 | 10057.8 | 80.36 | PASS | 70-125 |
| CCV7 | CCV | 1 | 11703.4 | 12555.2 | 93.22 | PASS | 70-125 | 9149.5 | 10057.8 | 90.97 | PASS | 70-125 |
| CCB7 | CCB | 1 | 9781 | 12555.2 | 77.9 | PASS | 70-125 | 7267.4 | 10057.8 | 72.26 | PASS | 70-125 |
| CCV8 | CCV | 1 | 10111.2 | 12555.2 | 80.53 | PASS | 70-125 | 7895.5 | 10057.8 | 78.5 | PASS | 70-125 |
| CCB8 | CCB | 1 | 9809.9 | 12555.2 | 78.13 | PASS | 70-125 | 7318.5 | 10057.8 | 72.76 | PASS | 70-125 |
| CCV9 | CCV | 1 | 10085.6 | 12555.2 | 80.33 | PASS | 70-125 | 7792.1 | 10057.8 | 77.47 | PASS | 70-125 |

**INTERNAL STANDARD: 190225A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| CCB9 | CCB | 1 | 10194.6 | 12555.2 | 81.2 | PASS | 70-125 | 7479.7 | 10057.8 | 74.37 | PASS | 70-125 |
| ICSA4 | ICSA | 1 | 11059.6 | 12555.2 | 88.088 | PASS | 70-125 | 8291.2 | 10057.8 | 82.44 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 10790.5 | 12555.2 | 85.94 | PASS | 70-125 | 8303.5 | 10057.8 | 82.56 | PASS | 70-125 |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-MS-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034091
Test Method: EPA 6020
Analysis Date: 2/14/2019

Matrix: Groundwater
Batch No.: 72457

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to As and Se. The calculated concentration is <25RL.
Dilution test failed for Mn. However, PS passed criteria.

| Sample ID | Analyte | Units | Calc Val | OQual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|
| N034091-002B DT 5X | Arsenic | ug/L | 1.637008 | NA | 1.503834 | 8.86% | 10 |
| N034091-002B DT 5X | Chromium | ug/L | 36.56935 | PASS | 34.00435 | 7.54% | 10 |
| N034091-002B DT 5X | Manganese | ug/L | 22.51693 | FAIL | 20.18249 | 11.57% | 10 |
| N034091-002B DT 5X | Molybdenum | ug/L | 37.30239 | PASS | 38.289 | 2.58% | 10 |
| N034091-002B DT 5X | Selenium | ug/L | 4.554338 | NA | 3.379735 | 34.75% | 10 |

Note: NA - Not applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Sample ID **N034091-002B-PS** | SampType: **PS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | | | | RunNo: **131940** | |
| Client ID: **ZZZZZZ** | Batch ID: **72457** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | | | | SeqNo: **3293471** | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Arsenic | 12.027 | 0.10 | 10.00 | 1.504 | 105 | 80 | 120 | | | | |
| Manganese | 117.372 | 0.50 | 100.0 | 20.18 | 97.2 | 80 | 120 | | | | |
| Molybdenum | 48.750 | 0.50 | 10.00 | 38.29 | 105 | 80 | 120 | | | | |
| Selenium | 13.471 | 0.50 | 10.00 | 3.380 | 101 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034091
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | **N034091-002B-PS** | SampType: **PS** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **72457** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293602** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 39.422 | 1.0 | 10.00 | 34.00 | 54.2 | 80 | 120 | | | | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Amount of Sample:** 25 mL
**Units:** ug/L

| Analyte | AMT SPIKED, ppb | 1 | 2 | 3 | 4 | 5 | 6 | 7 | SD | MDL | LOD | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANTIMONY | 0.50 | 0.525 | 0.514 | 0.473 | 0.500 | 0.492 | 0.486 | 0.530 | 0.0210 | 0.0660 | 0.100 | 0.50 |
| ARSENIC | 0.10 | 0.099 | 0.104 | 0.087 | 0.048 | 0.060 | 0.069 | 0.120 | 0.0259 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 1.00 | 1.041 | 1.059 | 1.052 | 1.011 | 0.967 | 0.957 | 1.023 | 0.0403 | 0.1264 | 0.250 | 1.00 |
| BERYLLIUM | 0.50 | 0.469 | 0.476 | 0.473 | 0.495 | 0.480 | 0.488 | 0.507 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.50 | 0.515 | 0.513 | 0.492 | 0.534 | 0.499 | 0.483 | 0.508 | 0.0168 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 1.00 | 0.979 | 0.986 | 0.940 | 0.990 | 0.946 | 0.978 | 0.977 | 0.0197 | 0.0618 | 0.250 | 1.00 |
| COBALT | 0.50 | 0.499 | 0.489 | 0.486 | 0.488 | 0.465 | 0.502 | 0.505 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| COPPER | 1.00 | 1.110 | 0.667 | 1.039 | 1.060 | 1.006 | 1.099 | 1.075 | 0.1544 | 0.4850 | 0.500 | 1.00 |
| IRON | 10.00 | 10.873 | 10.802 | 10.142 | 9.991 | 9.846 | 9.852 | 10.596 | 0.4463 | 1.4014 | 2.500 | 10.00 |
| LEAD | 1.00 | 0.928 | 0.931 | 0.899 | 0.996 | 0.990 | 0.987 | 0.997 | 0.0406 | 0.1274 | 0.250 | 1.00 |
| MANGANESE | 0.50 | 0.577 | 0.588 | 0.561 | 0.566 | 0.517 | 0.541 | 0.520 | 0.0276 | 0.0866 | 0.100 | 0.50 |
| MOLYBDENUM | 0.50 | 0.514 | 0.504 | 0.467 | 0.478 | 0.456 | 0.433 | 0.527 | 0.0338 | 0.1061 | 0.250 | 0.50 |
| NICKEL | 1.00 | 0.961 | 0.965 | 0.977 | 0.907 | 0.914 | 0.962 | 1.075 | 0.0551 | 0.1731 | 0.250 | 1.00 |
| SELENIUM | 0.50 | 0.450 | 0.478 | 0.419 | 0.693 | 0.707 | 0.495 | 0.555 | 0.1155 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.50 | 0.558 | 0.511 | 0.490 | 0.542 | 0.458 | 0.490 | 0.684 | 0.0745 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.50 | 0.437 | 0.428 | 0.408 | 0.538 | 0.446 | 0.438 | 0.525 | 0.0504 | 0.1583 | 0.250 | 0.50 |
| URANIUM | 0.50 | 0.478 | 0.467 | 0.461 | 0.517 | 0.510 | 0.521 | 0.521 | 0.0267 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 1.00 | 0.950 | 0.969 | 0.900 | 0.844 | 0.829 | 0.848 | 1.053 | 0.0820 | 0.2574 | 0.500 | 1.00 |
| ZINC | 10.00 | 11.259 | 11.279 | 10.915 | 9.620 | 9.849 | 9.745 | 10.241 | 0.7235 | 2.2717 | 2.500 | 10.00 |

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Units:** ug/L

| Analyte | MDLs | MDLb | MDL | LOD | PQL |
|---|---|---|---|---|---|
| ANTIMONY | 0.0660 | 0.1564 | 0.1564 | 0.300 | 0.50 |
| ARSENIC | 0.0813 | 0.0387 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 0.1264 | 0.1497 | 0.1497 | 0.300 | 1.00 |
| BERYLLIUM | 0.0424 | 0.0153 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.0527 | 0.0060 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 0.0618 | 0.1298 | 0.1298 | 0.300 | 1.00 |
| COBALT | 0.0424 | 0.0339 | 0.0424 | 0.100 | 0.50 |
| COPPER | 0.4850 | 0.5459 | 0.5459 | 0.600 | 1.00 |
| IRON | 1.4014 | 4.3484 | 4.3484 | 5.000 | 10.00 |
| LEAD | 0.1274 | 0.1008 | 0.1274 | 0.300 | 1.00 |
| MANGANESE | 0.0866 | 0.2552 | 0.2552 | 0.300 | 0.50 |
| MOLYBDENUM | 0.1061 | 0.2149 | 0.2149 | 0.300 | 0.50 |
| NICKEL | 0.1731 | 0.2606 | 0.2606 | 0.300 | 1.00 |
| SELENIUM | 0.3628 | 0.0953 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.2340 | 0.2023 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.1583 | 0.1924 | 0.1924 | 0.300 | 0.50 |
| URANIUM | 0.0838 | 0.0020 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 0.2574 | 0.2768 | 0.2768 | 0.600 | 1.00 |
| ZINC | 2.2717 | 0.4511 | 2.2717 | 3.000 | 10.00 |

February 26, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034102

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on February 12, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucas for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for samples N034102-002 and -003 due to matrix interference. Samples were analyzed at lower dilution however matrix spike recovery and retention time criteria were not met indicating possible matrix interference. Samples were reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

Dilution was necessary for sample N034102-004 due to matrix interference. Sample was analyzed at lower dilution however retention time criteria was not met indicating possible matrix interference. Sample was reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

Because the results for total dissolved chromium (1.3 ug/L) and hexavalent chromium (0 ug/L) for sample N034102-002 (MW-72BR-200-LF_S-Q119) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N034091-002B-MS and N034091-002B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Because the results for total dissolved chromium (1.3 ug/L) and hexavalent chromium (0 ug/L) for sample N034102-002 (MW-72BR-200-LF_S-Q119) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total

dissolved chromium. The results from the redigested samples were 1.2 and 1.1 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab Order:** N034102
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034102-001A | MW-702-Q119 | Groundwater | 2/12/2019 4:00:00 PM | 2/12/2019 | 2/26/2019 |
| N034102-002A | MW-72BR-200-LF_S-Q119 | Groundwater | 2/12/2019 10:24:00 AM | 2/12/2019 | 2/26/2019 |
| N034102-002B | MW-72BR-200-LF_S-Q119 | Groundwater | 2/12/2019 10:24:00 AM | 2/12/2019 | 2/26/2019 |
| N034102-002C | MW-72BR-200-LF_S-Q119 | Groundwater | 2/12/2019 10:24:00 AM | 2/12/2019 | 2/26/2019 |
| N034102-002D | MW-72BR-200-LF_S-Q119 | Groundwater | 2/12/2019 10:24:00 AM | 2/12/2019 | 2/26/2019 |
| N034102-003A | MW-72BR-200-LF_D-Q119 | Groundwater | 2/12/2019 11:08:00 AM | 2/12/2019 | 2/26/2019 |
| N034102-003B | MW-72BR-200-LF_D-Q119 | Groundwater | 2/12/2019 11:08:00 AM | 2/12/2019 | 2/26/2019 |
| N034102-003C | MW-72BR-200-LF_D-Q119 | Groundwater | 2/12/2019 11:08:00 AM | 2/12/2019 | 2/26/2019 |
| N034102-003D | MW-72BR-200-LF_D-Q119 | Groundwater | 2/12/2019 11:08:00 AM | 2/12/2019 | 2/26/2019 |
| N034102-004A | MW-72BR-200-3V-Q119 | Groundwater | 2/12/2019 3:30:00 PM | 2/12/2019 | 2/26/2019 |
| N034102-004B | MW-72BR-200-3V-Q119 | Groundwater | 2/12/2019 3:30:00 PM | 2/12/2019 | 2/26/2019 |
| N034102-004C | MW-72BR-200-3V-Q119 | Groundwater | 2/12/2019 3:30:00 PM | 2/12/2019 | 2/26/2019 |
| N034102-004D | MW-72BR-200-3V-Q119 | Groundwater | 2/12/2019 3:30:00 PM | 2/12/2019 | 2/26/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-LF_S-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 10:24:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213C** | QC Batch: **R131802** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 14000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-LF_D-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 11:08:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213C** | QC Batch: **R131802** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 14000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-3V-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 3:30:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213C** | QC Batch: **R131802** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 14000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID **N034103-001ADUP** | SampType: **DUP** | TestCode: **120.1_WPGE** | Units: **umhos/cm** | Prep Date: | RunNo: **131802** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131802** | TestNo: **EPA 120.1** | | Analysis Date: **2/13/2019** | SeqNo: **3287910** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 56100.000 | 0.10 | | | | | | 56400 | 0.533 | 2 | |

| Sample ID **N034103-011ADUP** | SampType: **DUP** | TestCode: **120.1_WPGE** | Units: **umhos/cm** | Prep Date: | RunNo: **131802** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131802** | TestNo: **EPA 120.1** | | Analysis Date: **2/13/2019** | SeqNo: **3287920** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 50200.000 | 0.10 | | | | | | 50600 | 0.794 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-702-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 4:00:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190219A** | QC Batch: **R131932** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/19/2019 01:18 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-LF_S-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 10:24:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190219A** | QC Batch: **R131932** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.17 | 1.0 | | µg/L | 5 | 2/19/2019 01:28 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190214B** | QC Batch: **72457** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | 1.3 | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 06:03 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-LF_D-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 11:08:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190219A** | QC Batch: **R131932** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.17 | 1.0 | | µg/L | 5 | 2/19/2019 01:56 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190214B** | QC Batch: **72457** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 06:08 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-3V-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 3:30:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190219A** | QC Batch: **R131932** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 5.3 | 0.17 | 1.0 | | µg/L | 5 | 2/19/2019 02:05 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190214B** | QC Batch: **72457** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | 5.4 | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 06:14 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **MB-R131932** | SampType: **MBLK** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293122** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **LCS-R131932** | SampType: **LCS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293123** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.662 | 0.20 | 5.000 | 0 | 93.2 | 90 | 110 | | | | |

| Sample ID **N034217-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293126** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.996 | 0.20 | 1.000 | 0 | 99.6 | 90 | 110 | | | | |

| Sample ID **N034218-002AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293127** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.025 | 0.20 | 1.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **N034217-001AMSD** | SampType: **MSD** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293130** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.041 | 0.20 | 1.000 | 0 | 104 | 90 | 110 | 0.9959 | 4.38 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034218-002ADUP | SampType: | DUP | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293131 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.062 | 0.20 | | | | | | 0 | 0 | 20 | |

| Sample ID | N034219-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293133 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 9.570 | 2.0 | 10.00 | 0 | 95.7 | 90 | 110 | | | | |

| Sample ID | N034177-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293136 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.009 | 0.20 | 1.000 | 0 | 101 | 90 | 110 | | | | |

| Sample ID | N034177-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293137 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 901.270 | 20 | 500.0 | 424.6 | 95.3 | 90 | 110 | | | | |

| Sample ID | N034102-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293756 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.147 | 0.20 | 1.000 | 0.1720 | 97.5 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034102-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293757 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.792 | 1.0 | 5.000 | 0 | 95.8 | 90 | 110 | | | | |

| Sample ID | N034102-003AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293758 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.016 | 1.0 | 5.000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID | N034102-004AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293759 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.036 | 1.0 | 5.000 | 5.275 | 95.2 | 90 | 110 | | | | |

| Sample ID | N034192-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293768 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 2.391 | 0.20 | 1.000 | 1.338 | 105 | 90 | 110 | | | | |

| Sample ID | N034192-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293769 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 2.890 | 0.20 | 1.000 | 1.925 | 96.6 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034192-003AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293770 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 3.359 | 0.20 | 1.000 | 2.309 | 105 | 90 | 110 | | | | |

| Sample ID | N034192-004AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293771 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.512 | 0.20 | 1.000 | 0.5615 | 95.0 | 90 | 110 | | | | |

| Sample ID | N034192-005AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293772 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.465 | 0.20 | 1.000 | 0.4419 | 102 | 90 | 110 | | | | |

| Sample ID | N034109-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293773 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.018 | 0.20 | 1.000 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | MB-72457 | SampType: | MBLK | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72457 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293596 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-72457 | SampType: | LCS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72457 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293597 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.922 | 1.0 | 10.00 | 0 | 99.2 | 85 | 115 | | | | |

| Sample ID | N034091-002B-MS | SampType: | MS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72457 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293603 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 40.363 | 1.0 | 10.00 | 34.00 | 63.6 | 75 | 125 | | | | S |

| Sample ID | N034091-002B-MSD | SampType: | MSD | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72457 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293604 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 40.436 | 1.0 | 10.00 | 34.00 | 64.3 | 75 | 125 | 40.36 | 0.181 | 20 | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-LF_S-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 10:24:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.072 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-LF_D-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 11:08:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | ND | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-3V-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 3:30:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.13 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **MB-R131879** | SampType: **MBLK** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289931** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **LCS-R131879** | SampType: **LCS** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289932** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.487 | 0.050 | 0.5000 | 0 | 97.4 | 85 | 115 | | | | |

| Sample ID **N034102-004CDUP** | SampType: **DUP** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289936** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.151 | 0.050 | | | | | | 0.1343 | 11.6 | 20 | |

| Sample ID **N034104-001DMS** | SampType: **MS** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289938** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.829 | 0.050 | 0.5000 | 0.3514 | 95.5 | 75 | 125 | | | | |

| Sample ID **N034104-001DMSD** | SampType: **MSD** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289939** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.848 | 0.050 | 0.5000 | 0.3514 | 99.4 | 75 | 125 | 0.8291 | 2.30 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-LF_S-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 10:24:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72457** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 12 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 06:03 PM |
| Manganese | 140 | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 06:03 PM |
| Molybdenum | 82 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 06:03 PM |
| Selenium | ND | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 06:03 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034102-003

**Client Sample ID:** MW-72BR-200-LF_D-Q119
**Collection Date:** 2/12/2019 11:08:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72457** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Arsenic | 11 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 06:08 PM |
| Manganese | 140 | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 06:08 PM |
| Molybdenum | 82 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 06:08 PM |
| Selenium | ND | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 06:08 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-3V-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 3:30:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** | | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72457** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 16 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 06:14 PM |
| Manganese | 43 | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 06:14 PM |
| Molybdenum | 85 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 06:14 PM |
| Selenium | ND | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 06:14 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **MB-72457** | SampType: **MBLK** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72457** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293465** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.215 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **LCS-72457** | SampType: **LCS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72457** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293466** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.707 | 0.10 | 10.00 | 0 | 97.1 | 85 | 115 | | | | |
| Manganese | 104.940 | 0.50 | 100.0 | 0 | 105 | 85 | 115 | | | | |
| Molybdenum | 9.973 | 0.50 | 10.00 | 0 | 99.7 | 85 | 115 | | | | |
| Selenium | 10.296 | 0.50 | 10.00 | 0 | 103 | 85 | 115 | | | | |

| Sample ID **N034091-002B-MS** | SampType: **MS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72457** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293472** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 12.205 | 0.10 | 10.00 | 1.504 | 107 | 75 | 125 | | | | |
| Manganese | 117.294 | 0.50 | 100.0 | 20.18 | 97.1 | 75 | 125 | | | | |
| Molybdenum | 49.552 | 0.50 | 10.00 | 38.29 | 113 | 75 | 125 | | | | |
| Selenium | 13.109 | 0.50 | 10.00 | 3.380 | 97.3 | 75 | 125 | | | | |

| Sample ID **N034091-002B-MSD** | SampType: **MSD** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72457** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293473** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.861 | 0.10 | 10.00 | 1.504 | 104 | 75 | 125 | 12.20 | 2.85 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **N034091-002B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **2/13/2019** RunNo: **131940**
Client ID: **ZZZZZZ** Batch ID: **72457** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **2/14/2019** SeqNo: **3293473**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 117.237 | 0.50 | 100.0 | 20.18 | 97.1 | 75 | 125 | 117.3 | 0.0492 | 20 | |
| Molybdenum | 49.953 | 0.50 | 10.00 | 38.29 | 117 | 75 | 125 | 49.55 | 0.806 | 20 | |
| Selenium | 13.061 | 0.50 | 10.00 | 3.380 | 96.8 | 75 | 125 | 13.11 | 0.371 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

## CHAIN OF CUSTODY RECORD

Page 1 of 1


Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com


| | | |
|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@pivox.com P.O.# SWA-ASSET-C9817-057 |
| Submitted By: Joe Gatel | Phone: 916-786-3302 Fax: | Phone: 949-727-1400, ext 200 Fax: |
| Title: Scientist | Sampled By: Jordan Temme | |
| Signature: Date: 2/12/2019 | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | |
| I hereby authorize ASSET Labs to perform the tests indicated below. | Signature: Date: 2/12/2019 | |
| Project Name: PG&E Topock - GMP | | |
| Project Number: RC000753.801D | | |

| Matrix | | | |
|---|---|---|---|
| Ground | x | Sediment | |
| Potable | | Soil | |
| NPDES | | Other Solid | |
| Surface | | | |

| EDD Requirement | | QA/QC | | Sample Receipt Condition | Y | N |
|---|---|---|---|---|---|---|
| Excel EDD | | RTNE | | 1. Chilled | ✓ | |
| Geotracker | | RWQCB | ✓ | 2. Headspace | | |
| Labspec | | CalTrans | | 3. Container Intact | ✓ | |
| Others | ✓ | LEVEL III | | 4. Seal Present | | ✓ |
| Specify: RWQCB | | LEVEL IV | | 5. IR number | 2 | |
| Global ID: | | Regulatory | | 6. Method of Cooling: ICE | | |
| | | Specify State: | | Sample Temp: 2.5°C | | |

Courier: ASSET
Tracking No.:

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly | 2x250 mL poly | Metals Dissolved (SW 6020) Arsenic; HNO3 500 mL poly | Metals Dissolved (SW 6020) Cr, HNO3 500 mL poly | Metals Dissolved (SW 6020) Manganese; HNO3 500 mL poly | Metals Dissolved (SW 6020) Molybdenum; HNO3 500 mL poly | Metals Dissolved (SW 6020) Selenium; HNO3 500 mL poly | Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly | Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly | Specific Conductance (EPA 120.1) 1 liter poly | Total Dissolved Solids (SM92540) 1 liter poly | Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly | 500 mL poly | 3x40 mL poly | 250 mL poly | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034102-01 | MW-702-Q119 | 2/12/2019 | 16:00 | | X | | X | X | X | X | X | X | | X | | | | | | E | 1 | P | B | |
| 2 | -02 | MW-72BR-200-LF_S-Q119 | 2/12/2019 | 10:24 | | X | | X | X | X | X | X | X | | X | | | | | | E | 4 | P | BNS | |
| 3 | -03 | MW-72BR-200-LF_D-Q119 | 2/12/2019 | 11:08 | | X | | X | X | X | X | X | X | | X | | | | | | E | 4 | P | BNS | |
| 4 | -04 | MW-72BR-200-3V-Q119 | 2/12/2019 | 15:30 | | X | | X | X | X | X | X | X | | X | | | | | | E | 4 | P | BNS | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | |

| Relinquished by (Signature and Printed Name): | Date/Time: | Received by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| Jordan Temme | 2/12/19 1600 | JORDAN IGE | 2-12-19 1610 |
| JORDAN IGE | 2-12-19 1830 | JORDAN IGE | 2-12-19 1830 |
| | | | |

**Turn Around Time (TAT)**

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

**Preservatives:**

| | | | |
|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C |
| Z=Zn(AC)$_2$ | O=NaOH | T=$Na_2S_2O_3$ | |
| Others/Specify: | B (NH4)2SO4/NH4OH | | |

**Container Type:**

| | | |
|---|---|---|
| T=Tube | V=VOA | P=Plnt |
| J=Jar | B=Tedlar | G=Glass |
| M=Metal | M=Metal | C=Can |

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy
Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 2/12/2019 | Workorder: | N034102 |
| Rep sample Temp (Deg C): | 2.5 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | NA | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☑ | No ☐ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☐ | No ☐ | NA ☑ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments:

Checklist Completed By: YR 2/13/2019

Reviewed By: LG 021919

# ASSET Laboratories

## WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034102

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034102-001A | MW-702-Q119 | 2/12/2019 4:00:00 PM | 2/26/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034102-002A | MW-72BR-200-LF_S-Q119 | 2/12/2019 10:24:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034102-002B | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034102-002C | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034102-002D | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034102-003A | MW-72BR-200-LF_D-Q119 | 2/12/2019 11:08:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034102-003B | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034102-003C | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034102-003D | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034102-004A | MW-72BR-200-3V-Q119 | 2/12/2019 3:30:00 PM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034102-004B | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034102-004C | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034102-004D | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034102-005A | FOLDER | 2/26/2019 | 2/26/2019 | | EDD | RWQCB | ☐ | ☐ | ☐ | LAB |
| | | | 2/26/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# ASSET Laboratories

## WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034102

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034102-005A | FOLDER | 2/26/2019 | 2/26/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# *ARCADIS*

Project: PG&E Topock - GMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N034102

## *ANALYTICAL and QC RESULTS*
## *SAMPLE RECEIVING ITEMS*

*PRIVILEGED AND CONFIDENTIAL*

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## ASSET Laboratories Work Order: N034102


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February 26, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034102

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on February 12, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucas for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for samples N034102-002 and -003 due to matrix interference. Samples were analyzed at lower dilution however matrix spike recovery and retention time criteria were not met indicating possible matrix interference. Samples were reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

Dilution was necessary for sample N034102-004 due to matrix interference. Sample was analyzed at lower dilution however retention time criteria was not met indicating possible matrix interference. Sample was reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

Because the results for total dissolved chromium (1.3 ug/L) and hexavalent chromium (0 ug/L) for sample N034102-002 (MW-72BR-200-LF_S-Q119) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N034091-002B-MS and N034091-002B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Because the results for total dissolved chromium (1.3 ug/L) and hexavalent chromium (0 ug/L) for sample N034102-002 (MW-72BR-200-LF_S-Q119) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total

dissolved chromium. The results from the redigested samples were 1.2 and 1.1 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

## ASSET Laboratories

**Date:** *26-Feb-19*

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab Order:** N034102
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034102-001A | MW-702-Q119 | Groundwater | 2/12/2019 4:00:00 PM | 2/12/2019 | 2/26/2019 |
| N034102-002A | MW-72BR-200-LF_S-Q119 | Groundwater | 2/12/2019 10:24:00 AM | 2/12/2019 | 2/26/2019 |
| N034102-002B | MW-72BR-200-LF_S-Q119 | Groundwater | 2/12/2019 10:24:00 AM | 2/12/2019 | 2/26/2019 |
| N034102-002C | MW-72BR-200-LF_S-Q119 | Groundwater | 2/12/2019 10:24:00 AM | 2/12/2019 | 2/26/2019 |
| N034102-002D | MW-72BR-200-LF_S-Q119 | Groundwater | 2/12/2019 10:24:00 AM | 2/12/2019 | 2/26/2019 |
| N034102-003A | MW-72BR-200-LF_D-Q119 | Groundwater | 2/12/2019 11:08:00 AM | 2/12/2019 | 2/26/2019 |
| N034102-003B | MW-72BR-200-LF_D-Q119 | Groundwater | 2/12/2019 11:08:00 AM | 2/12/2019 | 2/26/2019 |
| N034102-003C | MW-72BR-200-LF_D-Q119 | Groundwater | 2/12/2019 11:08:00 AM | 2/12/2019 | 2/26/2019 |
| N034102-003D | MW-72BR-200-LF_D-Q119 | Groundwater | 2/12/2019 11:08:00 AM | 2/12/2019 | 2/26/2019 |
| N034102-004A | MW-72BR-200-3V-Q119 | Groundwater | 2/12/2019 3:30:00 PM | 2/12/2019 | 2/26/2019 |
| N034102-004B | MW-72BR-200-3V-Q119 | Groundwater | 2/12/2019 3:30:00 PM | 2/12/2019 | 2/26/2019 |
| N034102-004C | MW-72BR-200-3V-Q119 | Groundwater | 2/12/2019 3:30:00 PM | 2/12/2019 | 2/26/2019 |
| N034102-004D | MW-72BR-200-3V-Q119 | Groundwater | 2/12/2019 3:30:00 PM | 2/12/2019 | 2/26/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-LF_S-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 10:24:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213C** | QC Batch: **R131802** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 14000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-LF_D-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 11:08:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213C** | QC Batch: **R131802** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 14000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-3V-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 3:30:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213C** | QC Batch: **R131802** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 14000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID **N034103-001ADUP** | SampType: **DUP** | TestCode: **120.1_WPGE** | Units: **umhos/cm** | Prep Date: | RunNo: **131802** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131802** | TestNo: **EPA 120.1** | | Analysis Date: **2/13/2019** | SeqNo: **3287910** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 56100.000 | 0.10 | | | | | | 56400 | 0.533 | 2 | |

| Sample ID **N034103-011ADUP** | SampType: **DUP** | TestCode: **120.1_WPGE** | Units: **umhos/cm** | Prep Date: | RunNo: **131802** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131802** | TestNo: **EPA 120.1** | | Analysis Date: **2/13/2019** | SeqNo: **3287920** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 50200.000 | 0.10 | | | | | | 50600 | 0.794 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-702-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 4:00:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190219A** | QC Batch: **R131932** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/19/2019 01:18 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-LF_S-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 10:24:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190219A** | QC Batch: **R131932** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.17 | 1.0 | | µg/L | 5 | 2/19/2019 01:28 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190214B** | QC Batch: **72457** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | 1.3 | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 06:03 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-LF_D-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 11:08:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| **EPA 218.6** | | | | | | | |
| RunID: **NV00922-IC7_190219A** QC Batch: **R131932** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.17 | 1.0 | | µg/L | 5 | 2/19/2019 01:56 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** **EPA 6020** | | | | | | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72457** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 06:08 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-3V-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 3:30:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190219A** | QC Batch: **R131932** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 5.3 | 0.17 | 1.0 | | µg/L | 5 | 2/19/2019 02:05 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190214B** | QC Batch: **72457** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | 5.4 | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 06:14 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **MB-R131932** | SampType: **MBLK** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293122** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **LCS-R131932** | SampType: **LCS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293123** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.662 | 0.20 | 5.000 | 0 | 93.2 | 90 | 110 | | | | |

| Sample ID **N034217-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293126** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.996 | 0.20 | 1.000 | 0 | 99.6 | 90 | 110 | | | | |

| Sample ID **N034218-002AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293127** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.025 | 0.20 | 1.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **N034217-001AMSD** | SampType: **MSD** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293130** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.041 | 0.20 | 1.000 | 0 | 104 | 90 | 110 | 0.9959 | 4.38 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **N034218-002ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293131**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.062 | 0.20 | | | | | | 0 | 0 | 20 | |

Sample ID **N034219-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293133**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 9.570 | 2.0 | 10.00 | 0 | 95.7 | 90 | 110 | | | | |

Sample ID **N034177-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293136**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.009 | 0.20 | 1.000 | 0 | 101 | 90 | 110 | | | | |

Sample ID **N034177-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293137**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 901.270 | 20 | 500.0 | 424.6 | 95.3 | 90 | 110 | | | | |

Sample ID **N034102-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293756**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.147 | 0.20 | 1.000 | 0.1720 | 97.5 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **N034102-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293757**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.792 | 1.0 | 5.000 | 0 | 95.8 | 90 | 110 | | | | |

Sample ID **N034102-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293758**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.016 | 1.0 | 5.000 | 0 | 100 | 90 | 110 | | | | |

Sample ID **N034102-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293759**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.036 | 1.0 | 5.000 | 5.275 | 95.2 | 90 | 110 | | | | |

Sample ID **N034192-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293768**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 2.391 | 0.20 | 1.000 | 1.338 | 105 | 90 | 110 | | | | |

Sample ID **N034192-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293769**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 2.890 | 0.20 | 1.000 | 1.925 | 96.6 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **N034192-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293770**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 3.359 | 0.20 | 1.000 | 2.309 | 105 | 90 | 110 | | | | |

Sample ID **N034192-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293771**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.512 | 0.20 | 1.000 | 0.5615 | 95.0 | 90 | 110 | | | | |

Sample ID **N034192-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293772**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.465 | 0.20 | 1.000 | 0.4419 | 102 | 90 | 110 | | | | |

Sample ID **N034109-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293773**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.018 | 0.20 | 1.000 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | MB-72457 | SampType: | MBLK | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72457 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293596 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-72457 | SampType: | LCS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72457 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293597 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.922 | 1.0 | 10.00 | 0 | 99.2 | 85 | 115 | | | | |

| Sample ID | N034091-002B-MS | SampType: | MS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72457 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293603 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 40.363 | 1.0 | 10.00 | 34.00 | 63.6 | 75 | 125 | | | | S |

| Sample ID | N034091-002B-MSD | SampType: | MSD | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72457 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293604 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 40.436 | 1.0 | 10.00 | 34.00 | 64.3 | 75 | 125 | 40.36 | 0.181 | 20 | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-LF_S-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 10:24:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.072 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-LF_D-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 11:08:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | ND | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-3V-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 3:30:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.13 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | MB-R131879 | SampType: | MBLK | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 131879 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R131879 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/15/2019 | SeqNo: | 3289931 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID | LCS-R131879 | SampType: | LCS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 131879 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R131879 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/15/2019 | SeqNo: | 3289932 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.487 | 0.050 | 0.5000 | 0 | 97.4 | 85 | 115 | | | | |

| Sample ID | N034102-004CDUP | SampType: | DUP | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 131879 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131879 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/15/2019 | SeqNo: | 3289936 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.151 | 0.050 | | | | | | 0.1343 | 11.6 | 20 | |

| Sample ID | N034104-001DMS | SampType: | MS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 131879 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131879 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/15/2019 | SeqNo: | 3289938 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.829 | 0.050 | 0.5000 | 0.3514 | 95.5 | 75 | 125 | | | | |

| Sample ID | N034104-001DMSD | SampType: | MSD | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 131879 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131879 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/15/2019 | SeqNo: | 3289939 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.848 | 0.050 | 0.5000 | 0.3514 | 99.4 | 75 | 125 | 0.8291 | 2.30 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-72BR-200-LF_S-Q119 |
| **Lab Order:** | N034102 | **Collection Date:** | 2/12/2019 10:24:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034102-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72457** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 12 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 06:03 PM |
| Manganese | 140 | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 06:03 PM |
| Molybdenum | 82 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 06:03 PM |
| Selenium | ND | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 06:03 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034102-003

**Client Sample ID:** MW-72BR-200-LF_D-Q119
**Collection Date:** 2/12/2019 11:08:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72457** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 11 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 06:08 PM |
| Manganese | 140 | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 06:08 PM |
| Molybdenum | 82 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 06:08 PM |
| Selenium | ND | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 06:08 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034102-004

**Client Sample ID:** MW-72BR-200-3V-Q119
**Collection Date:** 2/12/2019 3:30:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72457** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 16 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 06:14 PM |
| Manganese | 43 | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 06:14 PM |
| Molybdenum | 85 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 06:14 PM |
| Selenium | ND | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 06:14 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **MB-72457** | SampType: **MBLK** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72457** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293465** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.215 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **LCS-72457** | SampType: **LCS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72457** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293466** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.707 | 0.10 | 10.00 | 0 | 97.1 | 85 | 115 | | | | |
| Manganese | 104.940 | 0.50 | 100.0 | 0 | 105 | 85 | 115 | | | | |
| Molybdenum | 9.973 | 0.50 | 10.00 | 0 | 99.7 | 85 | 115 | | | | |
| Selenium | 10.296 | 0.50 | 10.00 | 0 | 103 | 85 | 115 | | | | |

| Sample ID **N034091-002B-MS** | SampType: **MS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72457** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293472** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 12.205 | 0.10 | 10.00 | 1.504 | 107 | 75 | 125 | | | | |
| Manganese | 117.294 | 0.50 | 100.0 | 20.18 | 97.1 | 75 | 125 | | | | |
| Molybdenum | 49.552 | 0.50 | 10.00 | 38.29 | 113 | 75 | 125 | | | | |
| Selenium | 13.109 | 0.50 | 10.00 | 3.380 | 97.3 | 75 | 125 | | | | |

| Sample ID **N034091-002B-MSD** | SampType: **MSD** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72457** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293473** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.861 | 0.10 | 10.00 | 1.504 | 104 | 75 | 125 | 12.20 | 2.85 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | N034091-002B-MSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131940 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72457 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293473 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 117.237 | 0.50 | 100.0 | 20.18 | 97.1 | 75 | 125 | 117.3 | 0.0492 | 20 | |
| Molybdenum | 49.953 | 0.50 | 10.00 | 38.29 | 117 | 75 | 125 | 49.55 | 0.806 | 20 | |
| Selenium | 13.061 | 0.50 | 10.00 | 3.380 | 96.8 | 75 | 125 | 13.11 | 0.371 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SAMPLE RECEIVING ITEMS

# ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

## CHAIN OF CUSTODY RECORD

Page 1 of 1


Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com


| | | |
|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@pivox.com P.O.# SWA-ASSET-C9817-057 |
| Submitted By: Joe Gatel | Phone: 916-786-3302 Fax: | Phone: 949-727-1400, ext 200 Fax: |
| Title: Scientist | Sampled By: Jordan Temme | |
| Signature: Date: 2/12/2019 | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | |
| I hereby authorize ASSET Labs to perform the tests indicated below. | Signature: Date: 2/12/2019 | |
| Project Name: PG&E Topock - GMP | | |
| Project Number: RC000753.801D | | |

| Matrix | | | |
|---|---|---|---|
| Ground | x | Sediment | |
| Potable | | Soil | |
| NPDES | | Other Solid | |
| Surface | | | |

| EDD Requirement | | QA/QC | | Sample Receipt Condition | Y | N |
|---|---|---|---|---|---|---|
| Excel EDD | | RTNE | | 1. Chilled | ✓ | |
| Geotracker | | RWQCB | ✓ | 2. Headspace | | |
| Labspec | | CalTrans | | 3. Container Intact | ✓ | |
| Others | ✓ | LEVEL III | | 4. Seal Present | | ✓ |
| Specify: RWQCB | | LEVEL IV | | 5. IR number | 2 | |
| Global ID: | | Regulatory | | 6. Method of Cooling: ICE | | |
| | | Specify State: | | Sample Temp: 2.5°C | | |

Courier: ASSET
Tracking No.:

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly | 2x250 mL poly | Metals Dissolved (SW 6020) Arsenic; HNO3 500 mL poly | Metals Dissolved (SW 6020) Cr, HNO3 500 mL poly | Metals Dissolved (SW 6020) Manganese; HNO3 500 mL poly | Metals Dissolved (SW 6020) Molybdenum; HNO3 500 mL poly | Metals Dissolved (SW 6020) Selenium; HNO3 500 mL poly | Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly | Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly | Specific Conductance (EPA 120.1) 1 liter poly | Total Dissolved Solids (SM92540) 1 liter poly | Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly | 500 mL poly | 3x40 mL poly | 250 mL poly | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034102-01 | MW-702-Q119 | 2/12/2019 | 16:00 | | X | | | | | | | | | | | | | | | E | 1 | P | B | |
| 2 | -02 | MW-72BR-200-LF_S-Q119 | 2/12/2019 | 10:24 | | X | | X | X | X | X | X | X | | X | | | | | | E | 4 | P | BNS | |
| 3 | -03 | MW-72BR-200-LF_D-Q119 | 2/12/2019 | 11:08 | | X | | X | X | X | X | X | X | | X | | | | | | E | 4 | P | BNS | |
| 4 | -04 | MW-72BR-200-3V-Q119 | 2/12/2019 | 15:30 | | X | | X | X | X | X | X | X | | X | | | | | | E | 4 | P | BNS | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | |

| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| Jordan Temme | 2/12/19 1600 | JORDAN IGE | 2-12-19 1610 |
| JORDAN IGE | 2-12-19 1830 | JORDAN IGE | 2-12-19 1830 |
| | | | |

**Turn Around Time (TAT)**

| | | |
|---|---|---|
| | A | < 24 Hrs or Same Day TAT |
| | B | = Next Workday |
| | C | = 2 Workdays |
| | D | = 3 Workdays |
| X | E | = Routine 5-7 Workdays |

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

**Preservatives:**

| | | | |
|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C |
| Z=$Zn(AC)_2$ | O=NaOH | T=$Na_2S_2O_3$ | |
| Others/Specify: | B | (NH4)2SO4/NH4OH | |

**Container Type:**

| | | |
|---|---|---|
| T=Tube | V=VOA | P=Plnt |
| J=Jar | B=Tedlar | G=Glass |
| M=Metal | M=Metal | C=Can |

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy
Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 2/12/2019 | Workorder: | N034102 |
| Rep sample Temp (Deg C): | 2.5 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | NA | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☑ | No ☐ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☐ | No ☐ | NA ☑ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments:

Checklist Completed By: YR 2/13/2019

Reviewed By: LG 021919

# ASSET Laboratories

## WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034102

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034102-001A | MW-702-Q119 | 2/12/2019 4:00:00 PM | 2/26/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034102-002A | MW-72BR-200-LF_S-Q119 | 2/12/2019 10:24:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034102-002B | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034102-002C | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034102-002D | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034102-003A | MW-72BR-200-LF_D-Q119 | 2/12/2019 11:08:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034102-003B | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034102-003C | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034102-003D | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034102-004A | MW-72BR-200-3V-Q119 | 2/12/2019 3:30:00 PM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034102-004B | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034102-004C | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034102-004D | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034102-005A | FOLDER | 2/26/2019 | 2/26/2019 | | EDD | RWQCB | ☐ | ☐ | ☐ | LAB |
| | | | 2/26/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

## WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034102

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034102-005A | FOLDER | 2/26/2019 | 2/26/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# List of Analysts

## ASSET Laboratories Work Order: N034102

| NAME | TEST METHOD |
|---|---|
| Quennie Manimtim | SM 4500-NO3F |
| Claire Ignacio | EPA 6020_Dissolved |
| Lilia Ramit | EPA 120.1 |
| Hanah Glodoviza | EPA 218.6 |

# EPA 120.1

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R131802 **Analyst:** LSR

**ASSET #:** N034102 **Date Analyzed:** 13-Feb

**Method:** EPA 120.1

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | | | X | | | |
| 11. LCS compounds within control limits. | | | X | | | |
| 12. MS/MSD RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Silvia Ramit Date: 2/25/2019

2nd Level Reviewer: 2/26/2019 Date: —

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

# Conductivity Logbook

**Date:** 2/12/19 1110
**Analyst:** LR

| | Standard | Std ID | Reading | Comments |
|---|---|---|---|---|
| | 11.26 mS/cm | CIW - 181011A | 11.55 @ 17.5C | % Rec: (90-110%) |
| | 1410 | 190107D | 1405 @ 17.5C | |
| | 9988 | 180731I | 9930 @ 17.5C | |
| | 99661 | 181121B | 99500 @ 17.5C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | N034091-002D | H2O | 11560 @ 16.9C | |
| 2 | 2BDUP | | 11600 @ 16.8C | |
| 3 | 3DDUP | | 16100 @ 17.2C | |
| 4 | 4D | | 16120 @ 17.2C | |
| 5 | | | | |
| 6 | | | | |
| 7 | 14B mS/cm | CIW - 181022A | N/A @ 16.9C | |
| 8 | 10000 | B | 9980 @ 17.0C | |
| 9 | 99922 | C | 97200 @ 17.0C | |
| 10 | | | | |
| Dup | | | | Accept: 10% water, 20% soil |
| | Std Chk: | | | % Rec: (90-110%) |

Julia Ramit 2/25/2019

**Date:** 2/13/19 1055
**Analyst:** LR

| | Standard | Std ID | Reading | Comments |
|---|---|---|---|---|
| | 11.26 mS/cm | CIW - 181011A | 11.43 @ 17.7C | % Rec: (90-110%) |
| | 1410 | 190107D | 1442 @ 18.1C | |
| | 9988 | 180731I | 10200 @ 18.3C | |
| | 99661 | 181121B | 10070 @ 18.3C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | N034102-002D | H2O | 14420 @ 17.0C | |
| 2 | 3D | | 14270 @ 17.0C | STD CHECK |
| 3 | 4D | | 14070 @ 16.7C | 1413 CIW 181022A |
| 4 | N034103-001A | | 56400 @ 17.1C | = 1459 @ 17.7°C |
| 5 | 1ADUP | | 56100 @ 16.8C | 10000 CIW 181022B |
| 6 | 2A | | 41500 @ 16.8C | = 10010 @ 18.2°C |
| 7 | 4A | | 17930 @ 16.8C | 99922 CIW 181022C |
| 8 | 5A | | 1955 @ 17.1C | = 97200 @ 18.3°C |
| 9 | 6A | | 8840 @ 16.8C | |
| 10 | 7A | | 33200 @ 16.8C | |
| Dup | 8A | | 65000 @ 16.8C | Accept: 10% water, 20% soil |
| | Std Chk: | | | % Rec: (90-110%) |



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NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00

# EPA 218.6

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R131932
**ASSET #:** N034102

**Instrument ID:** IC-07
**Analyst:** HSG
**Date Analyzed:** 2/19/2019

**Method:**

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | | | |
| 3. ICV within ± 10% of expected value. | X | | | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | X | | | | | |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | X | | | | | |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | X | | | | | |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | X | | | | | |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | X | | | | | |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | X | | | | | |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | X | | | | | |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | | | |
| 21. Are all samples analyzed within hold time? | X | | | | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | X | | | | | |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | | | |
| 24. LCS compounds are within control limits. | X | | | | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | |
| 29. All manual integrations initialed, date and reasons included. | X | | | | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | | | |
| 31. All samples and QC raw data present in package. | X | | | | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | | | |
| 34 Is the QC summary report present and complete? | X | | | | | |

Comments:

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer HSG Date: 2/25/19

2nd Level Reviewer 2/25/2019 Date: —

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 218.6
**TEST NAME:** HEXAVALENT CHROMIUM BY IC
**MATRIX:** Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N034102-004A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 1.0550 * 5$$

$$Cr^{+6}, \mu g/L = 5.2750$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 5.3}$$

# ANALYSIS RUN LOG

**INJECTION LOG: 190204A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:31 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:41 AM | Not Reported |
| 3 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:54 AM | Not Reported |
| 4 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/04/19 10:22 AM | Reported |
| 5 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:35 AM | Reported |
| 6 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:47 AM | Reported |
| 7 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:56 AM | Reported |
| 8 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:06 AM | Reported |
| 9 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:15 AM | Reported |
| 10 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:25 AM | Reported |
| 11 | ICV | ICV | 1 | Hexavalent Chromium | 02/04/19 11:45 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/04/19 11:56 AM | Reported |
| 13 | ICB | ICB | 1 | Hexavalent Chromium | 02/04/19 12:06 PM | Not Reported |
| 14 | ICB | ICB | 1 | Hexavalent Chromium | 02/04/19 12:19 PM | Reported |
| 15 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 12:32 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190204A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **04/Feb/19 15:07:18** |
| *No. of Injections:* | **18** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:31 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 02/04/2019 09:41 | Finished | BLANK |
| 3 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:54 | Finished | BLANK |
| 4 | iBLANK | 2 | 1000 | Unknown | | 02/04/2019 10:22 | Finished | INSTRUMENT BLANK |
| 5 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/04/2019 10:35 | Finished | 0.2 ppb, IWST-181022C |
| 6 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/04/2019 10:47 | Finished | 1.0 ppb, IWST-181022C |
| 7 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/04/2019 10:56 | Finished | 5.0 ppb, IWST-181022C |
| 8 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/04/2019 11:06 | Finished | 10 ppb, IWST-181022C |
| 9 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/04/2019 11:15 | Finished | 15 ppb, IWST-181022C |
| 10 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/04/2019 11:25 | Finished | 20 ppb, IWST-181022C |
| 11 | ICV,ICV,1, | 9 | 1000 | Unknown | | 02/04/2019 11:45 | Finished | ICV @5ppb, IWST-181022D |
| 12 | PQL@0.2ppb,CCV2,1 | 10 | 1000 | Unknown | | 02/04/2019 11:56 | Finished | PQL @ 0.2ppb |
| 13 | ICB,ICB,1, | 11 | 1000 | Unknown | | 02/04/2019 12:06 | Finished | ICB R190115A |
| 14 | ICB,ICB,1, | 12 | 1000 | Unknown | | 02/04/2019 12:19 | Finished | ICB R190115A |
| 15 | BLANK | 13 | 1000 | Unknown | | 02/04/2019 12:32 | Finished | BLANK |
| 16 | SHUTDOWN | 14 | 1000 | Unknown | | 02/04/2019 14:44 | Finished | |
| 17 | Eluent: R190130B | 15 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 18 | PCR: R190130A | 16 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

**INJECTION LOG: 190219A**

**Instrument ID: IC-07**

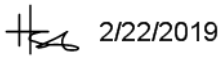
| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:31 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:41 AM | Not Reported |
| 3 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:54 AM | Not Reported |
| 4 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/04/19 10:22 AM | Reported |
| 5 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:35 AM | Reported |
| 6 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:47 AM | Reported |
| 7 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:56 AM | Reported |
| 8 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:06 AM | Reported |
| 9 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:15 AM | Reported |
| 10 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:25 AM | Reported |
| 11 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/19/19 8:33 AM | Not Reported |
| 12 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/19/19 8:44 AM | Not Reported |
| 13 | CCV-1 | CCV | 1 | Hexavalent Chromium | 02/19/19 8:58 AM | Reported |
| 14 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/19/19 9:09 AM | Reported |
| 15 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/19/19 9:18 AM | Reported |
| 16 | MB-R131932 | MBLK | 1 | Hexavalent Chromium | 02/19/19 9:42 AM | Reported |
| 17 | LCS-R131932 | LCS | 1 | Hexavalent Chromium | 02/19/19 9:54 AM | Reported |
| 18 | N034217-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 10:12 AM | Reported |
| 19 | N034219-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 10:24 AM | Not Reported |
| 20 | N034218-~~001A~~ -002A | SAMP | 1 | Hexavalent Chromium | 02/19/19 10:33 AM | Reported |
| 21 | N034217-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 10:50 AM | Reported |
| 22 | N034219-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 11:01 AM | Not Reported |
| 23 | N034218-00~~1~~2AMS | MS | 1 | Hexavalent Chromium | 02/19/19 11:11 AM | Reported |
| 24 | N034219-001A | SAMP | 5 | Hexavalent Chromium | 02/19/19 11:20 AM | Not Reported |
| 25 | N034219-001AMS | MS | 5 | Hexavalent Chromium | 02/19/19 11:30 AM | Not Reported |
| 26 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 02/19/19 11:39 AM | Reported |
| 27 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/19/19 11:49 AM | Reported |
| 28 | N034217-001AMSD | MSD | 1 | Hexavalent Chromium | 02/19/19 12:00 PM | Reported |
| 29 | N034218-001ADUP | DUP | 1 | Hexavalent Chromium | 02/19/19 12:12 PM | Reported |
| 30 | N034219-001A | SAMP | 10 | Hexavalent Chromium | 02/19/19 12:21 PM | Reported |
| 31 | N034219-001AMS | MS | 10 | Hexavalent Chromium | 02/19/19 12:31 PM | Reported |
| 32 | N034177-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 12:40 PM | Reported |
| 33 | N034177-002A | SAMP | 100 | Hexavalent Chromium | 02/19/19 12:50 PM | Reported |
| 34 | N034177-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 12:59 PM | Reported |
| 35 | N034177-002AMS | MS | 100 | Hexavalent Chromium | 02/19/19 1:09 PM | Reported |
| 36 | N034102-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 1:18 PM | Reported |
| 37 | N034102-002A | SAMP | 5 | Hexavalent Chromium | 02/19/19 1:28 PM | Reported |
| 38 | CCV-3 | CCV | 1 | Hexavalent Chromium | 02/19/19 1:37 PM | Reported |
| 39 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/19/19 1:47 PM | Reported |
| 40 | N034102-003A | SAMP | 5 | Hexavalent Chromium | 02/19/19 1:56 PM | Reported |
| 41 | N034102-004A | SAMP | 5 | Hexavalent Chromium | 02/19/19 2:05 PM | Reported |
| 42 | N034102-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 2:15 PM | Reported |

2/22/2019 2/22/2019

**INJECTION LOG: 190219A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034102-002AMS | MS | 5 | Hexavalent Chromium | 02/19/19 2:24 PM | Reported |
| 44 | N034102-003AMS | MS | 5 | Hexavalent Chromium | 02/19/19 2:34 PM | Reported |
| 45 | N034102-004AMS | MS | 5 | Hexavalent Chromium | 02/19/19 2:43 PM | Reported |
| 46 | N034192-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 2:53 PM | Reported |
| 47 | N034192-002A | SAMP | 1 | Hexavalent Chromium | 02/19/19 3:02 PM | Reported |
| 48 | N034192-003A | SAMP | 1 | Hexavalent Chromium | 02/19/19 3:12 PM | Reported |
| 49 | N034192-004A | SAMP | 1 | Hexavalent Chromium | 02/19/19 3:21 PM | Reported |
| 50 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/19/19 3:31 PM | Reported |
| 51 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/19/19 3:40 PM | Reported |
| 52 | N034192-005A | SAMP | 1 | Hexavalent Chromium | 02/19/19 3:50 PM | Reported |
| 53 | N034109-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 3:59 PM | Reported |
| 54 | N034192-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 4:15 PM | Reported |
| 55 | N034192-002AMS | MS | 1 | Hexavalent Chromium | 02/19/19 4:26 PM | Reported |
| 56 | N034192-003AMS | MS | 1 | Hexavalent Chromium | 02/19/19 4:35 PM | Reported |
| 57 | N034192-004AMS | MS | 1 | Hexavalent Chromium | 02/19/19 4:45 PM | Reported |
| 58 | N034192-005AMS | MS | 1 | Hexavalent Chromium | 02/19/19 4:54 PM | Reported |
| 59 | N034109-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 5:04 PM | Reported |
| 60 | N034120-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 5:13 PM | Reported |
| 61 | N034120-002A | SAMP | 1 | Hexavalent Chromium | 02/19/19 5:23 PM | Reported |
| 62 | CCV-5 | CCV | 1 | Hexavalent Chromium | 02/19/19 5:32 PM | Reported |
| 63 | CCB-5 | CCB | 1 | Hexavalent Chromium | 02/19/19 5:42 PM | Reported |
| 64 | N034120-003A | SAMP | 1 | Hexavalent Chromium | 02/19/19 5:51 PM | Reported |
| 65 | N034120-004A | SAMP | 1 | Hexavalent Chromium | 02/19/19 6:00 PM | Reported |
| 66 | N034120-005A | SAMP | 1 | Hexavalent Chromium | 02/19/19 6:10 PM | Reported |
| 67 | N034102-002A | SAMP | 1 | Hexavalent Chromium | 02/19/19 6:19 PM | Not Reported |
| 68 | N034102-002AMS | MS | 1 | Hexavalent Chromium | 02/19/19 6:29 PM | Not Reported |
| 69 | N034102-003A | SAMP | 1 | Hexavalent Chromium | 02/19/19 6:38 PM | Not Reported |
| 70 | N034102-003AMS | MS | 1 | Hexavalent Chromium | 02/19/19 6:48 PM | Not Reported |
| 71 | N034102-004A | SAMP | 1 | Hexavalent Chromium | 02/19/19 6:57 PM | Not Reported |
| 72 | N034102-004AMS | MS | 1 | Hexavalent Chromium | 02/19/19 7:07 PM | Not Reported |
| 73 | CCV-6 | CCV | 1 | Hexavalent Chromium | 02/19/19 7:16 PM | Reported |
| 74 | CCB-6 | CCB | 1 | Hexavalent Chromium | 02/19/19 7:26 PM | Reported |
| 75 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/19/19 7:35 PM | Not Reported |



# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190219A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **19/Feb/19 20:05:53** |
| *No. of Injections:* | **78** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:31 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 02/04/2019 09:41 | Finished | BLANK |
| 3 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:54 | Finished | BLANK |
| 4 | iBLANK | 2 | 1000 | Unknown | | 02/04/2019 10:22 | Finished | INSTRUMENT BLANK |
| 5 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/04/2019 10:35 | Finished | 0.2 ppb, IWST-181022C |
| 6 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/04/2019 10:47 | Finished | 1.0 ppb, IWST-181022C |
| 7 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/04/2019 10:56 | Finished | 5.0 ppb, IWST-181022C |
| 8 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/04/2019 11:06 | Finished | 10 ppb, IWST-181022C |
| 9 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/04/2019 11:15 | Finished | 15 ppb, IWST-181022C |
| 10 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/04/2019 11:25 | Finished | 20 ppb, IWST-181022C |
| 11 | BLANK | 1 | 1000 | Unknown | | 02/19/2019 08:33 | Finished | BLANK |
| 12 | BLANK | 2 | 1000 | Unknown | | 02/19/2019 08:44 | Finished | BLANK |
| 13 | CCV-1,CCV,1, | 4 | 1000 | Unknown | | 02/19/2019 08:58 | Finished | CCV @5ppb, IWST-181022C |
| 14 | PQL@0.2ppb,CCV2,1 | 5 | 1000 | Unknown | | 02/19/2019 09:09 | Finished | PQL @ 0.2ppb |
| 15 | CCB-1,CCB,1, | 6 | 1000 | Unknown | | 02/19/2019 09:18 | Finished | CCB R190115A |
| 16 | MB-H2O,MBLK,1, | 7 | 1000 | Unknown | | 02/19/2019 09:42 | Finished | MB R190115A |
| 17 | LCS-H2O,LCS,1, | 8 | 1000 | Unknown | | 02/19/2019 09:54 | Finished | LCS @5ppb, IWST-181022D |
| 18 | N034217-001A,SAMF | 9 | 1000 | Unknown | | 02/19/2019 10:12 | Finished | SAMP,10mL |
| 19 | N034219-001A,SAMF | 10 | 1000 | Unknown | | 02/19/2019 10:24 | Finished | SAMP,10mL |
| 20 | N034218-001Ã,SAMF | 11 | 1000 | Unknown | | 02/19/2019 10:33 | Finished | SAMP,10mL |
| 21 | N034217-001AMS,MS | 13 | 1000 | Unknown | | 02/19/2019 10:50 | Finished | MS (1ppb), IWST-181022D,10 |
| 22 | N034219-001AMS,MS | 14 | 1000 | Unknown | | 02/19/2019 11:01 | Finished | MS (1ppb), IWST-181022D,10 |
| 23 | N034218-001ÃMS,MS | 15 | 1000 | Unknown | | 02/19/2019 11:11 | Finished | MS (1ppb), IWST-181022D,10 |
| 24 | N034219-001A,SAMF | 16 | 1000 | Unknown | | 02/19/2019 11:20 | Finished | SAMP,2>10mL |
| 25 | N034219-001AMS,MS | 17 | 1000 | Unknown | | 02/19/2019 11:30 | Finished | MS (1ppb), IWST-181022D,2>1 |
| 26 | CCV-2,CCV1,1, | 18 | 1000 | Unknown | | 02/19/2019 11:39 | Finished | CCV @10ppb, IWST-181022C |
| 27 | CCB-2,CCB,1, | 19 | 1000 | Unknown | | 02/19/2019 11:49 | Finished | CCB R190115A |
| 28 | N034217-001AMSD,M | 20 | 1000 | Unknown | | 02/19/2019 12:00 | Finished | MSD (1ppb), IWST-181022D,1( |
| 29 | N034218-001ADUP,D | 21 | 1000 | Unknown | | 02/19/2019 12:12 | Finished | DUP,10 mL |
| 30 | N034219-001A,SAMF | 22 | 1000 | Unknown | | 02/19/2019 12:21 | Finished | SAMP,1>10mL |
| 31 | N034219-001AMS,MS | 23 | 1000 | Unknown | | 02/19/2019 12:31 | Finished | MS (1ppb), IWST-181022D,1>1 |
| 32 | N034177-001A,SAMF | 24 | 1000 | Unknown | | 02/19/2019 12:40 | Finished | SAMP,10mL |
| 33 | N034177-002A,SAMF | 25 | 1000 | Unknown | | 02/19/2019 12:50 | Finished | SAMP,0.1>10mL |
| 34 | N034177-001AMS,MS | 26 | 1000 | Unknown | | 02/19/2019 12:59 | Finished | MS (1ppb), IWST-181022D,10 |
| 35 | N034177-002AMS,MS | 27 | 1000 | Unknown | | 02/19/2019 13:09 | Finished | MS (5ppb), IWST-181022D,0.1 |
| 36 | N034102-001A,SAMF | 28 | 1000 | Unknown | | 02/19/2019 13:18 | Finished | SAMP,10mL |
| 37 | N034102-002A,SAMF | 29 | 1000 | Unknown | | 02/19/2019 13:28 | Finished | SAMP,2>10mL |
| 38 | CCV-3,CCV,1, | 30 | 1000 | Unknown | | 02/19/2019 13:37 | Finished | CCV @5ppb, IWST-181022C |
| 39 | CCB-3,CCB,1, | 31 | 1000 | Unknown | | 02/19/2019 13:47 | Finished | CCB R190115A |
| 40 | N034102-003A,SAMF | 32 | 1000 | Unknown | | 02/19/2019 13:56 | Finished | SAMP,2>10mL |
| 41 | N034102-004A,SAMF | 33 | 1000 | Unknown | | 02/19/2019 14:05 | Finished | SAMP,2>10mL |
| 42 | N034102-001AMS,MS | 34 | 1000 | Unknown | | 02/19/2019 14:15 | Finished | MS (1ppb), IWST-181022D,10 |
| 43 | N034102-002AMS,MS | 35 | 1000 | Unknown | | 02/19/2019 14:24 | Finished | MS (1ppb), IWST-181022D,2>1 |
| 44 | N034102-003AMS,MS | 36 | 1000 | Unknown | | 02/19/2019 14:34 | Finished | SAMP,10mL |
| 45 | N034102-004AMS,MS | 37 | 1000 | Unknown | | 02/19/2019 14:43 | Finished | SAMP,10mL |
| 46 | N034192-001A,SAMF | 38 | 1000 | Unknown | | 02/19/2019 14:53 | Finished | SAMP,10mL |
| 47 | N034192-002A,SAMF | 39 | 1000 | Unknown | | 02/19/2019 15:02 | Finished | SAMP,10mL |
| 48 | N034192-003A,SAMF | 40 | 1000 | Unknown | | 02/19/2019 15:12 | Finished | SAMP,10mL |
| 49 | N034192-004A,SAMF | 41 | 1000 | Unknown | | 02/19/2019 15:21 | Finished | SAMP,10mL |
| 50 | CCV-4,CCV1,1, | 42 | 1000 | Unknown | | 02/19/2019 15:31 | Finished | CCV @10ppb, IWST-181022C |
| 51 | CCB-4,CCB,1, | 43 | 1000 | Unknown | | 02/19/2019 15:40 | Finished | CCB R190115A |
| 52 | N034192-005A,SAMF | 44 | 1000 | Unknown | | 02/19/2019 15:50 | Finished | SAMP,10mL |
| 53 | N034109-001A,SAMF | 45 | 1000 | Unknown | | 02/19/2019 15:59 | Finished | SAMP,10mL |
| 54 | N034192-001AMS,MS | 1 | 1000 | Unknown | | 02/19/2019 16:15 | Finished | MS (1ppb), IWST-181022D,10 |
| 55 | N034192-002AMS,MS | 2 | 1000 | Unknown | | 02/19/2019 16:26 | Finished | MS (1ppb), IWST-181022D,10 |
| 56 | N034192-003AMS,MS | 3 | 1000 | Unknown | | 02/19/2019 16:35 | Finished | MS (1ppb), IWST-181022D,10 |
| 57 | N034192-004AMS,MS | 4 | 1000 | Unknown | | 02/19/2019 16:45 | Finished | MS (1ppb), IWST-181022D,10 |
| 58 | N034192-005AMS,MS | 5 | 1000 | Unknown | | 02/19/2019 16:54 | Finished | MS (1ppb), IWST-181022D,10 |
| 59 | N034109-001AMS,MS | 6 | 1000 | Unknown | | 02/19/2019 17:04 | Finished | MS (1ppb), IWST-181022D,10 |
| 60 | N034120-001A,SAMF | 7 | 1000 | Unknown | | 02/19/2019 17:13 | Finished | SAMP,10mL |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | N034120-002A,SAMF | 8 | 1000 | Unknown | | 02/19/2019 17:23 | Finished | SAMP,10mL |
| 62 | CCV-5,CCV,1, | 9 | 1000 | Unknown | | 02/19/2019 17:32 | Finished | CCV @5ppb, IWST-181022C |
| 63 | CCB-5,CCB,1, | 10 | 1000 | Unknown | | 02/19/2019 17:42 | Finished | CCB R190115A |
| 64 | N034120-003A,SAMF | 11 | 1000 | Unknown | | 02/19/2019 17:51 | Finished | SAMP,10mL |
| 65 | N034120-004A,SAMF | 12 | 1000 | Unknown | | 02/19/2019 18:00 | Finished | SAMP,10mL |
| 66 | N034120-005A,SAMF | 13 | 1000 | Unknown | | 02/19/2019 18:10 | Finished | SAMP,10mL |
| 67 | N034102-002A,SAMF | 14 | 1000 | Unknown | | 02/19/2019 18:19 | Finished | SAMP,10mL |
| 68 | N034102-002AMS,MS | 15 | 1000 | Unknown | | 02/19/2019 18:29 | Finished | MS (1ppb), IWST-181022D,10 |
| 69 | N034102-003A,SAMF | 16 | 1000 | Unknown | | 02/19/2019 18:38 | Finished | SAMP,10mL |
| 70 | N034102-003AMS,MS | 17 | 1000 | Unknown | | 02/19/2019 18:48 | Finished | MS (1ppb), IWST-181022D,10 |
| 71 | N034102-004A,SAMF | 18 | 1000 | Unknown | | 02/19/2019 18:57 | Finished | SAMP,10mL |
| 72 | N034102-004AMS,MS | 19 | 1000 | Unknown | | 02/19/2019 19:07 | Finished | MS (1ppb), IWST-181022D,10 |
| 73 | CCV-6,CCV,1, | 20 | 1000 | Unknown | | 02/19/2019 19:16 | Finished | CCV @10ppb, IWST-181022C |
| 74 | CCB-6,CCB,1, | 21 | 1000 | Unknown | | 02/19/2019 19:26 | Finished | CCB R190115A |
| 75 | BLANK | 22 | 1000 | Unknown | | 02/19/2019 19:35 | Finished | BLANK |
| 76 | SHUTDOWN | 23 | 1000 | Unknown | | 02/19/2019 19:45 | Finished | |
| 77 | Eluent: R190218C | 24 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 78 | PCR: R190218B | 25 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# SAMPLE PREPARATION LOG

# Hexavalent Chromium Preparation and Runlog

## Sample Preparation

Date Prepared: 2/13/19
Time Prepared: 1360
Prepared By: MB

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CINV-181102A
NH4OH + NH4SO4 eluent: R1902198
NH4OH + NH4SO4 buffer: R190115A

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | N034104-8A | 9.68 | - | ~250mL | ~250mL | | |
| 2) | 9A | 9.66 | - | | | | |
| 3) | 9A | 9.63 | - | | | | |
| 4) | 9A | 9.62 | - | | | | |
| 5) | 10A | 9.70 | - | | | | retest 9.66 |
| 6) | 10A | 9.72 | | | | | 9.66 |
| 7) | 10A | 9.72 | | | | | |
| 8) | 11A | 9.67 | - | | | | |
| 9) | 11A | 9.69 | - | | | | |
| 10) | 11A | 9.67 | - | | | | |
| 11) | 12A | 9.65 | - | | | | |
| 12) | 12A | 9.68 | - | | | | |
| 13) | 12A | 9.64 | - | | | | |
| 14) | 13A | 9.60 | - | | | | |
| 15) | 13A | 9.71 | - | | | | |
| | 13A | 9.70 | - | - | - | | |

## Sample Preparation

Date Prepared: 2/13/19
Time Prepared: 1300
Prepared By: MB

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CINV-181102A
NH4OH + NH4SO4 eluent: R1902134/R1902182/R1902198
NH4OH + NH4SO4 buffer: R190115A

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | N034104-14A | 9.71 | - | ~250mL | ~250mL | | |
| 2) | 14A | 9.70 | - | | | | |
| 3) | 14A | 9.68 | - | | | | retest 9.50 |
| 4) | 15A | 9.72 | | | | | |
| 5) | 15A | 9.72 | | | | | |
| 6) | 15A | 9.71 | | | | | pH is high |
| 7) | 16A | 10.07 | mb | | | +10drops 6N NaOH | |
| 8) | 17A | ~~9.35~~ | ~~9.39~~ | 9.25 - 9.45 | | | |
| 9) | N034105-1A | 9.58 | - | | | | |
| 10) | 2A | 9.48 | - | | | +8drops 6N NaOH | |
| 11) | 3A | 8.38 | 9.45 | | | +4drops 11 | |
| 12) | 4A | 9.17 | 9.44 | | | | retest 9.47 |
| 13) | 5A | 9.74 | | | | | |
| 14) | 6A | 9.70 | - | | | | |
| 15) | N034102-1A | ~~NA 7.72~~ | 9.64 | | | | |
| | 2A | ~~NA 7.72~~ | 9.73 | - | - | | |

Logbook No. 15

## Hexavalent Chromium Preparation and Runlog

### Sample Preparation

Date Prepared: 2/13/19
Time Prepared: 1300
Prepared By: MH

Reagent ID:
Sulfuric Acid: 0563
Diphenylcarbazide: CINV-181102A
NH4OH + NH4SO4 eluent: R1902180 / R1901AB
NH4OH + NH4SO4 buffer: R190115A

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | V034102-3A | 9.72 | | ~250mL | ~250mL | | retest 9.59 |
| 2) | 4A | 9.73 | | | | | retest 9.60 |
| 3) | V034107-1A | 9.42 | - | | | | |
| 4) | 2A | 9.62 | - | | | | |
| 5) | 3A | 9.30 | - | | | | |
| 6) | 4A | 9.34 | - | | | | |
| 7) | 5A | 9.37 | - | | | | |
| 8) | 6A | 9.33 | - | | | | |
| 9) | 7A | 9.33 | - | | | | retest 9.62 |
| 10) | 8A | 9.77 | | | | | retest 9.60 |
| 11) | 9A | 9.74 | | | | | |
| 12) | 10A | 9.41 | - | | | | |
| 13) | 11A | 9.30 | - | | | | |
| 14) | 12A | 9.30 | - | | | | |
| 15) | 13A | 9.34 | - | | | | |
| | 14A | 9.40 | - | | | | |

### Sample Preparation

Date Prepared: 2/13/19
Time Prepared: 1300
Prepared By: MH

Reagent ID:
Sulfuric Acid: 0563
Diphenylcarbazide: CINV-181102A
NH4OH + NH4SO4 eluent: R1902180 / R1901AB
NH4OH + NH4SO4 buffer: R190115A

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | V034107-15A | 9.44 | - | ~250mL | ~250mL | | |
| 2) | 16A | 9.50 | - | | | | |
| 3) | 17A | 9.48 | - | | | | |
| 4) | 18A | 9.35 | - | | | | |
| 5) | 19A | 9.50 | - | | | | |
| 6) | 20A | 9.41 | - | | | | |
| 7) | 21A | 9.42 | - | | | | |
| 8) | 22A | 9.43 | - | | | | |
| 9) | V034109-1A | 9.61 | - | | | | |
| 10) | V034110-1A | 8.75 | 9.09 | | | | |
| 11) | 2A | 8.25 | 9.51 | | | | |
| 12) | 3A | 7.87 | 9.50 | | | | |
| 13) | 4A | 8.09 | 9.46 | | | | |
| 14) | 5A | 8.19 | 9.55 | | | | |
| 15) | 6A | 8.15 | 9.54 | | | | |
| | 7A | 8.21 | 9.57 | | | | |

Logbook No. 15

# INITIAL CALIBRATION DATA SUMMARY

**(EPA 218.6) - INITIAL CALIBRATION**

Instrument ID: IC-07
Date Calibrated: 2/4/2019

Initial Calibration:

| Hexavalent Chromium | STD1 | STD2 | STD3 | STD4 | STD5 | STD6 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0.2 | 1 | 5 | 10 | 15 | 20 | $R^2$ |
| Area,mAU*min | 0.0689 | 0.3011 | 1.4144 | 2.8548 | 4.3509 | 5.7324 | 0.9999 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock | Working |
|---|---|---|
| Standard Concentration: | 1,000,000 PPB | 1,000 PPB |
| Standard ID: | ISST-170814H | IWST-181022C |

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/4/2019** | SeqNo: **3293116** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.780 | 0.20 | 5.000 | 0 | 95.6 | 90 | 110 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/4/2019** | SeqNo: **3293117** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.231 | 0.20 | 0.2000 | 0 | 115 | 80 | 120 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293119** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.091 | 0.20 | 5.000 | 0 | 102 | 95 | 105 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293120** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.232 | 0.20 | 0.2000 | 0 | 116 | 80 | 120 | | | | |

| Sample ID **CCV-2** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293128** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.281 | 0.20 | 10.00 | 0 | 103 | 95 | 105 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293140** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.189 | 0.20 | 5.000 | 0 | 104 | 95 | 105 | | | | |

| Sample ID **CCV-4** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293764** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.385 | 0.20 | 10.00 | 0 | 104 | 95 | 105 | | | | |

| Sample ID **CCV-5** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293776** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.147 | 0.20 | 5.000 | 0 | 103 | 95 | 105 | | | | |

| Sample ID **CCV-6** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293781** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.311 | 0.20 | 10.00 | 0 | 103 | 95 | 105 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/4/2019** | SeqNo: **3293118** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293121** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293129** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293141** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293765** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCB-5** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293777** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-6** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293782** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# RETENTION TIME SUMMARY

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/19/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.131 | |
| CCV-1 | 4.106 | |
| CCV-2 | 4.106 | |
| CCV-3 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-5 | 4.106 | |
| CCV-6 | 4.115 | |

| | |
|---|---|
| **Average** | 4.108 |
| **Actual RT Window** | 4.028 - 4.188 |
| **Applied RT Window** | 3.908 - 4.308 |

| | | |
|---|---|---|
| MB-R131932 | N.A. | N.A. |
| LCS-R131932 | 4.123 | PASS |
| N034217-001A | N.A. | N.A. |
| N034219-001A | N.A. | N.A. |
| N034218-001A | N.A. | N.A. |
| N034217-001AMS | 4.056 | PASS |
| N034219-001AMS | N.A. | N.A. |
| N034218-001AMS | 4.065 | PASS |
| N034219-001A | N.A. | N.A. |
| N034219-001AMS | 3.998 | PASS |
| N034217-001AMSD | 4.065 | PASS |
| N034218-001ADUP | 4.048 | PASS |
| N034219-001A | N.A. | N.A. |
| N034219-001AMS | 4.048 | PASS |
| N034177-001A | N.A. | N.A. |
| N034177-002A | 4.098 | PASS |
| N034177-001AMS | 4.081 | PASS |
| N034177-002AMS | 4.106 | PASS |
| N034102-001A | 4.073 | PASS |
| N034102-002A | N.A. | N.A. |
| N034102-003A | N.A. | N.A. |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/19/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.131 | |
| CCV-1 | 4.106 | |
| CCV-2 | 4.106 | |
| CCV-3 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-5 | 4.106 | |
| CCV-6 | 4.115 | |
| **Average** | 4.108 | |
| **Actual RT Window** | 4.028 - 4.188 | |
| **Applied RT Window** | 3.908 - 4.308 | |
| N034102-004A | 4.048 | PASS |
| N034102-001AMS | 4.106 | PASS |
| N034102-002AMS | 4.048 | PASS |
| N034102-003AMS | 4.040 | PASS |
| N034102-004AMS | 4.048 | PASS |
| N034192-001A | 4.090 | PASS |
| N034192-002A | 4.090 | PASS |
| N034192-003A | 4.098 | PASS |
| N034192-004A | 4.098 | PASS |
| N034192-005A | 4.090 | PASS |
| N034109-001A | N.A. | N.A. |
| N034192-001AMS | 4.090 | PASS |
| N034192-002AMS | 4.098 | PASS |
| N034192-003AMS | 4.098 | PASS |
| N034192-004AMS | 4.106 | PASS |
| N034192-005AMS | 4.098 | PASS |
| N034109-001AMS | 4.098 | PASS |
| N034120-001A | 4.098 | PASS |
| N034120-002A | N.A. | N.A. |
| N034120-003A | N.A. | N.A. |
| N034120-004A | 4.090 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/19/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.131 | |
| CCV-1 | 4.106 | |
| CCV-2 | 4.106 | |
| CCV-3 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-5 | 4.106 | |
| CCV-6 | 4.115 | |

| | | |
|---|---|---|
| **Average** | 4.108 | |
| **Actual RT Window** | 4.028 - | 4.188 |
| **Applied RT Window** | 3.908 - | 4.308 |

| | | |
|---|---|---|
| N034120-005A | 4.098 | PASS |
| N034102-002A | N.A. | N.A. |
| N034102-002AMS | N.A. | N.A. |
| N034102-003A | N.A. | N.A. |
| N034102-003AMS | N.A. | N.A. |
| N034102-004A | 3.673 | FAIL |
| N034102-004AMS | 3.698 | FAIL |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

| Datafile | 170505 | 170508 | 170509 | 170510 | 170511 | 170512 | 170515 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte** | **#1** | **#2** | **#3** | **#4** | **#5** | **#6** | **#7** | **Spike Conc., mg/L** | **SD** | **$t_{(n-1)}$ value** | **MDL** | **PQL** | **Remarks** |
| Hexavalent Chromium | 0.1949 | 0.2135 | 0.1840 | 0.1828 | 0.2011 | 0.1936 | 0.1911 | 0.20 | 0.0105 | 3.143 | **0.0331** | **0.20** | OK,meets criteria |

Students' **t** Values at 99% CL

| # | $t_{(n-1)}$ |
|---|---|
| 10 | 2.821 |
| 9 | 2.896 |
| 8 | 2.998 |
| 7 | 3.143 |

## LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

| Compound | MDL | LOD Spike Conc., µg/L | LOD actual Conc., µg/L |
|---|---|---|---|
| Hexavalent Chromium | 0.0331 | 0.100 | 0.116 |

| Compound | PQL | PQL Spike Conc., µg/L | PQL actual Conc., µg/L | % Recovery |
|---|---|---|---|---|
| Hexavalent Chromium | 0.200 | 0.200 | 0.201 | **100** |

# RAW DATA

# INITIAL CALIBRATION

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190204A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **04/Feb/19 15:07:18** |
| *No. of Injections:* | **18** | *Updated By:* | **ics 5000** |

## Injection Details

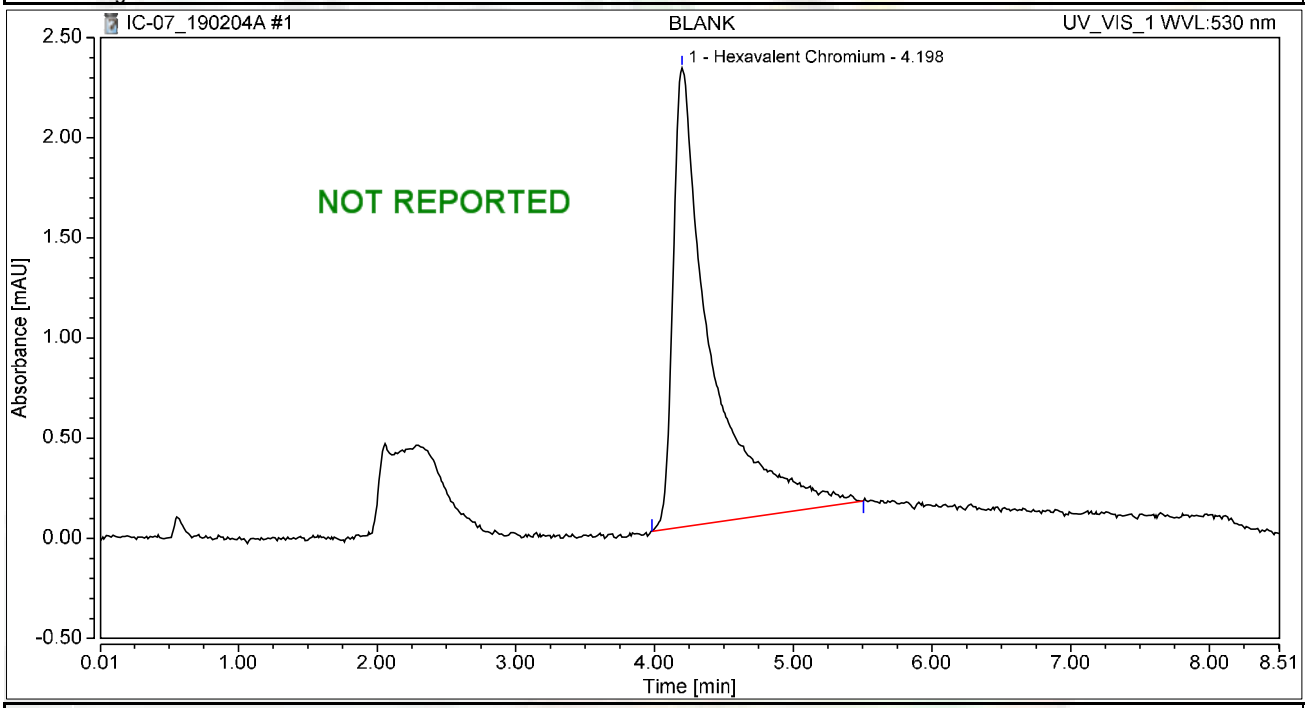
| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:31 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 02/04/2019 09:41 | Finished | BLANK |
| 3 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:54 | Finished | BLANK |
| 4 | iBLANK | 2 | 1000 | Unknown | | 02/04/2019 10:22 | Finished | INSTRUMENT BLANK |
| 5 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/04/2019 10:35 | Finished | 0.2 ppb, IWST-181022C |
| 6 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/04/2019 10:47 | Finished | 1.0 ppb, IWST-181022C |
| 7 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/04/2019 10:56 | Finished | 5.0 ppb, IWST-181022C |
| 8 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/04/2019 11:06 | Finished | 10 ppb, IWST-181022C |
| 9 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/04/2019 11:15 | Finished | 15 ppb, IWST-181022C |
| 10 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/04/2019 11:25 | Finished | 20 ppb, IWST-181022C |
| 11 | ICV,ICV,1, | 9 | 1000 | Unknown | | 02/04/2019 11:45 | Finished | ICV @5ppb, IWST-181022D |
| 12 | PQL@0.2ppb,CCV2,1 | 10 | 1000 | Unknown | | 02/04/2019 11:56 | Finished | PQL @ 0.2ppb |
| 13 | ICB,ICB,1, | 11 | 1000 | Unknown | | 02/04/2019 12:06 | Finished | ICB R190115A |
| 14 | ICB,ICB,1, | 12 | 1000 | Unknown | | 02/04/2019 12:19 | Finished | ICB R190115A |
| 15 | BLANK | 13 | 1000 | Unknown | | 02/04/2019 12:32 | Finished | BLANK |
| 16 | SHUTDOWN | 14 | 1000 | Unknown | | 02/04/2019 14:44 | Finished | |
| 17 | Eluent: R190130B | 15 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 18 | PCR: R190130A | 16 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 09:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

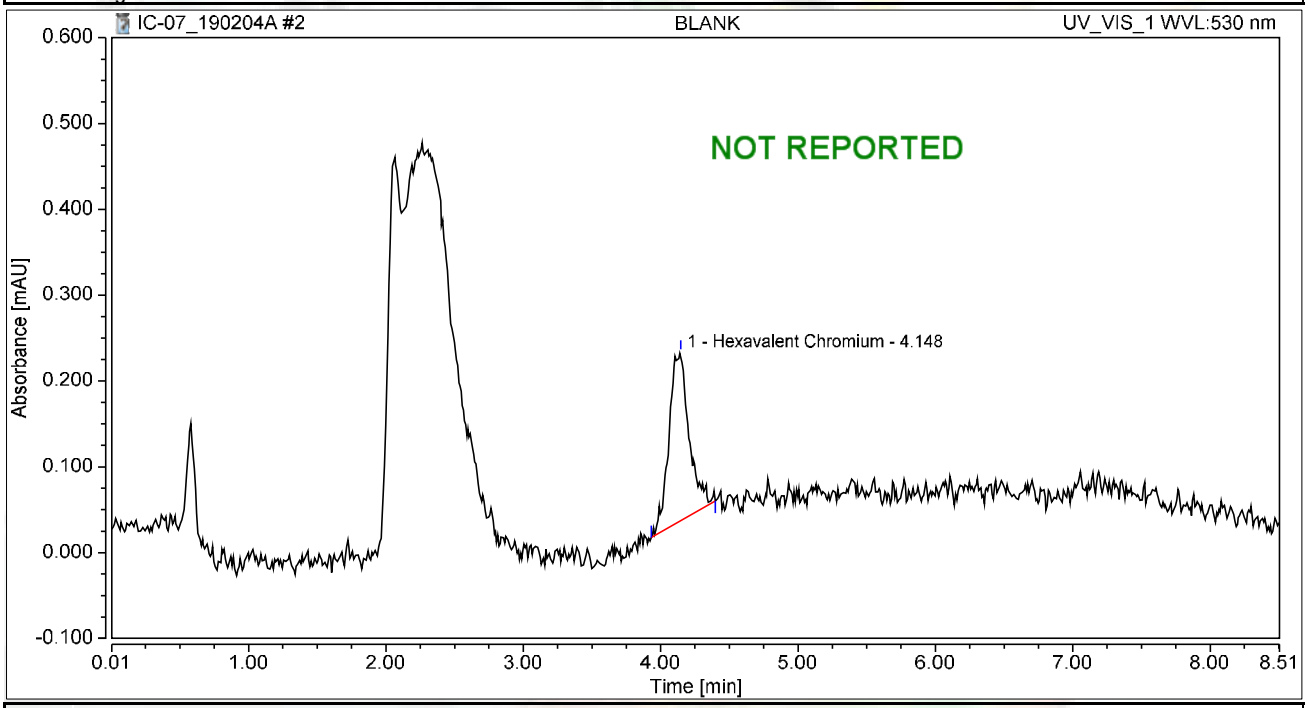
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.720 | 2.292 | 100.00 | 100.00 | 2.5055 |
| **Total:** | | | **0.720** | **2.292** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 09:41** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

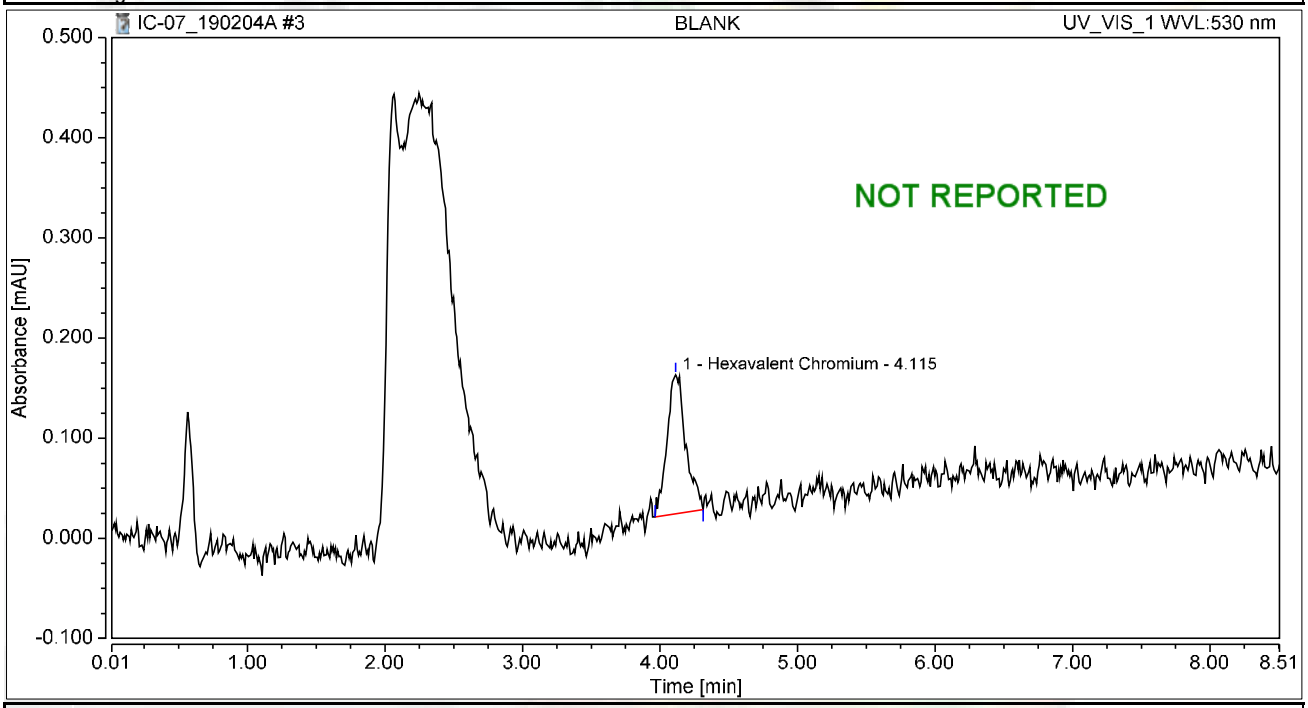
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.148 | 0.034 | 0.196 | 100.00 | 100.00 | 0.1167 |
| **Total:** | | | **0.034** | **0.196** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 09:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

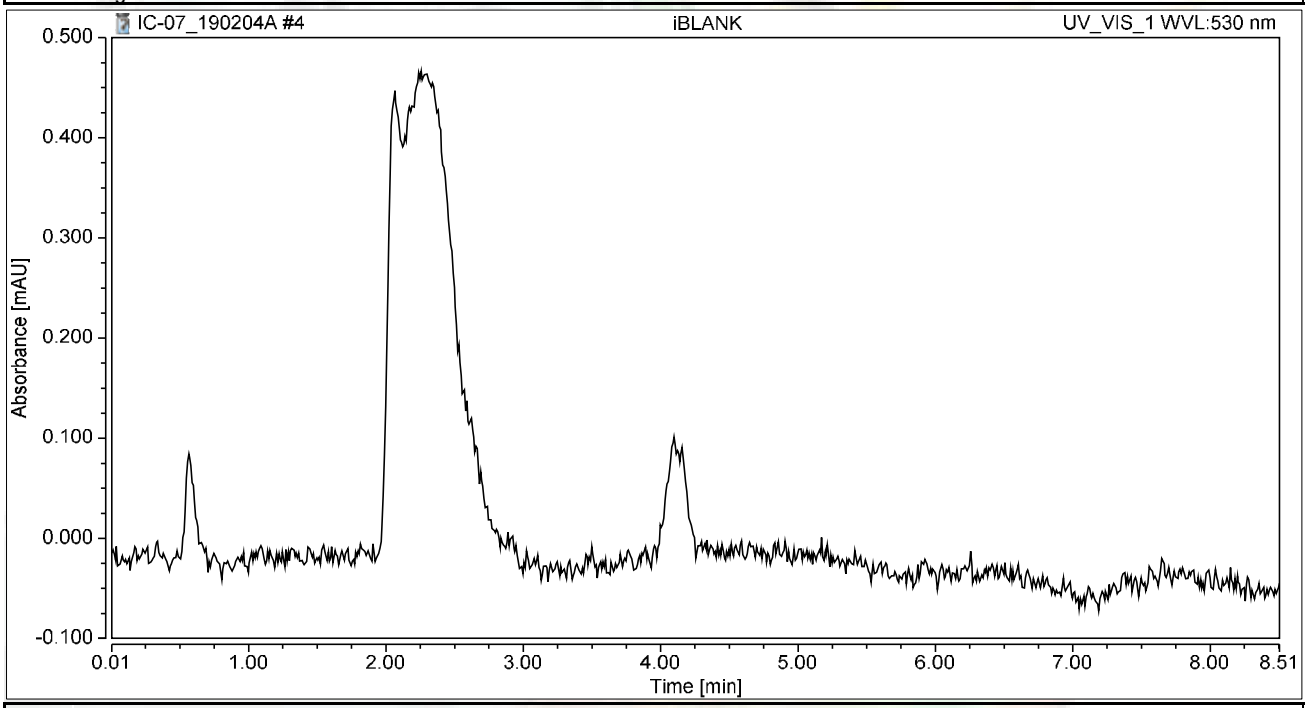
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 0.022 | 0.139 | 100.00 | 100.00 | 0.0765 |
| **Total:** | | | **0.022** | **0.139** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **iBLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 10:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

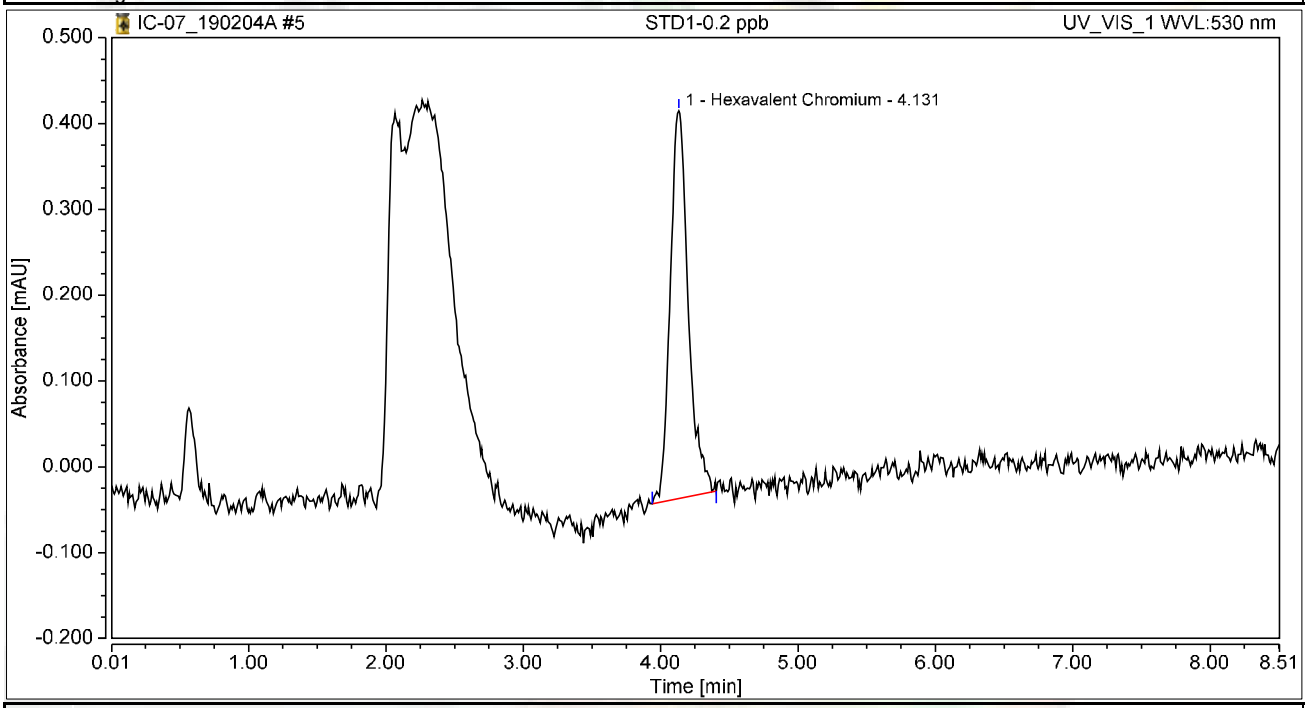
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD1-0.2 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **01** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 10:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

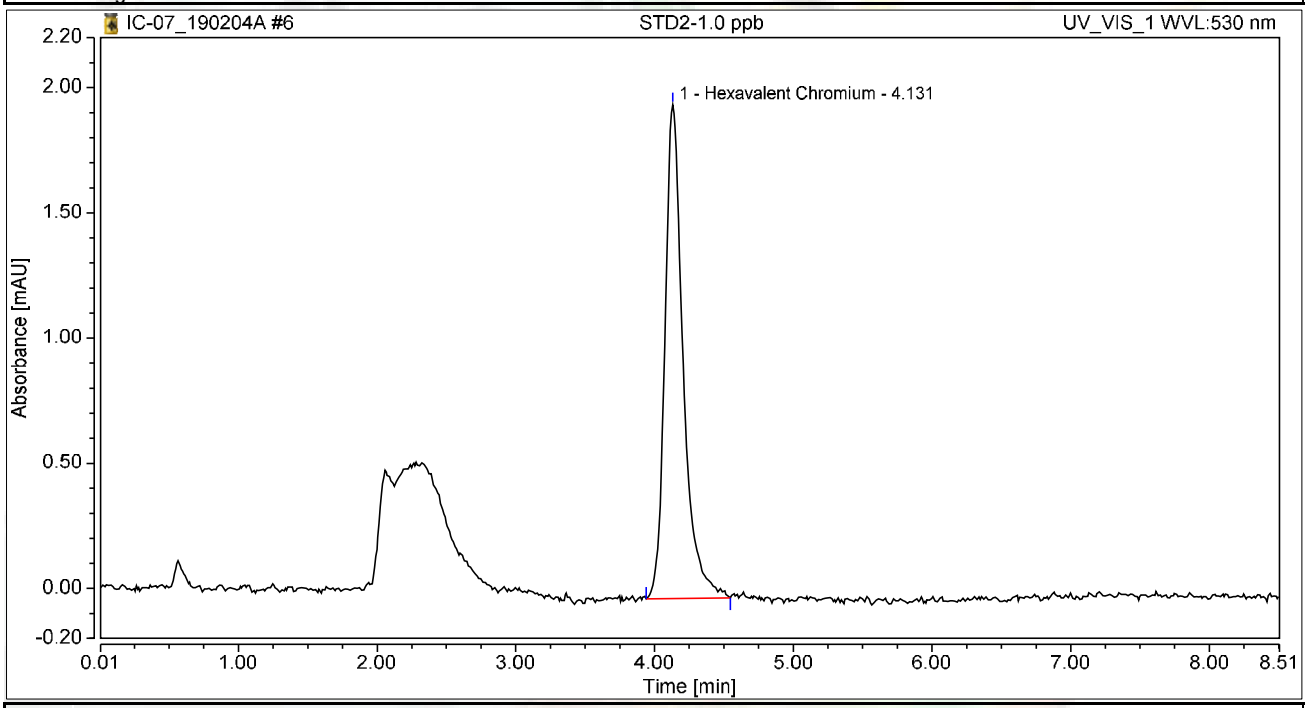
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 0.069 | 0.451 | 100.00 | 100.00 | 0.2397 |
| **Total:** | | | **0.069** | **0.451** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 10:47** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

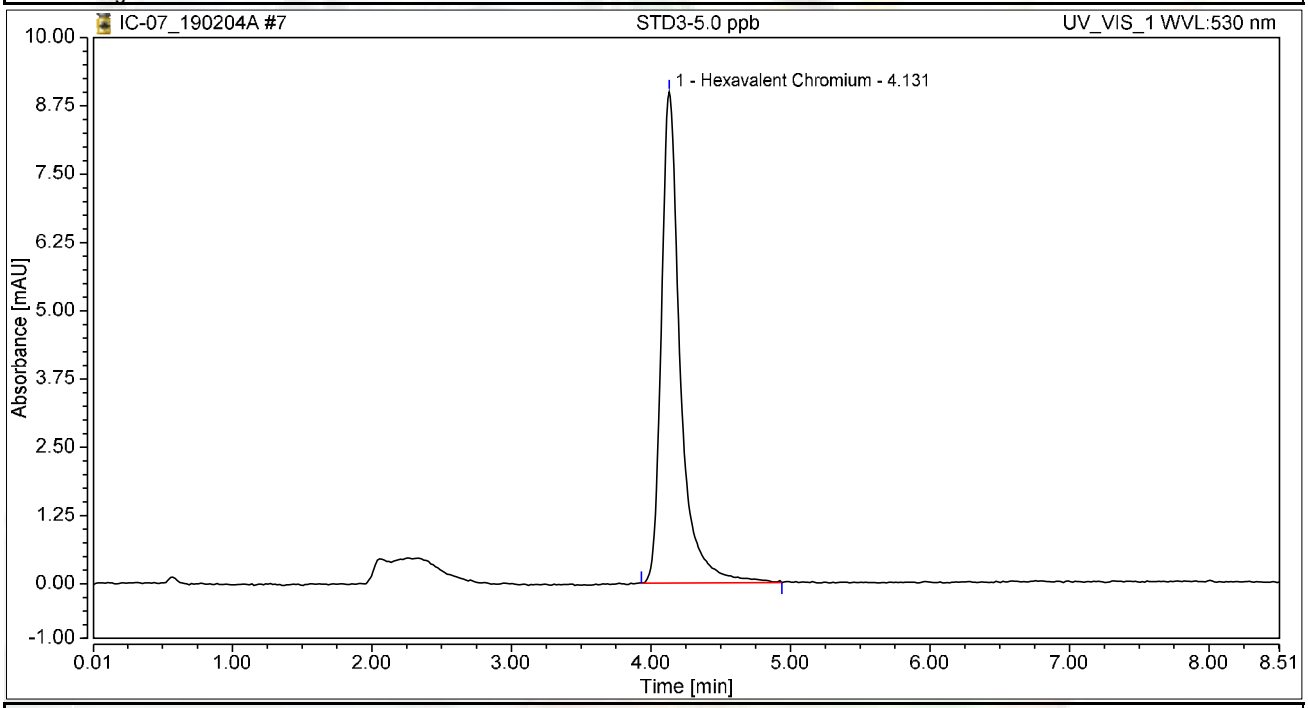
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 0.301 | 1.973 | 100.00 | 100.00 | 1.0477 |
| **Total:** | | | **0.301** | **1.973** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD3-5.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **03** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 10:56** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

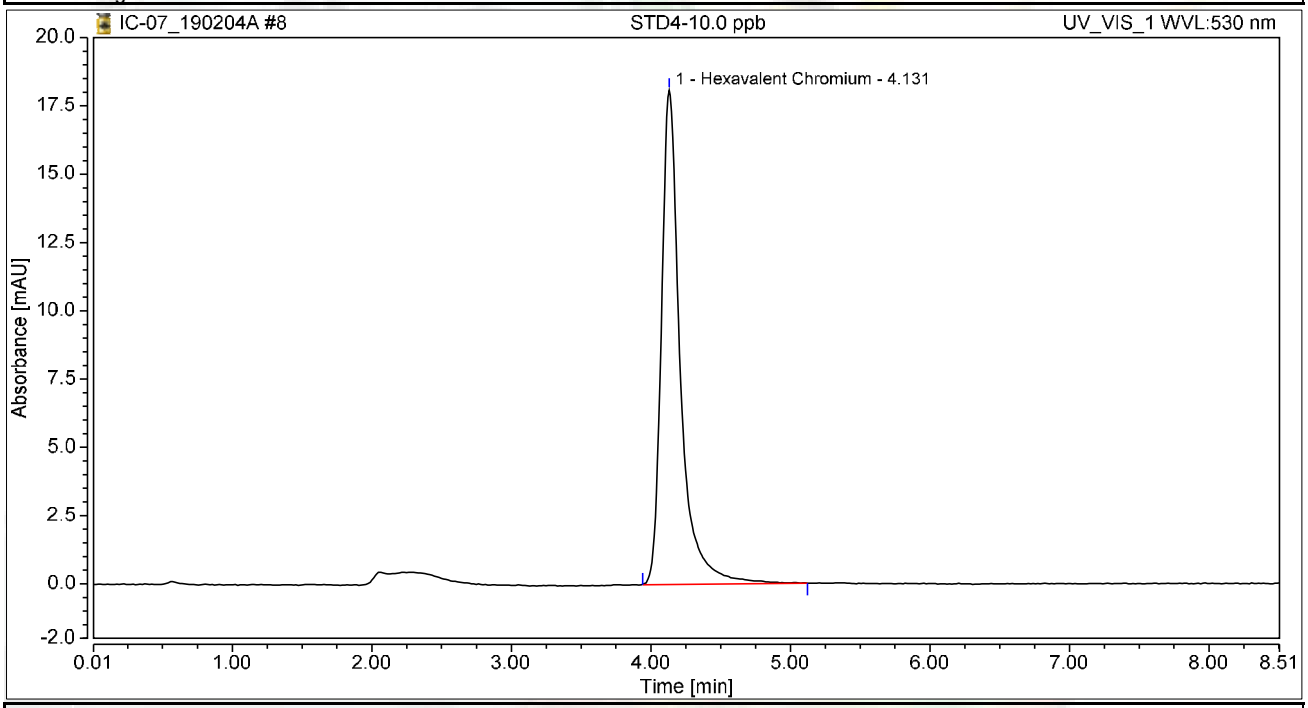
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 1.414 | 8.993 | 100.00 | 100.00 | 4.9215 |
| **Total:** | | | **1.414** | **8.993** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD4-10.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **04** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 11:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

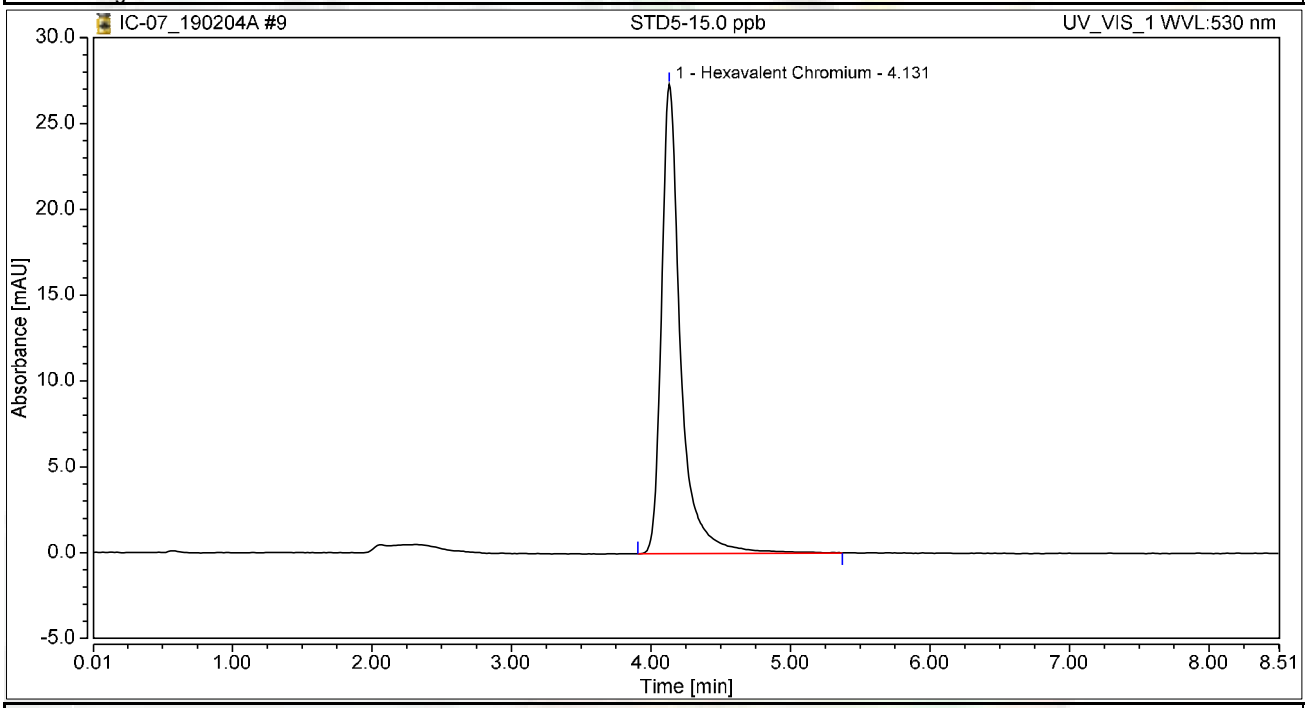
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 2.855 | 18.102 | 100.00 | 100.00 | 9.9332 |
| **Total:** | | | **2.855** | **18.102** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 11:15** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

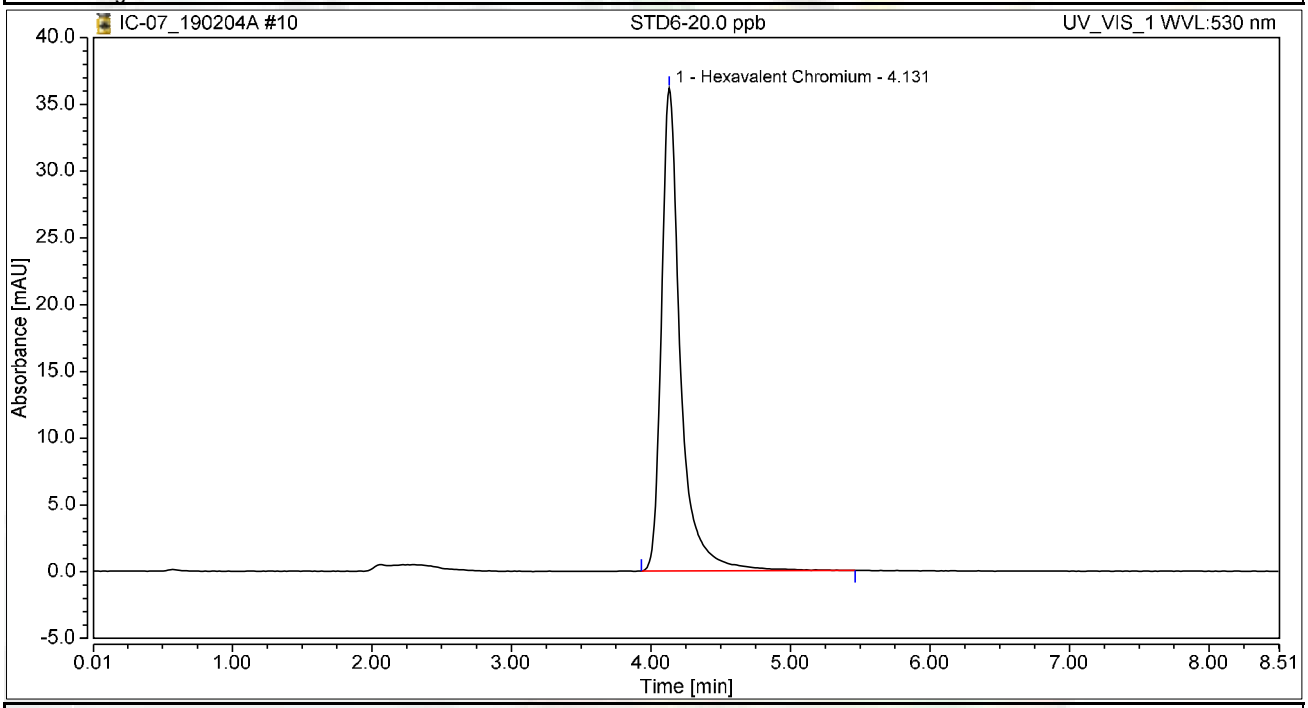
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 4.351 | 27.339 | 100.00 | 100.00 | 15.1391 |
| **Total:** | | | **4.351** | **27.339** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD6-20.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **06** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 11:25** | *Sample Weight:* | **1.0000** |

## Chromatogram



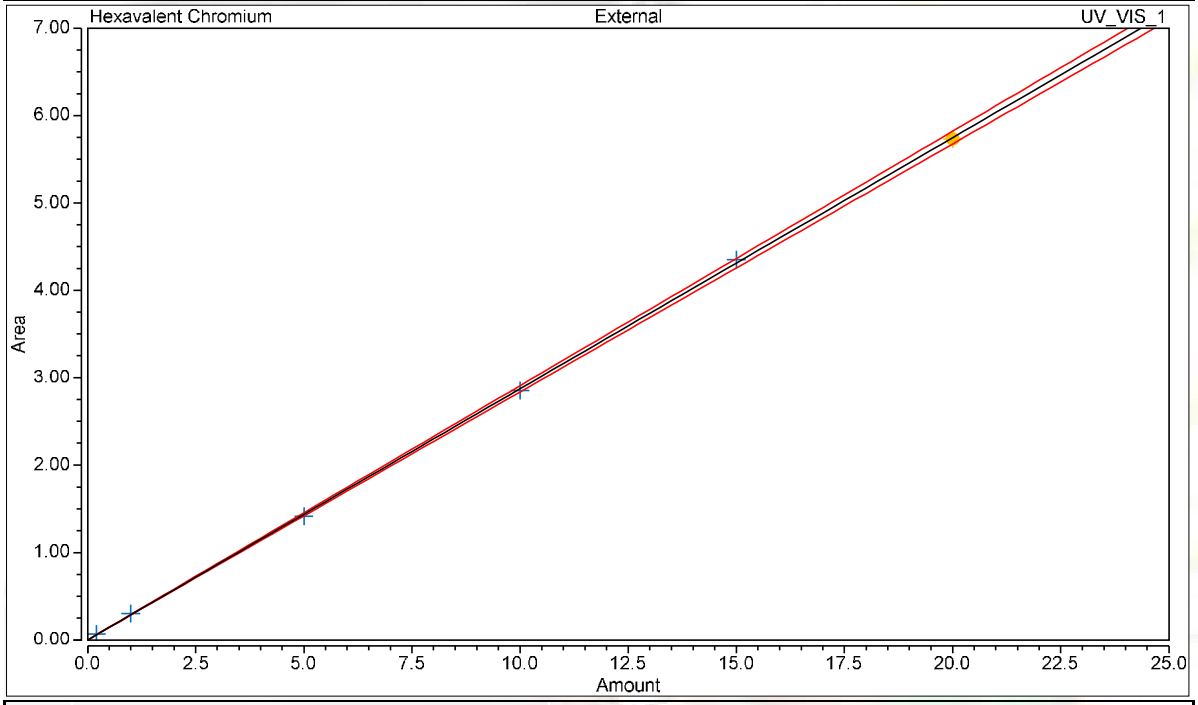

## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 5.732 | 36.163 | 100.00 | 100.00 | 19.9459 |
| **Total:** | | | **5.732** | **36.163** | **100.00** | **100.00** | |

# Initial Calibration Summary

| Calibration Details | Hexavalent Chromium | | |
|---|---|---|---|
| *Calibration Type* | Lin | *Offset (C0)* | 0.0000 |
| *Evaluation Type* | Area | *Slope (C1)* | 0.2874 |
| *Number of Calibration Points* | 6 | *Curve (C2)* | 0.0000 |
| *Number of disabled Calibration Points* | 0 | *R-Square* | 0.99988 |

Calibration Plot Hexavalent Chromium




Calibration Results Hexavalent Chromium

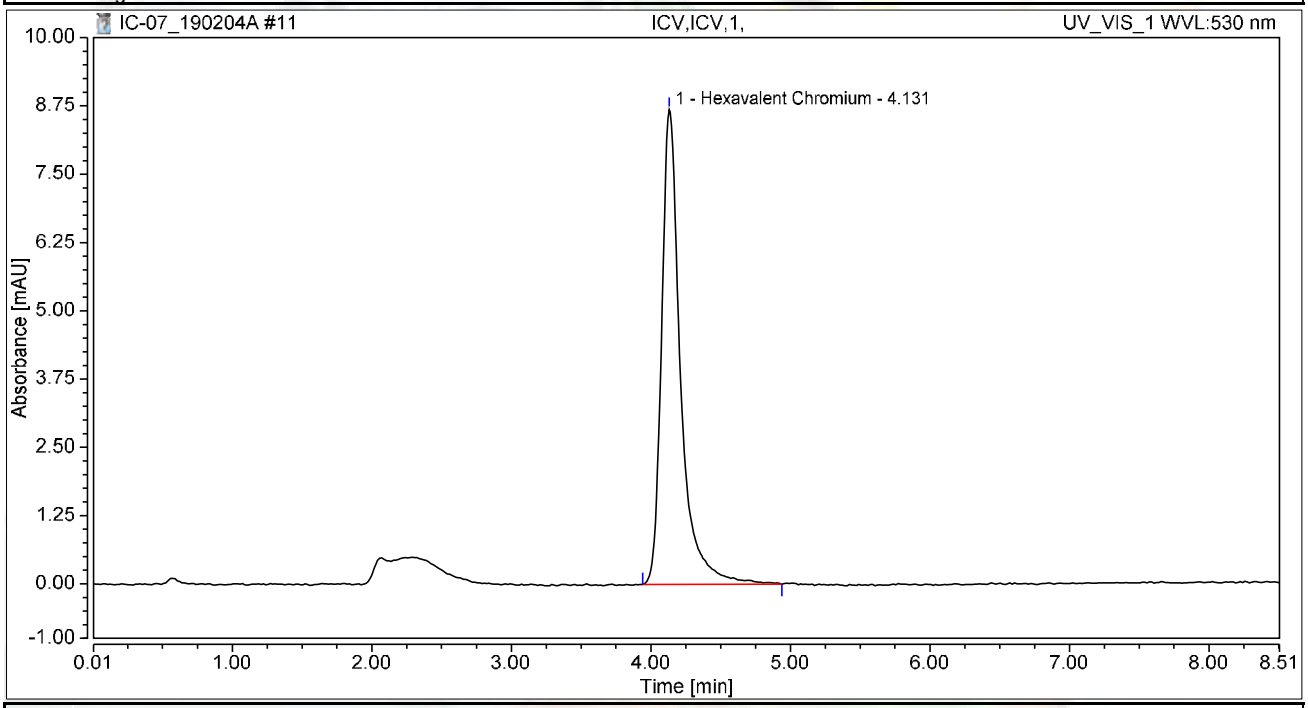
| No. | Injection Name | Calibration Level | X Value | Y Value | Area mAU*min | Height mAU |
|---|---|---|---|---|---|---|
| 5 | STD1-0.2 ppb | 01 | 0.2000 | 0.0689 | 0.069 | 0.451 |
| 6 | STD2-1.0 ppb | 02 | 1.0000 | 0.3011 | 0.301 | 1.973 |
| 7 | STD3-5.0 ppb | 03 | 5.0000 | 1.4144 | 1.414 | 8.993 |
| 8 | STD4-10.0 ppb | 04 | 10.0000 | 2.8548 | 2.855 | 18.102 |
| 9 | STD5-15.0 ppb | 05 | 15.0000 | 4.3509 | 4.351 | 27.339 |
| 10 | STD6-20.0 ppb | 06 | 20.0000 | 5.7324 | 5.732 | 36.163 |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICV,ICV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 11:45** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

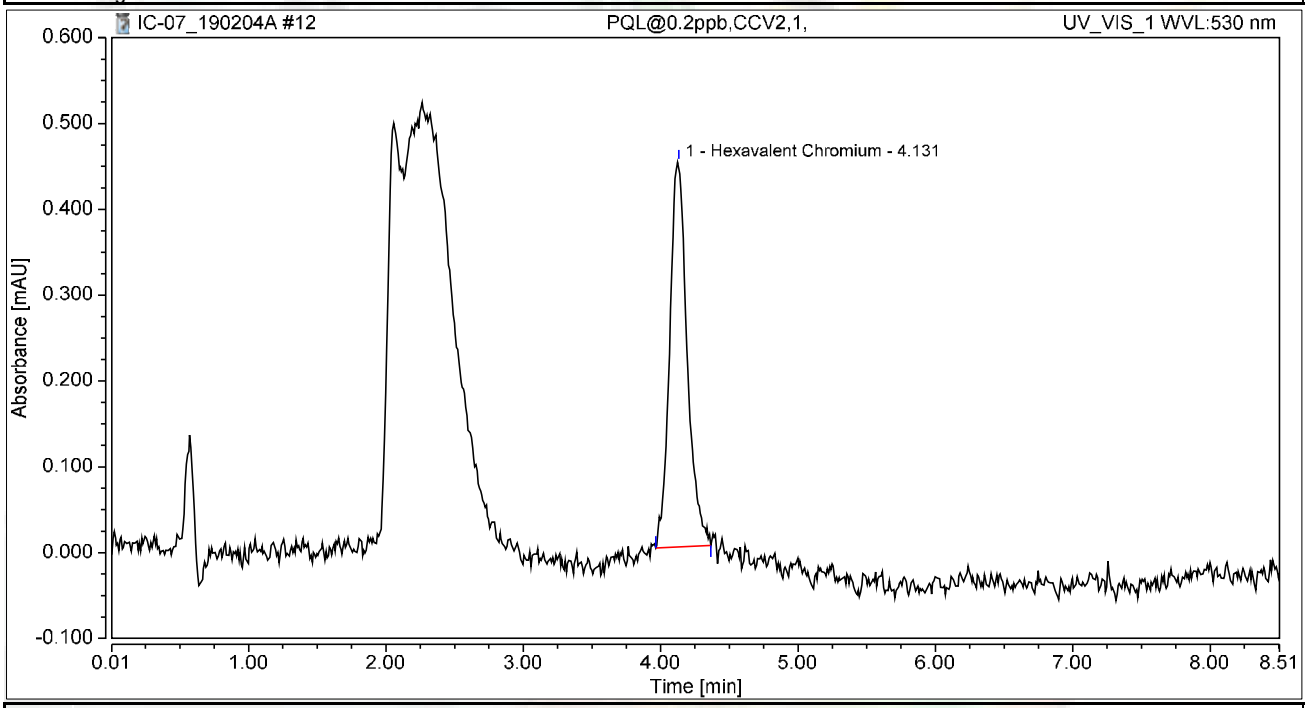
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 1.374 | 8.698 | 100.00 | 100.00 | 4.7795 |
| **Total:** | | | **1.374** | **8.698** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 11:56** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

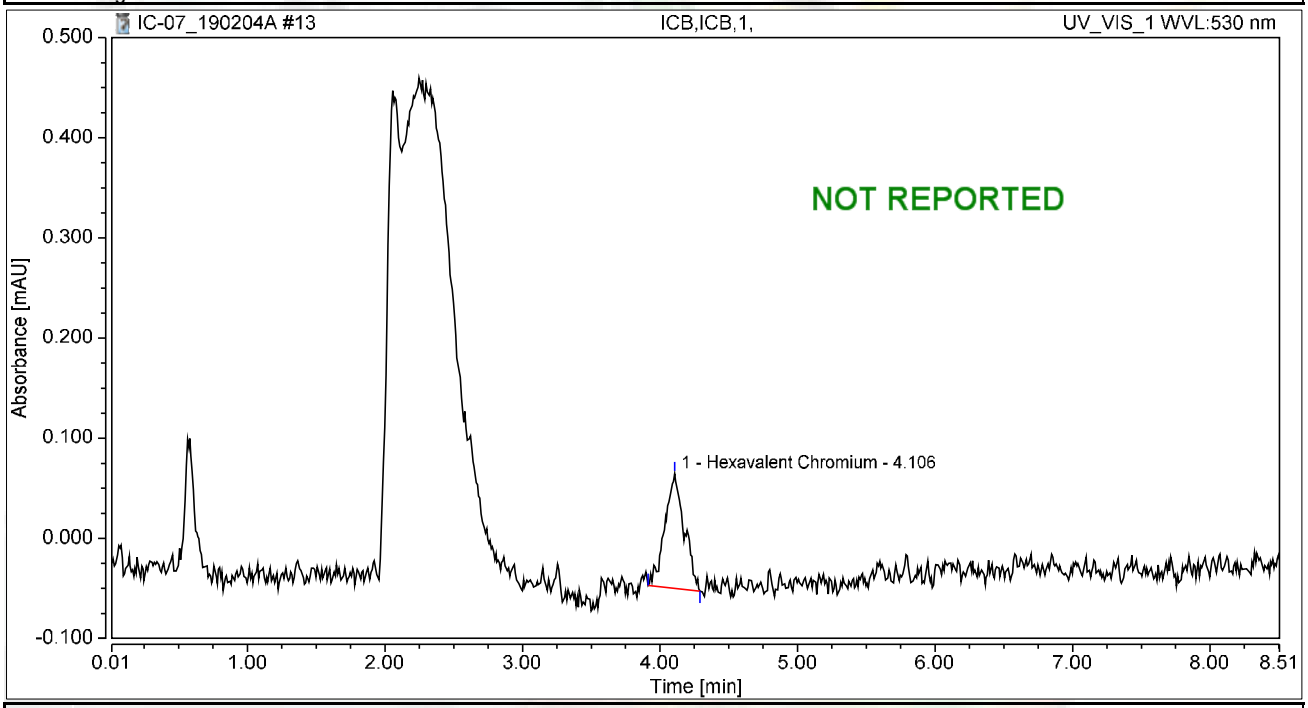
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 0.066 | 0.448 | 100.00 | 100.00 | 0.2307 |
| **Total:** | | | **0.066** | **0.448** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICB,ICB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 12:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

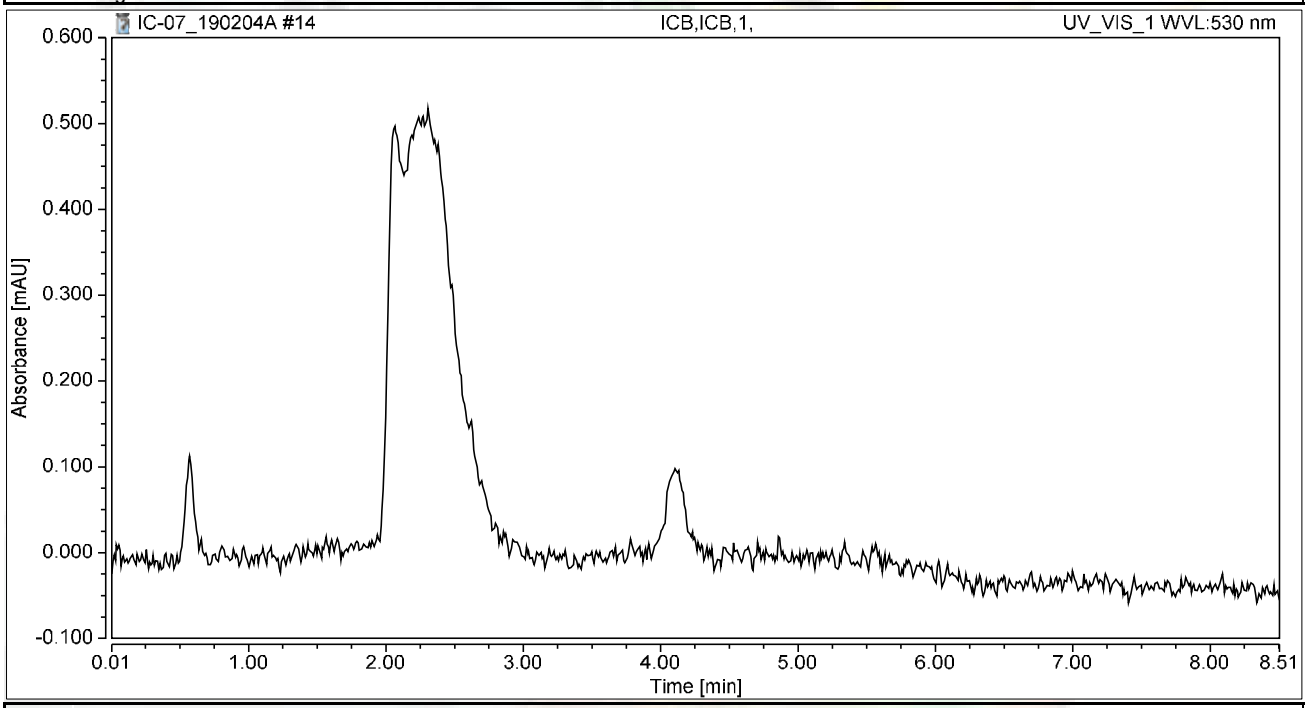
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.019 | 0.114 | 100.00 | 100.00 | 0.0647 |
| **Total:** | | | **0.019** | **0.114** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICB,ICB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 12:19** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

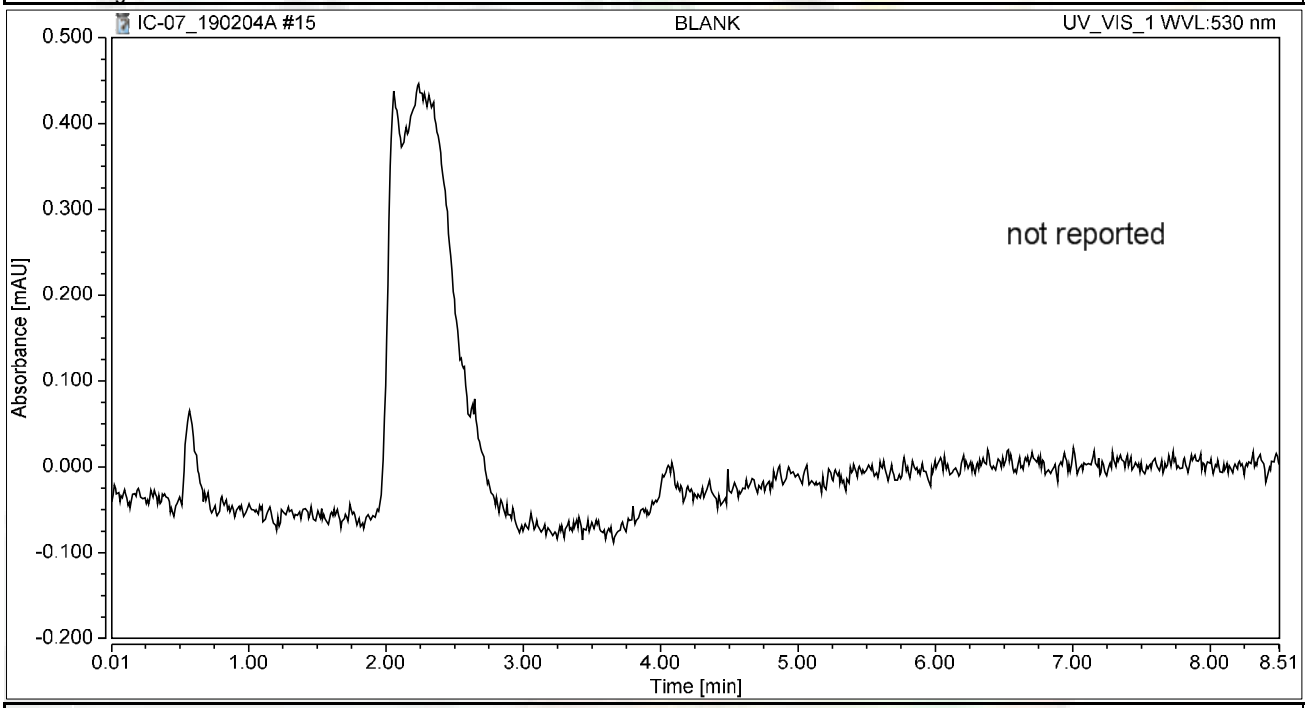
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 12:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# RAW DATA

**INJECTION LOG: 190219A**

**Instrument ID: IC-07**

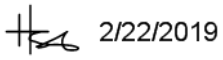
| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:31 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:41 AM | Not Reported |
| 3 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:54 AM | Not Reported |
| 4 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/04/19 10:22 AM | Reported |
| 5 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:35 AM | Reported |
| 6 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:47 AM | Reported |
| 7 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:56 AM | Reported |
| 8 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:06 AM | Reported |
| 9 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:15 AM | Reported |
| 10 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:25 AM | Reported |
| 11 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/19/19 8:33 AM | Not Reported |
| 12 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/19/19 8:44 AM | Not Reported |
| 13 | CCV-1 | CCV | 1 | Hexavalent Chromium | 02/19/19 8:58 AM | Reported |
| 14 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/19/19 9:09 AM | Reported |
| 15 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/19/19 9:18 AM | Reported |
| 16 | MB-R131932 | MBLK | 1 | Hexavalent Chromium | 02/19/19 9:42 AM | Reported |
| 17 | LCS-R131932 | LCS | 1 | Hexavalent Chromium | 02/19/19 9:54 AM | Reported |
| 18 | N034217-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 10:12 AM | Reported |
| 19 | N034219-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 10:24 AM | Not Reported |
| 20 | N034218-~~001A~~ -002A | SAMP | 1 | Hexavalent Chromium | 02/19/19 10:33 AM | Reported |
| 21 | N034217-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 10:50 AM | Reported |
| 22 | N034219-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 11:01 AM | Not Reported |
| 23 | N034218-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 11:11 AM | Reported |
| 24 | N034219-001A | SAMP | 5 | Hexavalent Chromium | 02/19/19 11:20 AM | Not Reported |
| 25 | N034219-001AMS | MS | 5 | Hexavalent Chromium | 02/19/19 11:30 AM | Not Reported |
| 26 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 02/19/19 11:39 AM | Reported |
| 27 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/19/19 11:49 AM | Reported |
| 28 | N034217-001AMSD | MSD | 1 | Hexavalent Chromium | 02/19/19 12:00 PM | Reported |
| 29 | N034218-001ADUP | DUP | 1 | Hexavalent Chromium | 02/19/19 12:12 PM | Reported |
| 30 | N034219-001A | SAMP | 10 | Hexavalent Chromium | 02/19/19 12:21 PM | Reported |
| 31 | N034219-001AMS | MS | 10 | Hexavalent Chromium | 02/19/19 12:31 PM | Reported |
| 32 | N034177-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 12:40 PM | Reported |
| 33 | N034177-002A | SAMP | 100 | Hexavalent Chromium | 02/19/19 12:50 PM | Reported |
| 34 | N034177-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 12:59 PM | Reported |
| 35 | N034177-002AMS | MS | 100 | Hexavalent Chromium | 02/19/19 1:09 PM | Reported |
| 36 | N034102-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 1:18 PM | Reported |
| 37 | N034102-002A | SAMP | 5 | Hexavalent Chromium | 02/19/19 1:28 PM | Reported |
| 38 | CCV-3 | CCV | 1 | Hexavalent Chromium | 02/19/19 1:37 PM | Reported |
| 39 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/19/19 1:47 PM | Reported |
| 40 | N034102-003A | SAMP | 5 | Hexavalent Chromium | 02/19/19 1:56 PM | Reported |
| 41 | N034102-004A | SAMP | 5 | Hexavalent Chromium | 02/19/19 2:05 PM | Reported |
| 42 | N034102-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 2:15 PM | Reported |

2/22/2019 2/22/2019

**INJECTION LOG: 190219A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034102-002AMS | MS | 5 | Hexavalent Chromium | 02/19/19 2:24 PM | Reported |
| 44 | N034102-003AMS | MS | 5 | Hexavalent Chromium | 02/19/19 2:34 PM | Reported |
| 45 | N034102-004AMS | MS | 5 | Hexavalent Chromium | 02/19/19 2:43 PM | Reported |
| 46 | N034192-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 2:53 PM | Reported |
| 47 | N034192-002A | SAMP | 1 | Hexavalent Chromium | 02/19/19 3:02 PM | Reported |
| 48 | N034192-003A | SAMP | 1 | Hexavalent Chromium | 02/19/19 3:12 PM | Reported |
| 49 | N034192-004A | SAMP | 1 | Hexavalent Chromium | 02/19/19 3:21 PM | Reported |
| 50 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/19/19 3:31 PM | Reported |
| 51 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/19/19 3:40 PM | Reported |
| 52 | N034192-005A | SAMP | 1 | Hexavalent Chromium | 02/19/19 3:50 PM | Reported |
| 53 | N034109-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 3:59 PM | Reported |
| 54 | N034192-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 4:15 PM | Reported |
| 55 | N034192-002AMS | MS | 1 | Hexavalent Chromium | 02/19/19 4:26 PM | Reported |
| 56 | N034192-003AMS | MS | 1 | Hexavalent Chromium | 02/19/19 4:35 PM | Reported |
| 57 | N034192-004AMS | MS | 1 | Hexavalent Chromium | 02/19/19 4:45 PM | Reported |
| 58 | N034192-005AMS | MS | 1 | Hexavalent Chromium | 02/19/19 4:54 PM | Reported |
| 59 | N034109-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 5:04 PM | Reported |
| 60 | N034120-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 5:13 PM | Reported |
| 61 | N034120-002A | SAMP | 1 | Hexavalent Chromium | 02/19/19 5:23 PM | Reported |
| 62 | CCV-5 | CCV | 1 | Hexavalent Chromium | 02/19/19 5:32 PM | Reported |
| 63 | CCB-5 | CCB | 1 | Hexavalent Chromium | 02/19/19 5:42 PM | Reported |
| 64 | N034120-003A | SAMP | 1 | Hexavalent Chromium | 02/19/19 5:51 PM | Reported |
| 65 | N034120-004A | SAMP | 1 | Hexavalent Chromium | 02/19/19 6:00 PM | Reported |
| 66 | N034120-005A | SAMP | 1 | Hexavalent Chromium | 02/19/19 6:10 PM | Reported |
| 67 | N034102-002A | SAMP | 1 | Hexavalent Chromium | 02/19/19 6:19 PM | Not Reported |
| 68 | N034102-002AMS | MS | 1 | Hexavalent Chromium | 02/19/19 6:29 PM | Not Reported |
| 69 | N034102-003A | SAMP | 1 | Hexavalent Chromium | 02/19/19 6:38 PM | Not Reported |
| 70 | N034102-003AMS | MS | 1 | Hexavalent Chromium | 02/19/19 6:48 PM | Not Reported |
| 71 | N034102-004A | SAMP | 1 | Hexavalent Chromium | 02/19/19 6:57 PM | Not Reported |
| 72 | N034102-004AMS | MS | 1 | Hexavalent Chromium | 02/19/19 7:07 PM | Not Reported |
| 73 | CCV-6 | CCV | 1 | Hexavalent Chromium | 02/19/19 7:16 PM | Reported |
| 74 | CCB-6 | CCB | 1 | Hexavalent Chromium | 02/19/19 7:26 PM | Reported |
| 75 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/19/19 7:35 PM | Not Reported |



# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190219A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **19/Feb/19 20:05:53** |
| *No. of Injections:* | **78** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:31 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 02/04/2019 09:41 | Finished | BLANK |
| 3 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:54 | Finished | BLANK |
| 4 | iBLANK | 2 | 1000 | Unknown | | 02/04/2019 10:22 | Finished | INSTRUMENT BLANK |
| 5 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/04/2019 10:35 | Finished | 0.2 ppb, IWST-181022C |
| 6 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/04/2019 10:47 | Finished | 1.0 ppb, IWST-181022C |
| 7 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/04/2019 10:56 | Finished | 5.0 ppb, IWST-181022C |
| 8 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/04/2019 11:06 | Finished | 10 ppb, IWST-181022C |
| 9 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/04/2019 11:15 | Finished | 15 ppb, IWST-181022C |
| 10 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/04/2019 11:25 | Finished | 20 ppb, IWST-181022C |
| 11 | BLANK | 1 | 1000 | Unknown | | 02/19/2019 08:33 | Finished | BLANK |
| 12 | BLANK | 2 | 1000 | Unknown | | 02/19/2019 08:44 | Finished | BLANK |
| 13 | CCV-1,CCV,1, | 4 | 1000 | Unknown | | 02/19/2019 08:58 | Finished | CCV @5ppb, IWST-181022C |
| 14 | PQL@0.2ppb,CCV2,1 | 5 | 1000 | Unknown | | 02/19/2019 09:09 | Finished | PQL @ 0.2ppb |
| 15 | CCB-1,CCB,1, | 6 | 1000 | Unknown | | 02/19/2019 09:18 | Finished | CCB R190115A |
| 16 | MB-H2O,MBLK,1, | 7 | 1000 | Unknown | | 02/19/2019 09:42 | Finished | MB R190115A |
| 17 | LCS-H2O,LCS,1, | 8 | 1000 | Unknown | | 02/19/2019 09:54 | Finished | LCS @5ppb, IWST-181022D |
| 18 | N034217-001A,SAMF | 9 | 1000 | Unknown | | 02/19/2019 10:12 | Finished | SAMP,10mL |
| 19 | N034219-001A,SAMF | 10 | 1000 | Unknown | | 02/19/2019 10:24 | Finished | SAMP,10mL |
| 20 | N034218-001Ã,SAMF | 11 | 1000 | Unknown | | 02/19/2019 10:33 | Finished | SAMP,10mL |
| 21 | N034217-001AMS,MS | 13 | 1000 | Unknown | | 02/19/2019 10:50 | Finished | MS (1ppb), IWST-181022D,10 |
| 22 | N034219-001AMS,MS | 14 | 1000 | Unknown | | 02/19/2019 11:01 | Finished | MS (1ppb), IWST-181022D,10 |
| 23 | N034218-001ÃMS,MS | 15 | 1000 | Unknown | | 02/19/2019 11:11 | Finished | MS (1ppb), IWST-181022D,10 |
| 24 | N034219-001A,SAMF | 16 | 1000 | Unknown | | 02/19/2019 11:20 | Finished | SAMP,2>10mL |
| 25 | N034219-001AMS,MS | 17 | 1000 | Unknown | | 02/19/2019 11:30 | Finished | MS (1ppb), IWST-181022D,2>1 |
| 26 | CCV-2,CCV1,1, | 18 | 1000 | Unknown | | 02/19/2019 11:39 | Finished | CCV @10ppb, IWST-181022C |
| 27 | CCB-2,CCB,1, | 19 | 1000 | Unknown | | 02/19/2019 11:49 | Finished | CCB R190115A |
| 28 | N034217-001AMSD,M | 20 | 1000 | Unknown | | 02/19/2019 12:00 | Finished | MSD (1ppb), IWST-181022D,1( |
| 29 | N034218-001ADUP,D | 21 | 1000 | Unknown | | 02/19/2019 12:12 | Finished | DUP,10 mL |
| 30 | N034219-001A,SAMF | 22 | 1000 | Unknown | | 02/19/2019 12:21 | Finished | SAMP,1>10mL |
| 31 | N034219-001AMS,MS | 23 | 1000 | Unknown | | 02/19/2019 12:31 | Finished | MS (1ppb), IWST-181022D,1>1 |
| 32 | N034177-001A,SAMF | 24 | 1000 | Unknown | | 02/19/2019 12:40 | Finished | SAMP,10mL |
| 33 | N034177-002A,SAMF | 25 | 1000 | Unknown | | 02/19/2019 12:50 | Finished | SAMP,0.1>10mL |
| 34 | N034177-001AMS,MS | 26 | 1000 | Unknown | | 02/19/2019 12:59 | Finished | MS (1ppb), IWST-181022D,10 |
| 35 | N034177-002AMS,MS | 27 | 1000 | Unknown | | 02/19/2019 13:09 | Finished | MS (5ppb), IWST-181022D,0.1 |
| 36 | N034102-001A,SAMF | 28 | 1000 | Unknown | | 02/19/2019 13:18 | Finished | SAMP,10mL |
| 37 | N034102-002A,SAMF | 29 | 1000 | Unknown | | 02/19/2019 13:28 | Finished | SAMP,2>10mL |
| 38 | CCV-3,CCV,1, | 30 | 1000 | Unknown | | 02/19/2019 13:37 | Finished | CCV @5ppb, IWST-181022C |
| 39 | CCB-3,CCB,1, | 31 | 1000 | Unknown | | 02/19/2019 13:47 | Finished | CCB R190115A |
| 40 | N034102-003A,SAMF | 32 | 1000 | Unknown | | 02/19/2019 13:56 | Finished | SAMP,2>10mL |
| 41 | N034102-004A,SAMF | 33 | 1000 | Unknown | | 02/19/2019 14:05 | Finished | SAMP,2>10mL |
| 42 | N034102-001AMS,MS | 34 | 1000 | Unknown | | 02/19/2019 14:15 | Finished | MS (1ppb), IWST-181022D,10 |
| 43 | N034102-002AMS,MS | 35 | 1000 | Unknown | | 02/19/2019 14:24 | Finished | MS (1ppb), IWST-181022D,2>1 |
| 44 | N034102-003AMS,MS | 36 | 1000 | Unknown | | 02/19/2019 14:34 | Finished | SAMP,10mL |
| 45 | N034102-004AMS,MS | 37 | 1000 | Unknown | | 02/19/2019 14:43 | Finished | SAMP,10mL |
| 46 | N034192-001A,SAMF | 38 | 1000 | Unknown | | 02/19/2019 14:53 | Finished | SAMP,10mL |
| 47 | N034192-002A,SAMF | 39 | 1000 | Unknown | | 02/19/2019 15:02 | Finished | SAMP,10mL |
| 48 | N034192-003A,SAMF | 40 | 1000 | Unknown | | 02/19/2019 15:12 | Finished | SAMP,10mL |
| 49 | N034192-004A,SAMF | 41 | 1000 | Unknown | | 02/19/2019 15:21 | Finished | SAMP,10mL |
| 50 | CCV-4,CCV1,1, | 42 | 1000 | Unknown | | 02/19/2019 15:31 | Finished | CCV @10ppb, IWST-181022C |
| 51 | CCB-4,CCB,1, | 43 | 1000 | Unknown | | 02/19/2019 15:40 | Finished | CCB R190115A |
| 52 | N034192-005A,SAMF | 44 | 1000 | Unknown | | 02/19/2019 15:50 | Finished | SAMP,10mL |
| 53 | N034109-001A,SAMF | 45 | 1000 | Unknown | | 02/19/2019 15:59 | Finished | SAMP,10mL |
| 54 | N034192-001AMS,MS | 1 | 1000 | Unknown | | 02/19/2019 16:15 | Finished | MS (1ppb), IWST-181022D,10 |
| 55 | N034192-002AMS,MS | 2 | 1000 | Unknown | | 02/19/2019 16:26 | Finished | MS (1ppb), IWST-181022D,10 |
| 56 | N034192-003AMS,MS | 3 | 1000 | Unknown | | 02/19/2019 16:35 | Finished | MS (1ppb), IWST-181022D,10 |
| 57 | N034192-004AMS,MS | 4 | 1000 | Unknown | | 02/19/2019 16:45 | Finished | MS (1ppb), IWST-181022D,10 |
| 58 | N034192-005AMS,MS | 5 | 1000 | Unknown | | 02/19/2019 16:54 | Finished | MS (1ppb), IWST-181022D,10 |
| 59 | N034109-001AMS,MS | 6 | 1000 | Unknown | | 02/19/2019 17:04 | Finished | MS (1ppb), IWST-181022D,10 |
| 60 | N034120-001A,SAMF | 7 | 1000 | Unknown | | 02/19/2019 17:13 | Finished | SAMP,10mL |

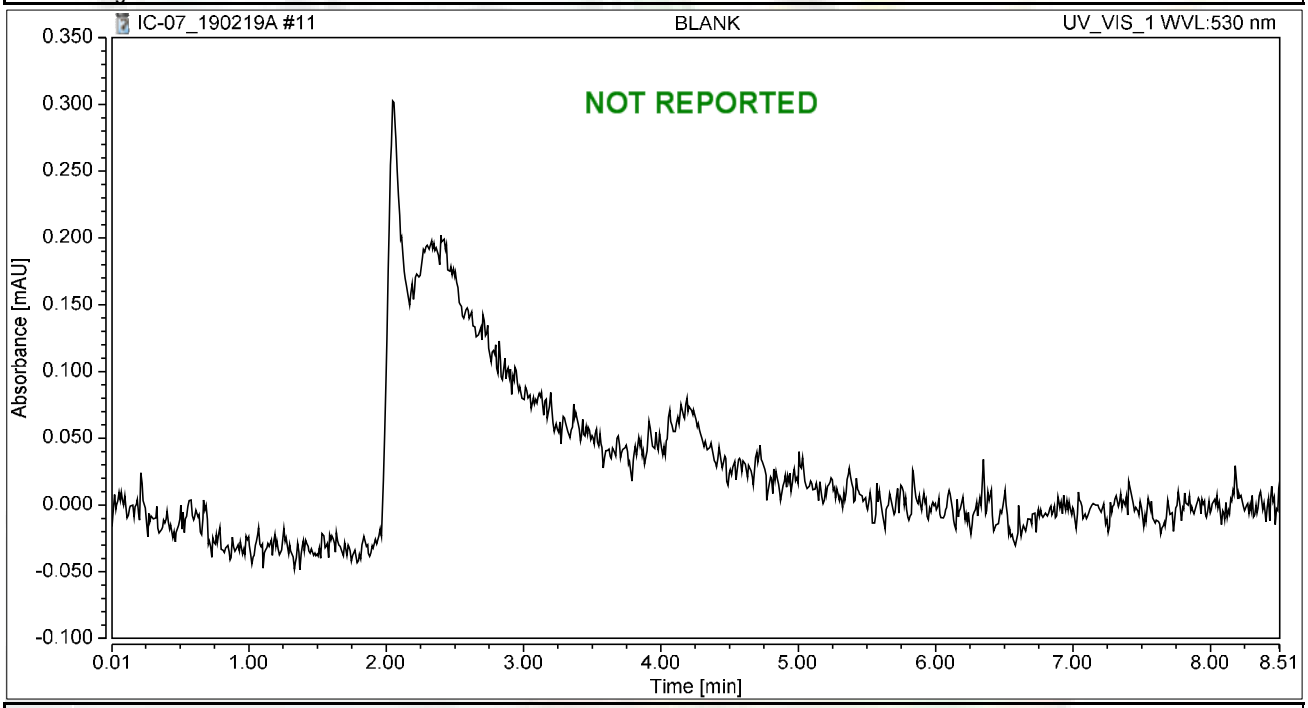
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | N034120-002A,SAMF | 8 | 1000 | Unknown | | 02/19/2019 17:23 | Finished | SAMP,10mL |
| 62 | CCV-5,CCV,1, | 9 | 1000 | Unknown | | 02/19/2019 17:32 | Finished | CCV @5ppb, IWST-181022C |
| 63 | CCB-5,CCB,1, | 10 | 1000 | Unknown | | 02/19/2019 17:42 | Finished | CCB R190115A |
| 64 | N034120-003A,SAMF | 11 | 1000 | Unknown | | 02/19/2019 17:51 | Finished | SAMP,10mL |
| 65 | N034120-004A,SAMF | 12 | 1000 | Unknown | | 02/19/2019 18:00 | Finished | SAMP,10mL |
| 66 | N034120-005A,SAMF | 13 | 1000 | Unknown | | 02/19/2019 18:10 | Finished | SAMP,10mL |
| 67 | N034102-002A,SAMF | 14 | 1000 | Unknown | | 02/19/2019 18:19 | Finished | SAMP,10mL |
| 68 | N034102-002AMS,MS | 15 | 1000 | Unknown | | 02/19/2019 18:29 | Finished | MS (1ppb), IWST-181022D,10 |
| 69 | N034102-003A,SAMF | 16 | 1000 | Unknown | | 02/19/2019 18:38 | Finished | SAMP,10mL |
| 70 | N034102-003AMS,MS | 17 | 1000 | Unknown | | 02/19/2019 18:48 | Finished | MS (1ppb), IWST-181022D,10 |
| 71 | N034102-004A,SAMF | 18 | 1000 | Unknown | | 02/19/2019 18:57 | Finished | SAMP,10mL |
| 72 | N034102-004AMS,MS | 19 | 1000 | Unknown | | 02/19/2019 19:07 | Finished | MS (1ppb), IWST-181022D,10 |
| 73 | CCV-6,CCV,1, | 20 | 1000 | Unknown | | 02/19/2019 19:16 | Finished | CCV @10ppb, IWST-181022C |
| 74 | CCB-6,CCB,1, | 21 | 1000 | Unknown | | 02/19/2019 19:26 | Finished | CCB R190115A |
| 75 | BLANK | 22 | 1000 | Unknown | | 02/19/2019 19:35 | Finished | BLANK |
| 76 | SHUTDOWN | 23 | 1000 | Unknown | | 02/19/2019 19:45 | Finished | |
| 77 | Eluent: R190218C | 24 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 78 | PCR: R190218B | 25 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 08:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

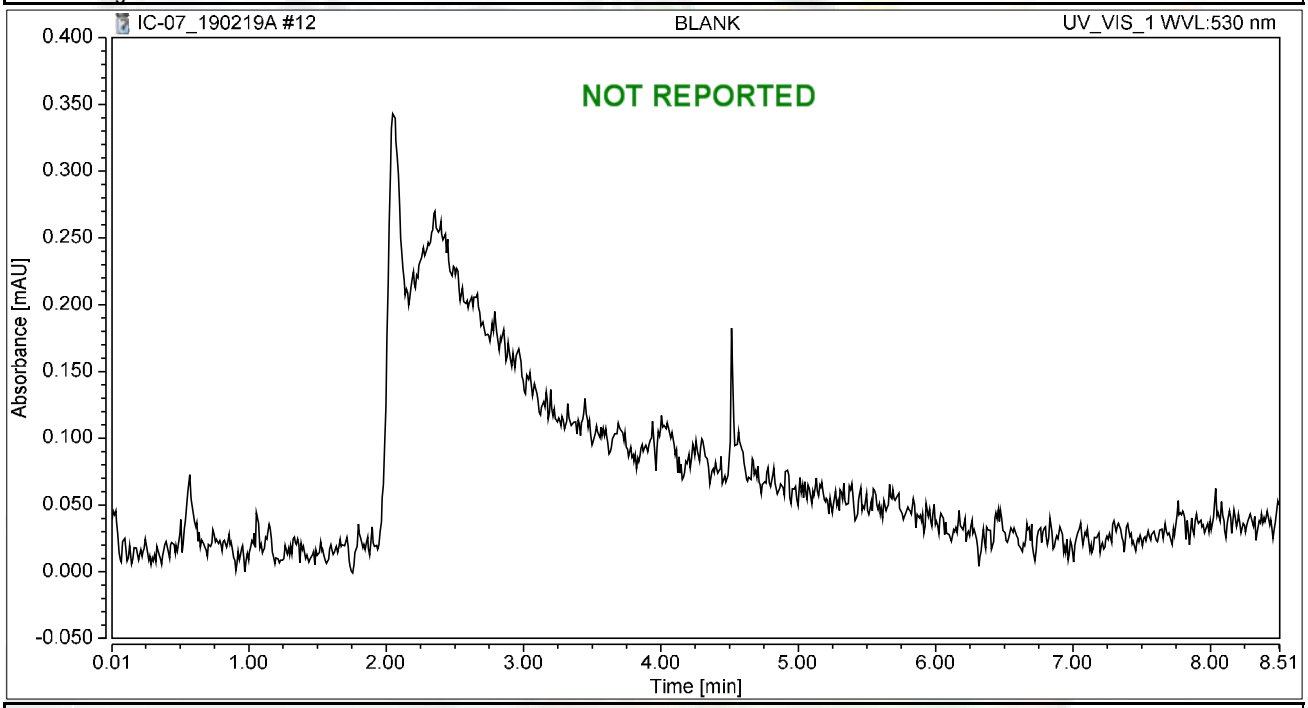
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 08:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

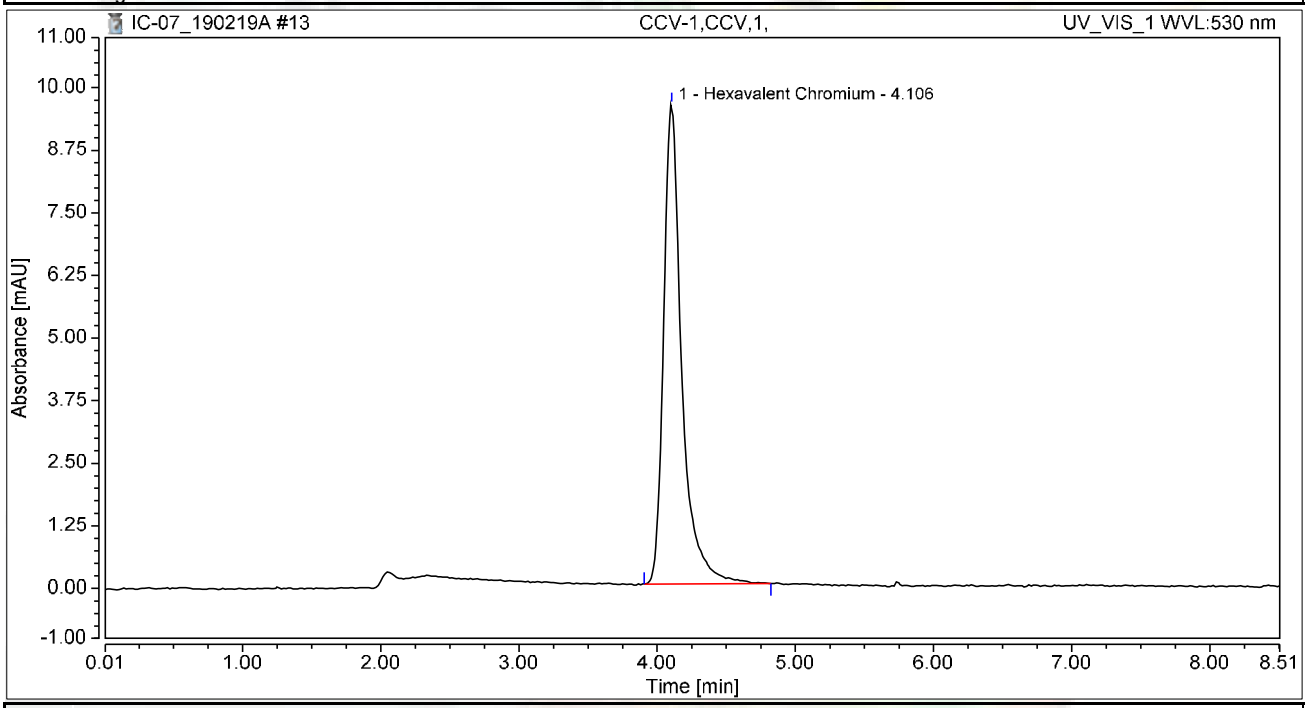
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-1,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 08:58** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

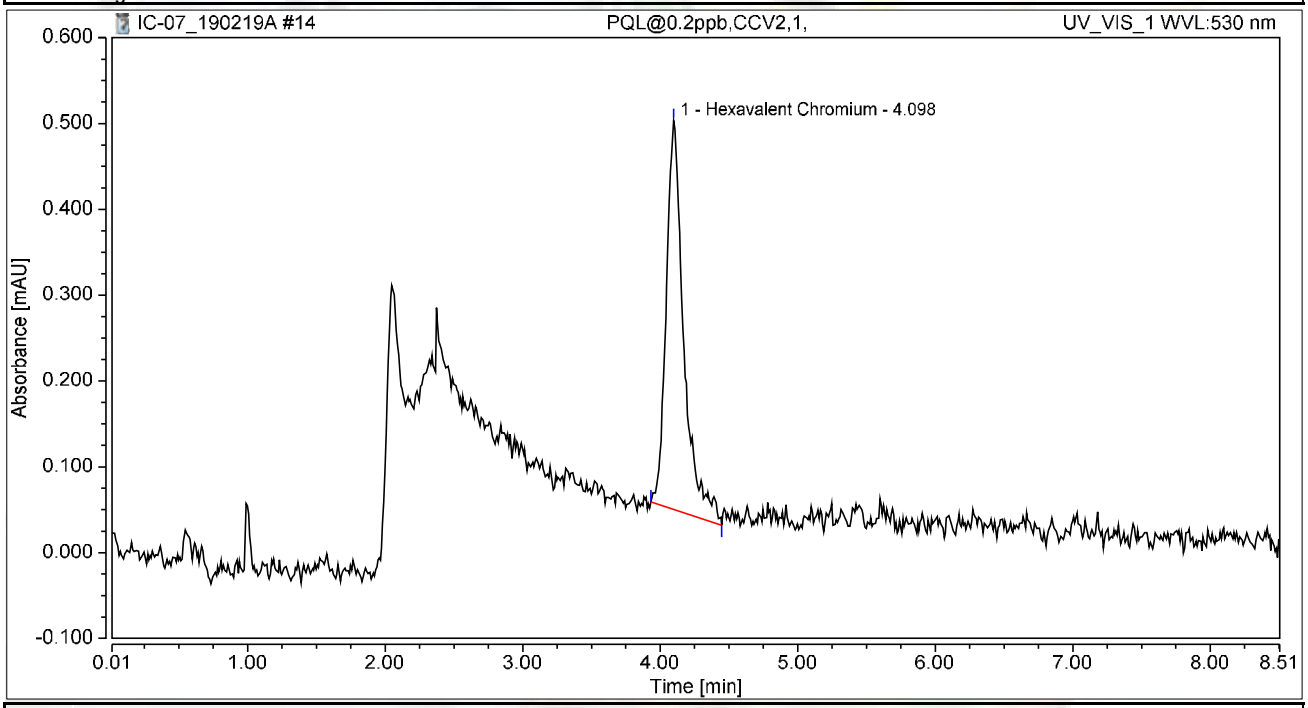
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.463 | 9.573 | 100.00 | 100.00 | 5.0906 |
| **Total:** | | | **1.463** | **9.573** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 09:09** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

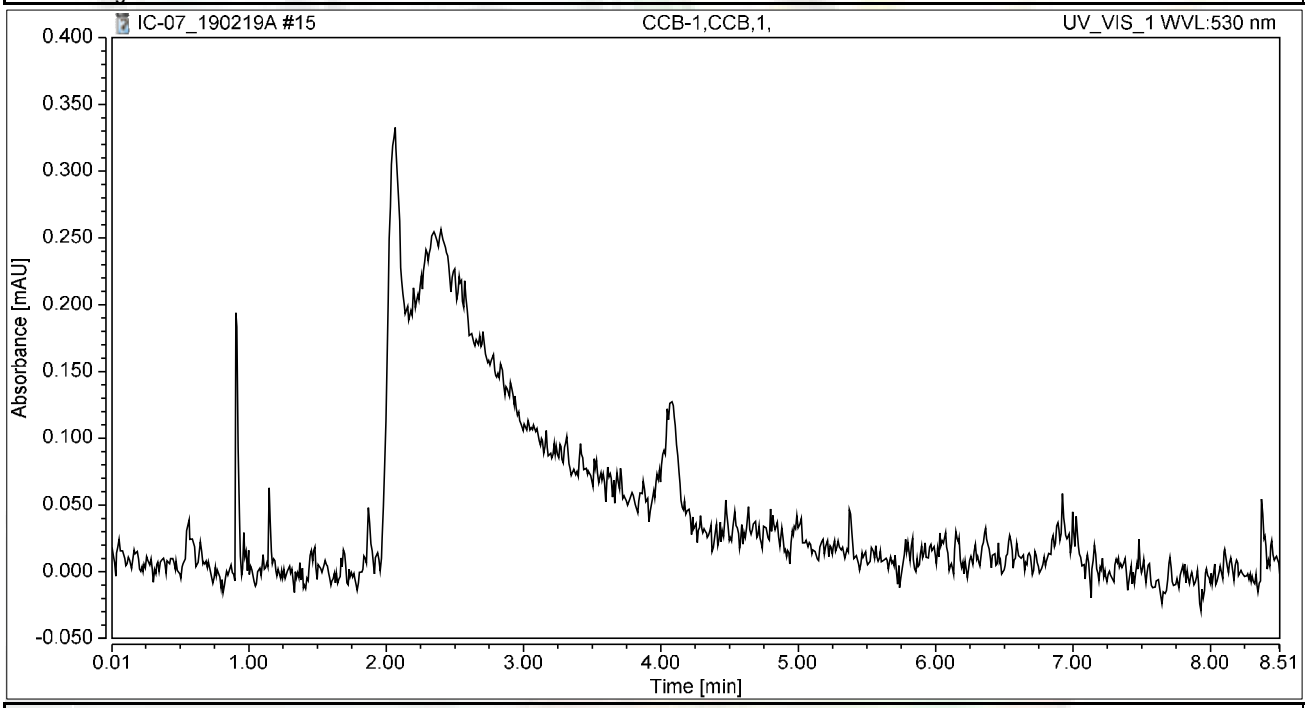
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.067 | 0.453 | 100.00 | 100.00 | 0.2319 |
| **Total:** | | | **0.067** | **0.453** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-1,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 09:18** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

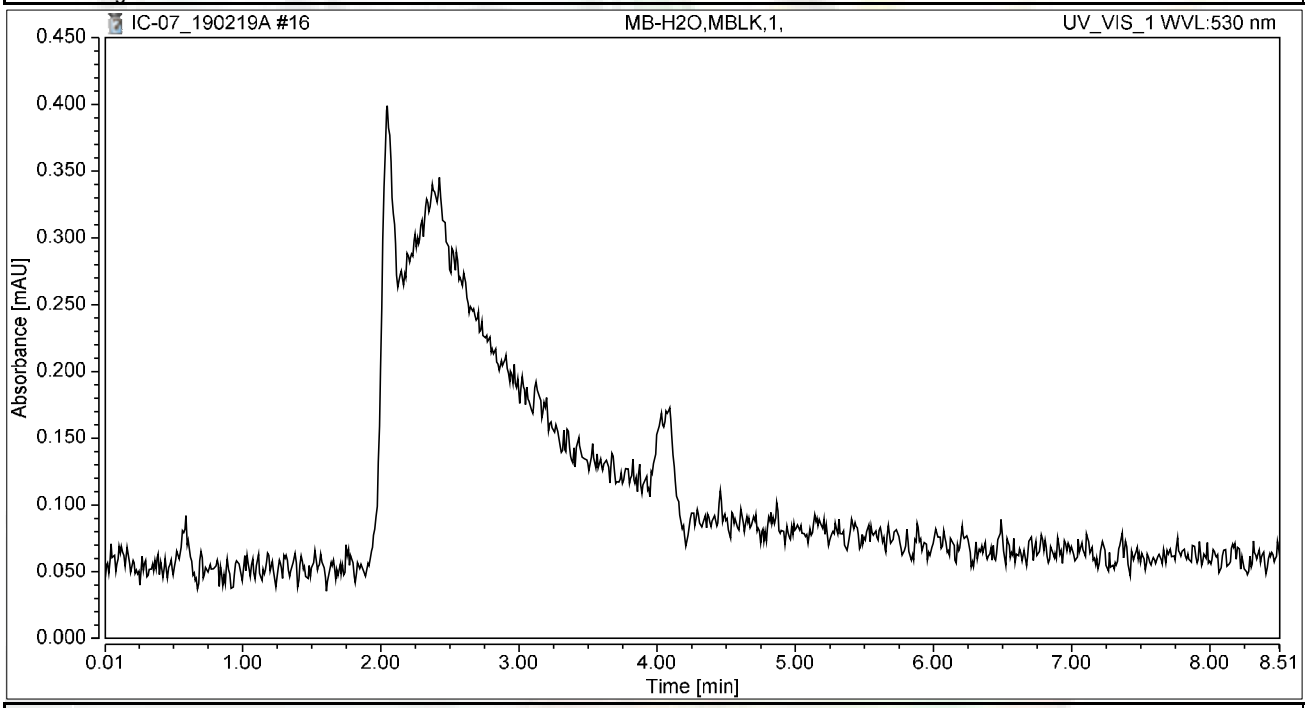
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **MB-H2O,MBLK,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 09:42** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

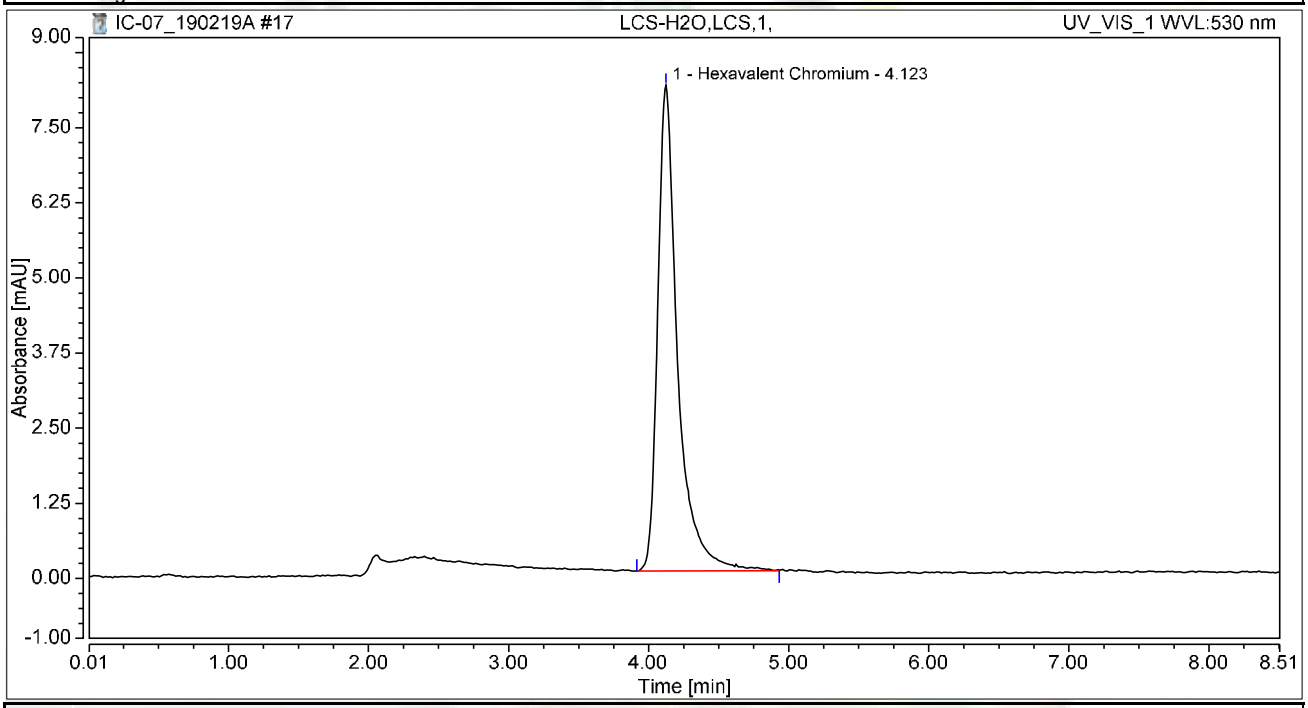
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **LCS-H2O,LCS,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 09:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

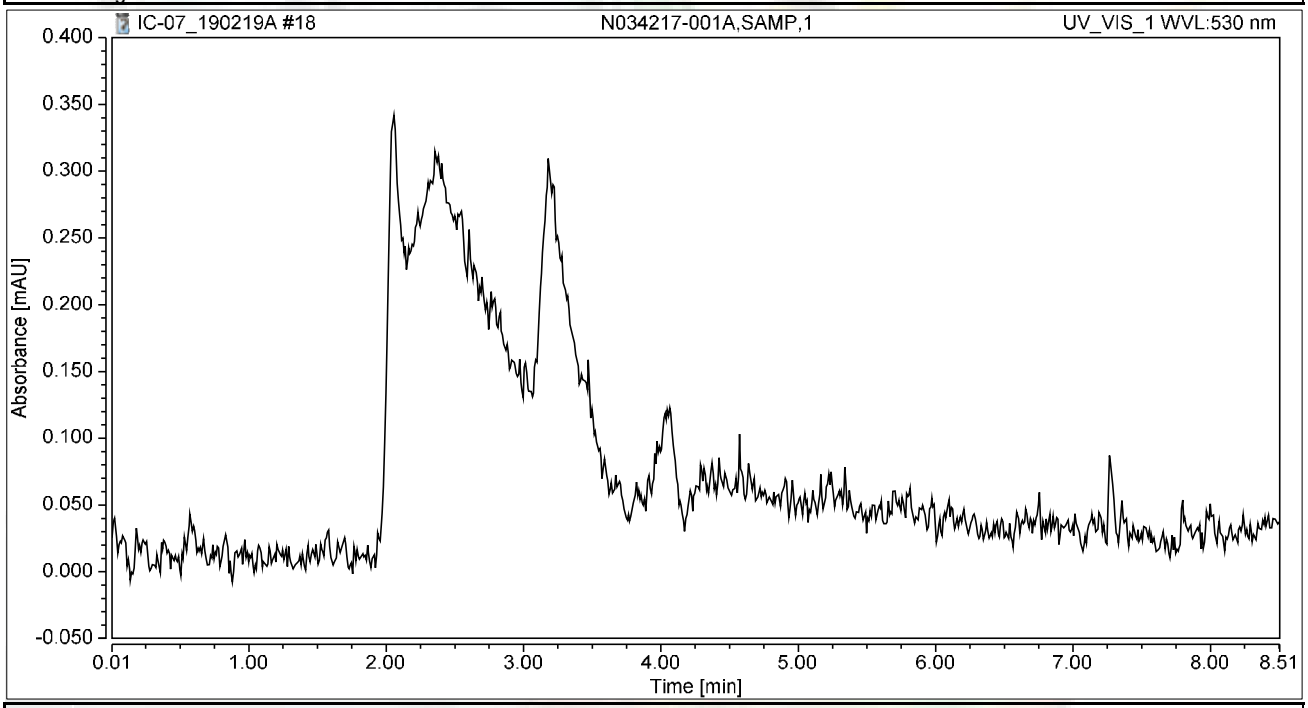
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.123 | 1.340 | 8.087 | 100.00 | 100.00 | 4.6615 |
| **Total:** | | | **1.340** | **8.087** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034217-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 10:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

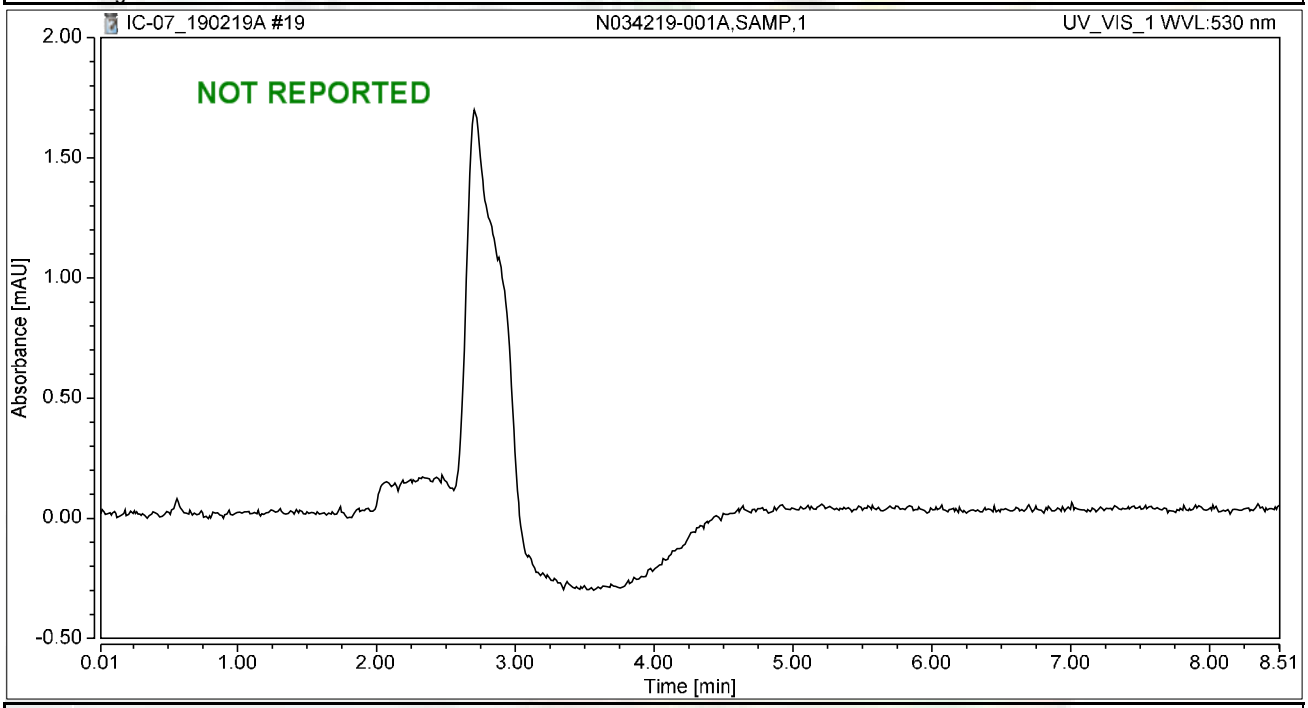
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034219-001A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 10:24** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

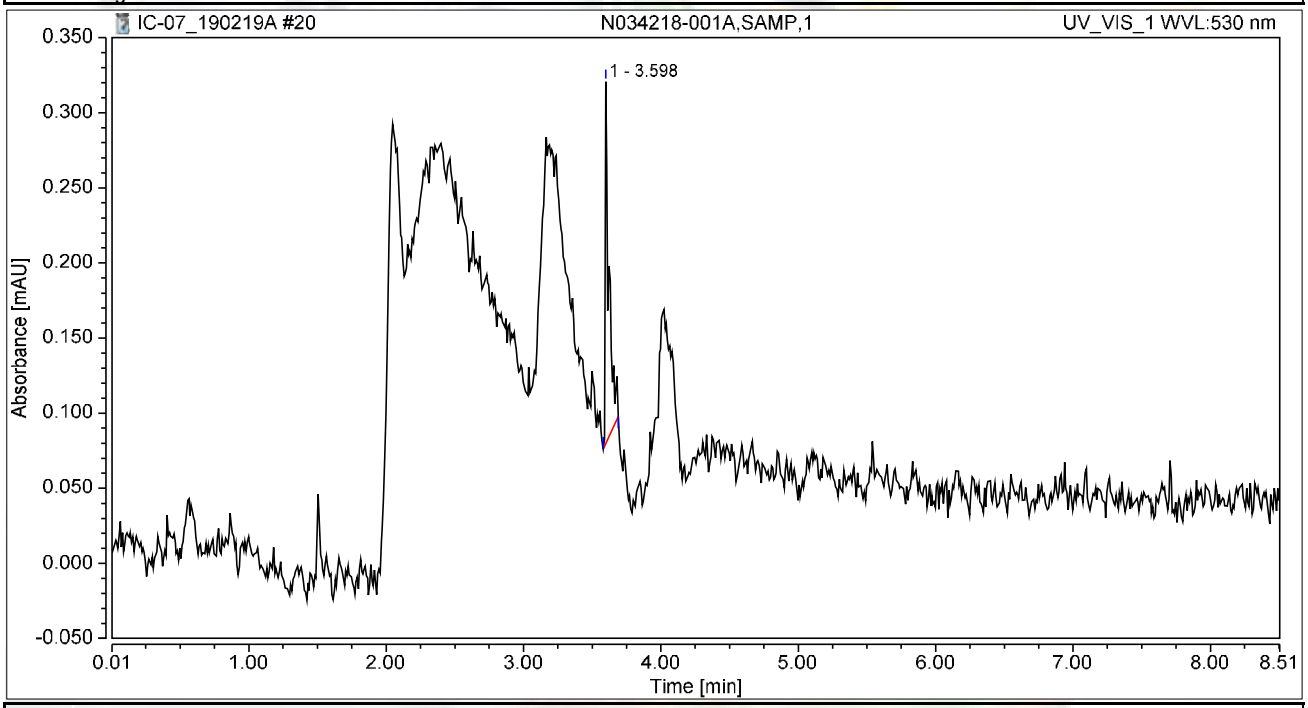
# Chromatogram and Results

-002A

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034218-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 10:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

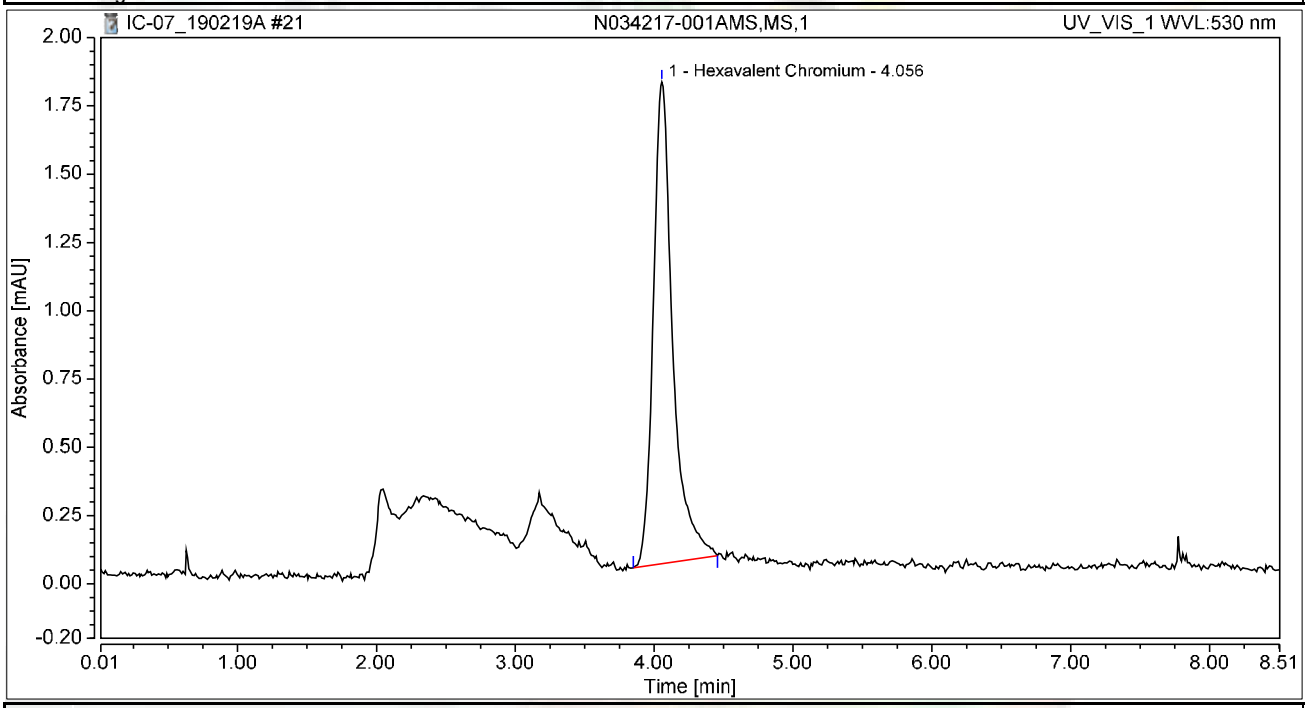
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | | 3.598 | 0.008 | 0.241 | 100.00 | 100.00 | n.a. |
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.008** | **0.241** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034217-001AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 10:50** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

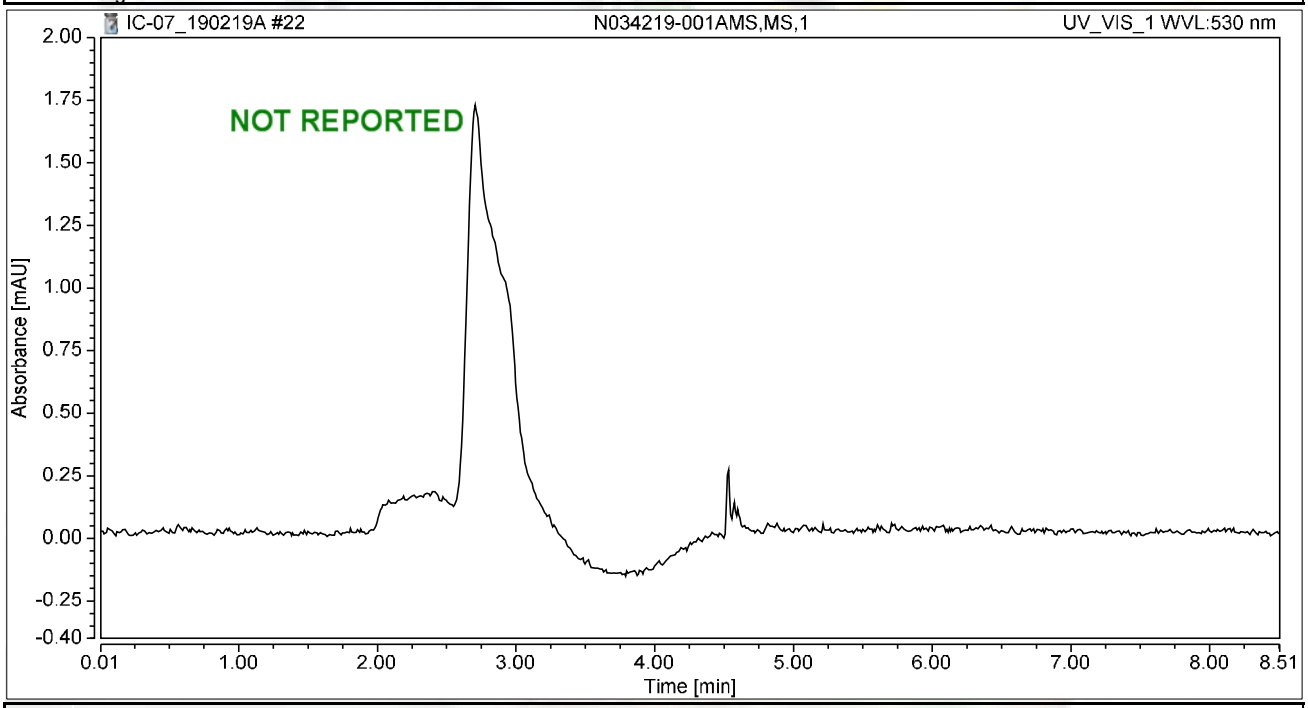
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.056 | 0.286 | 1.764 | 100.00 | 100.00 | 0.9959 |
| **Total:** | | | **0.286** | **1.764** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034219-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 11:01** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

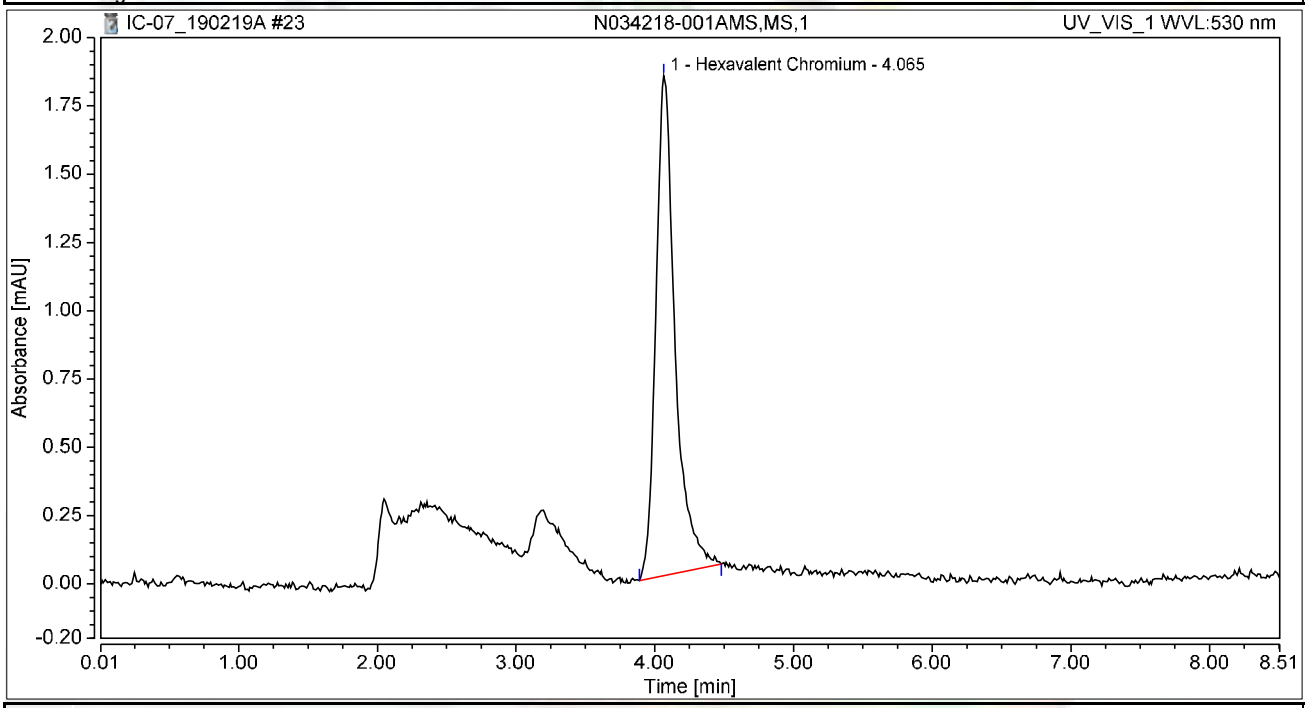
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details -002AMS

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034218-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 11:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

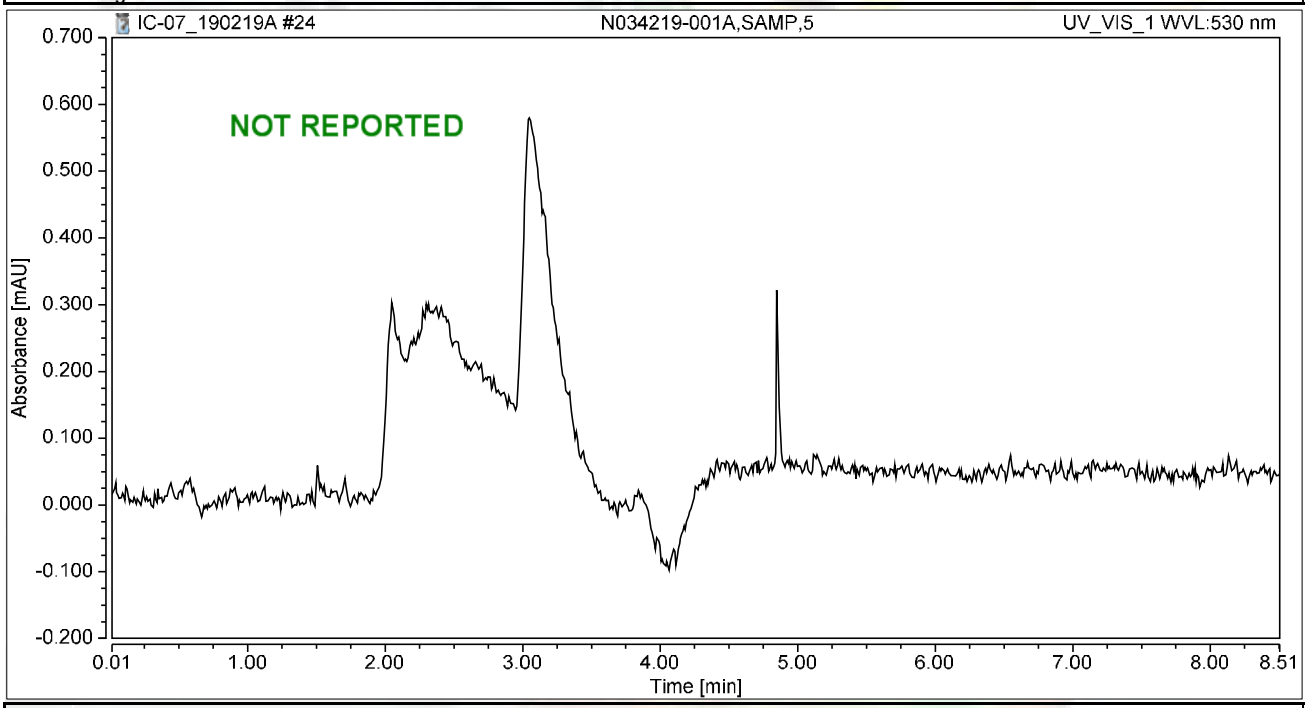
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.065 | 0.295 | 1.832 | 100.00 | 100.00 | 1.0252 |
| **Total:** | | | **0.295** | **1.832** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034219-001A,SAMP,5** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 11:20** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

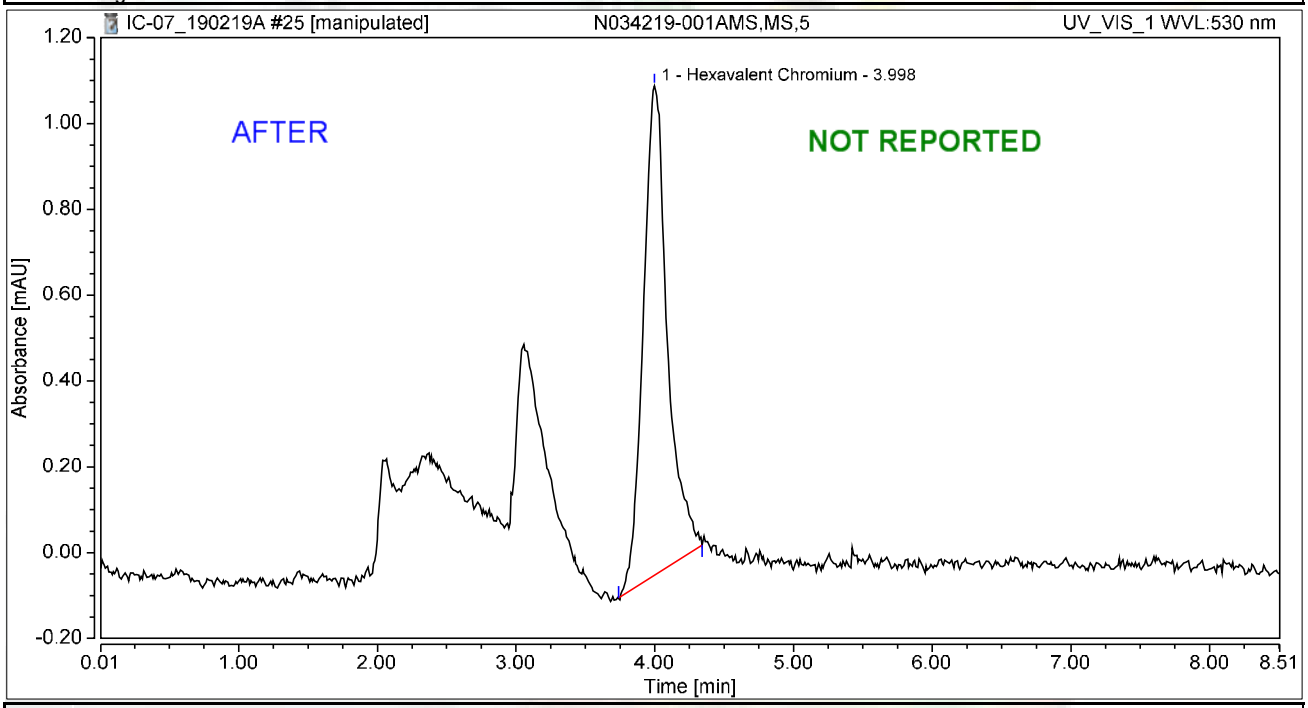
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034219-001AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 11:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.998 | 0.230 | 1.140 | 100.00 | 100.00 | 0.7991 |
| **Total:** | | | **0.230** | **1.140** | **100.00** | **100.00** | |

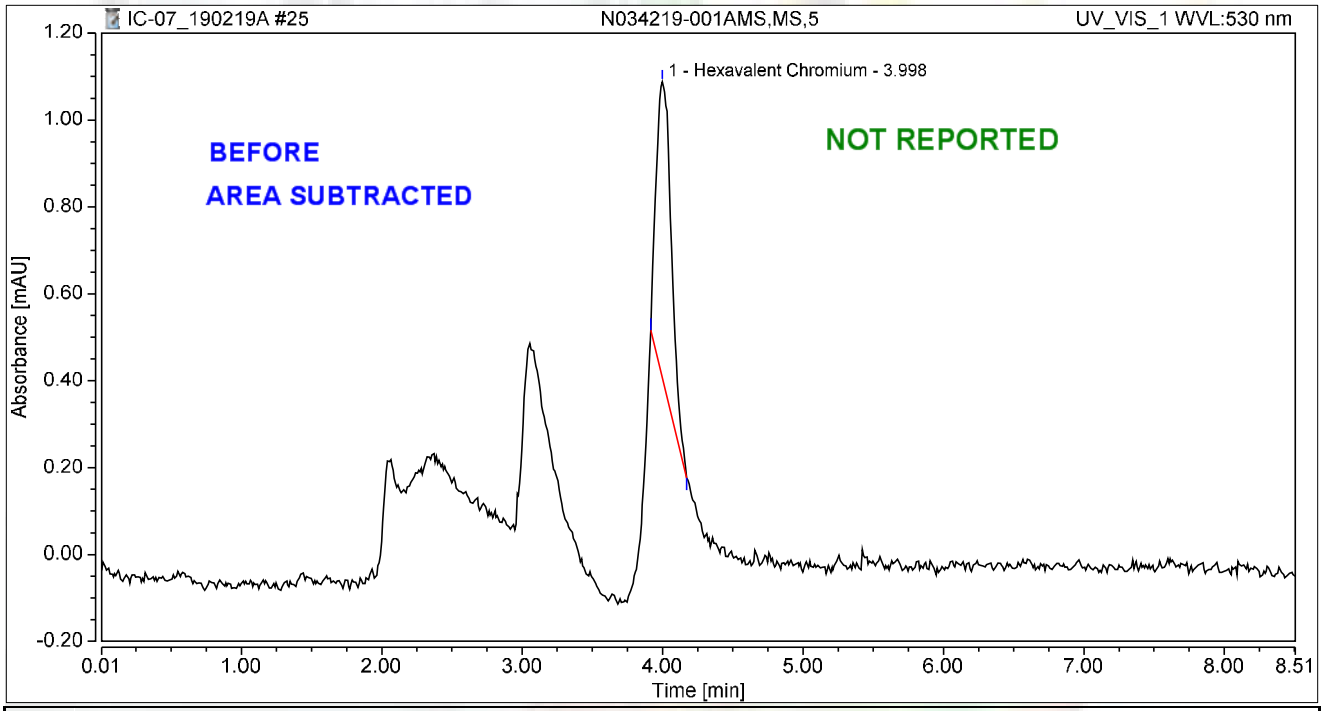
2/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034219-001AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 11:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.998 | 0.086 | 0.681 | 100.00 | 100.00 | 0.2996 |
| **Total:** | | | **0.086** | **0.681** | **100.00** | **100.00** | |

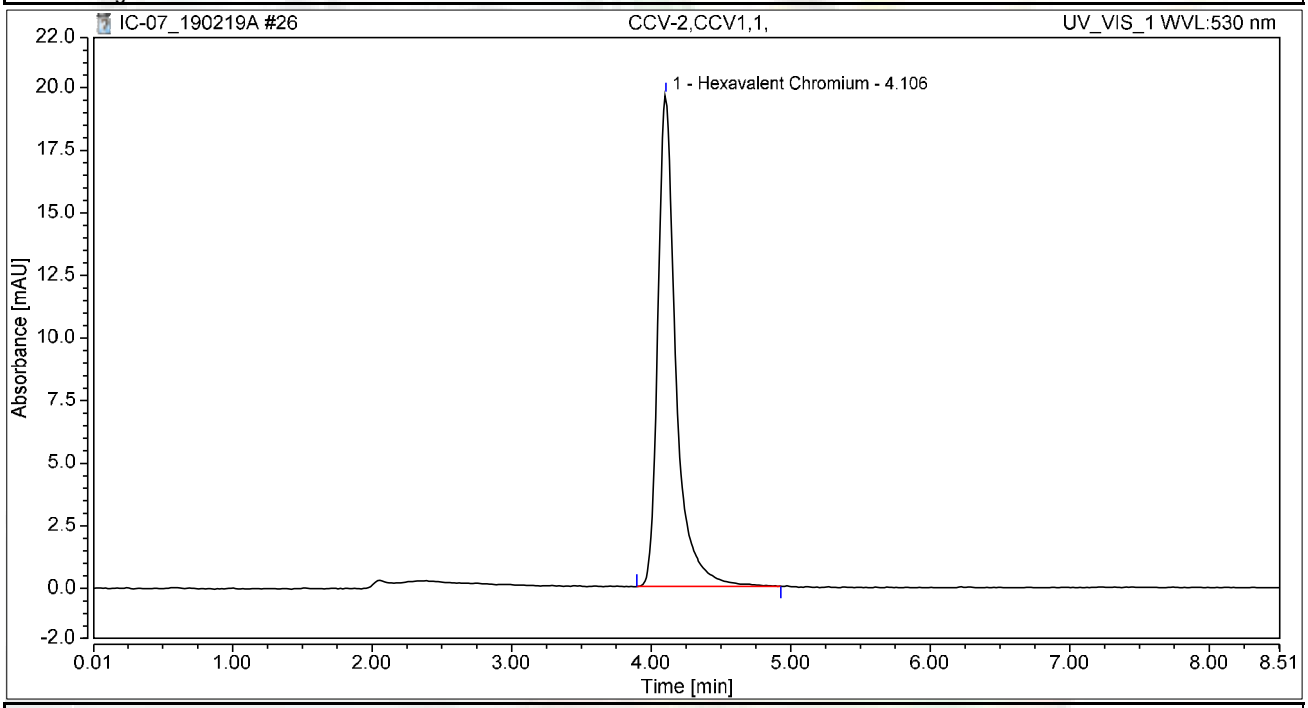
2/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-2,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 11:39** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

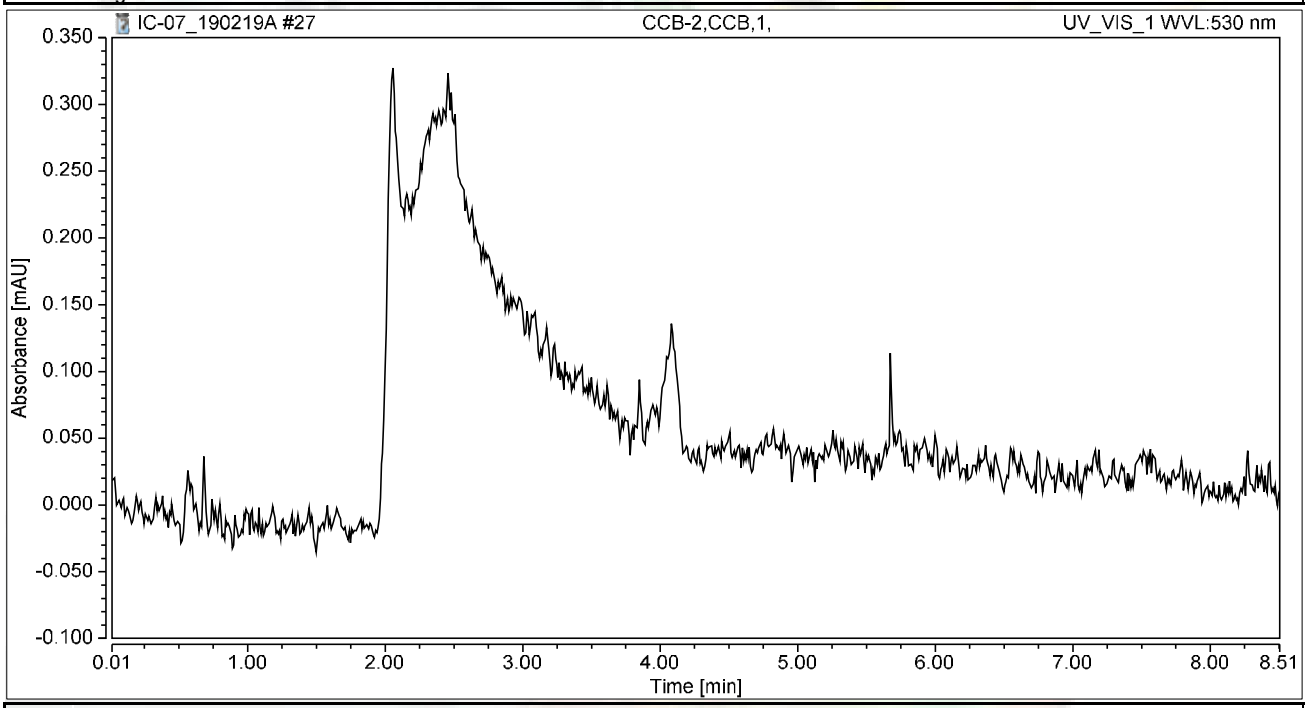
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 2.955 | 19.646 | 100.00 | 100.00 | 10.2808 |
| **Total:** | | | **2.955** | **19.646** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-2,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 11:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

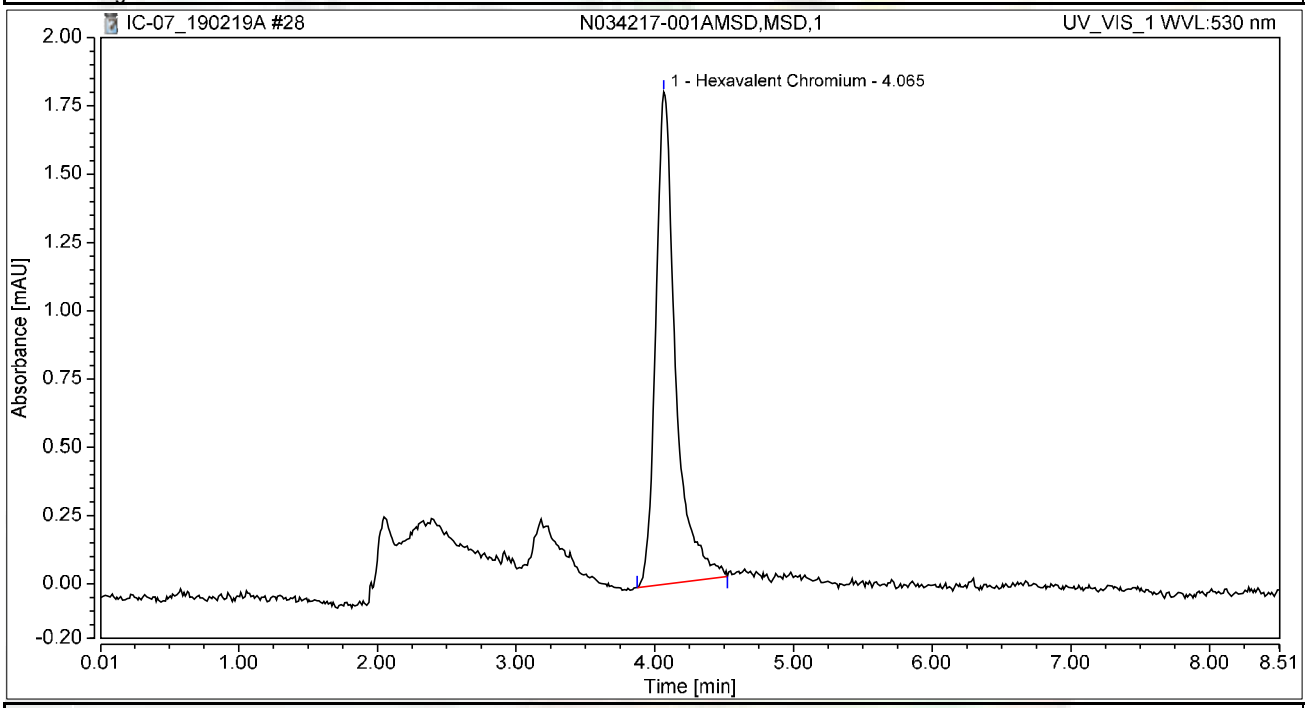
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034217-001AMSD,MSD,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **20** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 12:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

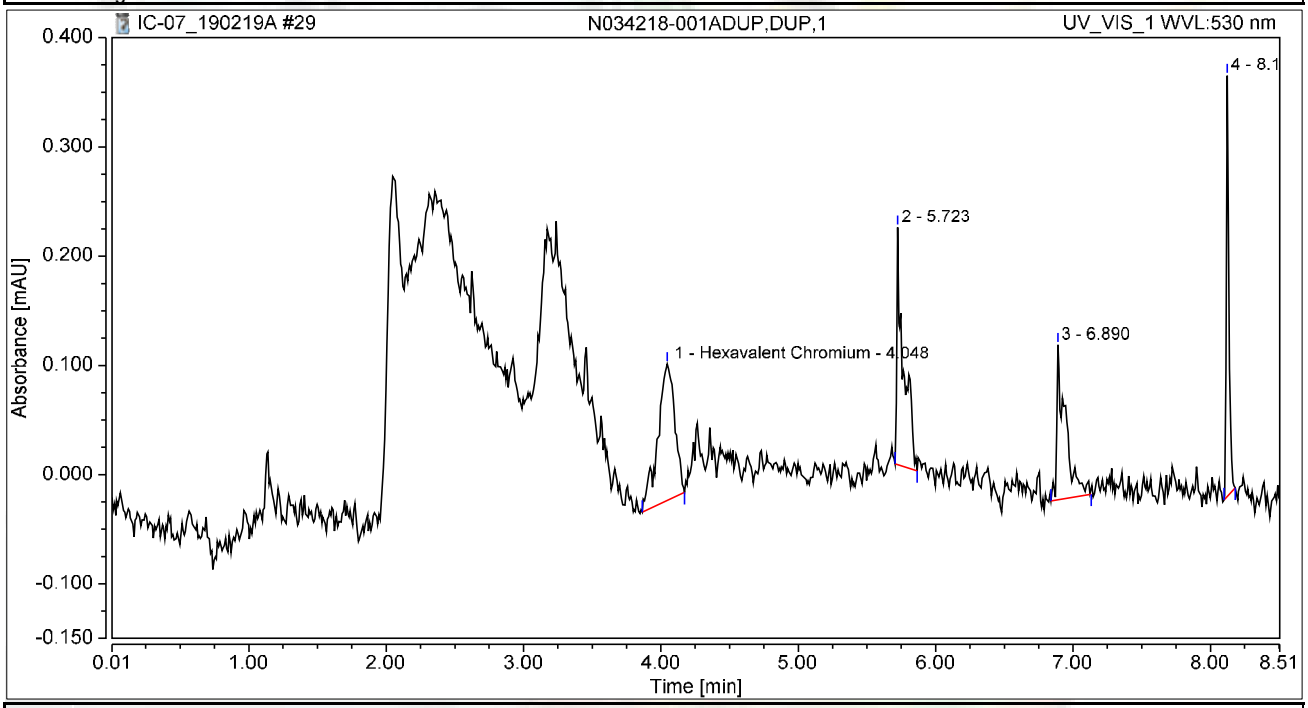
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.065 | 0.299 | 1.803 | 100.00 | 100.00 | 1.0405 |
| **Total:** | | | **0.299** | **1.803** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details -002ADUP

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034218-001ADUP,DUP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 12:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

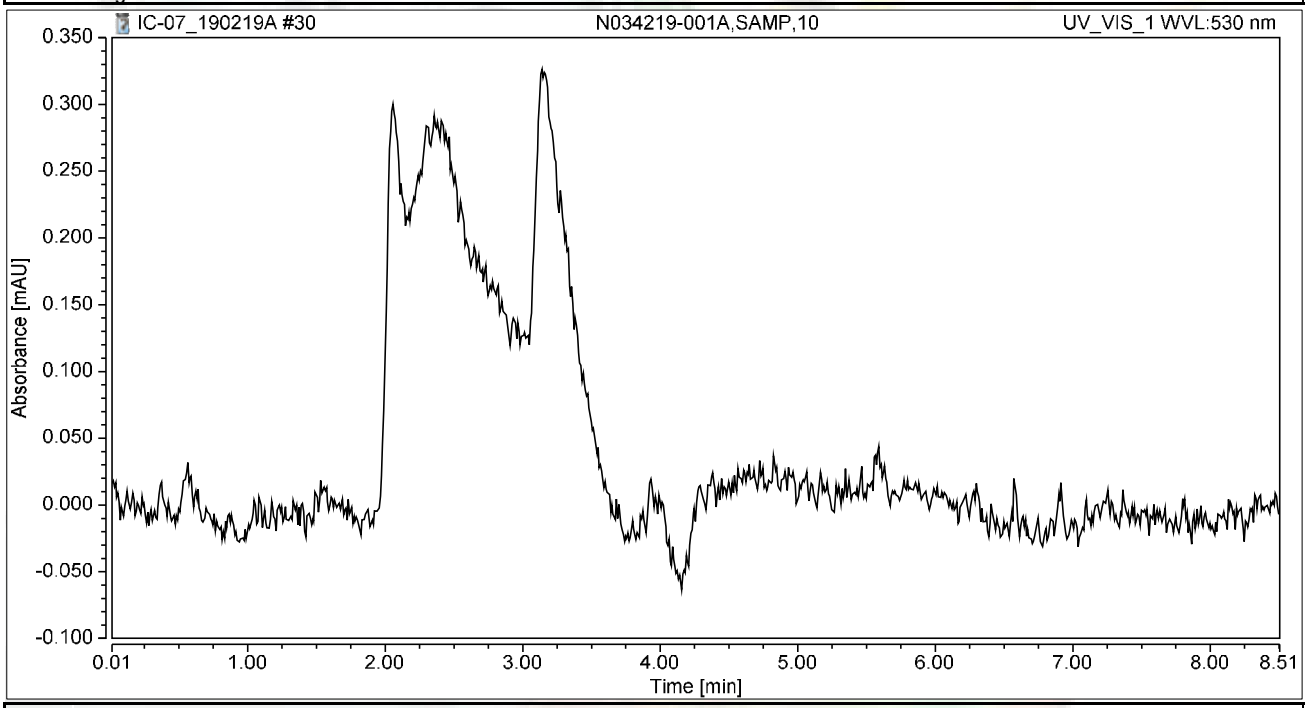
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.018 | 0.125 | 37.03 | 14.36 | 0.0623 |
| 2 | | 5.723 | 0.012 | 0.217 | 24.74 | 25.01 | n.a. |
| 3 | | 6.890 | 0.011 | 0.142 | 21.83 | 16.31 | n.a. |
| 4 | | 8.123 | 0.008 | 0.385 | 16.40 | 44.32 | n.a. |
| **Total:** | | | **0.048** | **0.869** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034219-001A,SAMP,10** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 12:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

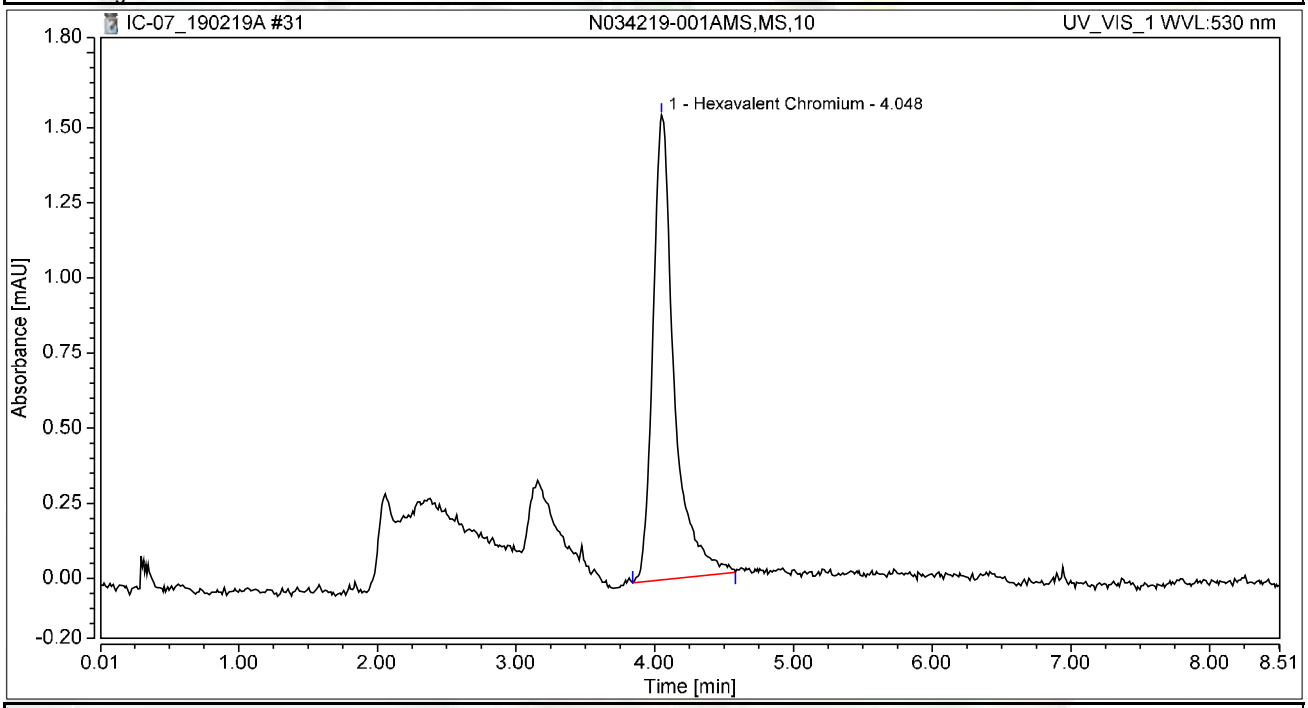
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034219-001AMS,MS,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **23** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 12:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

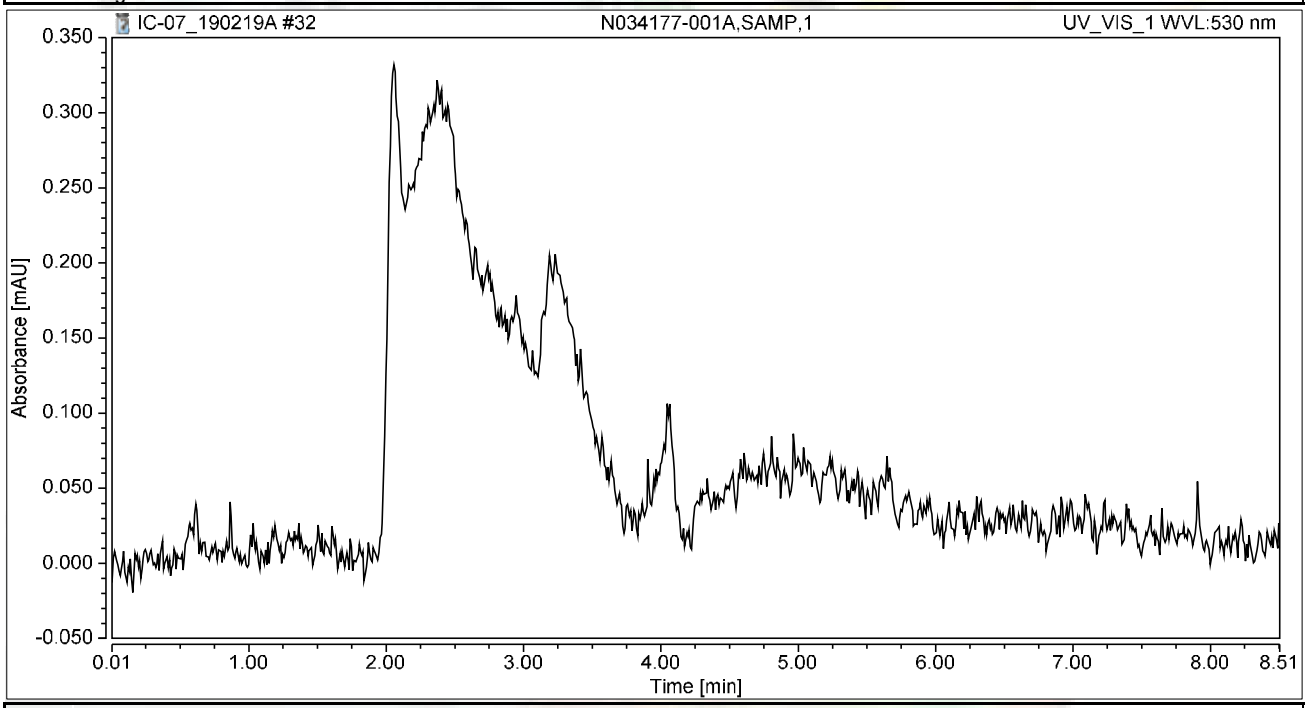
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.275 | 1.548 | 100.00 | 100.00 | 0.9570 |
| **Total:** | | | **0.275** | **1.548** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034177-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **24** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 12:40** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

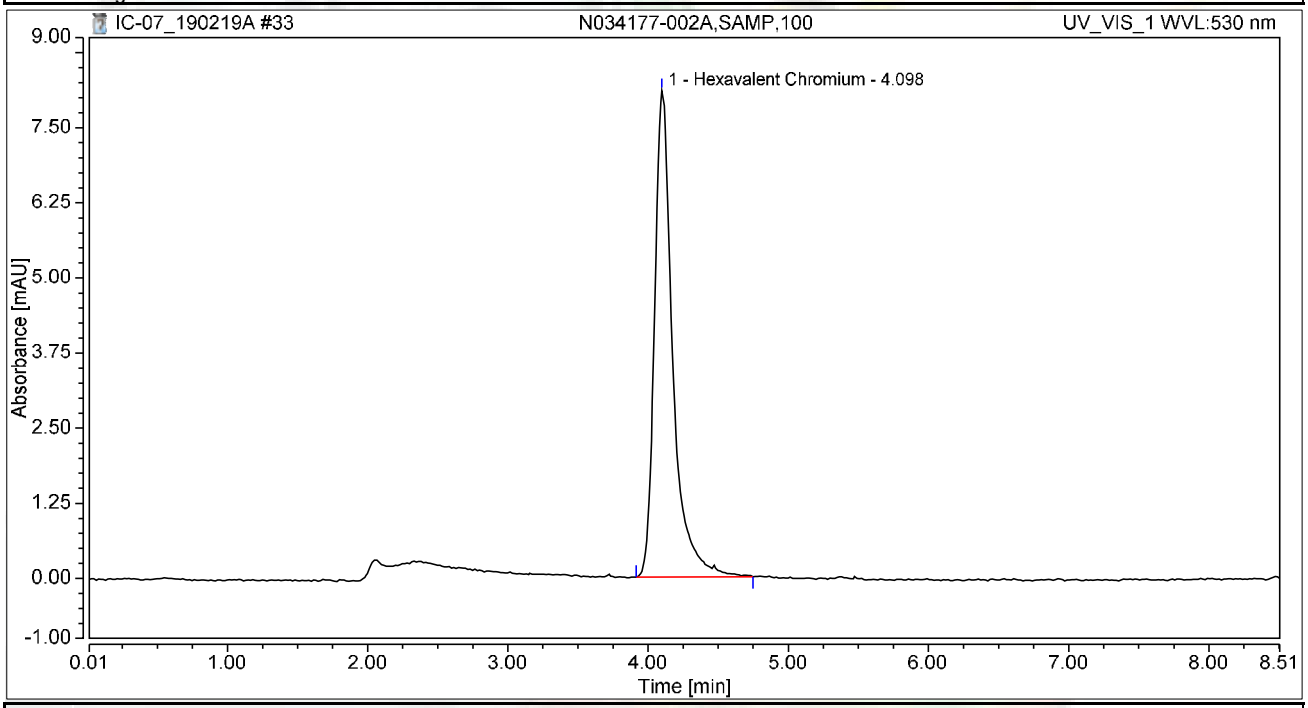
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034177-002A,SAMP,100** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 12:50** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

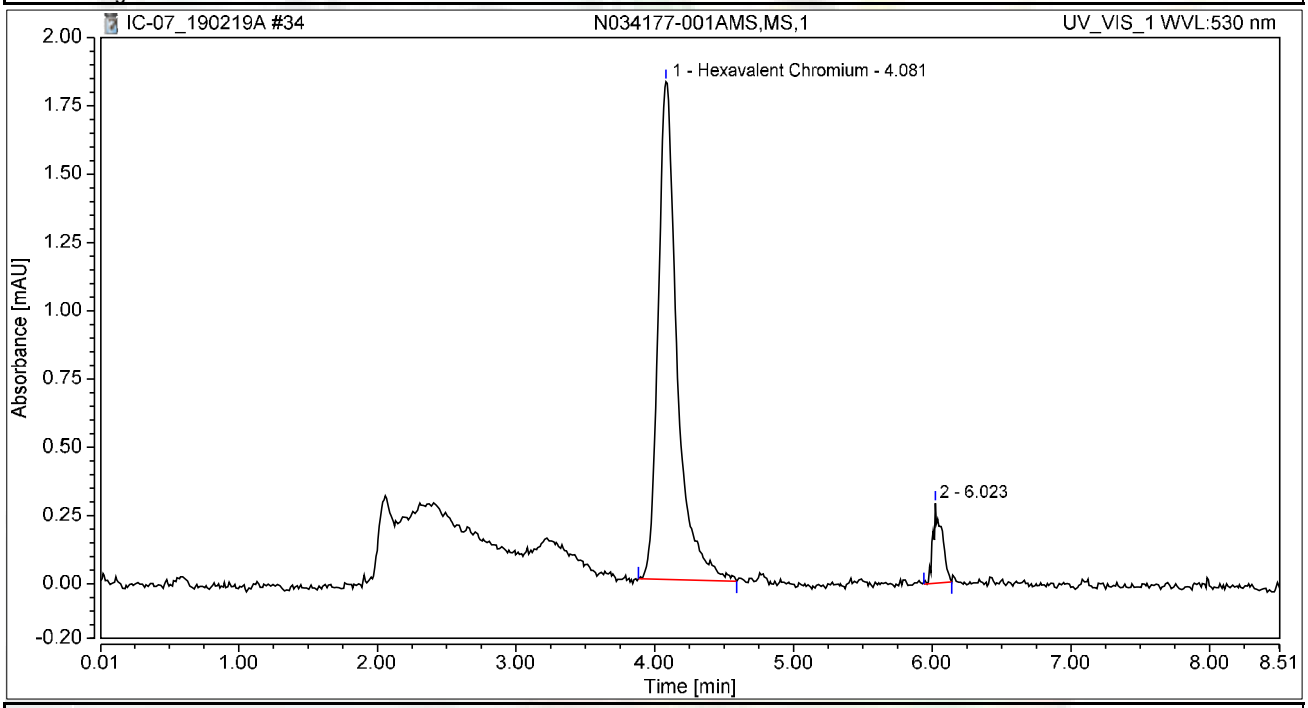
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.220 | 8.096 | 100.00 | 100.00 | 4.2463 |
| **Total:** | | | **1.220** | **8.096** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034177-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **26** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 12:59** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

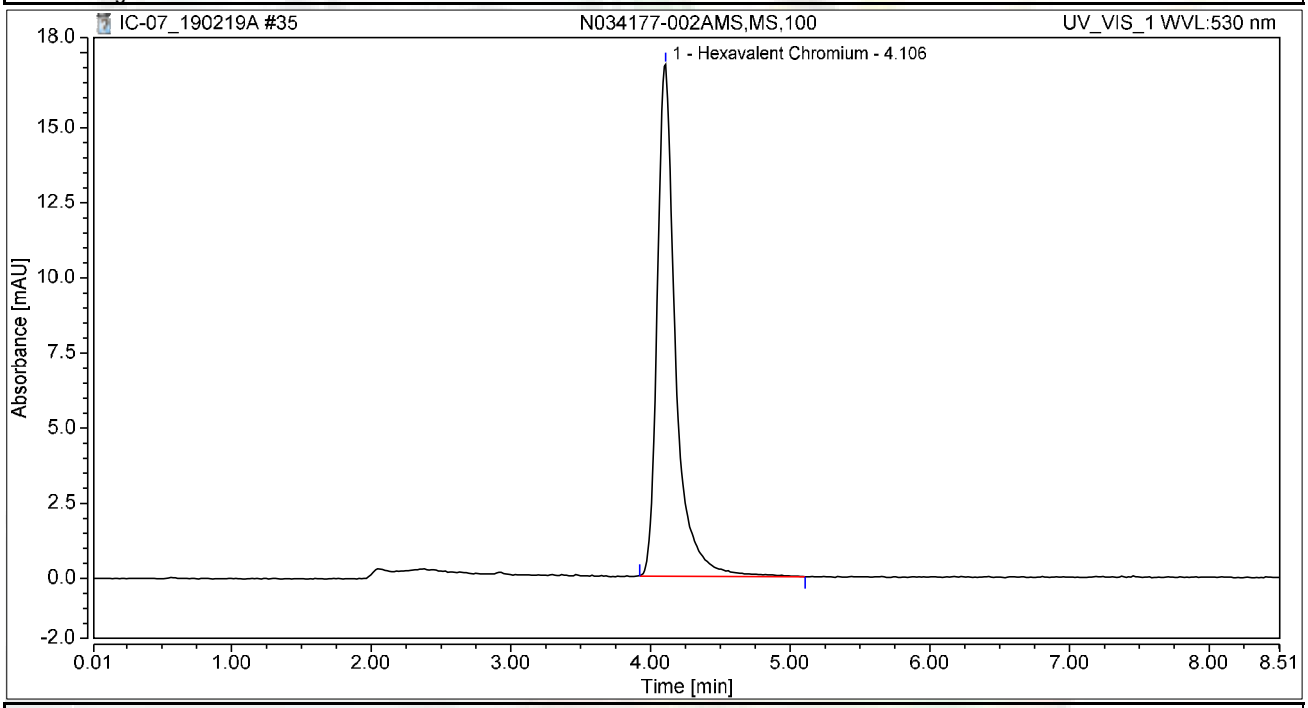
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.290 | 1.823 | 92.90 | 86.11 | 1.0094 |
| 2 | | 6.023 | 0.022 | 0.294 | 7.10 | 13.89 | n.a. |
| **Total:** | | | **0.312** | **2.117** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034177-002AMS,MS,100** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 13:09** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

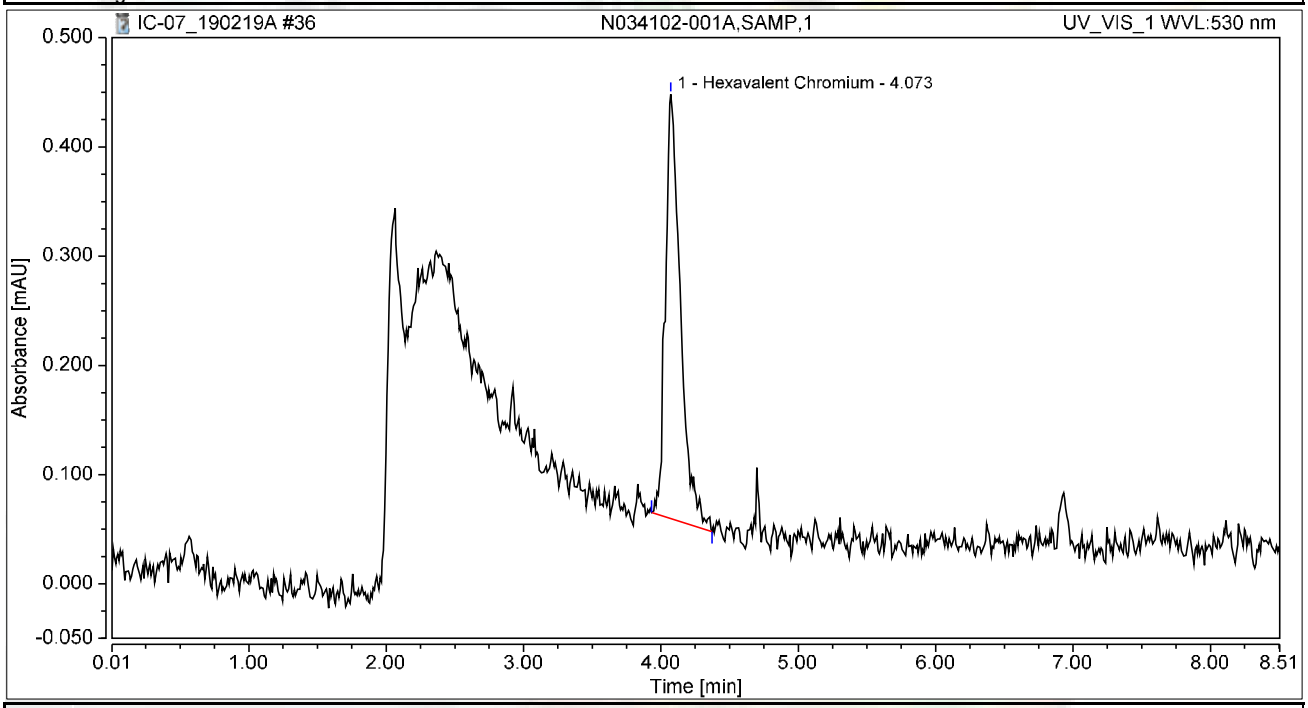
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 2.590 | 17.032 | 100.00 | 100.00 | 9.0127 |
| **Total:** | | | **2.590** | **17.032** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **28** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 13:18** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

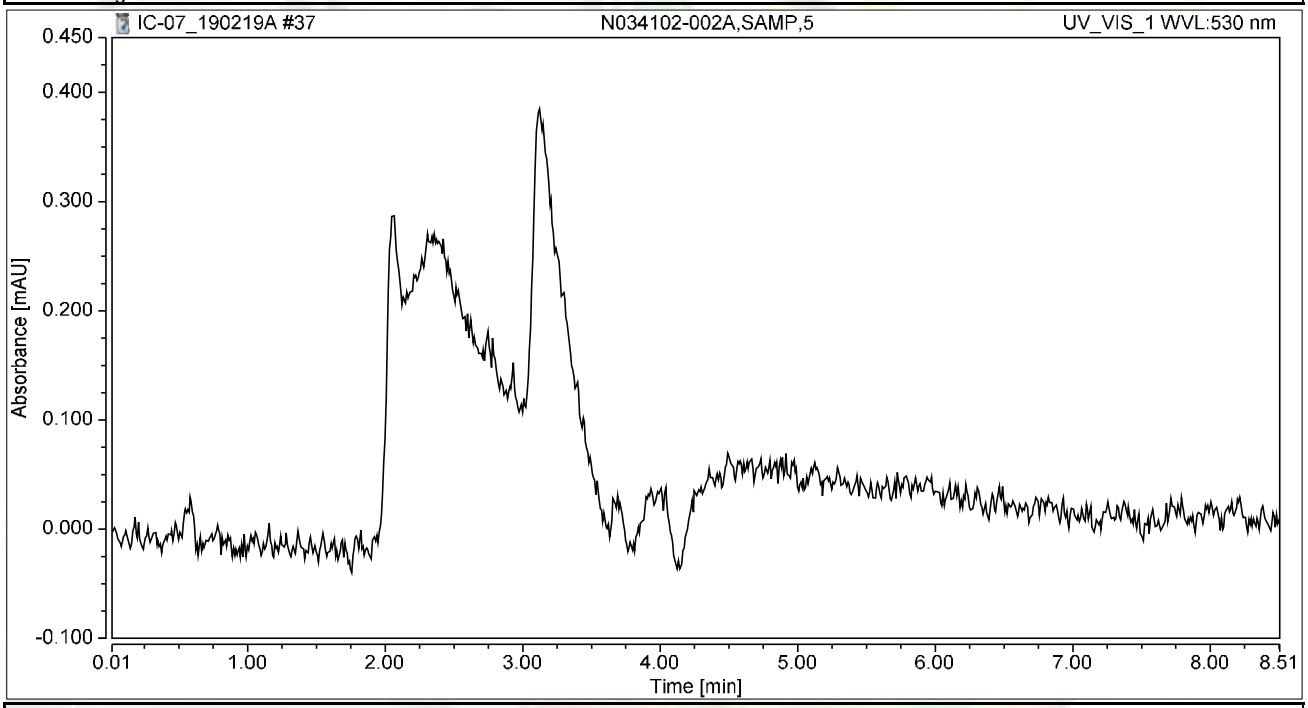
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 0.049 | 0.389 | 100.00 | 100.00 | 0.1720 |
| **Total:** | | | **0.049** | **0.389** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-002A,SAMP,5** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **29** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 13:28** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

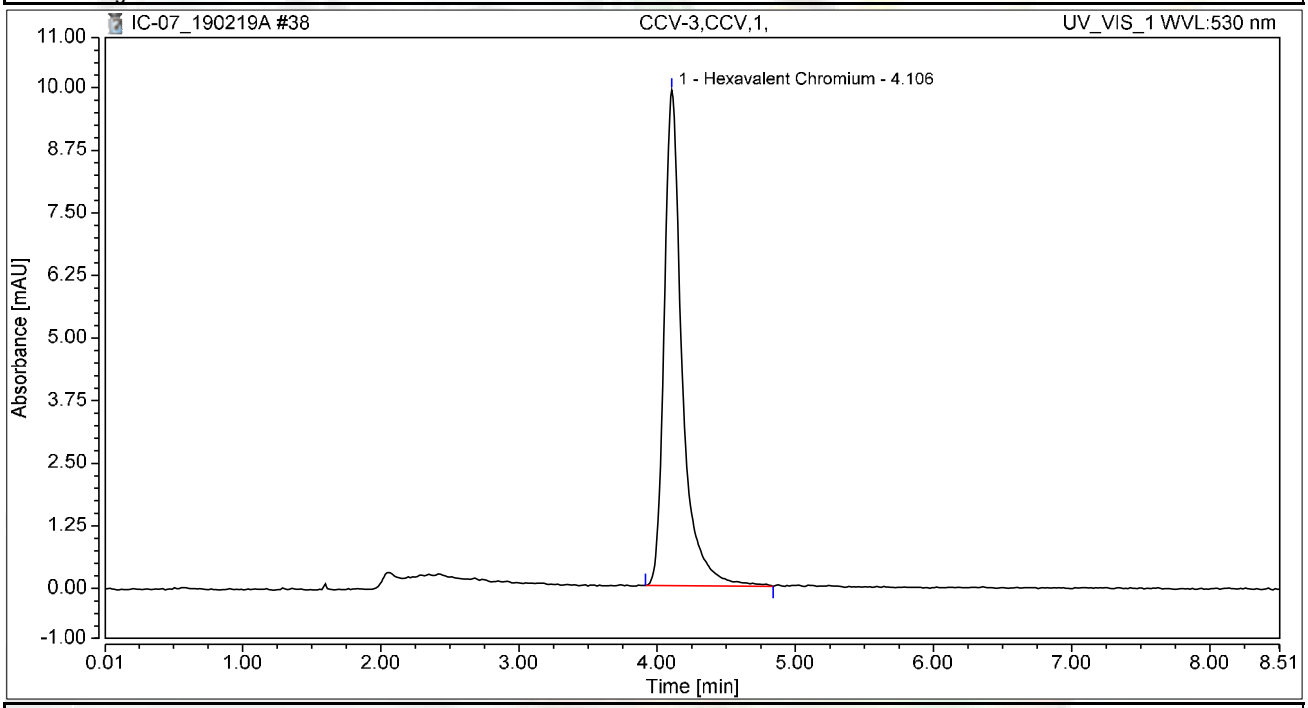
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-3,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **30** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 13:37** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

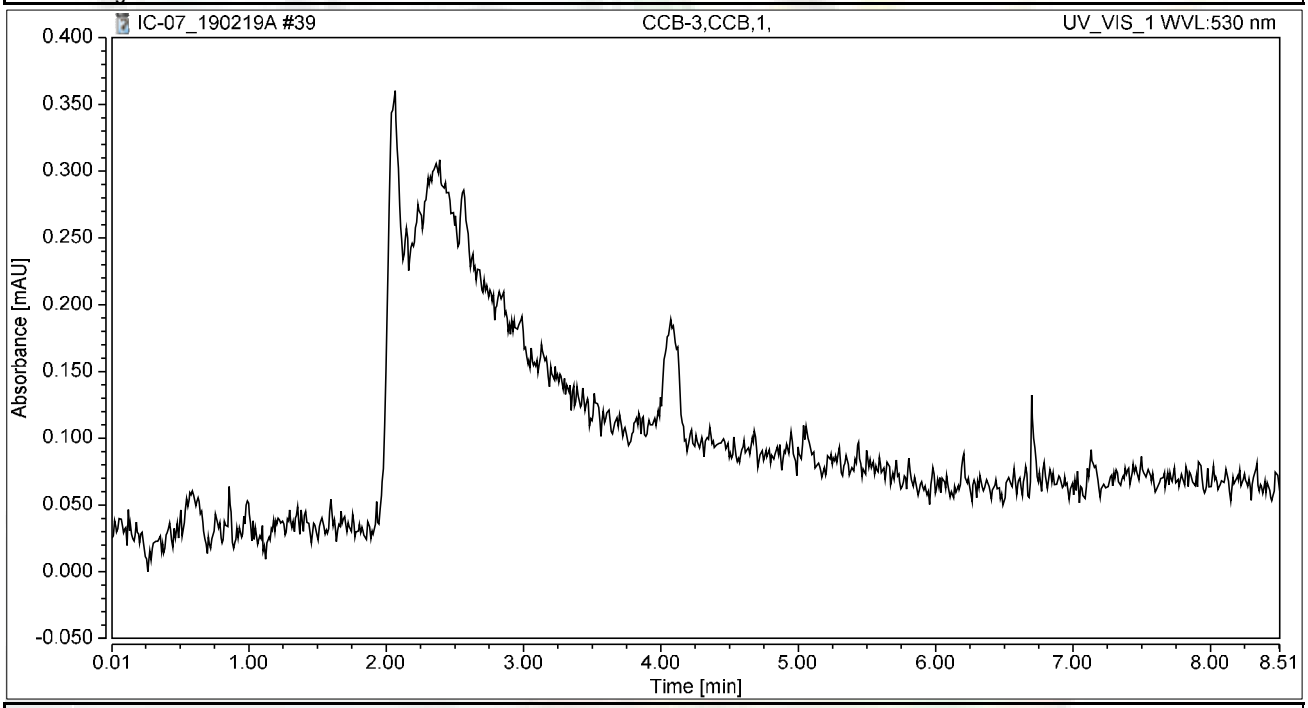
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.491 | 9.899 | 100.00 | 100.00 | 5.1888 |
| **Total:** | | | **1.491** | **9.899** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-3,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **31** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 13:47** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

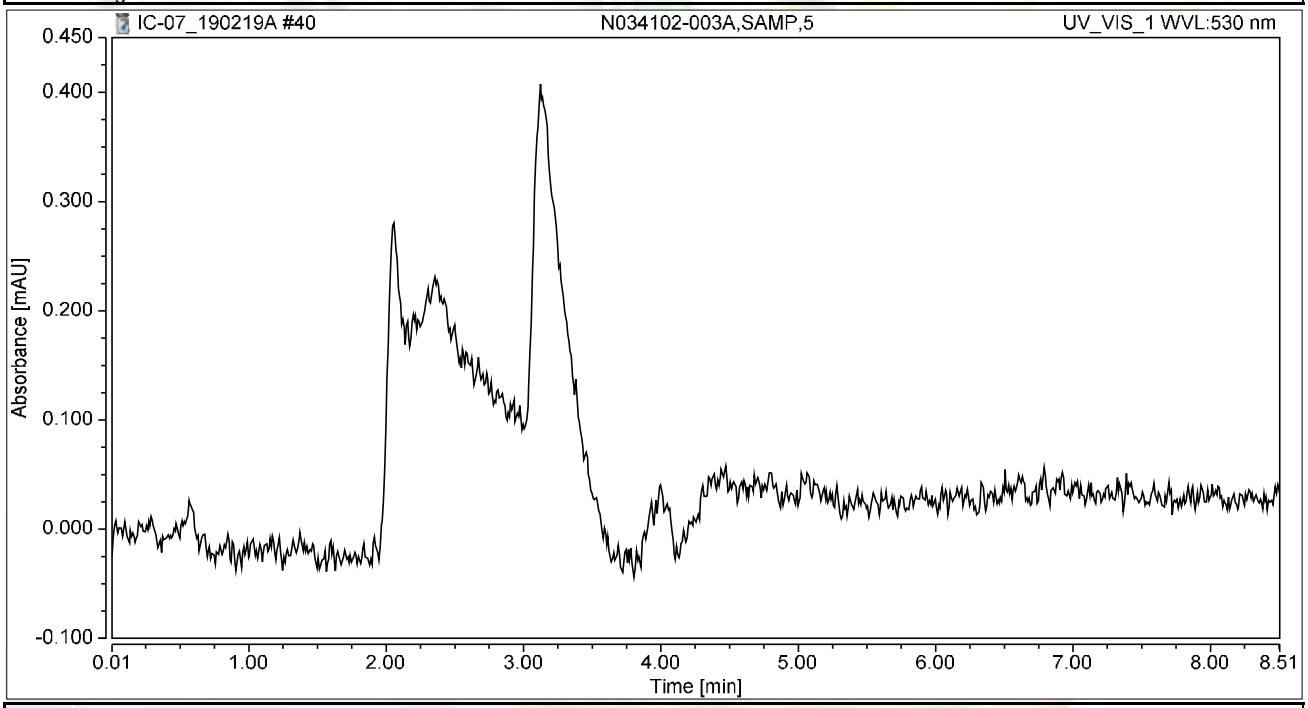
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-003A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **32** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 13:56** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

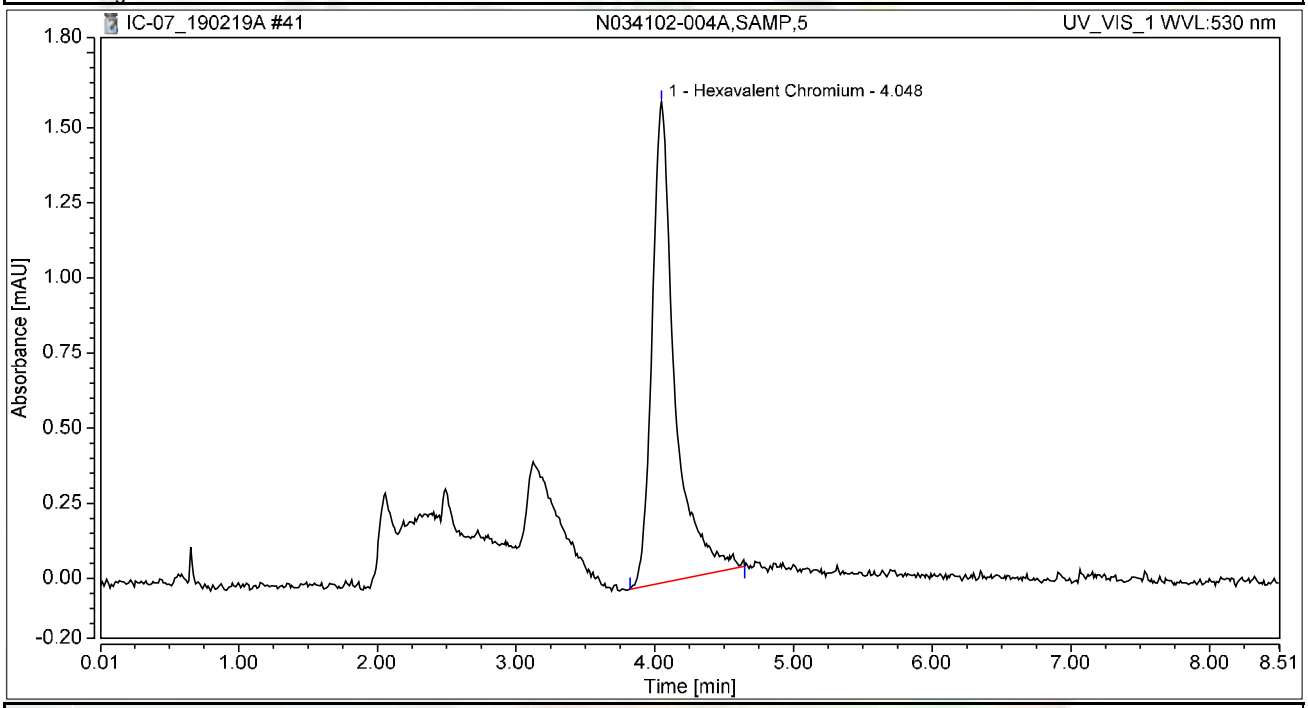
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-004A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **33** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 14:05** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

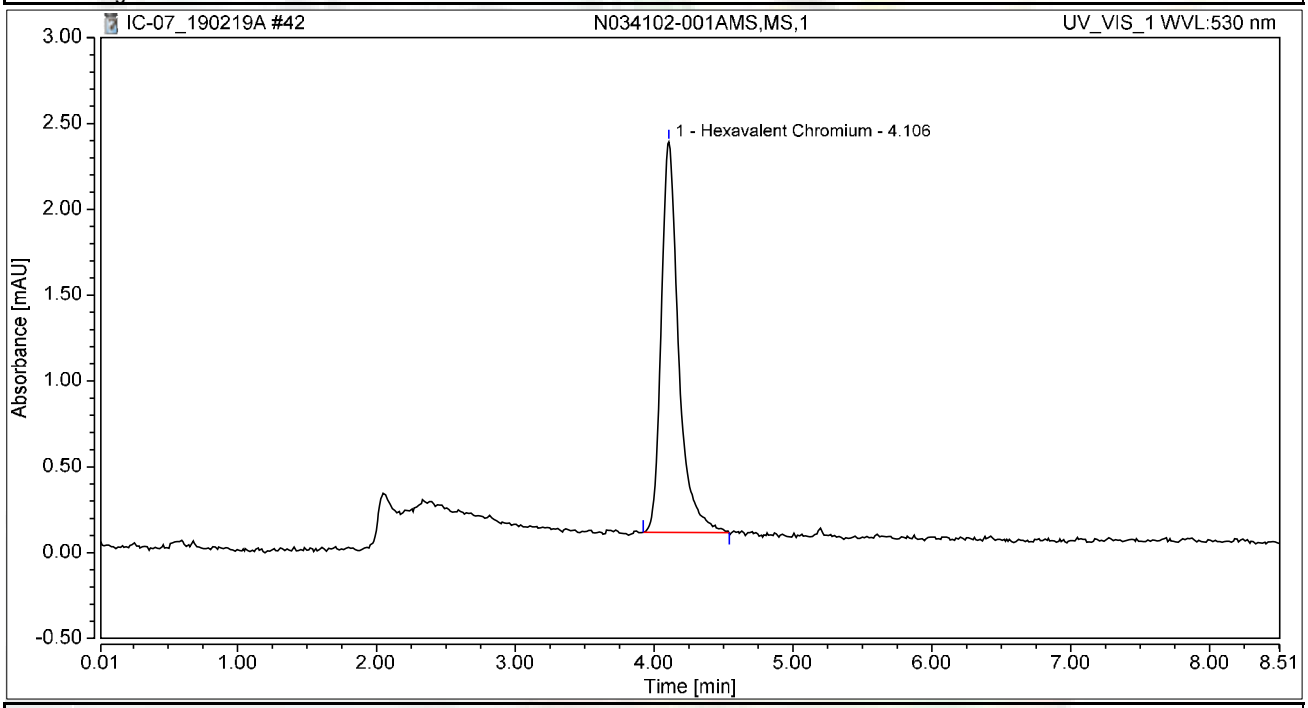
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.303 | 1.601 | 100.00 | 100.00 | 1.0550 |
| **Total:** | | | **0.303** | **1.601** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-001AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **34** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 14:15** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

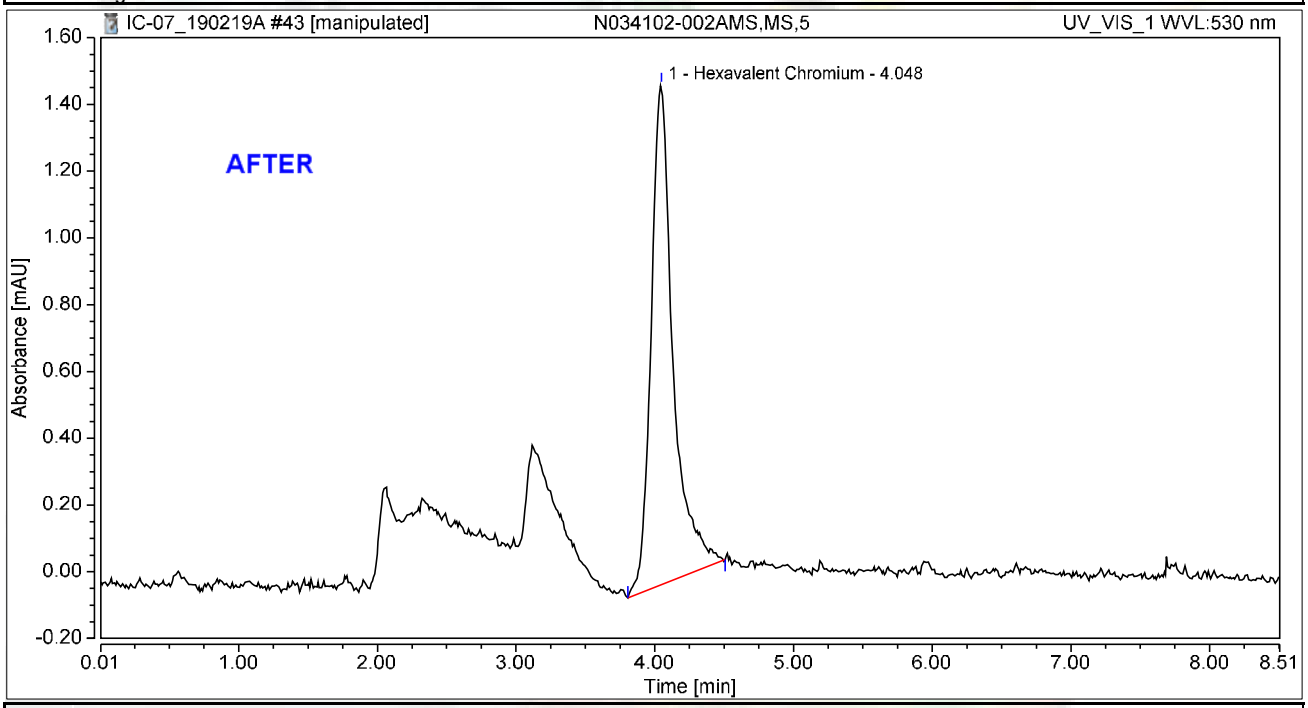
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.330 | 2.274 | 100.00 | 100.00 | 1.1466 |
| **Total:** | | | **0.330** | **2.274** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-002AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **35** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 14:24** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.275 | 1.498 | 100.00 | 100.00 | 0.9584 |
| **Total:** | | | **0.275** | **1.498** | **100.00** | **100.00** | |

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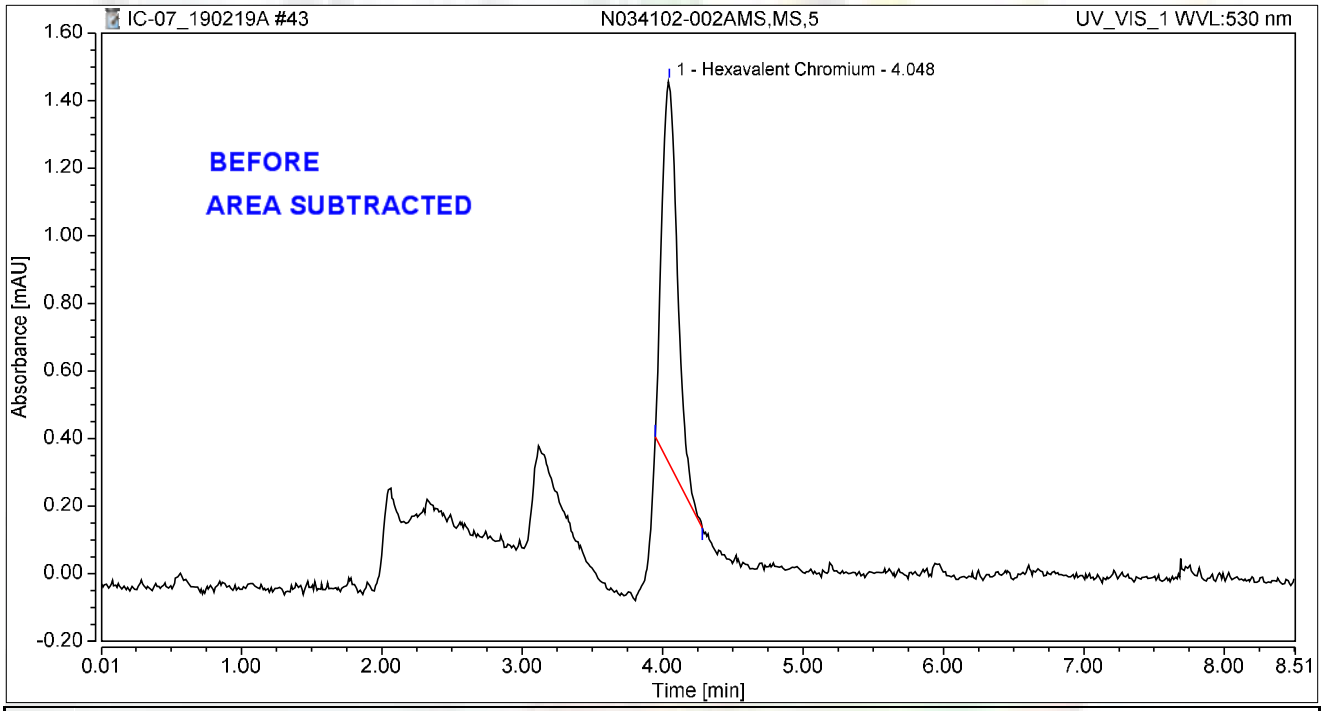
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-002AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **35** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 14:24** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.147 | 1.135 | 100.00 | 100.00 | 0.5110 |
| **Total:** | | | **0.147** | **1.135** | **100.00** | **100.00** | |

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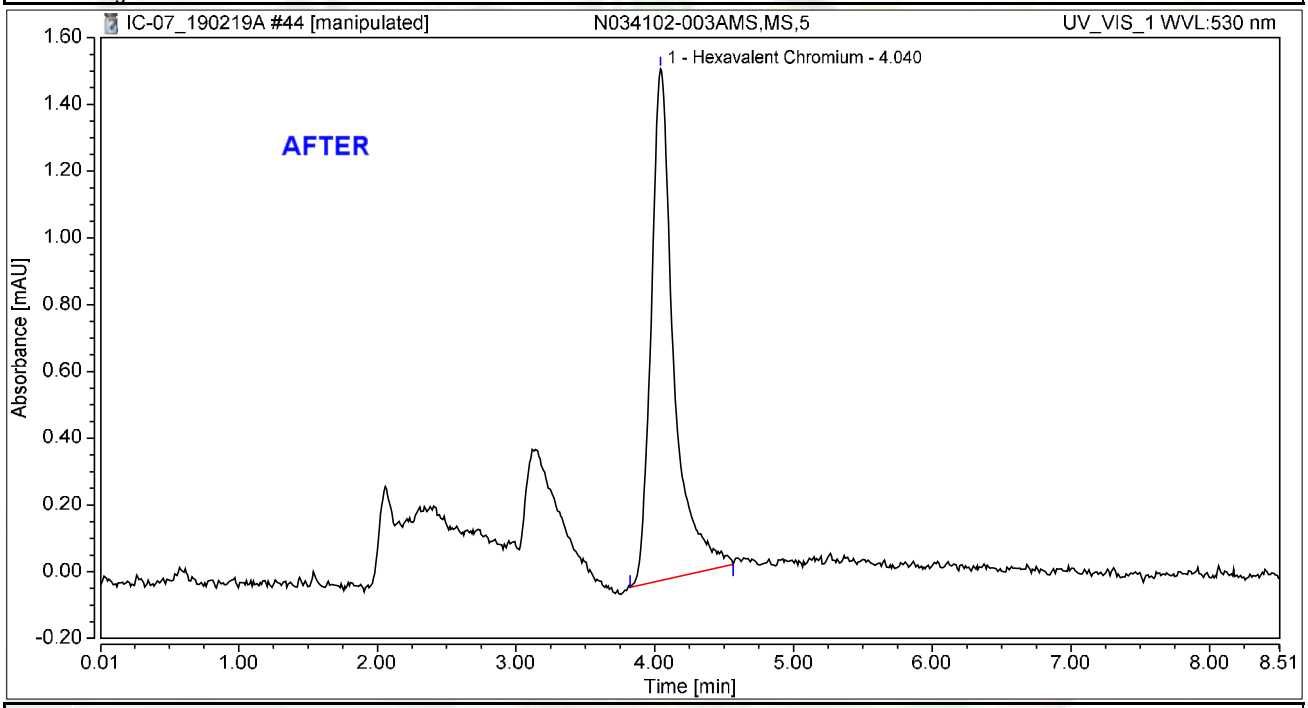
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-003AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **36** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 14:34** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.040 | 0.288 | 1.533 | 100.00 | 100.00 | 1.0032 |
| **Total:** | | | **0.288** | **1.533** | **100.00** | **100.00** | |

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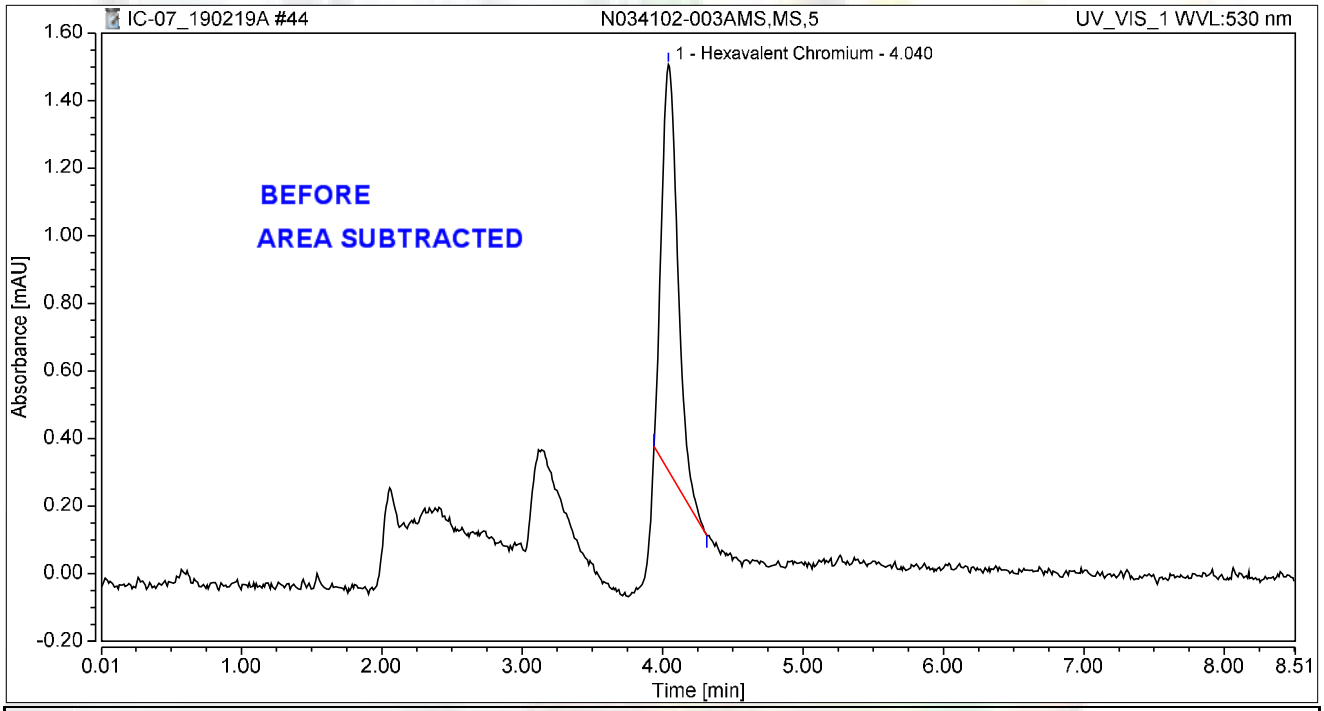
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-003AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **36** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 14:34** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.040 | 0.163 | 1.200 | 100.00 | 100.00 | 0.5681 |
| **Total:** | | | **0.163** | **1.200** | **100.00** | **100.00** | |

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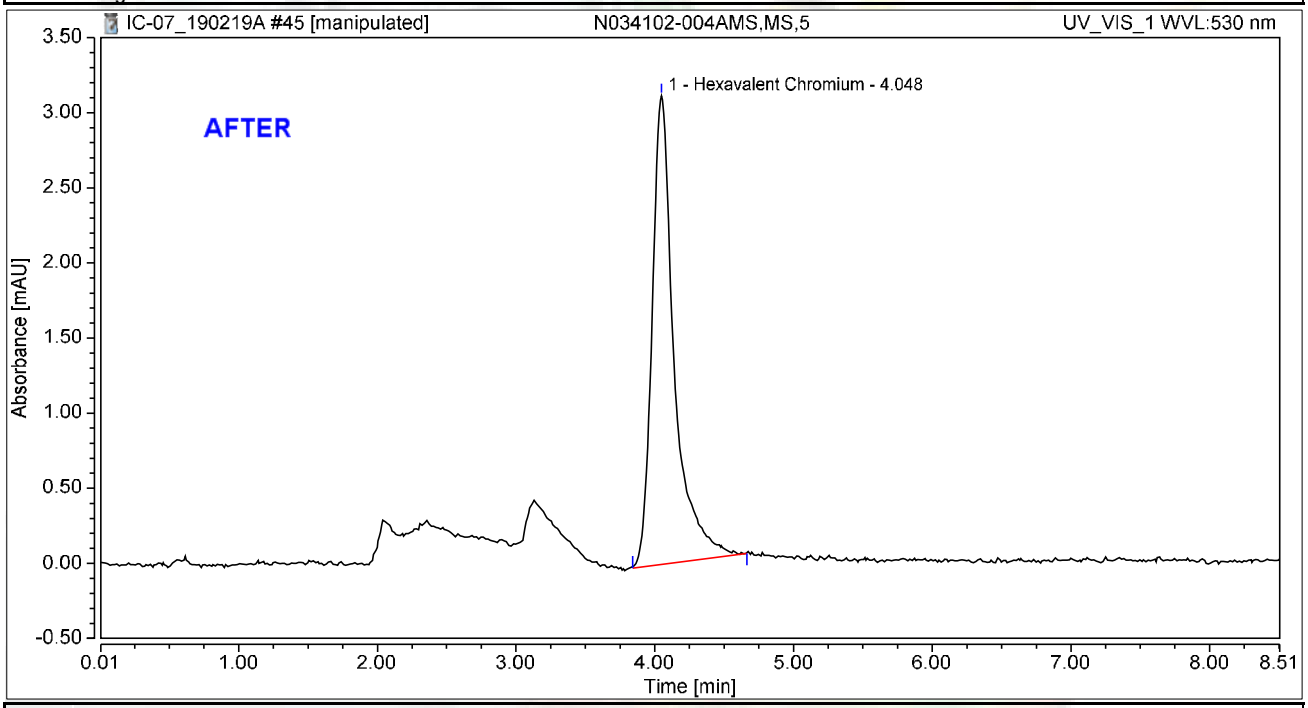
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-004AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **37** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 14:43** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.577 | 3.120 | 100.00 | 100.00 | 2.0072 |
| **Total:** | | | **0.577** | **3.120** | **100.00** | **100.00** | |

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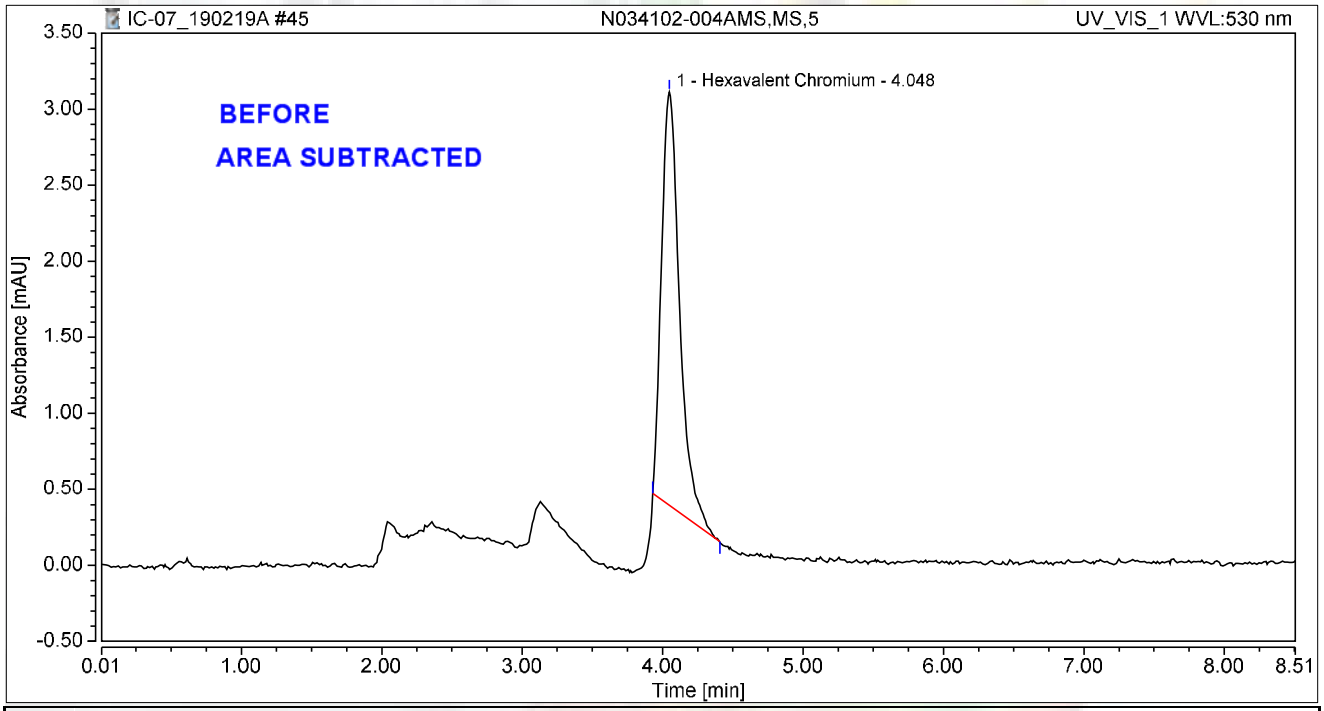
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-004AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **37** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 14:43** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.408 | 2.718 | 100.00 | 100.00 | 1.4196 |
| **Total:** | | | **0.408** | **2.718** | **100.00** | **100.00** | |

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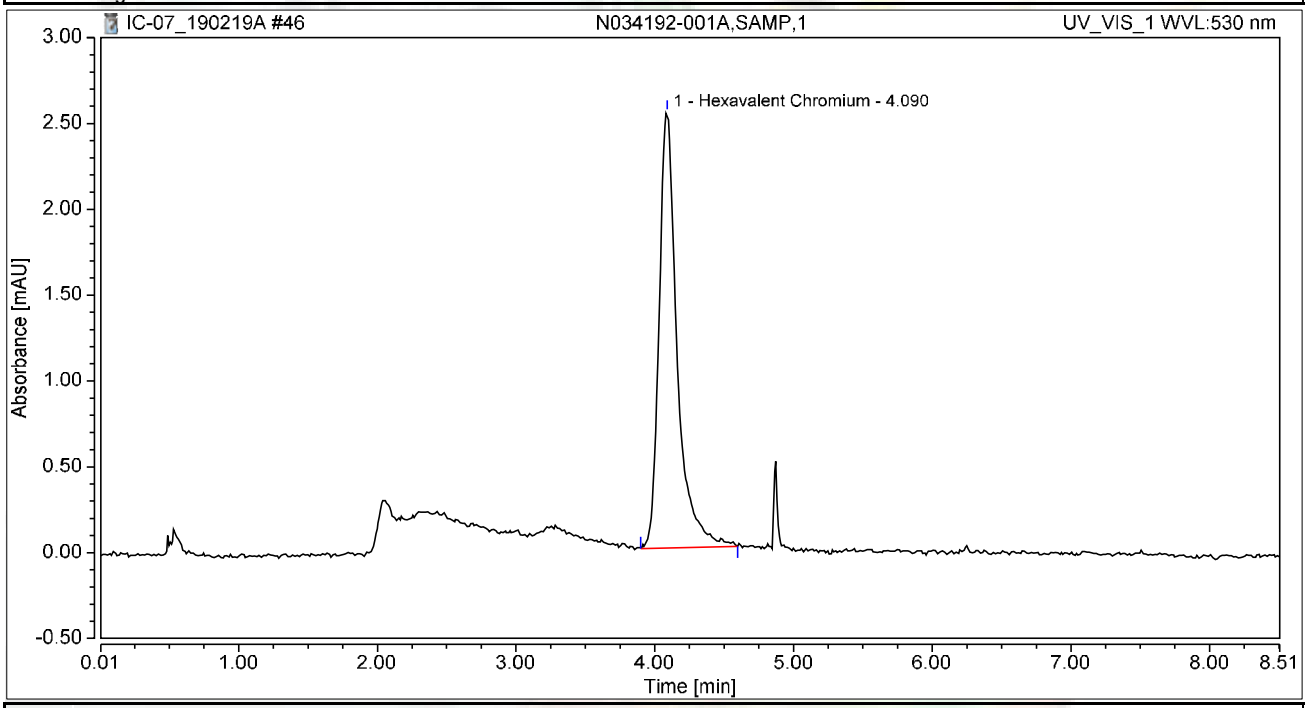
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034192-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **38** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 14:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

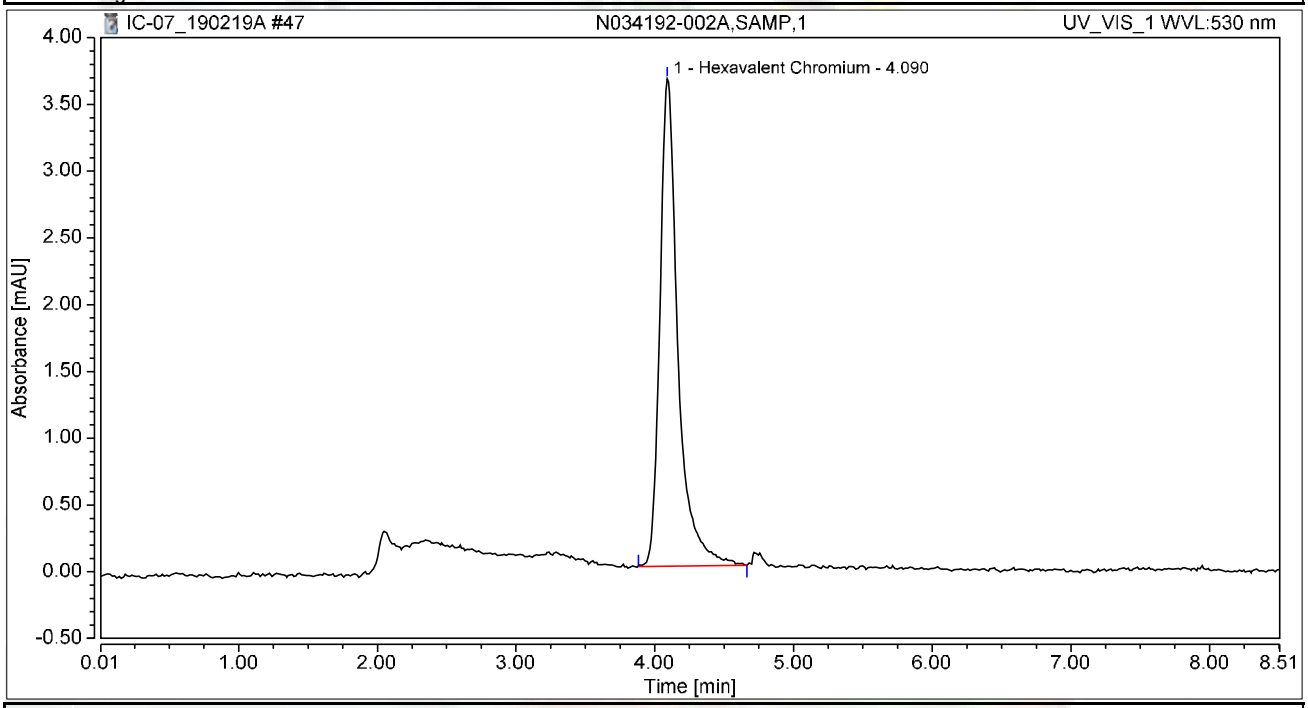
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.384 | 2.540 | 100.00 | 100.00 | 1.3376 |
| **Total:** | | | **0.384** | **2.540** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034192-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **39** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 15:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

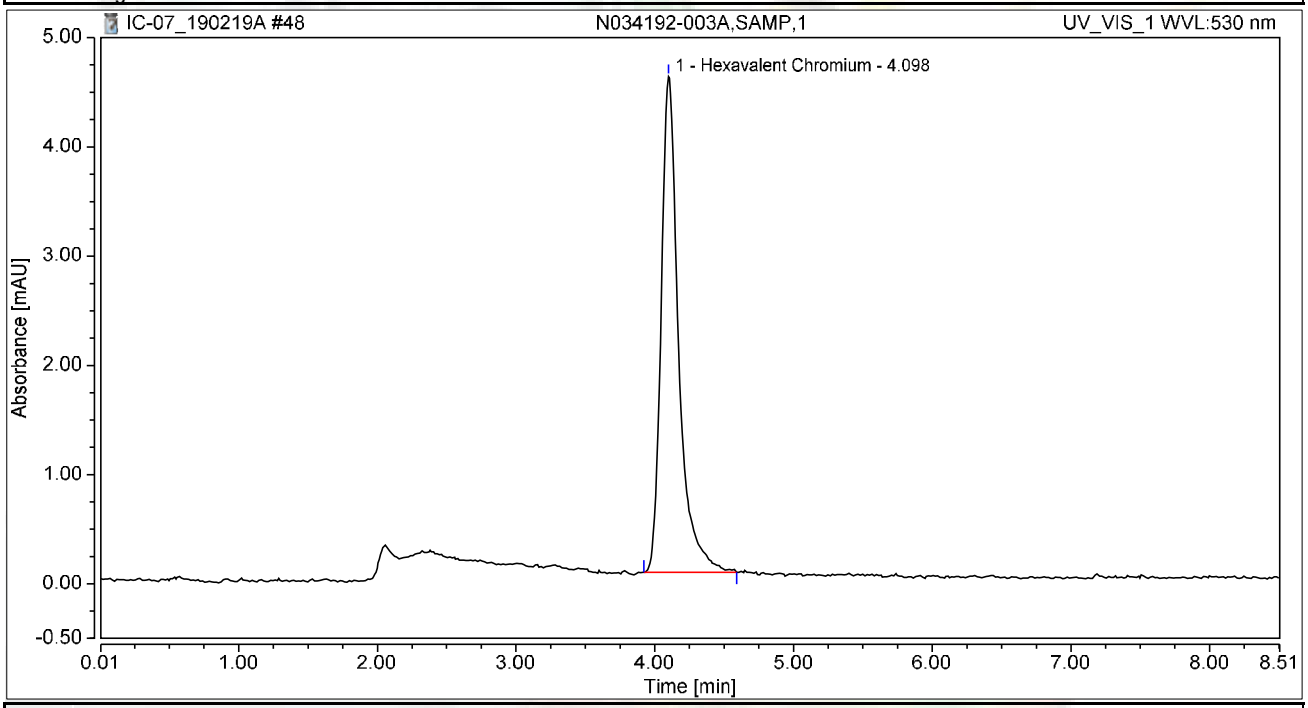
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.553 | 3.648 | 100.00 | 100.00 | 1.9246 |
| **Total:** | | | **0.553** | **3.648** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034192-003A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **40** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 15:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

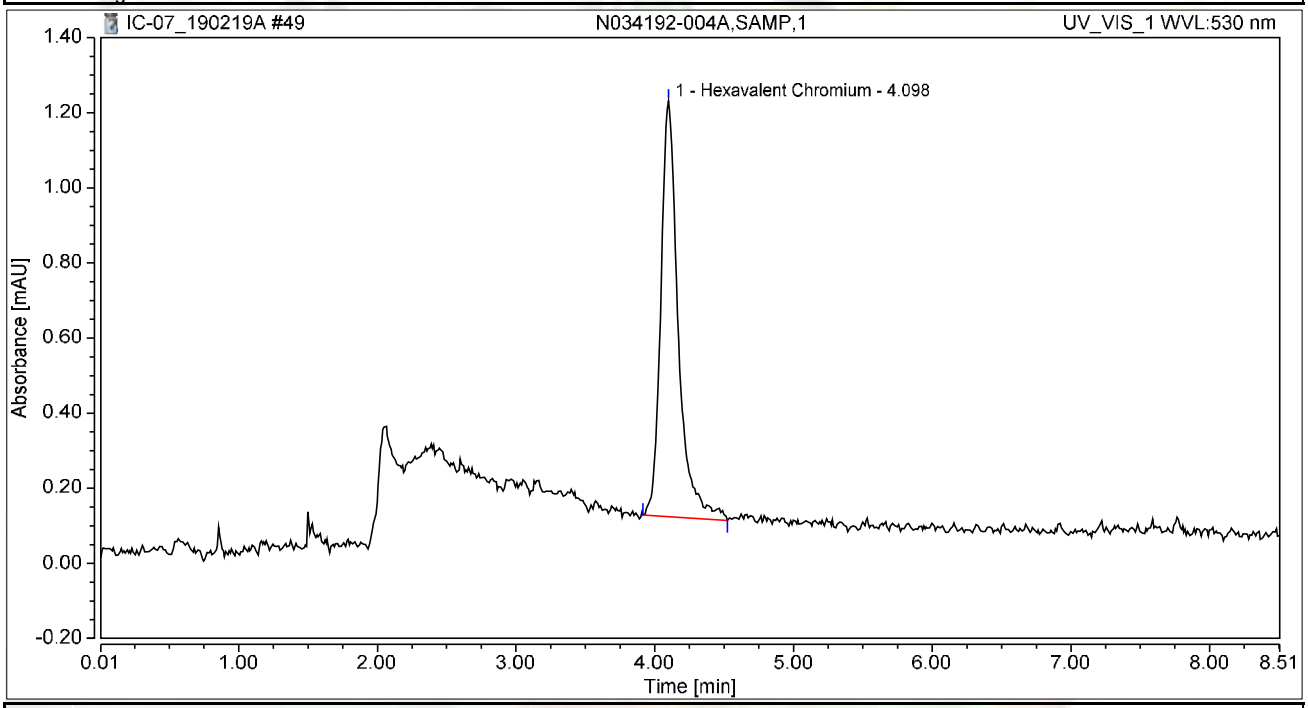
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.664 | 4.538 | 100.00 | 100.00 | 2.3092 |
| **Total:** | | | **0.664** | **4.538** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034192-004A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **41** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 15:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

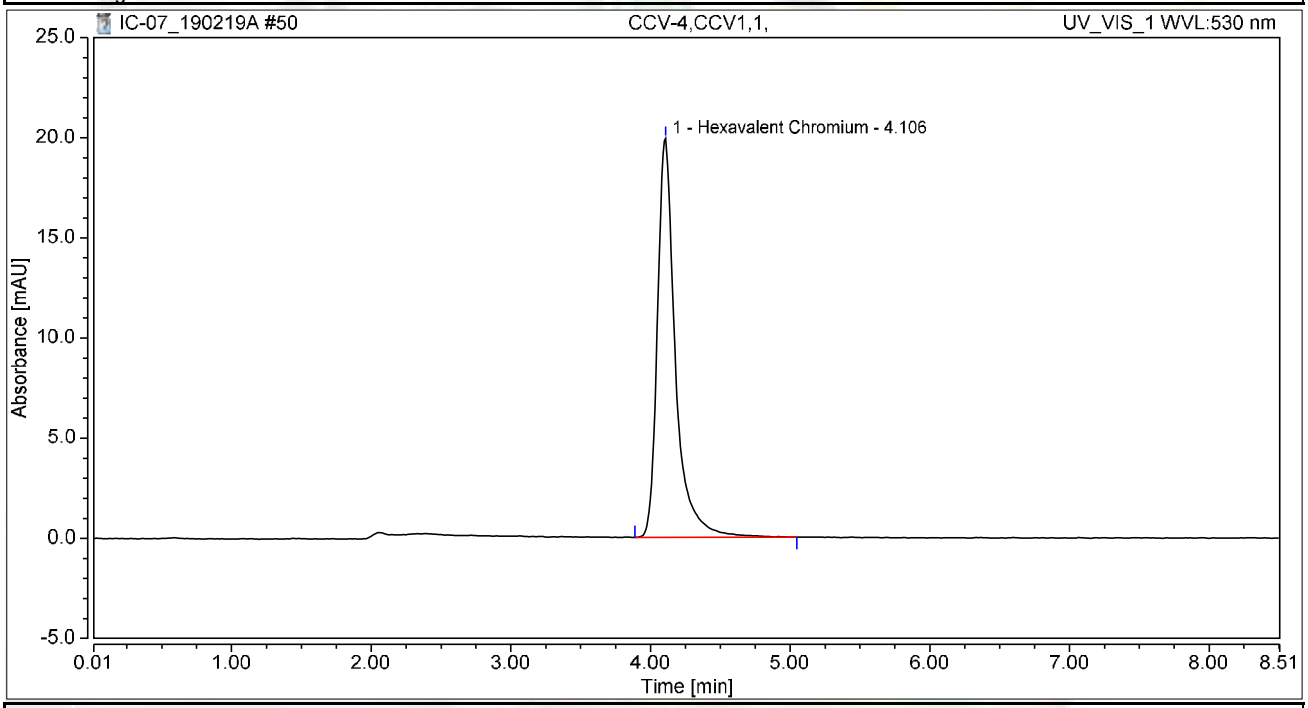
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.161 | 1.107 | 100.00 | 100.00 | 0.5615 |
| **Total:** | | | **0.161** | **1.107** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-4,CCV1,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **42** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 15:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

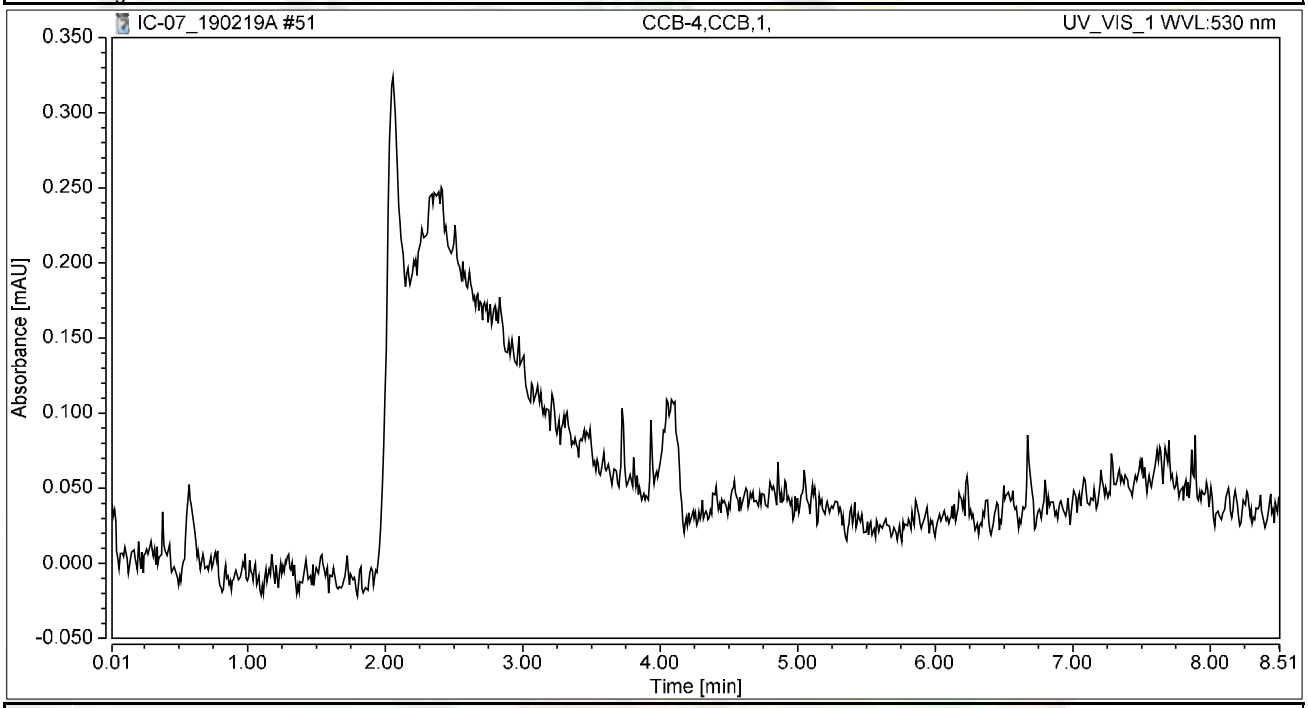
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 2.984 | 19.928 | 100.00 | 100.00 | 10.3845 |
| **Total:** | | | **2.984** | **19.928** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-4,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **43** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 15:40** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

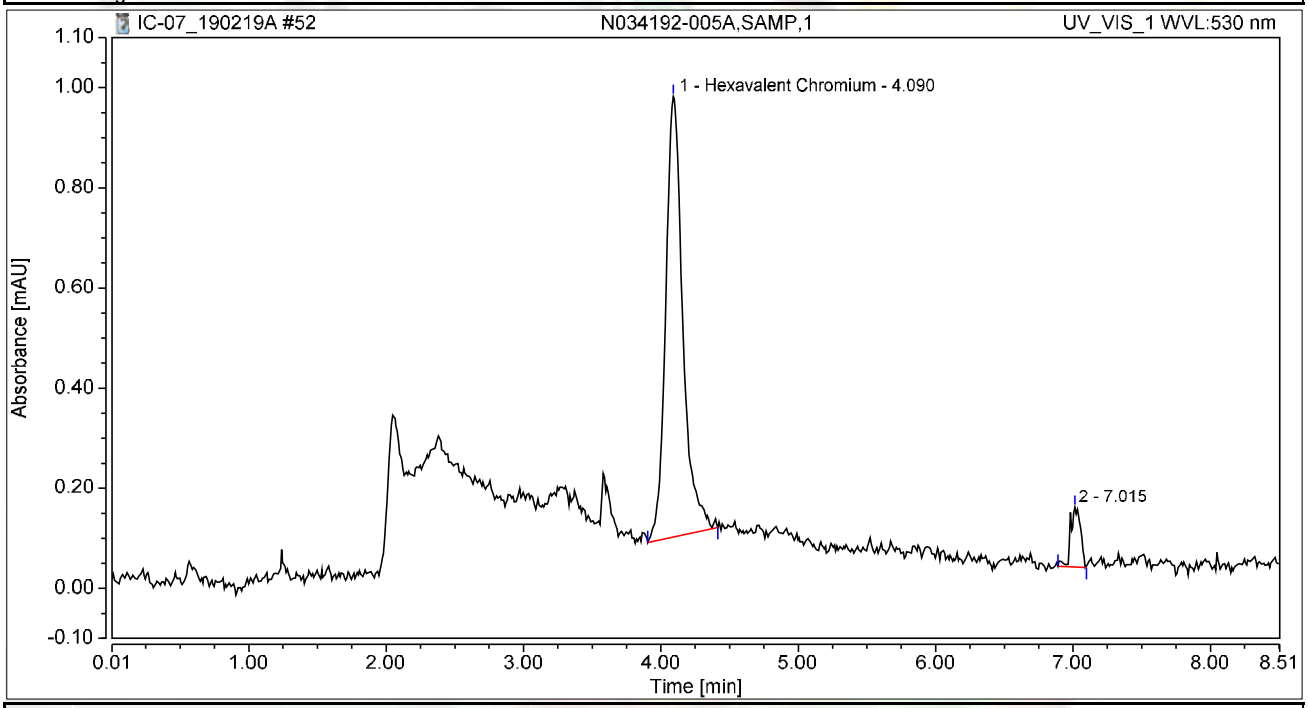
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034192-005A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **44** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 15:50** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

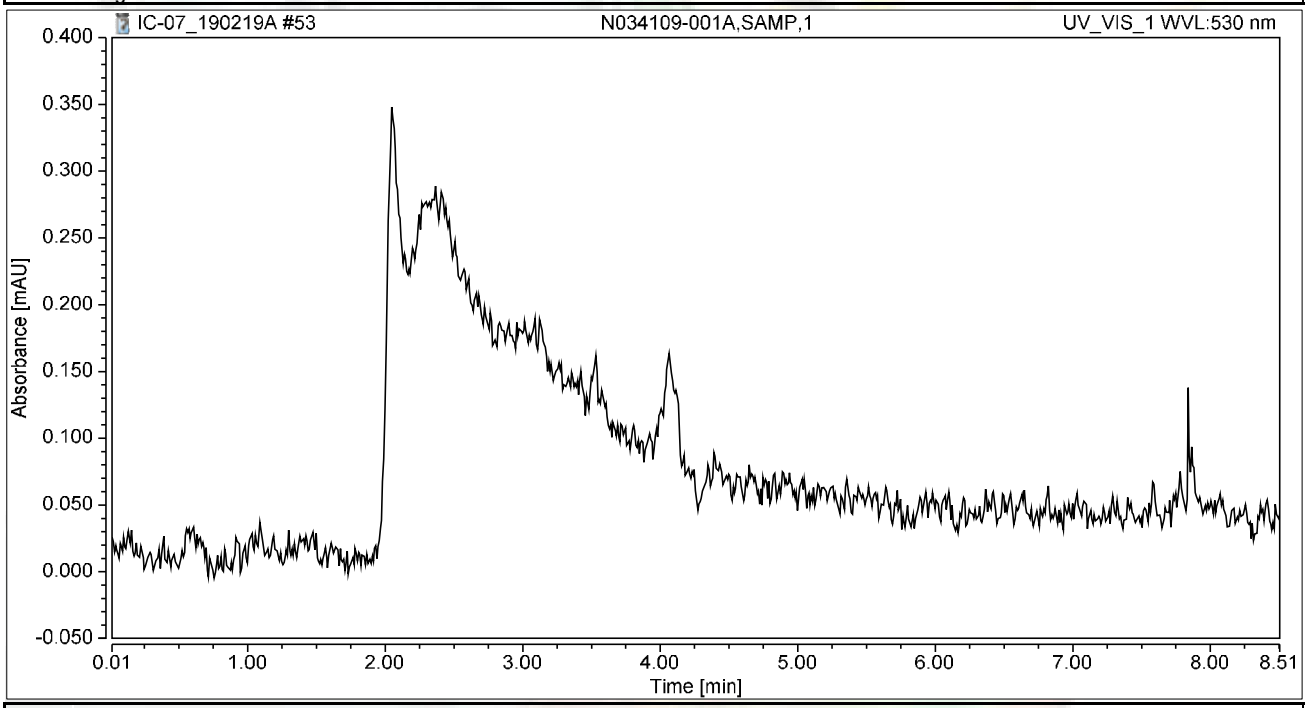
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.127 | 0.879 | 92.69 | 88.07 | 0.4419 |
| 2 | | 7.015 | 0.010 | 0.119 | 7.31 | 11.93 | n.a. |
| **Total:** | | | **0.137** | **0.999** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034109-001A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **45** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 15:59** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

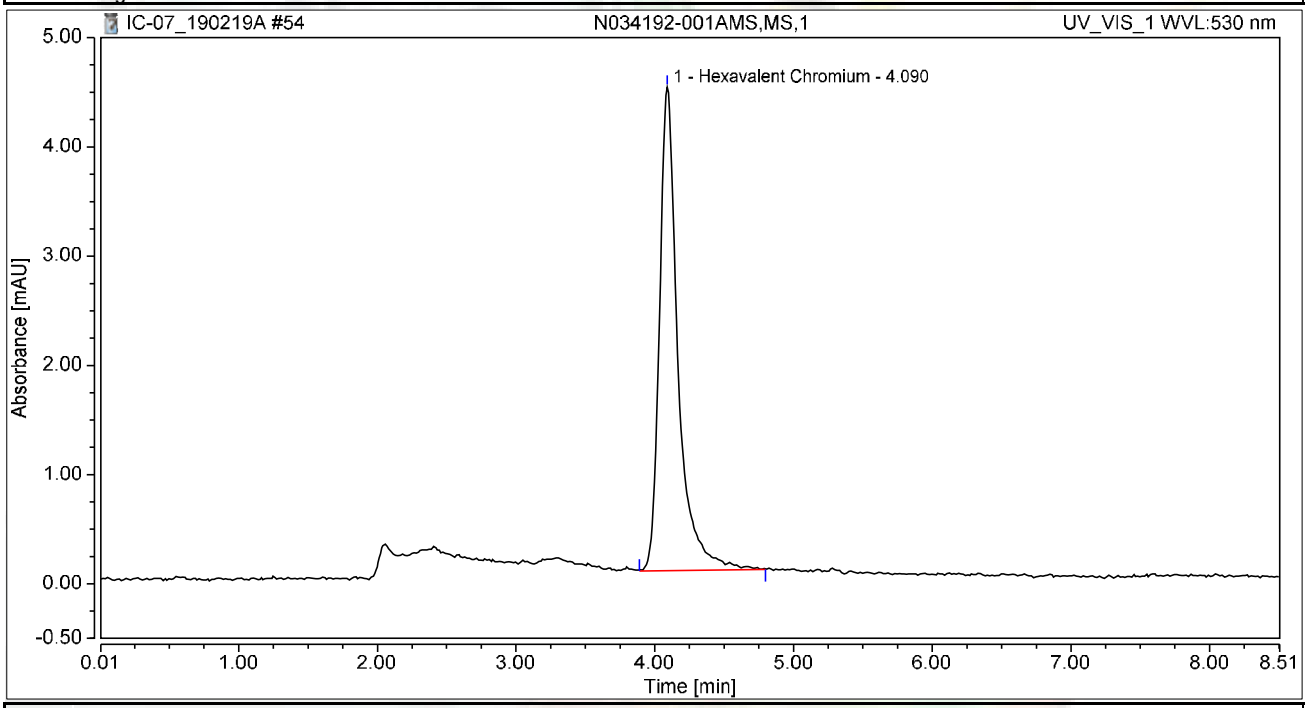
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034192-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 16:15** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

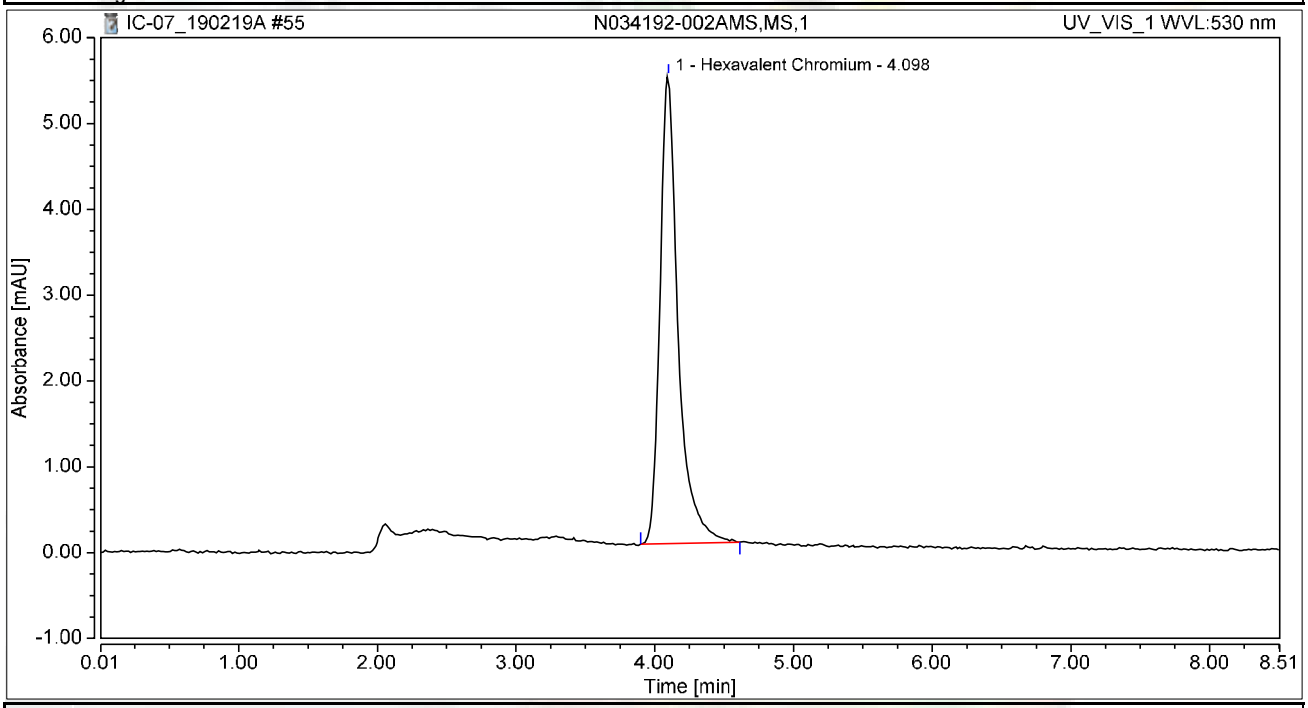
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.687 | 4.426 | 100.00 | 100.00 | 2.3910 |
| **Total:** | | | **0.687** | **4.426** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034192-002AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 16:26** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

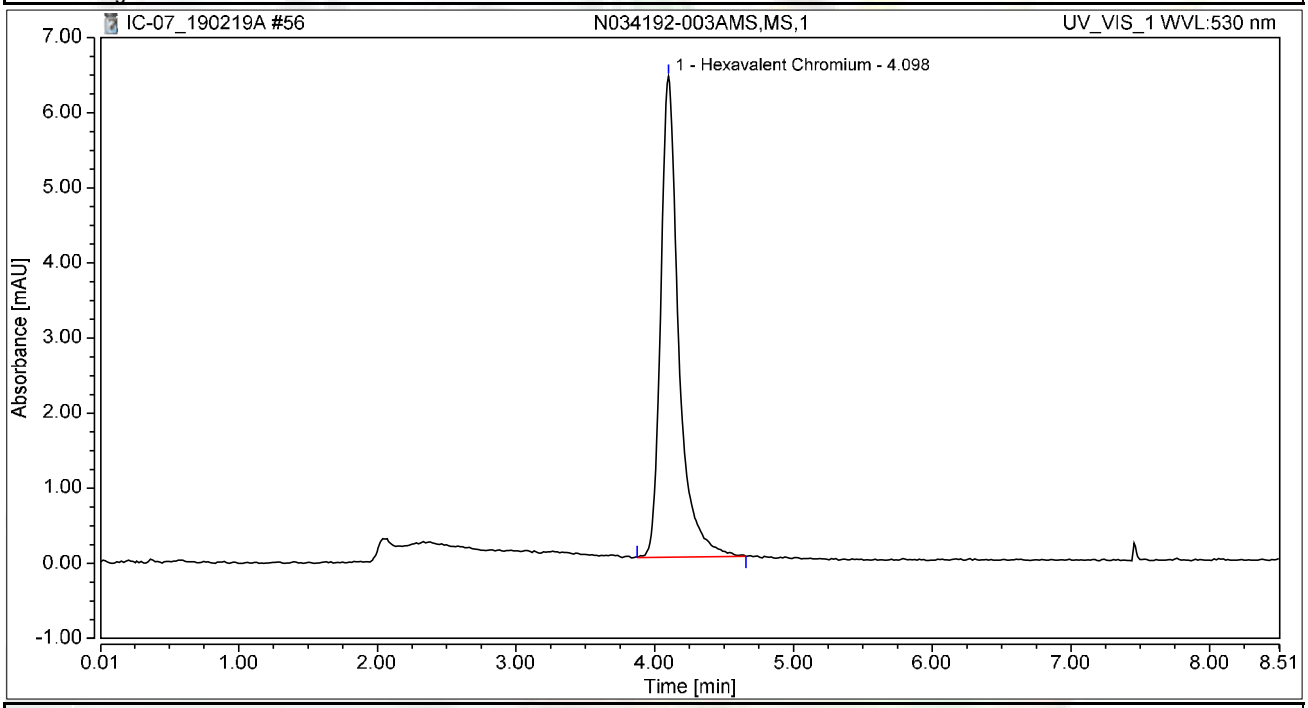
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.831 | 5.451 | 100.00 | 100.00 | 2.8902 |
| **Total:** | | | **0.831** | **5.451** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034192-003AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 16:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

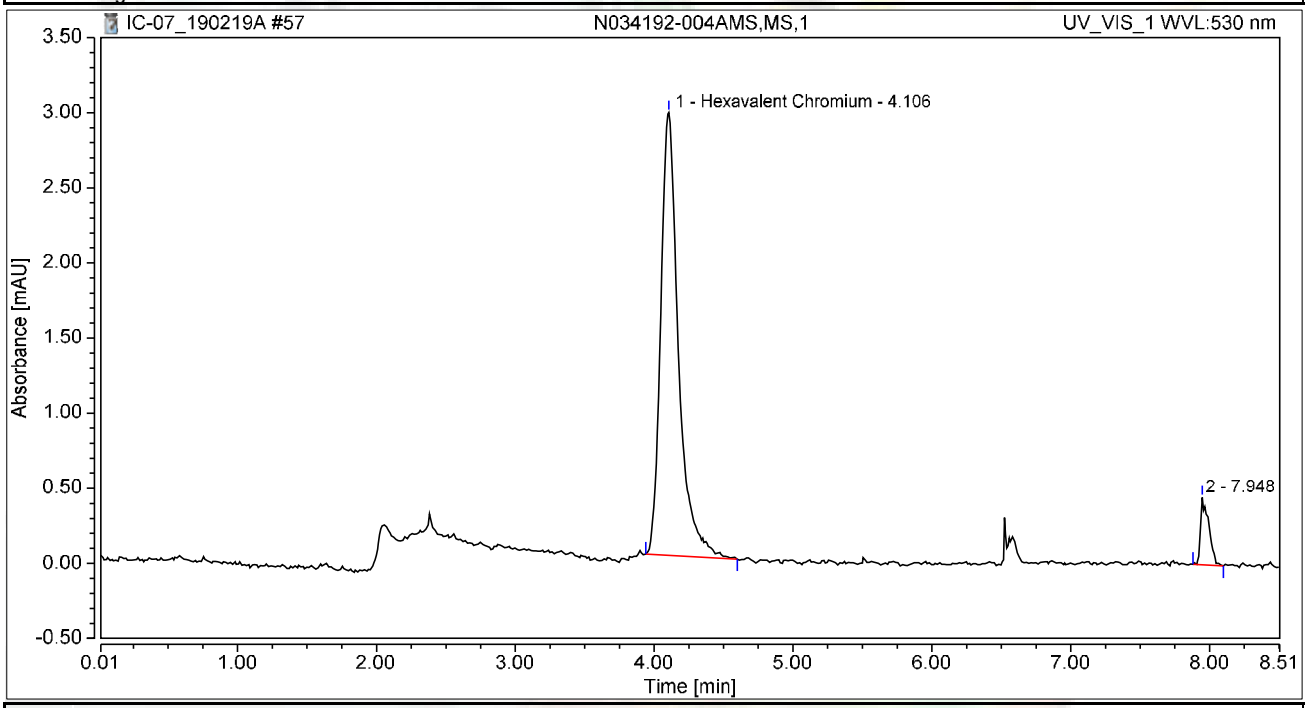
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.965 | 6.405 | 100.00 | 100.00 | 3.3594 |
| **Total:** | | | **0.965** | **6.405** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034192-004AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 16:45** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

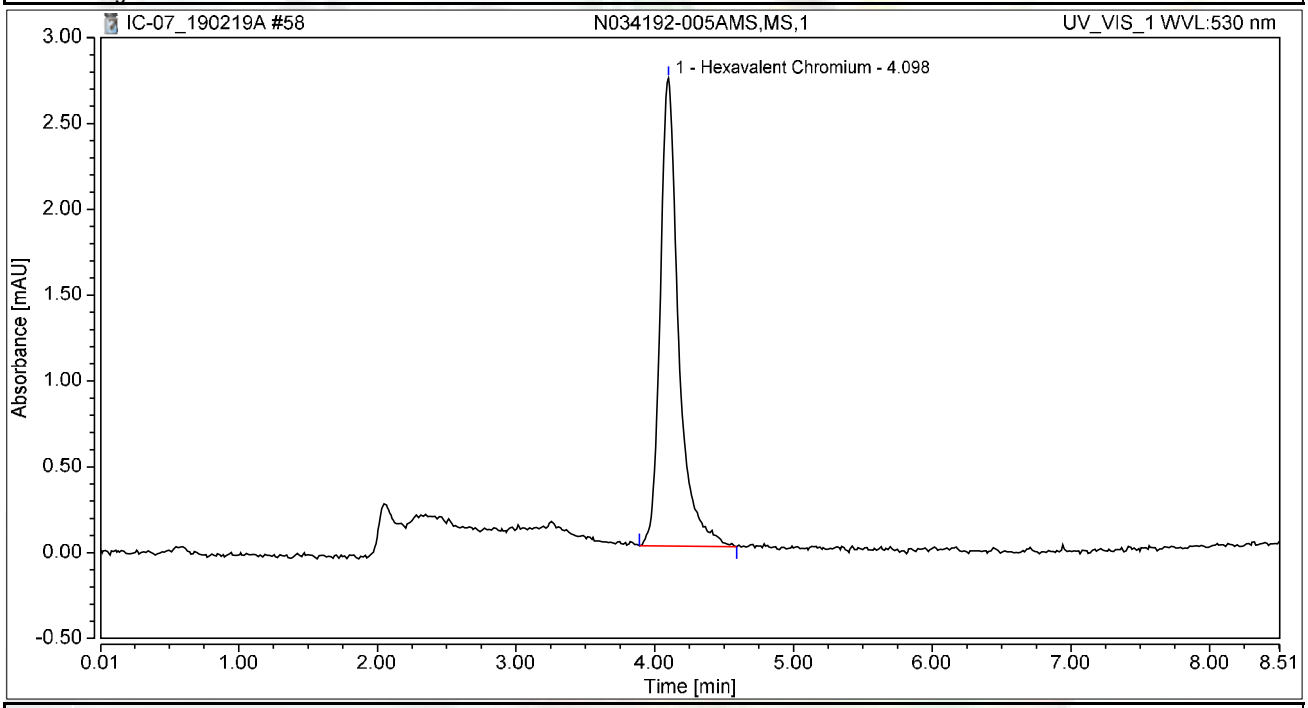
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.435 | 2.949 | 93.31 | 86.80 | 1.5120 |
| 2 | | 7.948 | 0.031 | 0.448 | 6.69 | 13.20 | n.a. |
| **Total:** | | | **0.466** | **3.398** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034192-005AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 16:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

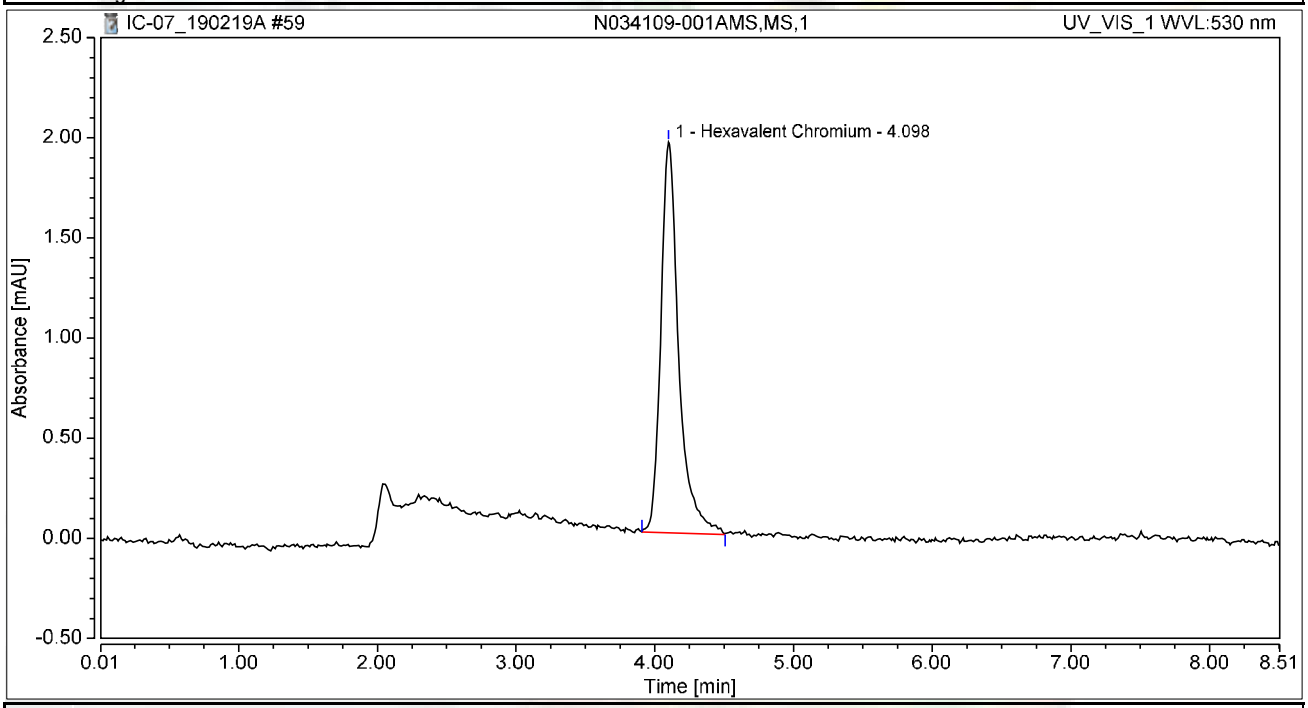
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.421 | 2.725 | 100.00 | 100.00 | 1.4648 |
| **Total:** | | | **0.421** | **2.725** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034109-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 17:04** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

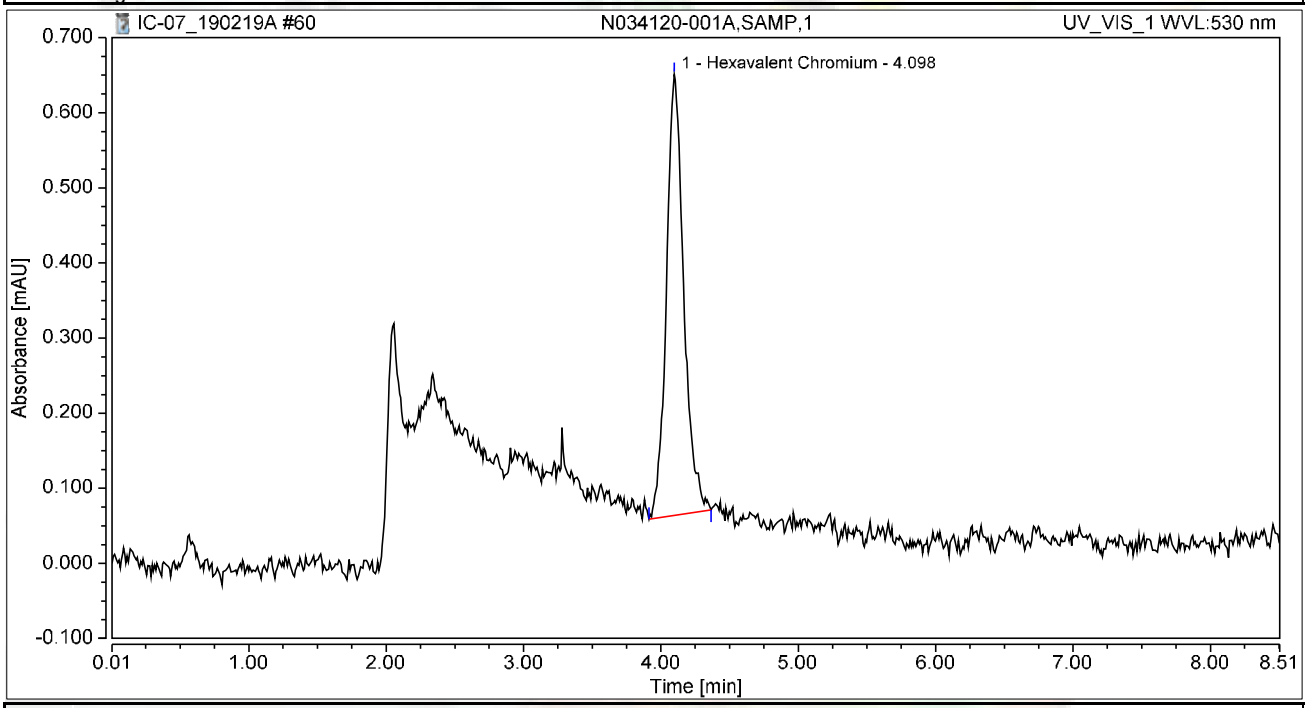
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.292 | 1.950 | 100.00 | 100.00 | 1.0176 |
| **Total:** | | | **0.292** | **1.950** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034120-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 17:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

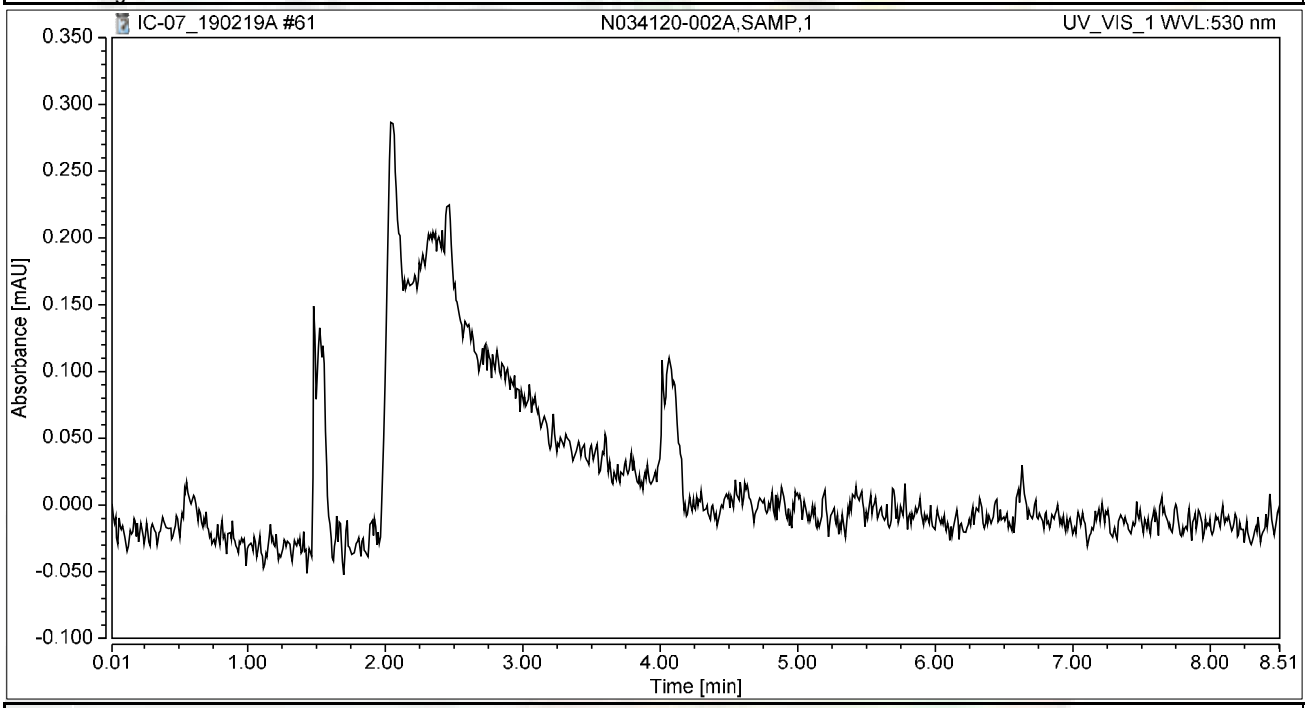
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.086 | 0.587 | 100.00 | 100.00 | 0.2976 |
| **Total:** | | | **0.086** | **0.587** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034120-002A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 17:23** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

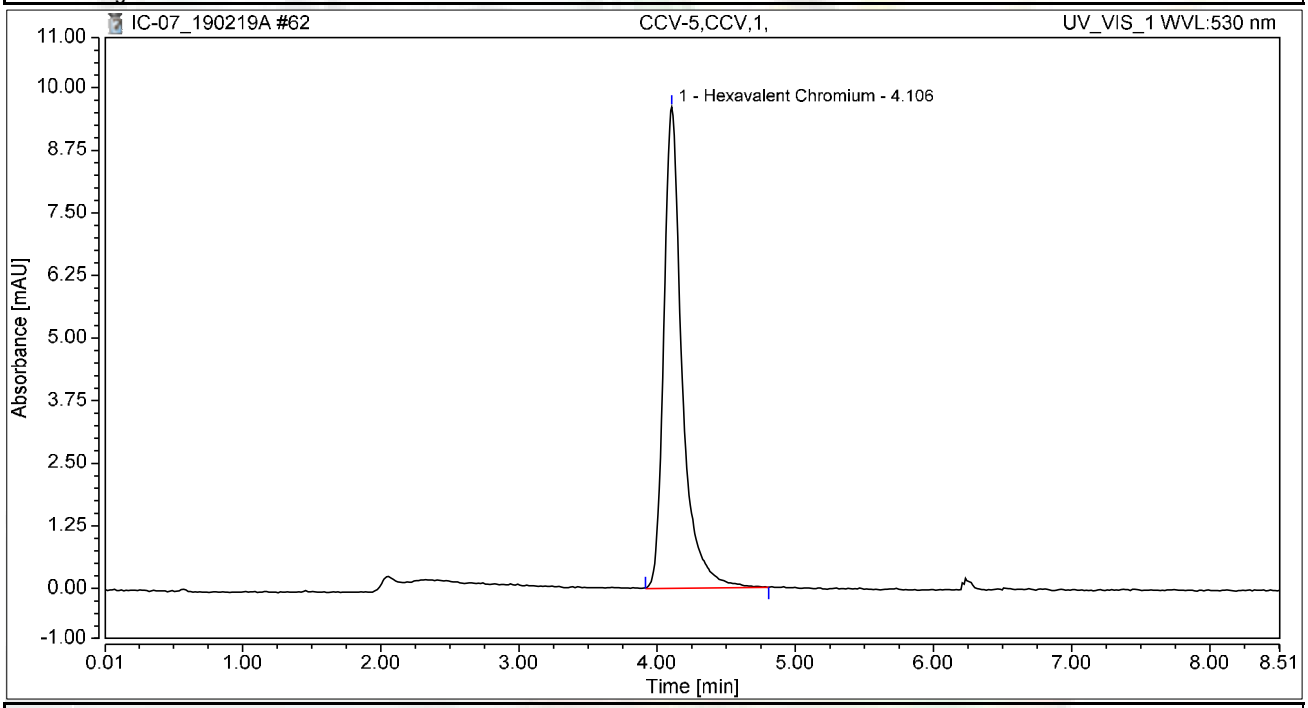
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-5,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 17:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

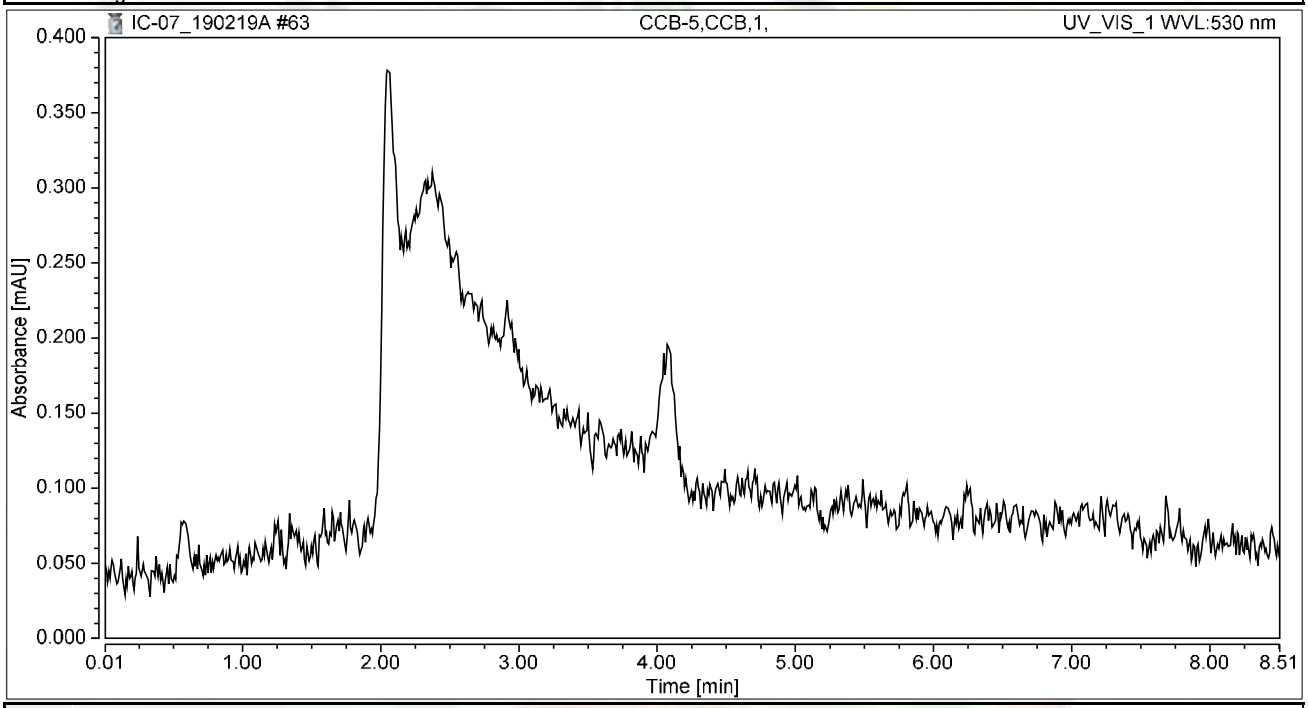
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.479 | 9.610 | 100.00 | 100.00 | 5.1465 |
| **Total:** | | | **1.479** | **9.610** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-5,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 17:42** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

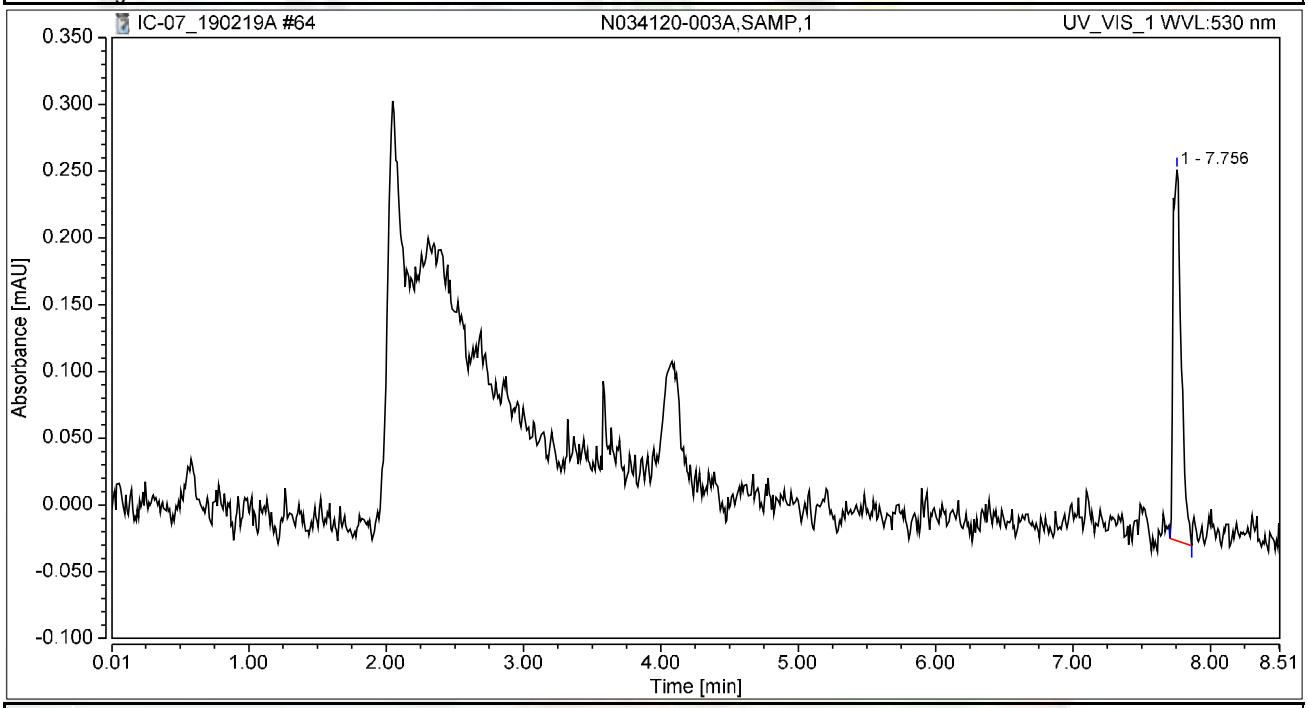
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034120-003A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 17:51** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

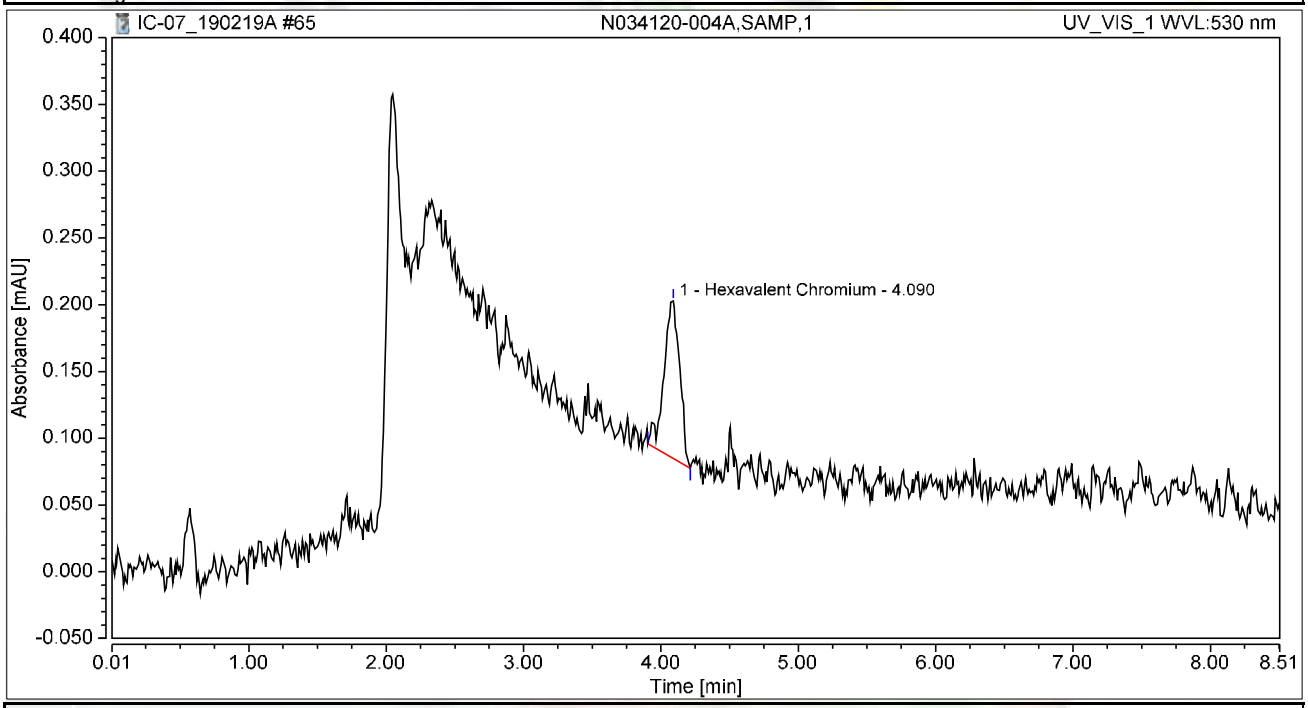
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 1 | | 7.756 | 0.019 | 0.278 | 100.00 | 100.00 | n.a. |
| **Total:** | | | **0.019** | **0.278** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034120-004A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 18:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

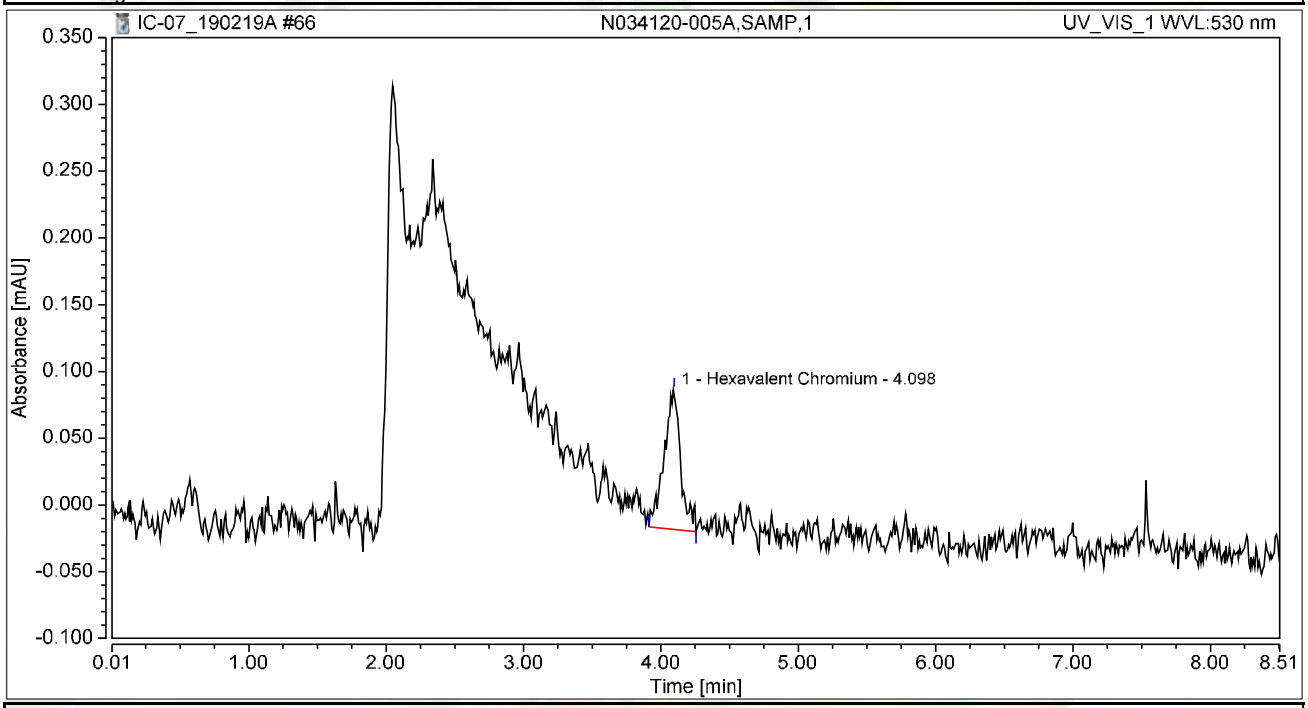
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.016 | 0.118 | 100.00 | 100.00 | 0.0547 |
| **Total:** | | | **0.016** | **0.118** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034120-005A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 18:10** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

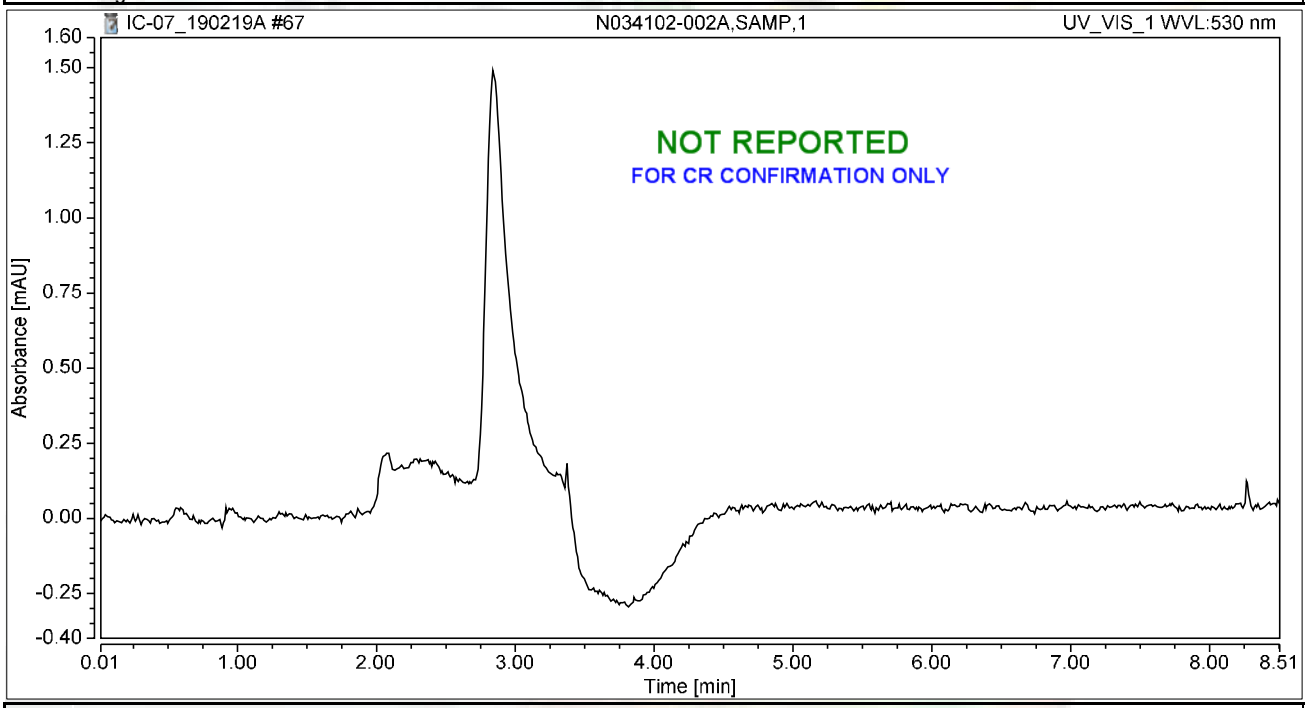
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.015 | 0.105 | 100.00 | 100.00 | 0.0513 |
| **Total:** | | | **0.015** | **0.105** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-002A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 18:19** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

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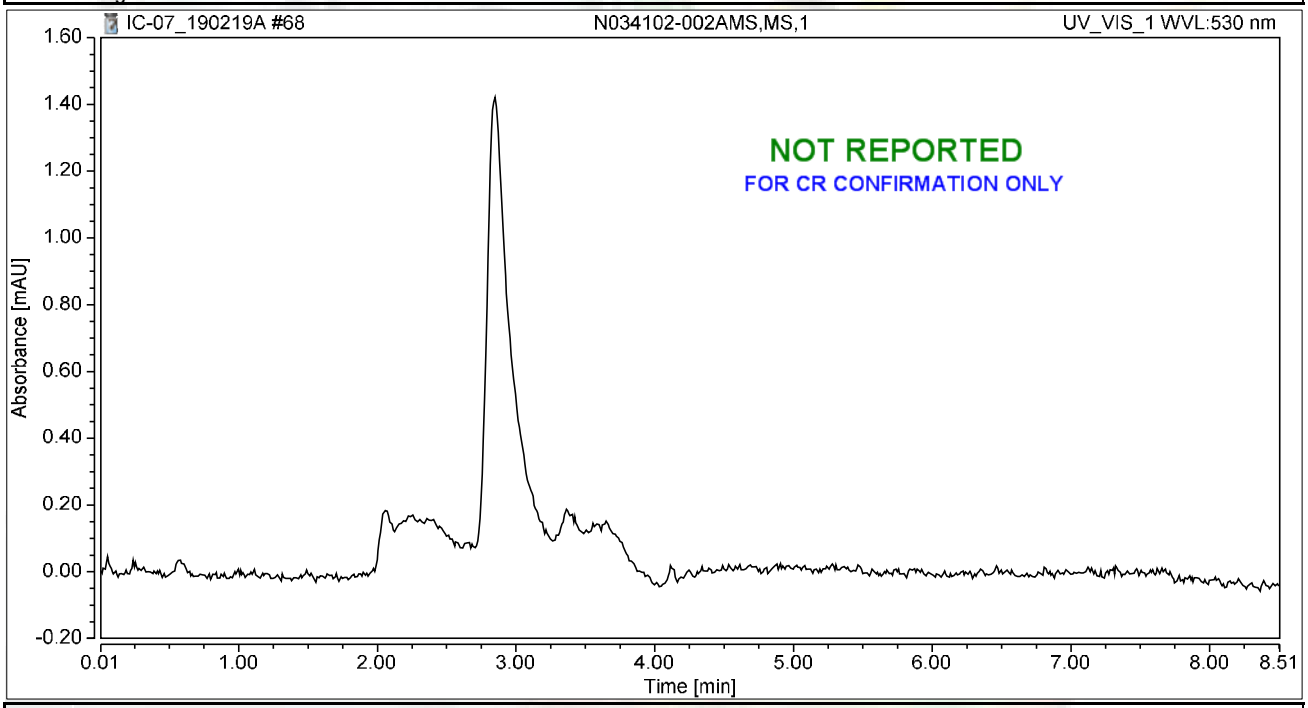
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-002AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 18:29** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

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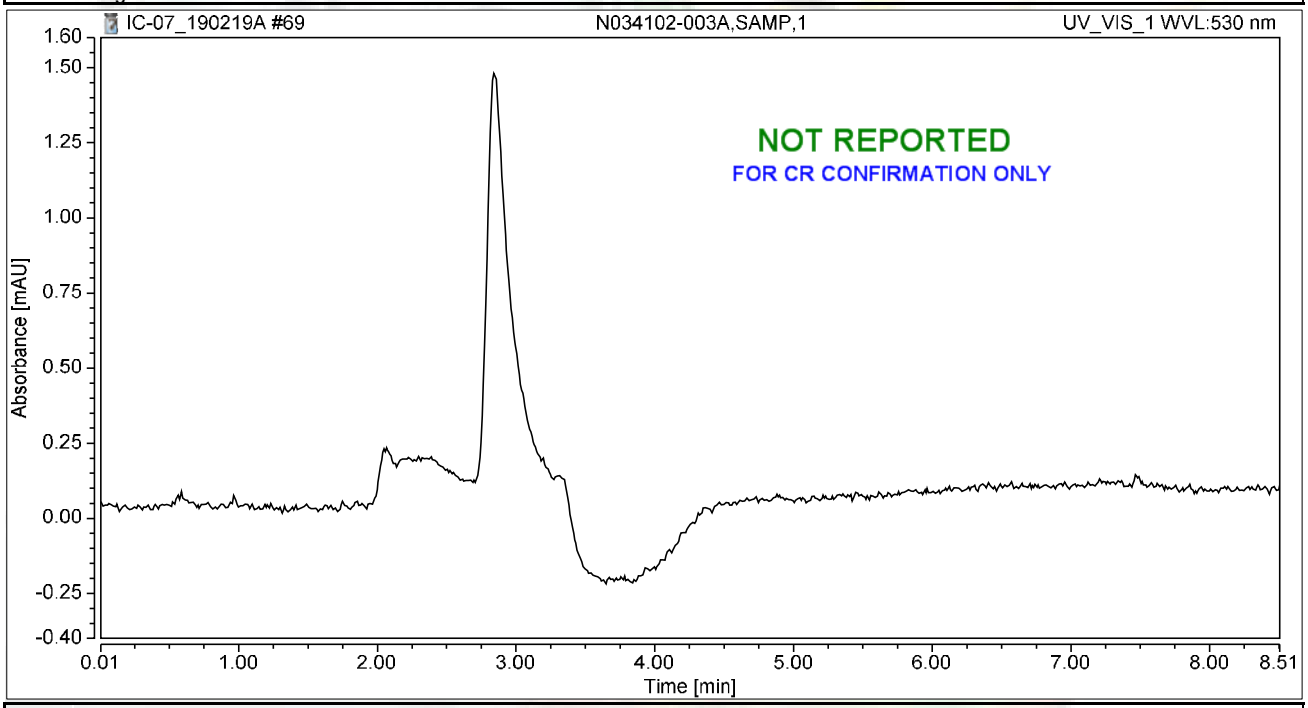
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-003A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 18:38** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

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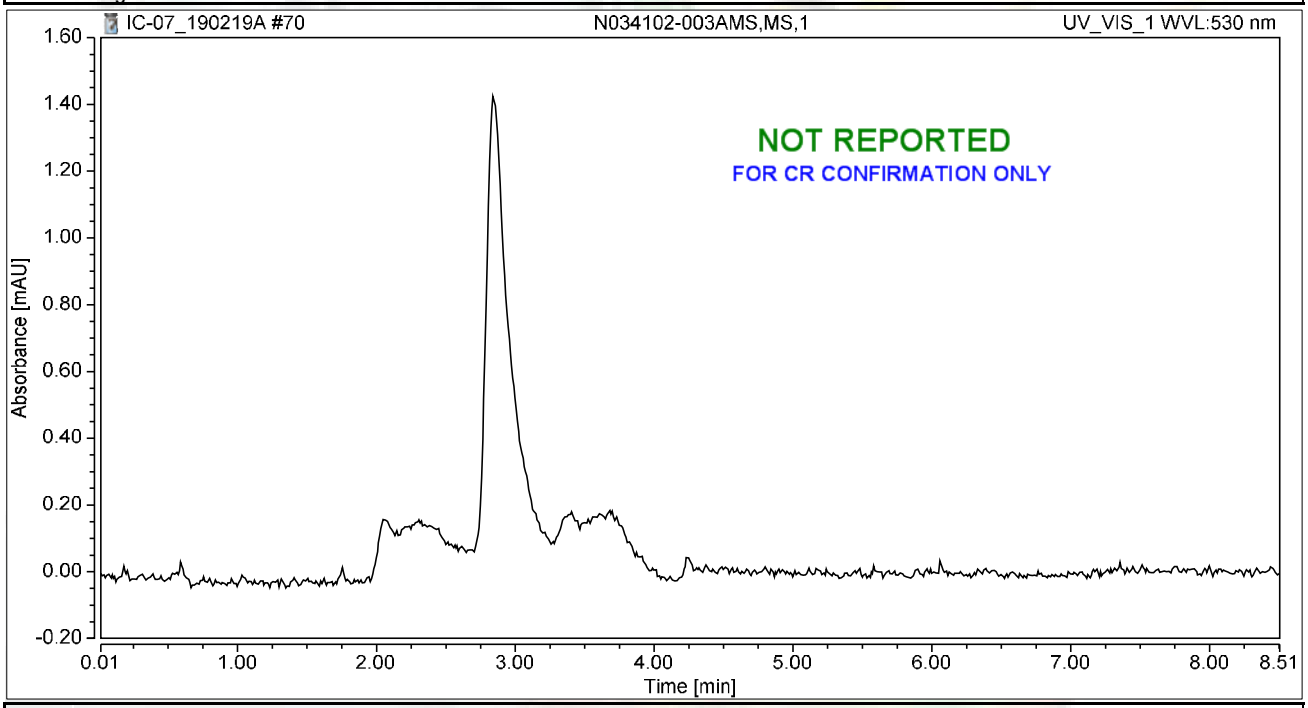
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-003AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 18:48** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

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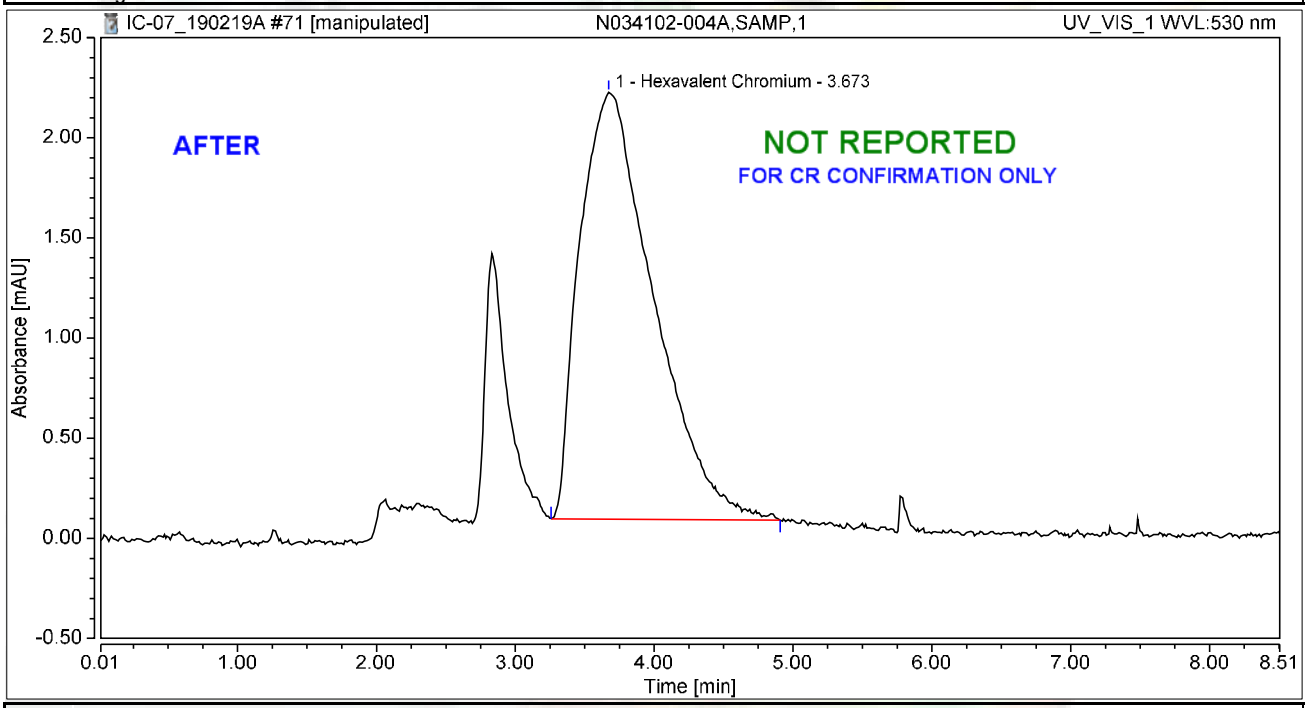
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-004A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 18:57** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.673 | 1.309 | 2.129 | 100.00 | 100.00 | 4.5544 |
| **Total:** | | | **1.309** | **2.129** | **100.00** | **100.00** | |

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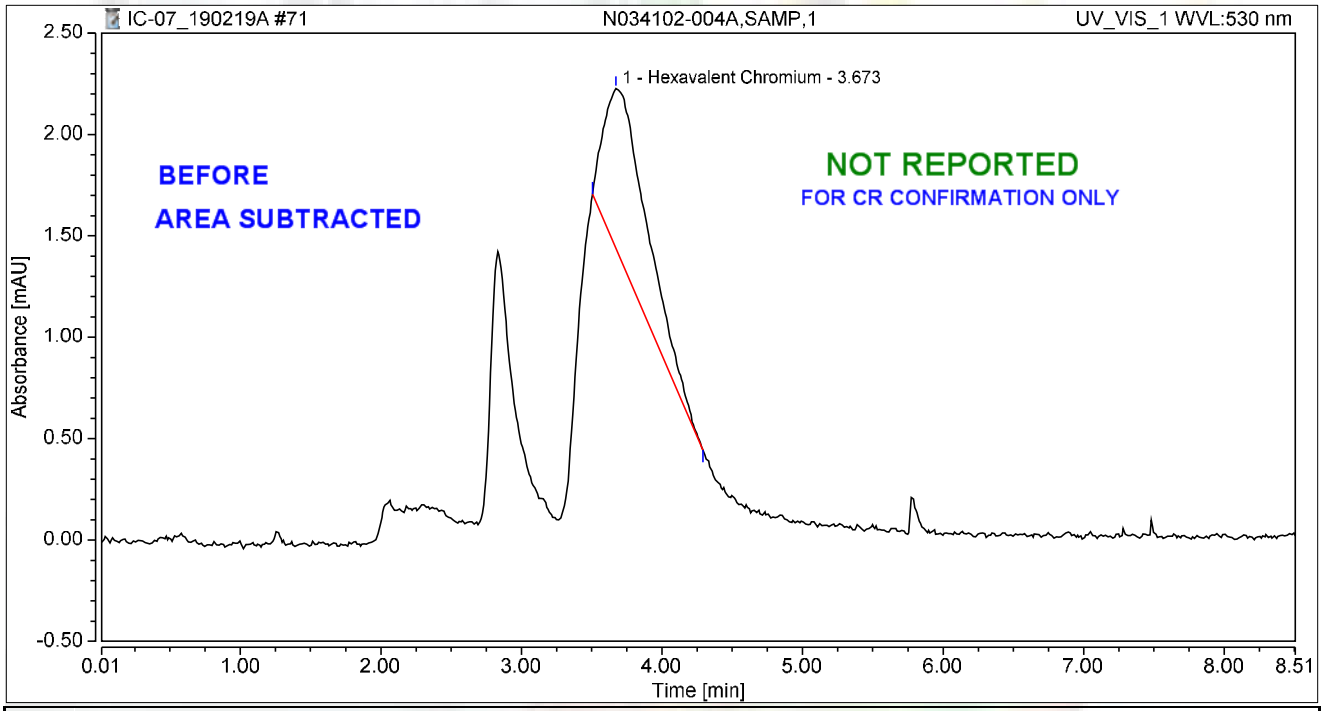
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-004A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 18:57** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.673 | 0.298 | 0.788 | 100.00 | 100.00 | 1.0375 |
| **Total:** | | | **0.298** | **0.788** | **100.00** | **100.00** | |

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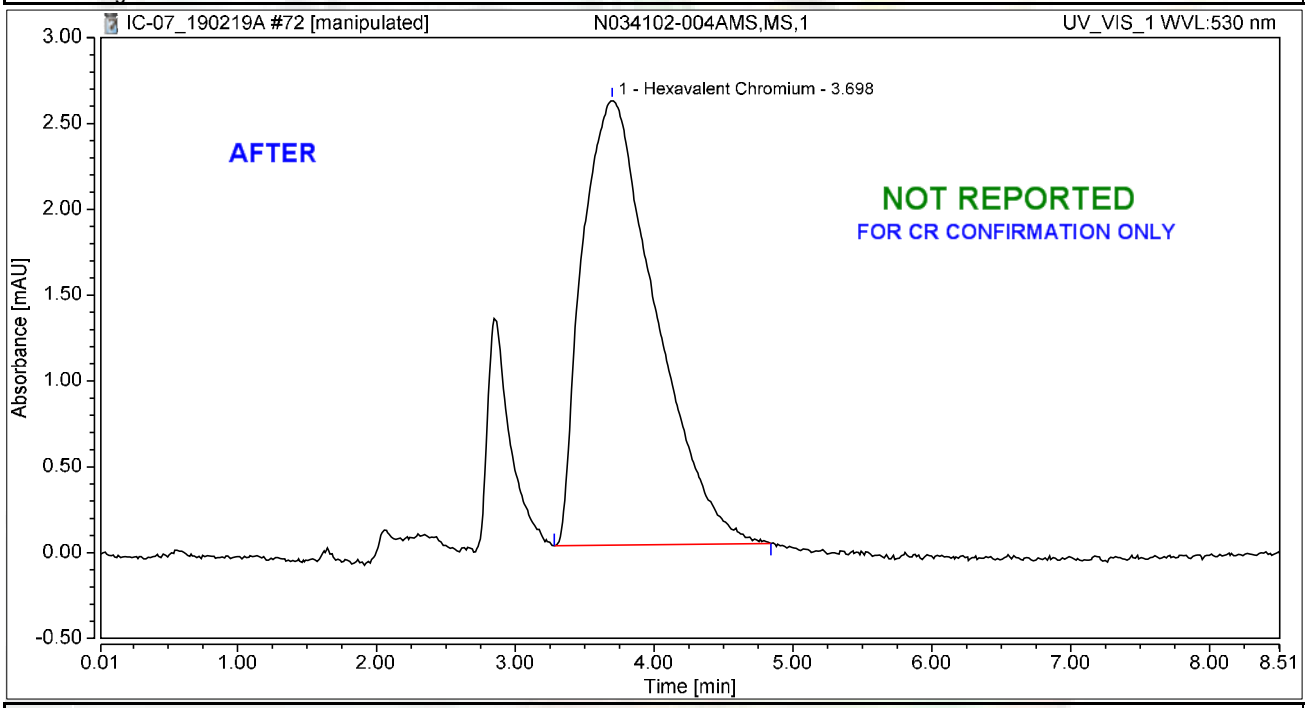
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-004AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 19:07** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.698 | 1.587 | 2.593 | 100.00 | 100.00 | 5.5220 |
| **Total:** | | | **1.587** | **2.593** | **100.00** | **100.00** | |

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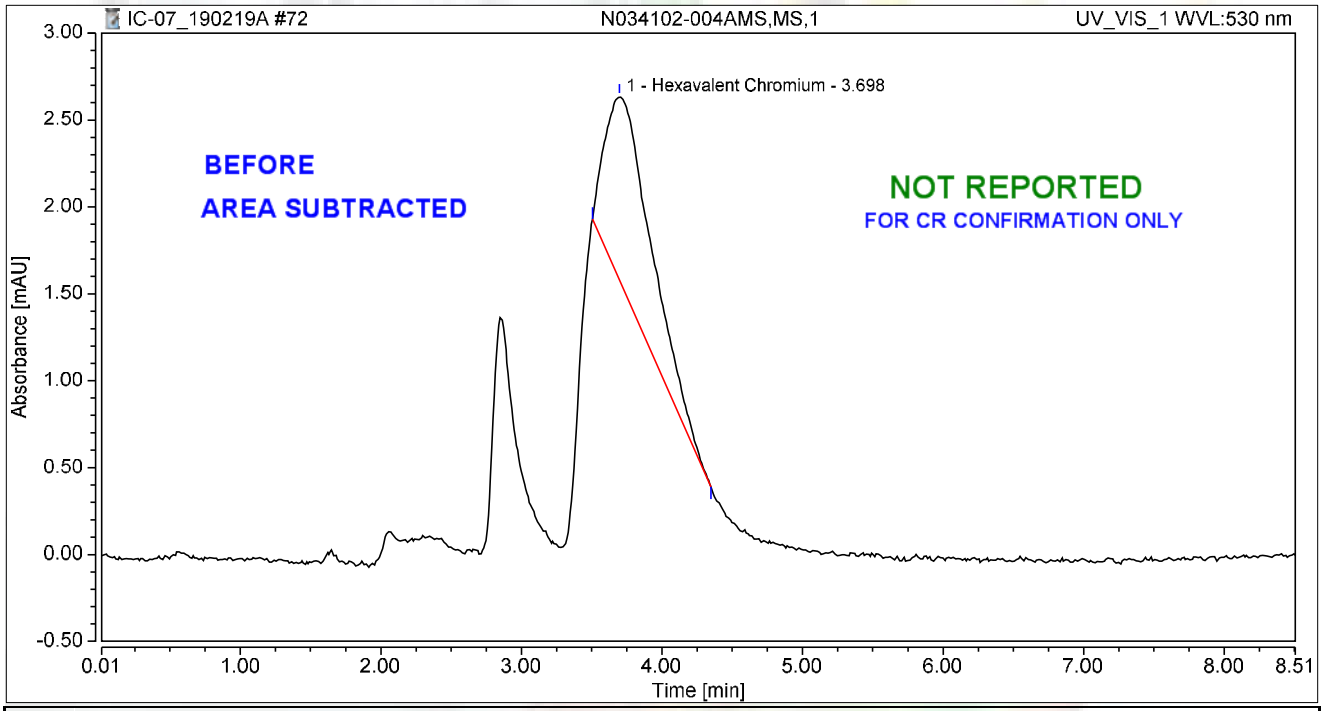
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-004AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 19:07** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.698 | 0.417 | 1.059 | 100.00 | 100.00 | 1.4511 |
| **Total:** | | | **0.417** | **1.059** | **100.00** | **100.00** | |

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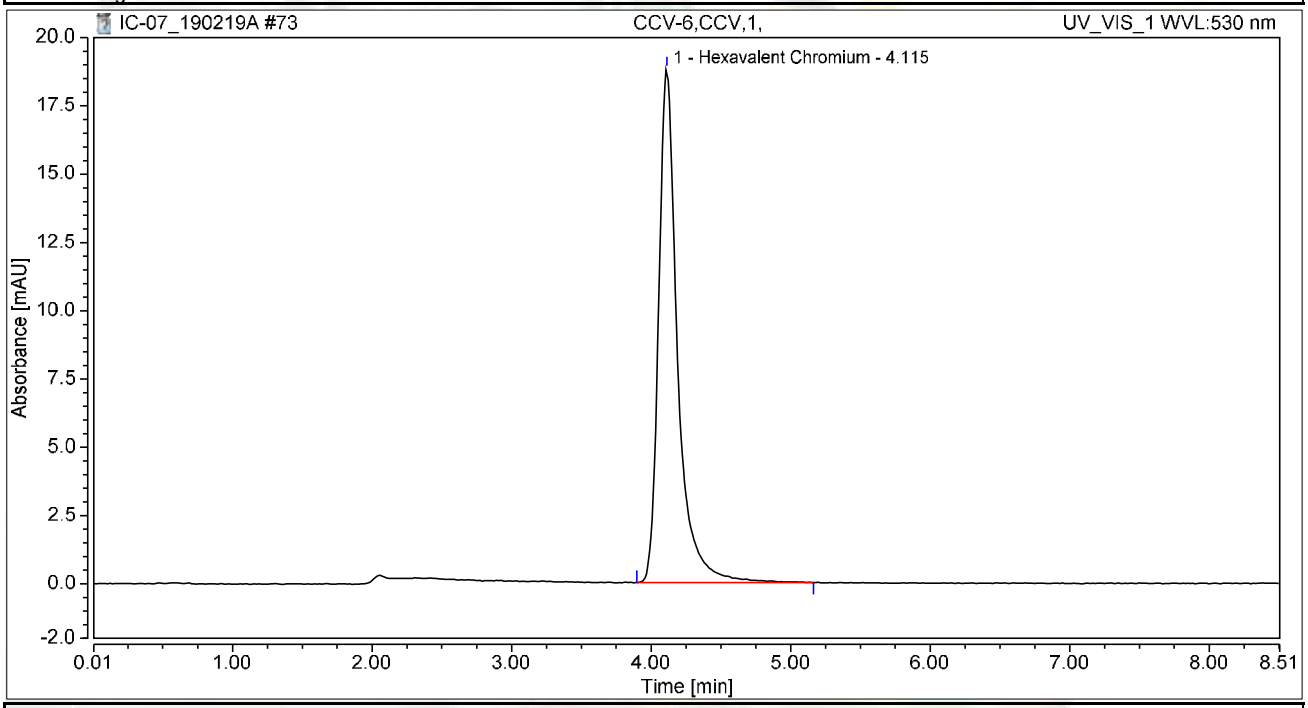
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-6,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **20** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 19:16** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

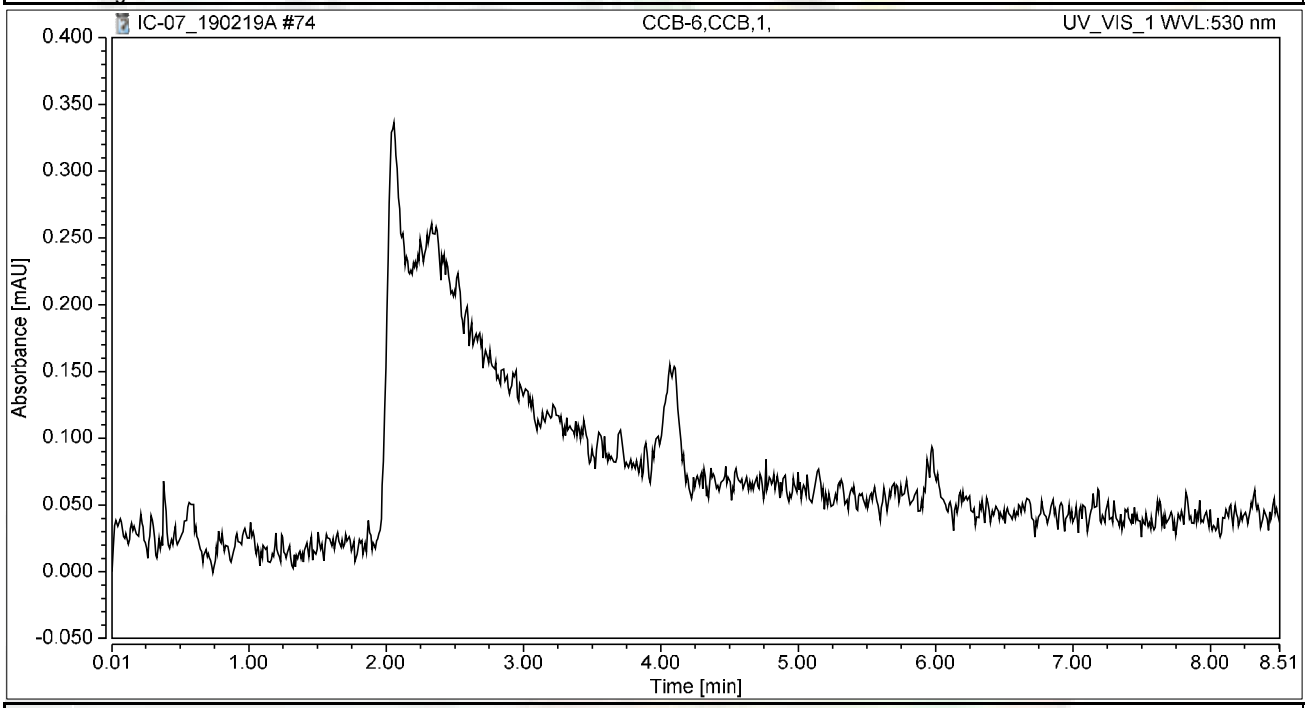
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 2.963 | 18.816 | 100.00 | 100.00 | 10.3106 |
| **Total:** | | | **2.963** | **18.816** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-6,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 19:26** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

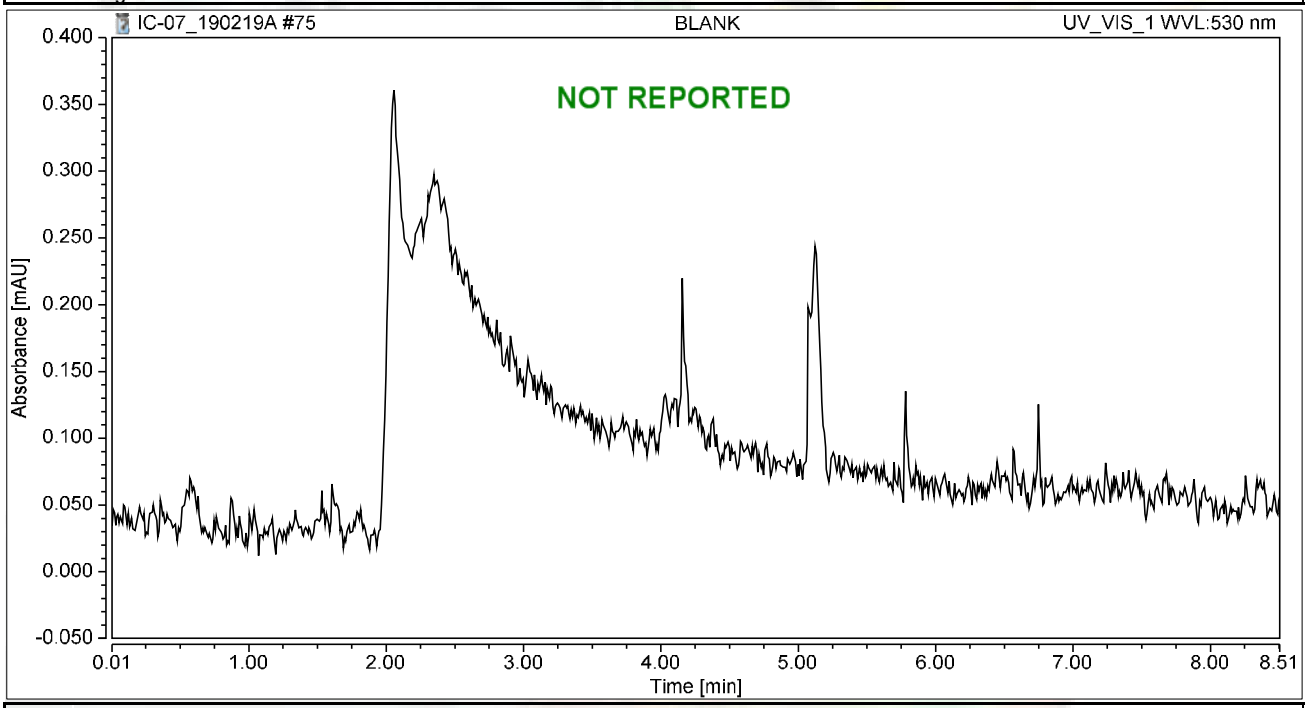
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 19:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

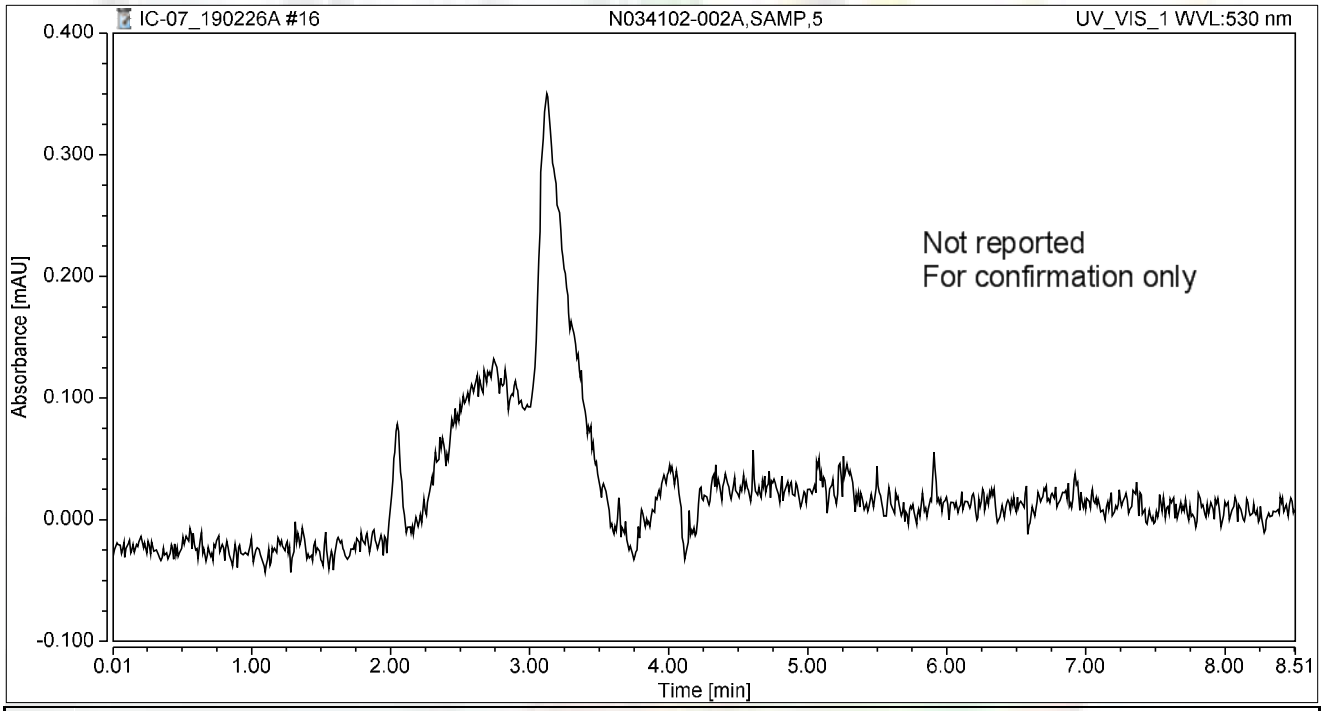
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-002A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 10:23** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

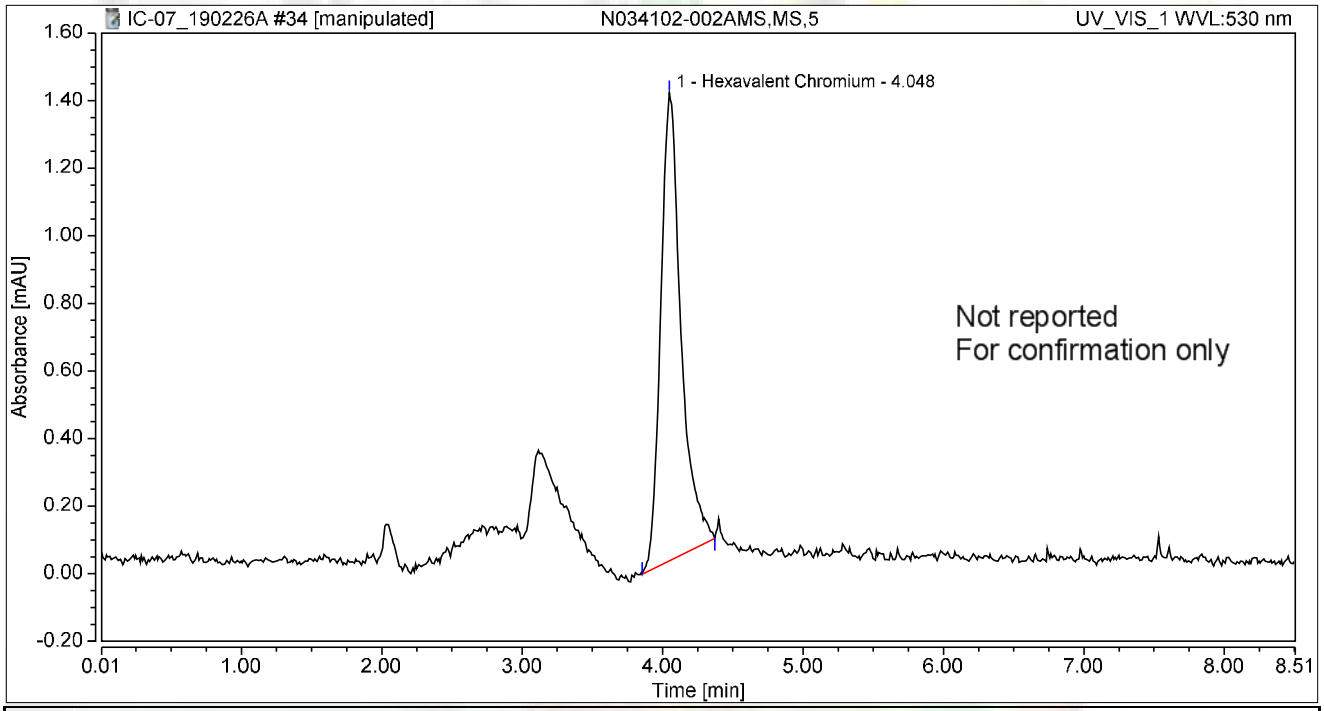
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-002AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 13:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.233 | 1.387 | 100.00 | 100.00 | 0.9408 |
| **Total:** | | | **0.233** | **1.387** | **100.00** | **100.00** | |

# SM 4500-NO3F

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R131879 **Analyst:** QBM

**ASSET #:** N034102, N034104 **Date Analyzed:** 2/15/2019

**Method:** SM 4500_N03

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | X | | | X | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 3. ICV within ± 15% of expected value. | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | X | | | X | | |
| 5. CCV within ± 15% of expected value. | X | | | X | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | X | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< PQL) | X | | | X | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | X | | | X | | |
| 9. Are all samples analyzed within hold time. | X | | | X | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 11. LCS compounds within control limits. | X | | | X | | |
| 12. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | X |
| 14. Runlog complete and included in package. | X | | | X | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | X |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | X |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | X | | |
| 18. Are analytical results correct? | X | | | X | | |
| 19. Is the QC summary report present and complete? | X | | | X | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer QBM Date: 2/22/19

2nd Level Reviewer 2/22/2019 Date:

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 4500N03F
**TEST NAME:** Nitrate/Nitrite-N by Automated Cadmium Reduction
**MATRIX:** Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

**Nitrate/Nitrite-N, mg/L= A * DF**

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N034102-002C**

The concentration in mg/L is calculated as follows:

**Nitrate/Nitrite-N** = 0.0719 * 1
= 0.0719 mg/L

Reporting result in two significant figures,

**Nitrate/Nitrite-N = 0.072 mg/L**

# INITIAL CALIBRATION DATA SUMMARY

## EPA 353.2 NO3 as N (NO3CD) - Endpoint

### General setup

| | |
|---|---|
| **Measuring unit** | **ppm** |
| **Number of decimals** | 4 |
| **Stabilization time (sec)** | 26 |
| **Measurement time (sec)** | 3 |
| **Sample volume (µl)** | 450 |
| **Filter** | 546 |
| **Reagent prime** | No |
| **CD Reduction** | Yes |

### Limits and dilution

| | |
|---|---|
| **Low level** | **-0.2** |
| **High level** | 4 |
| **Max linearity** | 4 |
| **Blank min** | 0 |
| **Blank max** | 0.049 |
| **Postdilution factor %** | 10 |
| **Factor Calculations** | No |

### Washes

| | |
|---|---|
| **Number of final washes** | 6 |
| **Wash every** | R1, R2 |

### O.D.Corrections

| | |
|---|---|
| **Carry Over** | **No** |
| **Carry Over value** | 0.0000 |
| **Blank** | No |
| **Gain** | No |

### Reagents

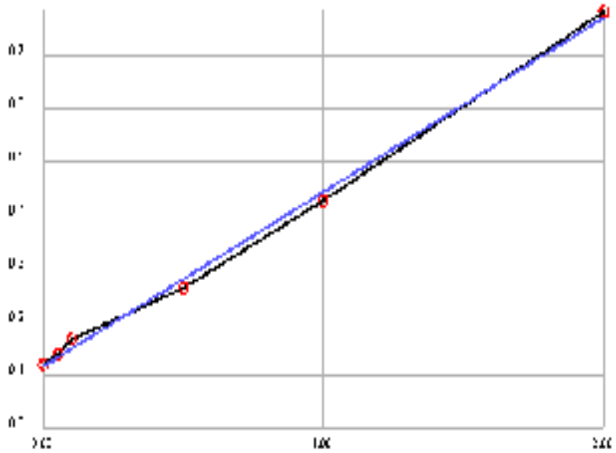
| N. | Volume (µl) | Incubation time (sec) |
|---|---|---|
| **1** | 200 | 102 |
| **2** | 300 | 663 |
| **3** | 0 | 0 |

### QC

| N. | Value | Tolerance |
|---|---|---|
| **1** | 1 | 0.1 |

## Calibration

| | |
|---|---|
| **Curve type** | Linear (Calibrants) |
| **Curve forced to zero** | No |
| **Blank inclusion** | No |



| | |
|---|---|
| **Formula** | y = 0.327x + 0.1174 |
| **Correlation** | .998577 |

| Calibrant | Energy | Set | Conc |
|---|---|---|---|
| **1** | 0.1189 | 0.0000 | 0.0046 |
| **2** | 0.1383 | 0.0500 | 0.0639 |
| **3** | 0.1656 | 0.1000 | 0.1474 |
| **4** | 0.2638 | 0.5000 | 0.4477 |
| **5** | 0.4287 | 1.0000 | 0.9520 |
| **6** | 0.7826 | 2.0000 | 2.0343 |

**Notes:**

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289929** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.484 | 0.050 | 0.5000 | 0 | 96.8 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289940** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.470 | 0.050 | 0.5000 | 0 | 94.0 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289951** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.451 | 0.050 | 0.5000 | 0 | 90.2 | 90 | 110 | | | | |

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289956** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.457 | 0.050 | 0.5000 | 0 | 91.4 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289930** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289941** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289952** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289957** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

**Advanced Technology Laboratories, Inc.**

**3151 W. Post Rd.**
**Las Vegas, NV. 89118**
**702-307-2659**
**702-307-2691**
**www.atl-labs.com**

**Time start: 02-15-2019 14:14**
**Time end: 02-15-2019 16:55**

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 1 | <BLANK> | 16:18:20 | 0.0174 | | 0.1231 |
| 2 | <BLANK> | 16:19:19 | 0.0028 | | 0.1183 |
| 3 | <BLANK> | 16:20:15 | 0.0107 | | 0.1209 |
| 4 | <CAL1> | 16:21:10 | 0.0046 | [0] | 0.1189 |
| 5 | <CAL2> | 16:22:06 | 0.0639 | [0.05] | 0.1383 |
| 6 | <CAL3> | 16:23:06 | 0.1474 | [0.1] | 0.1656 |
| 7 | <CAL4> | 16:24:01 | 0.4477 | [0.5] | 0.2638 |
| 8 | <CAL5> | 16:25:03 | 0.9520 | [1] | 0.4287 |
| 9 | <CAL6> | 16:25:57 | 2.0343 | [2] | 0.7826 |
| 10 | ,BLANK,BLANK,1, NOT REPORTED | 16:26:52 | 0.0685 | | 0.1398 |
| 11 | ,ICV,ICV,1, | 16:27:54 | 0.4841 | | 0.2757 |
| 12 | ,ICB,ICB,1, | 16:28:50 | 0.0196 | | 0.1238 |
| 13 | ,MB-H2O,MBLK,1, | 16:29:44 | 0.0052 | | 0.1191 |
| 14 | ,LCS-H2O,LCS,1, | 16:30:45 | 0.4869 | | 0.2766 |
| 15 | ,N034102-002C,SAMP,1, | 16:31:41 | 0.0719 | | 0.1409 |
| 16 | ,N034102-003C,SAMP,1, | 16:32:35 | 0.0382 | | 0.1299 |
| 17 | ,N034102-004C,SAMP,1, | 16:33:37 | 0.1343 | | 0.1613 |
| 18 | ,N034102-004CDUP,DUP,1, | 16:34:32 | 0.1508 | | 0.1667 |
| 19 | ,N034104-001D,SAMP,1, | 16:35:28 | 0.3514 | | 0.2323 |
| 20 | ,N034104-001DMS,MS,1, | 16:36:28 | 0.8291 | | 0.3885 |
| 21 | ,N034104-001DMSD,MSD,1, | 16:37:24 | 0.8484 | | 0.3948 |
| 22 | ,BLANK, NOT REPORTED | 16:38:19 | 0.0220 | | 0.1246 |
| 23 | ,CCV-1,CCV,1, | 16:39:21 | 0.4701 | | 0.2711 |
| 24 | ,CCB-1,CCB,1, | 16:40:03 | 0.0269 | | 0.1262 |
| 25 | ,N034104-002D,SAMP,1, | 16:40:53 | 0.3590 | | 0.2348 |
| 26 | ,N034104-003D,SAMP,1, | 16:41:35 | 0.3483 | | 0.2313 |

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 27 | ,N034104-004D,SAMP,1, | 16:42:24 | 0.3645 | | 0.2366 |
| 28 | ,N034104-005D,SAMP,1, | 16:43:06 | 0.3893 | | 0.2447 |
| 29 | ,N034104-006D,SAMP,1, | 16:43:49 | 0.3538 | | 0.2331 |
| 30 | ,N034104-007D,SAMP,1, | 16:44:39 | 0.3636 | | 0.2363 |
| 31 | ,N034104-008D,SAMP,1, | 16:45:21 | 0.3413 | | 0.2290 |
| 32 | ,N034104-009D,SAMP,1, | 16:46:05 | 0.3343 | | 0.2267 |
| 33 | ,N034104-010D,SAMP,1, | 16:46:53 | 0.3217 | | 0.2226 |
| 34 | ,BLANK, NOT REPORTED | 16:47:36 | 0.0015 | | 0.1179 |
| 35 | ,CCV-2,CCV,1, | 16:48:18 | 0.4511 | | 0.2649 |
| 36 | ,CCB-2,CCB,1, | 16:49:08 | 0.0052 | | 0.1191 |
| 37 | ,N034104-011D,SAMP,1, | 16:49:50 | 0.3303 | | 0.2254 |
| 38 | ,N034104-012D,SAMP,1, | 16:50:33 | 0.3911 | | 0.2453 |
| 39 | ,N034104-015D,SAMP,1, | 16:51:22 | 0.3150 | | 0.2204 |
| 40 | ,BLANK, NOT REPORTED | 16:52:04 | 0.0006 | | 0.1176 |
| 41 | ,CCV-3,CCV,1, | 16:52:48 | 0.4569 | | 0.2668 |
| 42 | ,CCB-3,CCB,1, | 16:53:36 | -0.0018 | | 0.1168 |

**Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog**

## Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 2/15/2019
Time Analyzed: 2:14 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190129B
Color reagent: R190129C
2% Copper Sulfate: R190129A
Ammonium Hydroxide: CINV-190102A

| Sample ID. | Sample Wt./Vol. | Sample pH | Std Code | Spike Amt Added (mL) | Spike Conc.(PPM) | Final Volume (mL) | Dilution (F/I) | Reading & Calculations (mg/L) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| N034102-002C | | 8.84 | | | | | | | |
| N034102-003C | | 8.22 | | | | | | | |
| N034102-004C | | 8.16 | | | | | | | |
| N034104-001D | | 7.26 | | | | | | | |
| N034104-002D | | 8.68 | | | | | | | |
| N034104-003D | | 8.44 | | | | | | | |
| N034104-004D | | 8.50 | | | | | | | |
| N034104-005D | | 8.43 | | | | | | | |
| N034104-006D | | 7.83 | | | | | | | |
| N034104-007D | | 8.71 | | | | | | | |
| N034104-008D | | 8.55 | | | | | | | |
| N034104-009D | | 7.72 | | | | | | | |
| N034104-010D | | 8.00 | | | | | | | |
| N034104-011D | | 7.61 | | | | | | | |
| N034104-012D | | 7.98 | | | | | | | |
| N034104-015D | | 8.76 | | | | | | | |
| | | | | | | | | | |
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Advanced Technology Laboratories, Inc.
Book # 1

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

| Analyte | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Ave | SD | $t_{(n-1)}$ value | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.0573 | 0.0562 | 0.0500 | 0.0730 | 0.0698 | 0.0637 | 0.0564 | 0.0609 | 0.0082 | 3.143 | 0.0259 | 0.05 |
| **Method Blank** | | | | | | | | | | | | |
| Nitrate/Nitrite as N | 0.0160 | 0.0067 | 0.0064 | 0.0204 | 0.0173 | 0.0036 | 0.0083 | 0.0112 | 0.0065 | 3.143 | 0.0317 | 0.05 |

**MDL:** **0.0317** **mg/L**

# EPA 6020
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72457
**ASSET #:** N034102

**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 2/14/2019

**Method:**

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | X | | | X | | |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | X | | | X | | |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | X | | | X | | |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | X | | | X | | |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

% Rec of Cr in N034091-002B PS/MS/MSD failed, low bias. However, LCS passed criteria.
Dilution test of Mn failed. However, PS passed criteria.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: _____

2nd Level Reviewer 2/20/2019 Date: _____

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA 6020
**TEST NAME:** Heavy Metals by ICP-MS
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Manganese concentration, in ug/L , in the original sample as follows:

Manganese , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N034102-002B** , the concentration in ug/L is calculated as follows:

Manganese , ug/L = 136.305 * 1 *(25/25)

Manganese , ug/L = 136.305

Reporting results in two significant figures,

**Manganese , ug/L = 140**

NS 2/20/2019

# % RSD SUMMARY

**PERCENT RSD SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 52 Cr [2] | | | | 55 Mn [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.082 | 8.17 | 15 | PASS | 0.1 | 13.6 | 15 | PASS |
| Std2-0.5/5 ppb | ICAL | 1 | 0.5 | 0.8 | 15 | PASS | 0.49 | 11.13 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 5.063 | 2.05 | 15 | PASS | 4.98 | 0.89 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.15 | 1.086 | 15 | PASS | 10.17 | 3.017 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.31 | 1.82 | 15 | PASS | 20.59 | 2.23 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.43 | 1.29 | 15 | PASS | 40.65 | 0.5 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.86 | 0.7 | 15 | PASS | 100.22 | 1.54 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.44 | 1.81 | 15 | PASS | 199.7 | 1.31 | 15 | PASS |
| ICV | ICV | 1 | 10.4 | 0.08 | 15 | PASS | 106.21 | 1.025 | 15 | PASS |
| ICB | ICB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LLICV | CCV1 | 1 | 1.068 | 6.95 | 20 | PASS | 0.67 | 13.52 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 18.051 | 1.19 | 15 | PASS | 18.046 | 0.4 | 15 | PASS |
| LLICV | CCV1 | 1 | 1.051 | 4.44 | 20 | PASS | 0.55 | 15.28 | 20 | PASS |
| CCV1 | CCV | 1 | 20.062 | 0.49 | 15 | PASS | 20.34 | 1.19 | 15 | PASS |
| CCB1 | CCB | 1 | 0.0028 | 290.38 | 15 | <PQL | 0.0058 | 144.058 | 15 | <PQL |
| CCV2 | CCV | 1 | 20.038 | 2.65 | 15 | PASS | 20.18 | 2.45 | 15 | PASS |
| CCB2 | CCB | 1 | 0.013 | 89.46 | 15 | <PQL | 0.013 | 57.64 | 15 | <PQL |
| MB-72457 | MBLK | 1 | 0.018 | 79.37 | 15 | <PQL | 0.033 | 67.98 | 15 | <PQL |
| LCS-72457 | LCS | 1 | 9.92 | 1.82 | 15 | PASS | 104.94 | 1.58 | 15 | PASS |
| N034091-002B | SAMP | 1 | 34.0043 | 1.33 | 15 | PASS | 20.18 | 2.62 | 15 | PASS |
| N034091-002B | SAMP | 5 | 7.31 | 0.29 | 15 | PASS | 4.5 | 3.43 | 15 | PASS |
| CCV3 | CCV | 1 | 19.47 | 1.11 | 15 | PASS | 19.87 | 2.57 | 15 | PASS |
| CCB3 | CCB | 1 | 0.0079 | 103.63 | 15 | <PQL | 0.027 | 13.11 | 15 | PASS |
| N034091-002B-PS | PS | 1 | 39.42 | 1.33 | 15 | PASS | 117.37 | 1.14 | 15 | PASS |
| N034091-002B-MS | MS | 1 | 40.36 | 1.17 | 15 | PASS | 117.29 | 0.26 | 15 | PASS |
| N034091-002B-MSD | MSD | 1 | 40.44 | 2.64 | 15 | PASS | 117.24 | 1.99 | 15 | PASS |
| N034091-003B | SAMP | 1 | 91.51 | 1.93 | 15 | PASS | 48.16 | 2.073 | 15 | PASS |
| N034091-004B | SAMP | 1 | 541.018 | 1.19 | 15 | PASS | 2.52 | 2.88 | 15 | PASS |
| N034102-002B | SAMP | 1 | 1.29 | 2.94 | 15 | PASS | 136.3 | 0.69 | 15 | PASS |
| N034102-003B | SAMP | 1 | 0.073 | 35.39 | 15 | <PQL | 140.74 | 0.63 | 15 | PASS |
| N034102-004B | SAMP | 1 | 5.41 | 2.17 | 15 | PASS | 43.15 | 0.44 | 15 | PASS |
| N034105-001B | SAMP | 1 | 1.19 | 1.032 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034105-002B | SAMP | 1 | 5.73 | 1.19 | 15 | PASS | 8.9 | 2.091 | 15 | PASS |
| CCV4 | CCV | 1 | 20.089 | 0.59 | 15 | PASS | 19.63 | 1.85 | 15 | PASS |
| CCB4 | CCB | 1 | 0.015 | 93.85 | 15 | <PQL | 0.0087 | 71.95 | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 17.9 | 1.81 | 15 | PASS | 17.7 | 3.36 | 15 | PASS |
| N034105-003B | SAMP | 1 | 2 | 2.7 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034105-004B | SAMP | 1 | 5.97 | 0.83 | 15 | PASS | 8.92 | 3.32 | 15 | PASS |

**PERCENT RSD SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 52 Cr [2] | | | | 55 Mn [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034106-001B | SAMP | 1 | 5.21 | 1.54 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034106-002B | SAMP | 1 | 3.047 | 2.92 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034106-003B | SAMP | 1 | 9.68 | 0.91 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034106-004B | SAMP | 1 | 8.52 | 2.54 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034106-005B | SAMP | 1 | 10.13 | 1.3 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034106-006B | SAMP | 1 | 2.62 | 0.59 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034106-007B | SAMP | 1 | 4.29 | 1.93 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034106-008B | SAMP | 1 | 9.93 | 0.66 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV5 | CCV | 1 | 19.97 | 0.72 | 15 | PASS | 19.79 | 0.39 | 15 | PASS |
| CCB5 | CCB | 1 | 0.018 | 40.54 | 15 | <PQL | 0.011 | 38.33 | 15 | <PQL |
| N034106-009B | SAMP | 1 | 21.11 | 1.39 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV6 | CCV | 1 | 19.88 | 0.82 | 15 | PASS | 19.87 | 2.41 | 15 | PASS |
| CCB6 | CCB | 1 | 0.0089 | 52.87 | 15 | <PQL | 0.0062 | 63.094 | 15 | <PQL |
| CCV7 | CCV | 1 | 20.083 | 2.54 | 15 | PASS | 19.77 | 1.61 | 15 | PASS |
| CCB7 | CCB | 1 | 0.0034 | 106.92 | 15 | <PQL | 0.0065 | 115.38 | 15 | <PQL |
| CCV8 | CCV | 1 | 20.024 | 0.71 | 15 | PASS | 20.014 | 1.9 | 15 | PASS |
| CCB8 | CCB | 1 | 0.0074 | 67.28 | 15 | <PQL | 0.0078 | 86.52 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 18.23 | 1.17 | 15 | PASS | 17.76 | 2.19 | 15 | PASS |
| CCV9 | CCV | 1 | 19.61 | 2.26 | 15 | PASS | 19.52 | 1.58 | 15 | PASS |
| CCB9 | CCB | 1 | 0.019 | 40.53 | 15 | <PQL | 0.043 | 8.32 | 15 | PASS |
| CCV10 | CCV | 1 | 20.058 | 2.41 | 15 | PASS | 20.13 | 2.13 | 15 | PASS |
| CCB10 | CCB | 1 | 0.0085 | 98.12 | 15 | <PQL | 0.02 | 52.16 | 15 | <PQL |
| ICSA4 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 17.61 | 0.17 | 15 | PASS | 17.73 | 2.31 | 15 | PASS |

**PERCENT RSD SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 75 As [2] | | | | 78 Se [1] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.069 | 37.2 | 15 | <PQL | 0.17 | 95.13 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.55 | 10.25 | 15 | PASS | 0.56 | 30.9 | 15 | NR! |
| Std3-5/50 ppb | ICAL | 1 | 4.99 | 2.7 | 15 | PASS | 4.59 | 18.045 | 15 | NR! |
| Std4-10/100 ppb | ICAL | 1 | 9.98 | 1.51 | 15 | PASS | 9.56 | 3.62 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.65 | 1.6 | 15 | PASS | 21.48 | 7.7 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 39.77 | 1.27 | 15 | PASS | 39.71 | 4.47 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 101.19 | 1.25 | 15 | PASS | 99.89 | 1.93 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.49 | 0.78 | 15 | PASS | 204.5 | 2.083 | 15 | PASS |
| ICV | ICV | 1 | 9.96 | 1.14 | 15 | PASS | 10.3 | 8.74 | 15 | PASS |
| ICB | ICB | 1 | <0.000 | N/A | 15 | <PQL | 0.02 | 173.21 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.082 | 59.15 | 20 | <PQL | 0.5 | 5.79 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.059 | 173.21 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 19.13 | 2.12 | 15 | PASS | 17.74 | 2.67 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.062 | 26.78 | 20 | <PQL | 0.46 | 29.32 | 20 | <PQL |
| CCV1 | CCV | 1 | 19.66 | 2.35 | 15 | PASS | 19.69 | 5.14 | 15 | PASS |
| CCB1 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.053 | 99.92 | 15 | <PQL |
| CCV2 | CCV | 1 | 19.35 | 0.64 | 15 | PASS | 18.87 | 5.91 | 15 | PASS |
| CCB2 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.1 | 91.76 | 15 | <PQL |
| MB-72457 | MBLK | 1 | 0.0061 | 210.26 | 15 | <PQL | 0.024 | 173.21 | 15 | <PQL |
| LCS-72457 | LCS | 1 | 9.71 | 4.044 | 15 | PASS | 10.3 | 13.47 | 15 | PASS |
| N034091-002B | SAMP | 1 | 1.5 | 7.37 | 15 | PASS | 3.38 | 2.3 | 15 | PASS |
| N034091-002B | SAMP | 5 | 0.33 | 22.0011 | 15 | NR! | 0.91 | 32.71 | 15 | NR! |
| CCV3 | CCV | 1 | 18.85 | 3.12 | 15 | PASS | 19.35 | 2.19 | 15 | PASS |
| CCB3 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| N034091-002B-PS | PS | 1 | 12.027 | 3.38 | 15 | PASS | 13.47 | 8.76 | 15 | PASS |
| N034091-002B-MS | MS | 1 | 12.2 | 1.55 | 15 | PASS | 13.11 | 1.26 | 15 | PASS |
| N034091-002B-MSD | MSD | 1 | 11.86 | 0.066 | 15 | PASS | 13.061 | 7.54 | 15 | PASS |
| N034091-003B | SAMP | 1 | 11.41 | 2.31 | 15 | PASS | 1.031 | 44.75 | 15 | NR! |
| N034091-004B | SAMP | 1 | 1.67 | 3.11 | 15 | PASS | 4.59 | 10.41 | 15 | PASS |
| N034102-002B | SAMP | 1 | 11.62 | 3.77 | 15 | PASS | 0.13 | 47.72 | 15 | <PQL |
| N034102-003B | SAMP | 1 | 11.43 | 0.48 | 15 | PASS | 0.11 | 92.22 | 15 | <PQL |
| N034102-004B | SAMP | 1 | 16.28 | 2.23 | 15 | PASS | 0.41 | 48.94 | 15 | <PQL |
| N034105-001B | SAMP | 1 | 2.57 | 7.73 | 15 | PASS | 0.41 | 33.73 | 15 | <PQL |
| N034105-002B | SAMP | 1 | 1.46 | 3.62 | 15 | PASS | 0.28 | 42.96 | 15 | <PQL |
| CCV4 | CCV | 1 | 18.7 | 2.13 | 15 | PASS | 18.19 | 5.74 | 15 | PASS |
| CCB4 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.09 | 91.1 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 19.054 | 2.15 | 15 | PASS | 17.077 | 4.94 | 15 | PASS |
| N034105-003B | SAMP | 1 | 0.38 | 16.73 | 15 | NR! | 1.25 | 9.45 | 15 | PASS |
| N034105-004B | SAMP | 1 | 0.34 | 17.21 | 15 | NR! | 1.063 | 11.95 | 15 | PASS |

**PERCENT RSD SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 75 As [2] | | | | 78 Se [1] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034106-001B | SAMP | 1 | 0.31 | 18.95 | 15 | NR! | 0.81 | 28.45 | 15 | NR! |
| N034106-002B | SAMP | 1 | 0.41 | 13.8 | 15 | PASS | 1.15 | 28.086 | 15 | NR! |
| N034106-003B | SAMP | 1 | 0.43 | 12.71 | 15 | PASS | 0.66 | 10.033 | 15 | PASS |
| N034106-004B | SAMP | 1 | 0.51 | 5.96 | 15 | PASS | 0.45 | 38.53 | 15 | <PQL |
| N034106-005B | SAMP | 1 | 0.4 | 19.062 | 15 | NR! | 0.53 | 42.52 | 15 | NR! |
| N034106-006B | SAMP | 1 | 0.49 | 13.73 | 15 | PASS | 2.048 | 10.34 | 15 | PASS |
| N034106-007B | SAMP | 1 | 0.24 | 11.034 | 15 | PASS | 2.38 | 31.22 | 15 | NR! |
| N034106-008B | SAMP | 1 | 0.49 | 6.79 | 15 | PASS | 1.13 | 53.5 | 15 | NR! |
| CCV5 | CCV | 1 | 19.0076 | 1.11 | 15 | PASS | 18.45 | 8.22 | 15 | PASS |
| CCB5 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| N034106-009B | SAMP | 1 | 0.67 | 13.48 | 15 | PASS | 0.72 | 5.34 | 15 | PASS |
| CCV6 | CCV | 1 | 19.054 | 5.18 | 15 | PASS | 18.87 | 6.75 | 15 | PASS |
| CCB6 | CCB | 1 | 0.038 | 71.16 | 15 | <PQL | 0.037 | 173.21 | 15 | <PQL |
| CCV7 | CCV | 1 | 19.36 | 1.91 | 15 | PASS | 19.39 | 8.11 | 15 | PASS |
| CCB7 | CCB | 1 | 0.032 | 251.13 | 15 | <PQL | 0.036 | 86.63 | 15 | <PQL |
| CCV8 | CCV | 1 | 19.31 | 1.59 | 15 | PASS | 19.11 | 0.76 | 15 | PASS |
| CCB8 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.028 | 173.21 | 15 | <PQL |
| ICSA3 | ICSA | 1 | 0.012 | 451.013 | 15 | <PQL | 0.13 | 2.057 | 15 | PASS |
| ICSAB3 | ICSAB | 1 | 19.031 | 1.16 | 15 | PASS | 18.087 | 5.76 | 15 | PASS |
| CCV9 | CCV | 1 | 18.84 | 0.93 | 15 | PASS | 18.098 | 3.44 | 15 | PASS |
| CCB9 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.076 | 112.13 | 15 | <PQL |
| CCV10 | CCV | 1 | 19.95 | 2.045 | 15 | PASS | 20.084 | 4.56 | 15 | PASS |
| CCB10 | CCB | 1 | 0.022 | 130.014 | 15 | <PQL | 0.039 | 86.6 | 15 | <PQL |
| ICSA4 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.062 | 173.21 | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 19.047 | 2.24 | 15 | PASS | 18.083 | 5.54 | 15 | PASS |

**PERCENT RSD SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.056 | 24.43 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.37 | 6.4 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 4.64 | 2.71 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 9.39 | 1.8 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.8 | 0.14 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.3 | 0.84 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 105.13 | 1.014 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 215.37 | 0.13 | 15 | PASS |
| ICV | ICV | 1 | 10.14 | 1.93 | 15 | PASS |
| ICB | ICB | 1 | 0.056 | 72.9 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.47 | 9.57 | 20 | PASS |
| ICSA1 | ICSA | 1 | 0.14 | 30.33 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 19.57 | 1.57 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.32 | 8.77 | 20 | PASS |
| CCV1 | CCV | 1 | 19.33 | 1.98 | 15 | PASS |
| CCB1 | CCB | 1 | 0.33 | 23.92 | 15 | <PQL |
| CCV2 | CCV | 1 | 18.69 | 1.58 | 15 | PASS |
| CCB2 | CCB | 1 | 0.21 | 17.27 | 15 | <PQL |
| MB-72457 | MBLK | 1 | 0.22 | 9.25 | 15 | PASS |
| LCS-72457 | LCS | 1 | 9.97 | 2.73 | 15 | PASS |
| N034091-002B | SAMP | 1 | 38.29 | 2.077 | 15 | PASS |
| N034091-002B | SAMP | 5 | 7.46 | 1.2 | 15 | PASS |
| CCV3 | CCV | 1 | 19.81 | 1.93 | 15 | PASS |
| CCB3 | CCB | 1 | 0.13 | 15.26 | 15 | <PQL |
| N034091-002B-PS | PS | 1 | 48.75 | 1.29 | 15 | PASS |
| N034091-002B-MS | MS | 1 | 49.55 | 1.049 | 15 | PASS |
| N034091-002B-MSD | MSD | 1 | 49.95 | 0.61 | 15 | PASS |
| N034091-003B | SAMP | 1 | 83.36 | 1.14 | 15 | PASS |
| N034091-004B | SAMP | 1 | 15.76 | 0.7 | 15 | PASS |
| N034102-002B | SAMP | 1 | 81.67 | 0.16 | 15 | PASS |
| N034102-003B | SAMP | 1 | 82.24 | 0.24 | 15 | PASS |
| N034102-004B | SAMP | 1 | 85.15 | 1.014 | 15 | PASS |
| N034105-001B | SAMP | 1 | 3.18 | 4.6 | 15 | PASS |
| N034105-002B | SAMP | 1 | 3.47 | 6.32 | 15 | PASS |
| CCV4 | CCV | 1 | 19.28 | 1.42 | 15 | PASS |
| CCB4 | CCB | 1 | 0.14 | 25.53 | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0.16 | 28.54 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 19.75 | 0.98 | 15 | PASS |
| N034105-003B | SAMP | 1 | 0.77 | 12.66 | 15 | PASS |
| N034105-004B | SAMP | 1 | 0.64 | 3.63 | 15 | PASS |

**PERCENT RSD SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| N034106-001B | SAMP | 1 | 1 | 4.41 | 15 | PASS |
| N034106-002B | SAMP | 1 | 0.57 | 18.57 | 15 | NR! |
| N034106-003B | SAMP | 1 | 0.95 | 3.038 | 15 | PASS |
| N034106-004B | SAMP | 1 | 0.73 | 3.38 | 15 | PASS |
| N034106-005B | SAMP | 1 | 1.12 | 10.59 | 15 | PASS |
| N034106-006B | SAMP | 1 | 0.31 | 24.13 | 15 | <PQL |
| N034106-007B | SAMP | 1 | 0.36 | 10.4 | 15 | PASS |
| N034106-008B | SAMP | 1 | 0.6 | 13.67 | 15 | PASS |
| CCV5 | CCV | 1 | 18.71 | 3.68 | 15 | PASS |
| CCB5 | CCB | 1 | <0.000 | N/A | 15 | <PQL |
| N034106-009B | SAMP | 1 | 0.73 | 2.44 | 15 | PASS |
| CCV6 | CCV | 1 | 18.32 | 0.21 | 15 | PASS |
| CCB6 | CCB | 1 | 0.21 | 35.82 | 15 | <PQL |
| CCV7 | CCV | 1 | 19.32 | 1.48 | 15 | PASS |
| CCB7 | CCB | 1 | 0.22 | 36.16 | 15 | <PQL |
| CCV8 | CCV | 1 | 19.17 | 0.49 | 15 | PASS |
| CCB8 | CCB | 1 | 0.12 | 9.15 | 15 | PASS |
| ICSA3 | ICSA | 1 | 0.11 | 31.84 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 19.72 | 2.78 | 15 | PASS |
| CCV9 | CCV | 1 | 18.35 | 1.37 | 15 | PASS |
| CCB9 | CCB | 1 | 0.24 | 19.91 | 15 | <PQL |
| CCV10 | CCV | 1 | 19.3 | 1.58 | 15 | PASS |
| CCB10 | CCB | 1 | 0.27 | 19.79 | 15 | <PQL |
| ICSA4 | ICSA | 1 | 0.07 | 18.96 | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 19.62 | 0.92 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190214A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0214001.D | RINSE | RINSE | 1 | 02/14/19 12:44 PM |
| A0214002.D | Cal Blank | IBLK | 1 | 02/14/19 12:50 PM |
| A0214003.D | Std1-0.1/1 ppb | ICAL | 1 | 02/14/19 12:55 PM |
| A0214004.D | Std2-0.5/5 ppb | ICAL | 1 | 02/14/19 1:01 PM |
| A0214005.D | Std3-5/50 ppb | ICAL | 1 | 02/14/19 1:06 PM |
| A0214006.D | Std4-10/100 ppb | ICAL | 1 | 02/14/19 1:12 PM |
| A0214007.D | Std5-20/200 ppb | ICAL | 1 | 02/14/19 1:18 PM |
| A0214008.D | Std6-40/400 ppb | ICAL | 1 | 02/14/19 1:23 PM |
| A0214009.D | Std7-100/1000 ppb | ICAL | 1 | 02/14/19 1:29 PM |
| A0214010.D | Std8-200/2000 ppb | ICAL | 1 | 02/14/19 1:34 PM |
| A0214011.D | ICV | ICV | 1 | 02/14/19 1:41 PM |
| A0214012.D | ICB | ICB | 1 | 02/14/19 1:47 PM |
| A0214013.D | LLICV | CCV1 | 1 | 02/14/19 1:53 PM |
| A0214014.D | ICSA1 | ICSA | 1 | 02/14/19 1:58 PM |
| A0214015.D | ICSAB1 | ICSAB | 1 | 02/14/19 2:03 PM |
| A0214016.D | LLICV | CCV1 | 1 | 02/14/19 2:10 PM |
| A0214017.D | MB-72455 | MBLK | 1 | 02/14/19 2:14 PM |
| A0214018.D | LCS-72455 | LCS | 1 | 02/14/19 2:20 PM |
| A0214019.D | N034089-001B | SAMP | 1 | 02/14/19 2:26 PM |
| A0214020.D | N034089-001B | SAMP | 5 | 02/14/19 2:31 PM |
| A0214021.D | N034089-001B-PS | PS | 1 | 02/14/19 2:37 PM |
| A0214022.D | N034089-001B-MS | MS | 1 | 02/14/19 2:42 PM |
| A0214023.D | N034089-001B-MSD | MSD | 1 | 02/14/19 2:48 PM |
| A0214024.D | N034089-002B | SAMP | 1 | 02/14/19 2:53 PM |
| A0214025.D | N034089-003B | SAMP | 1 | 02/14/19 2:59 PM |
| A0214026.D | N034089-004B | SAMP | 1 | 02/14/19 3:05 PM |
| A0214027.D | CCV1 | CCV | 1 | 02/14/19 3:10 PM |
| A0214028.D | CCB1 | CCB | 1 | 02/14/19 3:16 PM |
| A0214029.D | N034089-005B | SAMP | 1 | 02/14/19 3:21 PM |
| A0214030.D | N034089-006B | SAMP | 1 | 02/14/19 3:27 PM |
| A0214031.D | N034090-001B | SAMP | 1 | 02/14/19 3:32 PM |
| A0214032.D | N034090-002B | SAMP | 1 | 02/14/19 3:38 PM |
| A0214033.D | N034090-003B | SAMP | 1 | 02/14/19 3:44 PM |
| A0214034.D | N034090-004B | SAMP | 1 | 02/14/19 3:49 PM |
| A0214035.D | N034090-005B | SAMP | 1 | 02/14/19 3:55 PM |
| A0214036.D | N034090-006B | SAMP | 1 | 02/14/19 4:00 PM |
| A0214037.D | N034090-007B | SAMP | 1 | 02/14/19 4:06 PM |
| A0214038.D | N034090-008B | SAMP | 1 | 02/14/19 4:11 PM |
| A0214039.D | CCV2 | CCV | 1 | 02/14/19 4:17 PM |
| A0214040.D | CCB2 | CCB | 1 | 02/14/19 4:23 PM |
| A0214041.D | N034090-009B | SAMP | 1 | 02/14/19 4:28 PM |
| A0214042.D | N034090-010B | SAMP | 1 | 02/14/19 4:34 PM |

**INJECTION LOG: 190214A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0214043.D | N034090-011B | SAMP | 1 | 02/14/19 4:39 PM |
| A0214044.D | N034090-012B | SAMP | 1 | 02/14/19 4:45 PM |
| A0214045.D | N034090-013B | SAMP | 1 | 02/14/19 4:50 PM |
| A0214046.D | N034090-014B | SAMP | 1 | 02/14/19 4:56 PM |
| A0214047.D | MB-72457 | MBLK | 1 | 02/14/19 5:02 PM |
| A0214048.D | LCS-72457 | LCS | 1 | 02/14/19 5:07 PM |
| A0214049.D | N034091-002B | SAMP | 1 | 02/14/19 5:13 PM |
| A0214050.D | N034091-002B | SAMP | 5 | 02/14/19 5:18 PM |
| A0214051.D | CCV3 | CCV | 1 | 02/14/19 5:24 PM |
| A0214052.D | CCB3 | CCB | 1 | 02/14/19 5:30 PM |
| A0214053.D | N034091-002B-PS | PS | 1 | 02/14/19 5:35 PM |
| A0214054.D | N034091-002B-MS | MS | 1 | 02/14/19 5:40 PM |
| A0214055.D | N034091-002B-MSD | MSD | 1 | 02/14/19 5:46 PM |
| A0214056.D | N034091-003B | SAMP | 1 | 02/14/19 5:51 PM |
| A0214057.D | N034091-004B | SAMP | 1 | 02/14/19 5:57 PM |
| A0214058.D | N034102-002B | SAMP | 1 | 02/14/19 6:03 PM |
| A0214059.D | N034102-003B | SAMP | 1 | 02/14/19 6:08 PM |
| A0214060.D | N034102-004B | SAMP | 1 | 02/14/19 6:14 PM |
| A0214061.D | N034105-001B | SAMP | 1 | 02/14/19 6:19 PM |
| A0214062.D | N034105-002B | SAMP | 1 | 02/14/19 6:25 PM |
| A0214063.D | CCV4 | CCV | 1 | 02/14/19 6:32 PM |
| A0214064.D | CCB4 | CCB | 1 | 02/14/19 6:37 PM |
| A0214065.D | ICSA2 | ICSA | 1 | 02/14/19 6:42 PM |
| A0214066.D | ICSAB2 | ICSAB | 1 | 02/14/19 6:47 PM |
| A0214067.D | N034105-003B | SAMP | 1 | 02/14/19 6:53 PM |
| A0214068.D | N034105-004B | SAMP | 1 | 02/14/19 6:58 PM |
| A0214069.D | N034106-001B | SAMP | 1 | 02/14/19 7:04 PM |
| A0214070.D | N034106-002B | SAMP | 1 | 02/14/19 7:10 PM |
| A0214071.D | N034106-003B | SAMP | 1 | 02/14/19 7:15 PM |
| A0214072.D | N034106-004B | SAMP | 1 | 02/14/19 7:21 PM |
| A0214073.D | N034106-005B | SAMP | 1 | 02/14/19 7:26 PM |
| A0214074.D | N034106-006B | SAMP | 1 | 02/14/19 7:32 PM |
| A0214075.D | N034106-007B | SAMP | 1 | 02/14/19 7:38 PM |
| A0214076.D | N034106-008B | SAMP | 1 | 02/14/19 7:43 PM |
| A0214077.D | CCV5 | CCV | 1 | 02/14/19 7:49 PM |
| A0214078.D | CCB5 | CCB | 1 | 02/14/19 7:54 PM |
| A0214079.D | N034106-009B | SAMP | 1 | 02/14/19 8:00 PM |
| A0214080.D | MB-72458 | MBLK | 1 | 02/14/19 8:05 PM |
| A0214081.D | LCS-72458 | LCS | 1 | 02/14/19 8:11 PM |
| A0214082.D | N034104-001C | SAMP | 1 | 02/14/19 8:17 PM |
| A0214083.D | N034104-001C | SAMP | 5 | 02/14/19 8:22 PM |
| A0214084.D | N034104-001C-PS | PS | 1 | 02/14/19 8:28 PM |

**INJECTION LOG: 190214A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0214085.D | N034104-001C-MS | MS | 1 | 02/14/19 8:33 PM |
| A0214086.D | N034104-001C-MSD | MSD | 1 | 02/14/19 8:39 PM |
| A0214087.D | N034104-002C | SAMP | 1 | 02/14/19 8:44 PM |
| A0214088.D | N034104-003C | SAMP | 1 | 02/14/19 8:50 PM |
| A0214089.D | CCV6 | CCV | 1 | 02/14/19 8:54 PM |
| A0214090.D | CCB6 | CCB | 1 | 02/14/19 9:01 PM |
| A0214091.D | N034104-004C | SAMP | 1 | 02/14/19 9:06 PM |
| A0214092.D | N034104-005C | SAMP | 1 | 02/14/19 9:12 PM |
| A0214093.D | N034104-006C | SAMP | 1 | 02/14/19 9:17 PM |
| A0214094.D | N034104-007C | SAMP | 1 | 02/14/19 9:23 PM |
| A0214095.D | N034104-008C | SAMP | 1 | 02/14/19 9:28 PM |
| A0214096.D | N034104-009C | SAMP | 1 | 02/14/19 9:34 PM |
| A0214097.D | N034104-010C | SAMP | 1 | 02/14/19 9:40 PM |
| A0214098.D | N034104-011C | SAMP | 1 | 02/14/19 9:46 PM |
| A0214099.D | N034104-012C | SAMP | 1 | 02/14/19 9:51 PM |
| A0214100.D | N034104-013C | SAMP | 1 | 02/14/19 9:57 PM |
| A0214101.D | CCV7 | CCV | 1 | 02/14/19 10:02 PM |
| A0214102.D | CCB7 | CCB | 1 | 02/14/19 10:08 PM |
| A0214103.D | N034104-014C | SAMP | 1 | 02/14/19 10:13 PM |
| A0214104.D | N034104-015C | SAMP | 1 | 02/14/19 10:19 PM |
| A0214105.D | N034109-001B | SAMP | 1 | 02/14/19 10:25 PM |
| A0214106.D | MB-72459 | MBLK | 1 | 02/14/19 10:30 PM |
| A0214107.D | LCS-72459 | LCS | 1 | 02/14/19 10:36 PM |
| A0214108.D | N034107-001B | SAMP | 1 | 02/14/19 10:41 PM |
| A0214109.D | N034107-001B | SAMP | 5 | 02/14/19 10:47 PM |
| A0214110.D | N034107-001B-PS | PS | 1 | 02/14/19 10:52 PM |
| A0214111.D | N034107-001B-MS | MS | 1 | 02/14/19 10:58 PM |
| A0214112.D | N034107-001B-MSD | MSD | 1 | 02/14/19 11:04 PM |
| A0214113.D | CCV8 | CCV | 1 | 02/14/19 11:09 PM |
| A0214114.D | CCB8 | CCB | 1 | 02/14/19 11:14 PM |
| A0214115.D | ICSA3 | ICSA | 1 | 02/14/19 11:20 PM |
| A0214116.D | ICSAB3 | ICSAB | 1 | 02/14/19 11:26 PM |
| A0214117.D | N034107-002B | SAMP | 1 | 02/14/19 11:32 PM |
| A0214118.D | N034107-003B | SAMP | 1 | 02/14/19 11:37 PM |
| A0214119.D | N034107-004B | SAMP | 1 | 02/14/19 11:43 PM |
| A0214120.D | N034107-005B | SAMP | 1 | 02/14/19 11:48 PM |
| A0214121.D | N034107-006B | SAMP | 1 | 02/14/19 11:54 PM |
| A0214122.D | N034107-007B | SAMP | 1 | 02/15/19 12:00 AM |
| A0214123.D | N034107-010B | SAMP | 1 | 02/15/19 12:05 AM |
| A0214124.D | N034107-011B | SAMP | 1 | 02/15/19 12:11 AM |
| A0214125.D | N034107-012B | SAMP | 1 | 02/15/19 12:16 AM |
| A0214126.D | N034107-013B | SAMP | 1 | 02/15/19 12:22 AM |

**INJECTION LOG: 190214A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0214127.D | CCV9 | CCV | 1 | 02/15/19 12:29 AM |
| A0214128.D | CCB9 | CCB | 1 | 02/15/19 12:33 AM |
| A0214129.D | N034107-014B | SAMP | 1 | 02/15/19 12:39 AM |
| A0214130.D | N034107-015B | SAMP | 1 | 02/15/19 12:44 AM |
| A0214131.D | N034107-016B | SAMP | 1 | 02/15/19 12:50 AM |
| A0214132.D | N034107-017B | SAMP | 1 | 02/15/19 12:55 AM |
| A0214133.D | N034107-018B | SAMP | 1 | 02/15/19 1:01 AM |
| A0214134.D | N034107-019B | SAMP | 1 | 02/15/19 1:07 AM |
| A0214135.D | N034107-020B | SAMP | 1 | 02/15/19 1:12 AM |
| A0214136.D | N034107-021B | SAMP | 1 | 02/15/19 1:18 AM |
| A0214137.D | N034107-022B | SAMP | 1 | 02/15/19 1:23 AM |
| A0214138.D | CCV10 | CCV | 1 | 02/15/19 1:29 AM |
| A0214139.D | CCB10 | CCB | 1 | 02/15/19 1:35 AM |
| A0214140.D | ICSA4 | ICSA | 1 | 02/15/19 1:40 AM |
| A0214141.D | ICSAB4 | ICSAB | 1 | 02/15/19 1:46 AM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/13/2019 4:00:00**
Prep End Date: **2/13/2019 8:15:00**
Reviewed/ Date: NS 2/20/2019
Initials/ Date: for

Prep Batch **72457** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.6** | **02-14** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72457 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-72457 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034091-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034091-002B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034091-002B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034091-003B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034091-004B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034102-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034102-003B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034102-004B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034105-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034105-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034105-003B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034105-004B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10549 | NITRIC ACID |
| 10553 | HYDROCHLORIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/13/2019 4:00:00**
Prep End Date: **2/13/2019 8:15:00**
Reviewed/ Date: NS 2/20/2019
Initials/ Date: for
Prep Batch **72457** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.6** | **02-14** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| N034106-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034106-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034106-003B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034106-004B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034106-005B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034106-006B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034106-007B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034106-008B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034106-009B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10549 | NITRIC ACID |
| 10553 | HYDROCHLORIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

# INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 14 Feb 2019 10:02:37 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 110620.00 | 0.00 | |
| 24 Mg | 216739.00 | 0.00 | |
| 25 Mg | 27681.80 | 0.00 | |
| 26 Mg | 31834.00 | 0.00 | |
| 59 Co | 174914.00 | 0.00 | |
| 115 In | 232788.00 | 0.00 | |
| 206 Pb | 86499.40 | 0.00 | |
| 207 Pb | 75534.40 | 0.00 | |
| 208 Pb | 185435.00 | 0.00 | |

RSD (%)

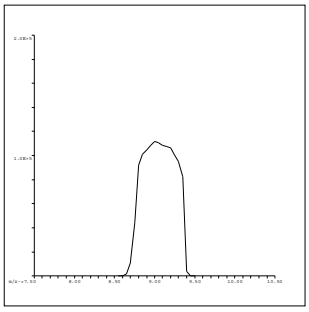
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 0.88 | 5.00 | |
| 24 Mg | 0.84 | 5.00 | |
| 25 Mg | 1.13 | 5.00 | |
| 26 Mg | 3.00 | 5.00 | |
| 59 Co | 1.09 | 5.00 | |
| 115 In | 0.96 | 5.00 | |
| 206 Pb | 0.82 | 5.00 | |
| 207 Pb | 1.10 | 5.00 | |
| 208 Pb | 1.56 | 5.00 | |

Ion Ratio

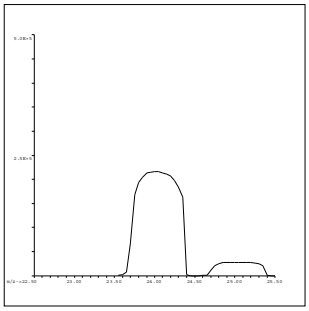
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | | | |
| 24 Mg | | | |
| 25 Mg | | | |
| 26 Mg | | | |
| 59 Co | | | |
| 115 In | | | |
| 206 Pb | | | |
| 207 Pb | | | |
| 208 Pb | | | |

Maximum Bkg. Count(CPS)

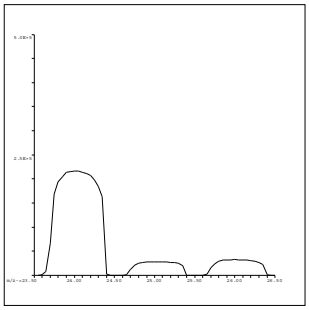
| Element | Actual | Required | Flag |
|---|---|---|---|



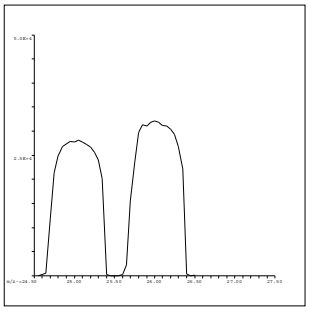
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



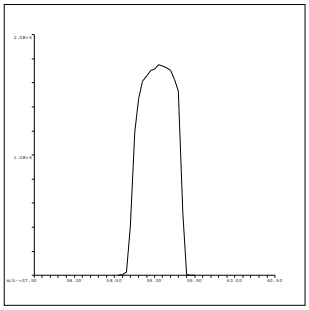
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



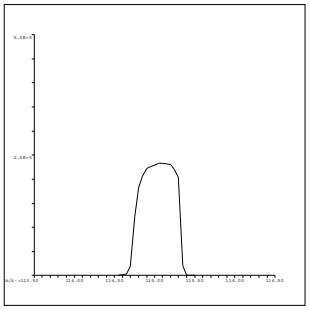
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



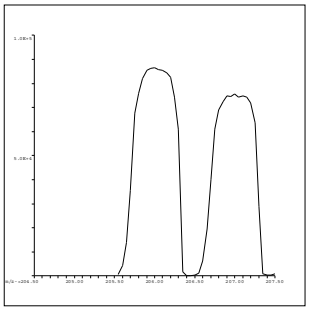
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



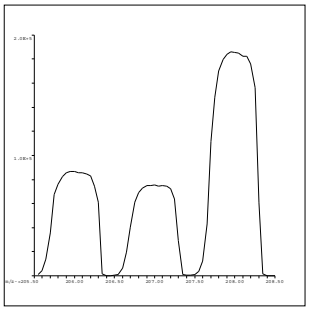
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



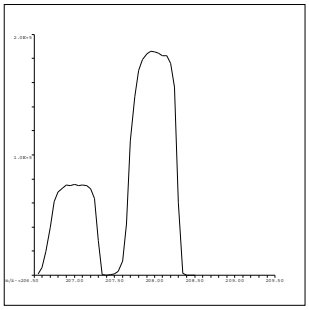
115 In
Mass Calib.
Actual: 115.10
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:

QC Tune Result:Pass

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Analyte | Data File | A0214002.D | A0214003.D | A0214004.D | A0214005.D | A0214006.D | A0214007.D | A0214008.D | A0214009.D | A0214010.D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 02/14/2019 12:50 PM | 02/14/2019 12:55 PM | 02/14/2019 01:01 PM | 02/14/2019 01:06 PM | 02/14/2019 01:12 PM | 02/14/2019 01:18 PM | 02/14/2019 01:23 PM | 02/14/2019 01:29 PM | 02/14/2019 01:34 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std1-0.1/1 ppb | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.1/1 ug/L | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 45 Sc ( ISTD ) [ 2 ] | CPS | 38266.9 | | 37298 | 37725.6 | 38020.9 | 37397.2 | 37615.5 | 37717.7 | 37974.1 | |
| 55 Mn [ 2 ] | CPS | 14.2 | | 614.7 | 6191.5 | 12719.8 | 25315.5 | 50275.8 | 124258.1 | 249266.1 | 1.0000 |
| 52 Cr [ 2 ] | CPS | 111.1 | | 1394.5 | 13236.5 | 26633.7 | 52298.7 | 104634.4 | 261547.9 | 520544.7 | 1.0000 |
| 72 Ge ( ISTD ) [ 1 ] | CPS | 15508.8 | | 15107.4 | 15139.7 | 15169.8 | 15106.4 | 15210.9 | 15505.6 | 15179.7 | |
| 78 Se [ 1 ] | CPS | 0 | | 28.9 | 237.8 | 496.7 | 1111.2 | 2068 | 5302.2 | 10627.2 | 0.9998 |
| 72 Ge ( ISTD ) [ 2 ] | CPS | 18785.8 | 18907 | 18571.1 | 18656.7 | 18854.7 | 18574.4 | 18369.7 | 18320.8 | 18568.9 | |
| 75 As [ 2 ] | CPS | 28.4 | 44.9 | 154.7 | 1187.6 | 2371.7 | 4573.1 | 9125.7 | 23114.1 | 46160.6 | 1.0000 |
| 103 Rh ( ISTD ) [ 2 ] | CPS | 538422.1 | | 527575.5 | 528380.3 | 525282.6 | 523419.5 | 523257.3 | 519921.5 | 517230 | |
| 95 Mo [ 2 ] | CPS | 178.9 | | 576.7 | 5183.2 | 10244.7 | 21340.3 | 43247.8 | 111822.2 | 227706.3 | 0.9999 |

| Standard Code | |
|---|---|
| ICAL: 2MSST-180608B | 180205B |
| ICAL: 2MSST-~~170620B~~ | 181001C |
| ICAL: 2MWST-~~180409H~~ | 181126B |
| IS Mix: 2MWST-~~180618C~~ | |

Calibration Acceptance Criteria: > 0.995 Correlation

2/21/2019
for CEI

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293429** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.961 | 0.10 | 10.00 | 0 | 99.6 | 90 | 110 | | | | |
| Manganese | 106.209 | 0.50 | 100.0 | 0 | 106 | 90 | 110 | | | | |
| Molybdenum | 10.140 | 0.50 | 10.00 | 0 | 101 | 90 | 110 | | | | |
| Selenium | 10.296 | 0.50 | 10.00 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293431** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.082 | 0.10 | 0.1000 | 0 | 81.6 | 80 | 120 | | | | |
| Molybdenum | 0.472 | 0.50 | 0.5000 | 0 | 94.3 | 80 | 120 | | | | |
| Selenium | 0.499 | 0.50 | 0.5000 | 0 | 99.8 | 80 | 120 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293434** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 0.545 | 0.50 | 0.5000 | 0 | 109 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293445** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.656 | 0.10 | 20.00 | 0 | 98.3 | 90 | 110 | | | | |
| Manganese | 20.343 | 0.50 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Molybdenum | 19.328 | 0.50 | 20.00 | 0 | 96.6 | 90 | 110 | | | | |
| Selenium | 19.688 | 0.50 | 20.00 | 0 | 98.4 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293457** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.352 | 0.10 | 20.00 | 0 | 96.8 | 90 | 110 | | | | |
| Manganese | 20.184 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Molybdenum | 18.695 | 0.50 | 20.00 | 0 | 93.5 | 90 | 110 | | | | |
| Selenium | 18.868 | 0.50 | 20.00 | 0 | 94.3 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293469** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 18.845 | 0.10 | 20.00 | 0 | 94.2 | 90 | 110 | | | | |
| Manganese | 19.871 | 0.50 | 20.00 | 0 | 99.4 | 90 | 110 | | | | |
| Molybdenum | 19.813 | 0.50 | 20.00 | 0 | 99.1 | 90 | 110 | | | | |
| Selenium | 19.351 | 0.50 | 20.00 | 0 | 96.8 | 90 | 110 | | | | |

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293481** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 18.703 | 0.10 | 20.00 | 0 | 93.5 | 90 | 110 | | | | |
| Manganese | 19.626 | 0.50 | 20.00 | 0 | 98.1 | 90 | 110 | | | | |
| Molybdenum | 19.275 | 0.50 | 20.00 | 0 | 96.4 | 90 | 110 | | | | |
| Selenium | 18.189 | 0.50 | 20.00 | 0 | 90.9 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293495** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.008 | 0.10 | 20.00 | 0 | 95.0 | 90 | 110 | | | | |
| Manganese | 19.789 | 0.50 | 20.00 | 0 | 98.9 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293495** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 18.714 | 0.50 | 20.00 | 0 | 93.6 | 90 | 110 | | | | |
| Selenium | 18.452 | 0.50 | 20.00 | 0 | 92.3 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293507** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.054 | 0.10 | 20.00 | 0 | 95.3 | 90 | 110 | | | | |
| Manganese | 19.866 | 0.50 | 20.00 | 0 | 99.3 | 90 | 110 | | | | |
| Molybdenum | 18.320 | 0.50 | 20.00 | 0 | 91.6 | 90 | 110 | | | | |
| Selenium | 18.870 | 0.50 | 20.00 | 0 | 94.3 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293519** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.356 | 0.10 | 20.00 | 0 | 96.8 | 90 | 110 | | | | |
| Manganese | 19.766 | 0.50 | 20.00 | 0 | 98.8 | 90 | 110 | | | | |
| Molybdenum | 19.322 | 0.50 | 20.00 | 0 | 96.6 | 90 | 110 | | | | |
| Selenium | 19.387 | 0.50 | 20.00 | 0 | 96.9 | 90 | 110 | | | | |

| Sample ID **CCV8** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293531** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.314 | 0.10 | 20.00 | 0 | 96.6 | 90 | 110 | | | | |
| Manganese | 20.014 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Molybdenum | 19.173 | 0.50 | 20.00 | 0 | 95.9 | 90 | 110 | | | | |
| Selenium | 19.112 | 0.50 | 20.00 | 0 | 95.6 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **CCV9** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **131940**
Client ID: **CCV** Batch ID: **R131940** TestNo: **EPA 6020** Analysis Date: **2/15/2019** SeqNo: **3293545**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 18.843 | 0.10 | 20.00 | 0 | 94.2 | 90 | 110 | | | | |
| Manganese | 19.521 | 0.50 | 20.00 | 0 | 97.6 | 90 | 110 | | | | |
| Molybdenum | 18.346 | 0.50 | 20.00 | 0 | 91.7 | 90 | 110 | | | | |
| Selenium | 18.098 | 0.50 | 20.00 | 0 | 90.5 | 90 | 110 | | | | |

Sample ID **CCV10** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **131940**
Client ID: **CCV** Batch ID: **R131940** TestNo: **EPA 6020** Analysis Date: **2/15/2019** SeqNo: **3293556**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.950 | 0.10 | 20.00 | 0 | 99.8 | 90 | 110 | | | | |
| Manganese | 20.134 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Molybdenum | 19.297 | 0.50 | 20.00 | 0 | 96.5 | 90 | 110 | | | | |
| Selenium | 20.084 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293560** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.405 | 1.0 | 10.00 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293562** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 1.068 | 1.0 | 1.000 | 0 | 107 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293576** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.062 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293588** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.038 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293600** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.466 | 1.0 | 20.00 | 0 | 97.3 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293612** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.089 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293626** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.970 | 1.0 | 20.00 | 0 | 99.9 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293638** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.876 | 1.0 | 20.00 | 0 | 99.4 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293650** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.083 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV8** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293662** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.024 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCV9** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293676** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.611 | 1.0 | 20.00 | 0 | 98.1 | 90 | 110 | | | | |

| Sample ID **CCV10** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293687** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.058 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293430** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293446** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.325 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293458** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293470** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293470** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293482** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293496** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293508** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293508** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293520** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.216 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293532** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB9** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293546** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.240 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **CCB10** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **131940**
Client ID: **CCB** Batch ID: **R131940** TestNo: **EPA 6020** Analysis Date: **2/15/2019** SeqNo: **3293557**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.271 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

Mo detection in CCB1 and CCB10 is > 1/2 RL. However, N034102 samples are enclosed by ~~CCB3 and CCB4~~ CCV4/CCB4/ICSA2/ICSAB2.

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

NS 2/20/2019

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293561** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293577** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293589** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293601** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293613** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293627** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293639** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293651** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293663** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB9** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293677** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCB10** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293688** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293432** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293433** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.129 | 0.10 | 20.00 | 0 | 95.6 | 80 | 120 | | | | |
| Manganese | 18.046 | 0.50 | 20.00 | 0 | 90.2 | 80 | 120 | | | | |
| Molybdenum | 19.566 | 0.50 | 20.00 | 0 | 97.8 | 80 | 120 | | | | |
| Selenium | 17.741 | 0.50 | 20.00 | 0 | 88.7 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293483** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293484** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.054 | 0.10 | 20.00 | 0 | 95.3 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **131940**
Client ID: **ICSAB** Batch ID: **R131940** TestNo: **EPA 6020** Analysis Date: **2/14/2019** SeqNo: **3293484**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 17.700 | 0.50 | 20.00 | 0 | 88.5 | 80 | 120 | | | | |
| Molybdenum | 19.745 | 0.50 | 20.00 | 0 | 98.7 | 80 | 120 | | | | |
| Selenium | 17.077 | 0.50 | 20.00 | 0 | 85.4 | 80 | 120 | | | | |

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **131940**
Client ID: **ICSA** Batch ID: **R131940** TestNo: **EPA 6020** Analysis Date: **2/14/2019** SeqNo: **3293533**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

Sample ID **ICSAB3** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **131940**
Client ID: **ICSAB** Batch ID: **R131940** TestNo: **EPA 6020** Analysis Date: **2/14/2019** SeqNo: **3293534**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.031 | 0.10 | 20.00 | 0 | 95.2 | 80 | 120 | | | | |
| Manganese | 17.760 | 0.50 | 20.00 | 0 | 88.8 | 80 | 120 | | | | |
| Molybdenum | 19.720 | 0.50 | 20.00 | 0 | 98.6 | 80 | 120 | | | | |
| Selenium | 18.087 | 0.50 | 20.00 | 0 | 90.4 | 80 | 120 | | | | |

Sample ID **ICSA4** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **131940**
Client ID: **ICSA** Batch ID: **R131940** TestNo: **EPA 6020** Analysis Date: **2/15/2019** SeqNo: **3293558**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293558** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB4** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293559** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.047 | 0.10 | 20.00 | 0 | 95.2 | 80 | 120 | | | | |
| Manganese | 17.735 | 0.50 | 20.00 | 0 | 88.7 | 80 | 120 | | | | |
| Molybdenum | 19.615 | 0.50 | 20.00 | 0 | 98.1 | 80 | 120 | | | | |
| Selenium | 18.083 | 0.50 | 20.00 | 0 | 90.4 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293563** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293564** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 18.051 | 1.0 | 20.00 | 0 | 90.3 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293614** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293615** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 17.899 | 1.0 | 20.00 | 0 | 89.5 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293664** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293665** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 18.229 | 1.0 | 20.00 | 0 | 91.1 | 80 | 120 | | | | |

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293689** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB4** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293690** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 17.613 | 1.0 | 20.00 | 0 | 88.1 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 38266.9 | 38266.9 | 100 | PASS | 70-125 | 18785.8 | 18785.8 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 37827.1 | 38266.9 | 98.85 | PASS | 70-125 | 18907 | 18785.8 | 100.65 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 37298 | 38266.9 | 97.47 | PASS | 70-125 | 18571.1 | 18785.8 | 98.86 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 37725.6 | 38266.9 | 98.59 | PASS | 70-125 | 18656.7 | 18785.8 | 99.31 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 38020.9 | 38266.9 | 99.36 | PASS | 70-125 | 18854.7 | 18785.8 | 100.37 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 37397.2 | 38266.9 | 97.73 | PASS | 70-125 | 18574.4 | 18785.8 | 98.87 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 37615.5 | 38266.9 | 98.3 | PASS | 70-125 | 18369.7 | 18785.8 | 97.79 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 37717.7 | 38266.9 | 98.56 | PASS | 70-125 | 18320.8 | 18785.8 | 97.52 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 37974.1 | 38266.9 | 99.23 | PASS | 70-125 | 18568.9 | 18785.8 | 98.85 | PASS | 70-125 |
| ICV | ICV | 1 | 38025.3 | 38266.9 | 99.37 | PASS | 70-125 | 18878.1 | 18785.8 | 100.49 | PASS | 70-125 |
| ICB | ICB | 1 | 39034.2 | 38266.9 | 102.01 | PASS | 70-125 | 19611.3 | 18785.8 | 104.39 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 42338.9 | 38266.9 | 110.64 | PASS | 70-125 | 21641.6 | 18785.8 | 115.2 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 42882.4 | 38266.9 | 112.06 | PASS | 70-125 | 20755.9 | 18785.8 | 110.49 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 43786 | 38266.9 | 114.42 | PASS | 70-125 | 21028.6 | 18785.8 | 111.94 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 36098.7 | 38266.9 | 94.33 | PASS | 70-125 | 19070.6 | 18785.8 | 101.52 | PASS | 70-125 |
| CCV1 | CCV | 1 | 44269.4 | 38266.9 | 115.69 | PASS | 70-125 | 22511.6 | 18785.8 | 119.83 | PASS | 70-125 |
| CCB1 | CCB | 1 | 40788.5 | 38266.9 | 106.59 | PASS | 70-125 | 20828.3 | 18785.8 | 110.87 | PASS | 70-125 |
| CCV2 | CCV | 1 | 34009.8 | 38266.9 | 88.88 | PASS | 70-125 | 17808 | 18785.8 | 94.8 | PASS | 70-125 |
| CCB2 | CCB | 1 | 35791.4 | 38266.9 | 93.53 | PASS | 70-125 | 19001.6 | 18785.8 | 101.15 | PASS | 70-125 |
| MB-72457 | MBLK | 1 | 33018 | 38266.9 | 86.28 | PASS | 70-125 | 17921.4 | 18785.8 | 95.4 | PASS | 70-125 |
| LCS-72457 | LCS | 1 | 38309.2 | 38266.9 | 100.11 | PASS | 70-125 | 20256.5 | 18785.8 | 107.83 | PASS | 70-125 |
| N034091-002B | SAMP | 1 | 34955.2 | 38266.9 | 91.35 | PASS | 70-125 | 17290.8 | 18785.8 | 92.042 | PASS | 70-125 |
| N034091-002B | SAMP | 5 | 35694.4 | 38266.9 | 93.28 | PASS | 70-125 | 17912.5 | 18785.8 | 95.35 | PASS | 70-125 |
| CCV3 | CCV | 1 | 40400.8 | 38266.9 | 105.58 | PASS | 70-125 | 21177.6 | 18785.8 | 112.73 | PASS | 70-125 |
| CCB3 | CCB | 1 | 34304.9 | 38266.9 | 89.65 | PASS | 70-125 | 18226.3 | 18785.8 | 97.022 | PASS | 70-125 |
| N034091-002B-PS | PS | 1 | 42419.1 | 38266.9 | 110.85 | PASS | 70-125 | 20452.3 | 18785.8 | 108.87 | PASS | 70-125 |
| N034091-002B-MS | MS | 1 | 43454.1 | 38266.9 | 113.56 | PASS | 70-125 | 20520.2 | 18785.8 | 109.23 | PASS | 70-125 |
| N034091-002B-MSD | MSD | 1 | 43354.8 | 38266.9 | 113.3 | PASS | 70-125 | 20804.9 | 18785.8 | 110.75 | PASS | 70-125 |
| N034091-003B | SAMP | 1 | 35036.4 | 38266.9 | 91.56 | PASS | 70-125 | 16773.6 | 18785.8 | 89.29 | PASS | 70-125 |
| N034091-004B | SAMP | 1 | 43453 | 38266.9 | 113.55 | PASS | 70-125 | 21479.1 | 18785.8 | 114.34 | PASS | 70-125 |
| N034102-002B | SAMP | 1 | 41474.6 | 38266.9 | 108.38 | PASS | 70-125 | 20508.9 | 18785.8 | 109.17 | PASS | 70-125 |
| N034102-003B | SAMP | 1 | 42430.4 | 38266.9 | 110.88 | PASS | 70-125 | 20886.1 | 18785.8 | 111.18 | PASS | 70-125 |
| N034102-004B | SAMP | 1 | 42182 | 38266.9 | 110.23 | PASS | 70-125 | 20810.5 | 18785.8 | 110.78 | PASS | 70-125 |
| N034105-001B | SAMP | 1 | 44851.1 | 38266.9 | 117.21 | PASS | 70-125 | 22975.6 | 18785.8 | 122.3 | PASS | 70-125 |
| N034105-002B | SAMP | 1 | 43925.2 | 38266.9 | 114.79 | PASS | 70-125 | 21885.2 | 18785.8 | 116.5 | PASS | 70-125 |
| CCV4 | CCV | 1 | 36743.6 | 38266.9 | 96.019 | PASS | 70-125 | 19396.5 | 18785.8 | 103.25 | PASS | 70-125 |
| CCB4 | CCB | 1 | 32969.1 | 38266.9 | 86.16 | PASS | 70-125 | 17215.1 | 18785.8 | 91.64 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 44858.9 | 38266.9 | 117.23 | PASS | 70-125 | 22748.6 | 18785.8 | 121.1 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 44961.6 | 38266.9 | 117.49 | PASS | 70-125 | 21972 | 18785.8 | 116.96 | PASS | 70-125 |
| N034105-003B | SAMP | 1 | 40634.8 | 38266.9 | 106.19 | PASS | 70-125 | 20194.2 | 18785.8 | 107.5 | PASS | 70-125 |
| N034105-004B | SAMP | 1 | 42458.1 | 38266.9 | 110.95 | PASS | 70-125 | 20879.5 | 18785.8 | 111.15 | PASS | 70-125 |

**INTERNAL STANDARD: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| N034106-001B | SAMP | 1 | 32921.1 | 38266.9 | 86.03 | PASS | 70-125 | 17407.6 | 18785.8 | 92.66 | PASS | 70-125 |
| N034106-002B | SAMP | 1 | 40858.6 | 38266.9 | 106.77 | PASS | 70-125 | 20349.9 | 18785.8 | 108.33 | PASS | 70-125 |
| N034106-003B | SAMP | 1 | 40918.6 | 38266.9 | 106.93 | PASS | 70-125 | 20750.4 | 18785.8 | 110.46 | PASS | 70-125 |
| N034106-004B | SAMP | 1 | 38520.9 | 38266.9 | 100.66 | PASS | 70-125 | 19595.5 | 18785.8 | 104.31 | PASS | 70-125 |
| N034106-005B | SAMP | 1 | 33033.3 | 38266.9 | 86.32 | PASS | 70-125 | 17266.2 | 18785.8 | 91.91 | PASS | 70-125 |
| N034106-006B | SAMP | 1 | 36196.9 | 38266.9 | 94.59 | PASS | 70-125 | 18541.1 | 18785.8 | 98.7 | PASS | 70-125 |
| N034106-007B | SAMP | 1 | 40623.6 | 38266.9 | 106.16 | PASS | 70-125 | 20633.6 | 18785.8 | 109.84 | PASS | 70-125 |
| N034106-008B | SAMP | 1 | 39765.9 | 38266.9 | 103.92 | PASS | 70-125 | 19897.1 | 18785.8 | 105.92 | PASS | 70-125 |
| CCV5 | CCV | 1 | 34899.5 | 38266.9 | 91.2 | PASS | 70-125 | 18409.8 | 18785.8 | 98 | PASS | 70-125 |
| CCB5 | CCB | 1 | 27500 | 38266.9 | 71.86 | PASS | 70-125 | 14681.4 | 18785.8 | 78.15 | PASS | 70-125 |
| N034106-009B | SAMP | 1 | 38869.4 | 38266.9 | 101.57 | PASS | 70-125 | 19460 | 18785.8 | 103.59 | PASS | 70-125 |
| CCV6 | CCV | 1 | 33258.3 | 38266.9 | 86.91 | PASS | 70-125 | 17650.1 | 18785.8 | 93.95 | PASS | 70-125 |
| CCB6 | CCB | 1 | 41288.5 | 38266.9 | 107.9 | PASS | 70-125 | 21709.5 | 18785.8 | 115.56 | PASS | 70-125 |
| CCV7 | CCV | 1 | 32022.7 | 38266.9 | 83.68 | PASS | 70-125 | 16801.3 | 18785.8 | 89.44 | PASS | 70-125 |
| CCB7 | CCB | 1 | 41951.6 | 38266.9 | 109.63 | PASS | 70-125 | 22033.2 | 18785.8 | 117.29 | PASS | 70-125 |
| CCV8 | CCV | 1 | 31700.8 | 38266.9 | 82.84 | PASS | 70-125 | 16782.4 | 18785.8 | 89.34 | PASS | 70-125 |
| CCB8 | CCB | 1 | 26961.4 | 38266.9 | 70.46 | PASS | 70-125 | 14752.7 | 18785.8 | 78.53 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 38721.3 | 38266.9 | 101.19 | PASS | 70-125 | 19633.5 | 18785.8 | 104.51 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 39603.4 | 38266.9 | 103.49 | PASS | 70-125 | 20055.1 | 18785.8 | 106.76 | PASS | 70-125 |
| CCV9 | CCV | 1 | 30936.2 | 38266.9 | 80.84 | PASS | 70-125 | 16290.8 | 18785.8 | 86.72 | PASS | 70-125 |
| CCB9 | CCB | 1 | 39046.6 | 38266.9 | 102.04 | PASS | 70-125 | 20307.6 | 18785.8 | 108.1 | PASS | 70-125 |
| CCV10 | CCV | 1 | 39330.7 | 38266.9 | 102.78 | PASS | 70-125 | 20832.8 | 18785.8 | 110.9 | PASS | 70-125 |
| CCB10 | CCB | 1 | 38379.4 | 38266.9 | 100.29 | PASS | 70-125 | 20334.3 | 18785.8 | 108.24 | PASS | 70-125 |
| ICSA4 | ICSA | 1 | 39018.7 | 38266.9 | 101.96 | PASS | 70-125 | 19910.5 | 18785.8 | 105.99 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 39815 | 38266.9 | 104.05 | PASS | 70-125 | 19664.6 | 18785.8 | 104.68 | PASS | 70-125 |

**INTERNAL STANDARD: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 15508.8 | 15508.8 | 100 | PASS | 70-125 | 538422.1 | 538422.1 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 15684.7 | 15508.8 | 101.13 | PASS | 70-125 | 535561.2 | 538422.1 | 99.47 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 15107.4 | 15508.8 | 97.41 | PASS | 70-125 | 527575.5 | 538422.1 | 97.99 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 15139.7 | 15508.8 | 97.62 | PASS | 70-125 | 528380.3 | 538422.1 | 98.13 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 15169.8 | 15508.8 | 97.81 | PASS | 70-125 | 525282.6 | 538422.1 | 97.56 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 15106.4 | 15508.8 | 97.41 | PASS | 70-125 | 523419.5 | 538422.1 | 97.21 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 15210.9 | 15508.8 | 98.079 | PASS | 70-125 | 523257.3 | 538422.1 | 97.18 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 15505.6 | 15508.8 | 99.98 | PASS | 70-125 | 519921.5 | 538422.1 | 96.56 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 15179.7 | 15508.8 | 97.88 | PASS | 70-125 | 517230 | 538422.1 | 96.064 | PASS | 70-125 |
| ICV | ICV | 1 | 14846.1 | 15508.8 | 95.73 | PASS | 70-125 | 550495.5 | 538422.1 | 102.24 | PASS | 70-125 |
| ICB | ICB | 1 | 16386.5 | 15508.8 | 105.66 | PASS | 70-125 | 560935.4 | 538422.1 | 104.18 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 18207.3 | 15508.8 | 117.4 | PASS | 70-125 | 601173 | 538422.1 | 111.65 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 16639 | 15508.8 | 107.29 | PASS | 70-125 | 533596.4 | 538422.1 | 99.1 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 17900.3 | 15508.8 | 115.42 | PASS | 70-125 | 545370.5 | 538422.1 | 101.29 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 15648 | 15508.8 | 100.9 | PASS | 70-125 | 527312.6 | 538422.1 | 97.94 | PASS | 70-125 |
| CCV1 | CCV | 1 | 19325.3 | 15508.8 | 124.61 | PASS | 70-125 | 602254.9 | 538422.1 | 111.86 | PASS | 70-125 |
| CCB1 | CCB | 1 | 18057.2 | 15508.8 | 116.43 | PASS | 70-125 | 569829.5 | 538422.1 | 105.83 | PASS | 70-125 |
| CCV2 | CCV | 1 | 14333.4 | 15508.8 | 92.42 | PASS | 70-125 | 502990.7 | 538422.1 | 93.42 | PASS | 70-125 |
| CCB2 | CCB | 1 | 15960.5 | 15508.8 | 102.91 | PASS | 70-125 | 514921.2 | 538422.1 | 95.64 | PASS | 70-125 |
| MB-72457 | MBLK | 1 | 13992 | 15508.8 | 90.22 | PASS | 70-125 | 496598.4 | 538422.1 | 92.23 | PASS | 70-125 |
| LCS-72457 | LCS | 1 | 16496.5 | 15508.8 | 106.37 | PASS | 70-125 | 550298.4 | 538422.1 | 102.21 | PASS | 70-125 |
| N034091-002B | SAMP | 1 | 12772 | 15508.8 | 82.35 | PASS | 70-125 | 420521.4 | 538422.1 | 78.1 | PASS | 70-125 |
| N034091-002B | SAMP | 5 | 13566.1 | 15508.8 | 87.47 | PASS | 70-125 | 466286.2 | 538422.1 | 86.6 | PASS | 70-125 |
| CCV3 | CCV | 1 | 17496.6 | 15508.8 | 112.82 | PASS | 70-125 | 565200.7 | 538422.1 | 104.97 | PASS | 70-125 |
| CCB3 | CCB | 1 | 14166.5 | 15508.8 | 91.34 | PASS | 70-125 | 500551.6 | 538422.1 | 92.97 | PASS | 70-125 |
| N034091-002B-PS | PS | 1 | 16891.5 | 15508.8 | 108.92 | PASS | 70-125 | 492606.2 | 538422.1 | 91.49 | PASS | 70-125 |
| N034091-002B-MS | MS | 1 | 17357.5 | 15508.8 | 111.92 | PASS | 70-125 | 505222.6 | 538422.1 | 93.83 | PASS | 70-125 |
| N034091-002B-MSD | MSD | 1 | 16870.3 | 15508.8 | 108.78 | PASS | 70-125 | 508240.2 | 538422.1 | 94.39 | PASS | 70-125 |
| N034091-003B | SAMP | 1 | 10393.6 | 15508.8 | 67.017 | NR! | 70-125 | 419159.9 | 538422.1 | 77.85 | PASS | 70-125 |
| N034091-004B | SAMP | 1 | 17912.6 | 15508.8 | 115.5 | PASS | 70-125 | 537061.9 | 538422.1 | 99.75 | PASS | 70-125 |
| N034102-002B | SAMP | 1 | 14898.3 | 15508.8 | 96.064 | PASS | 70-125 | 487312.2 | 538422.1 | 90.51 | PASS | 70-125 |
| N034102-003B | SAMP | 1 | 15374.4 | 15508.8 | 99.13 | PASS | 70-125 | 509836.2 | 538422.1 | 94.69 | PASS | 70-125 |
| N034102-004B | SAMP | 1 | 15031.8 | 15508.8 | 96.92 | PASS | 70-125 | 503757.5 | 538422.1 | 93.56 | PASS | 70-125 |
| N034105-001B | SAMP | 1 | 19535.5 | 15508.8 | 125.96 | NR! | 70-125 | 594366.9 | 538422.1 | 110.39 | PASS | 70-125 |
| N034105-002B | SAMP | 1 | 18387.5 | 15508.8 | 118.56 | PASS | 70-125 | 562988.3 | 538422.1 | 104.56 | PASS | 70-125 |
| CCV4 | CCV | 1 | 15015.1 | 15508.8 | 96.82 | PASS | 70-125 | 530972.4 | 538422.1 | 98.62 | PASS | 70-125 |
| CCB4 | CCB | 1 | 13316.9 | 15508.8 | 85.87 | PASS | 70-125 | 472959.9 | 538422.1 | 87.84 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 17902.5 | 15508.8 | 115.43 | PASS | 70-125 | 573730.6 | 538422.1 | 106.56 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 18361.9 | 15508.8 | 118.4 | PASS | 70-125 | 571205.5 | 538422.1 | 106.09 | PASS | 70-125 |
| N034105-003B | SAMP | 1 | 15882.6 | 15508.8 | 102.41 | PASS | 70-125 | 512940.1 | 538422.1 | 95.27 | PASS | 70-125 |
| N034105-004B | SAMP | 1 | 16808 | 15508.8 | 108.38 | PASS | 70-125 | 529989.4 | 538422.1 | 98.43 | PASS | 70-125 |

**INTERNAL STANDARD: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| N034106-001B | SAMP | 1 | 13246.9 | 15508.8 | 85.42 | PASS | 70-125 | 440124.7 | 538422.1 | 81.74 | PASS | 70-125 |
| N034106-002B | SAMP | 1 | 16045 | 15508.8 | 103.46 | PASS | 70-125 | 505654.4 | 538422.1 | 93.91 | PASS | 70-125 |
| N034106-003B | SAMP | 1 | 16330.9 | 15508.8 | 105.3 | PASS | 70-125 | 518201.4 | 538422.1 | 96.24 | PASS | 70-125 |
| N034106-004B | SAMP | 1 | 15811.5 | 15508.8 | 101.95 | PASS | 70-125 | 491623.1 | 538422.1 | 91.31 | PASS | 70-125 |
| N034106-005B | SAMP | 1 | 13476 | 15508.8 | 86.89 | PASS | 70-125 | 441448.2 | 538422.1 | 81.99 | PASS | 70-125 |
| N034106-006B | SAMP | 1 | 14419 | 15508.8 | 92.97 | PASS | 70-125 | 456170.5 | 538422.1 | 84.72 | PASS | 70-125 |
| N034106-007B | SAMP | 1 | 15603.4 | 15508.8 | 100.61 | PASS | 70-125 | 505115 | 538422.1 | 93.81 | PASS | 70-125 |
| N034106-008B | SAMP | 1 | 15366.6 | 15508.8 | 99.083 | PASS | 70-125 | 498361.2 | 538422.1 | 92.56 | PASS | 70-125 |
| CCV5 | CCV | 1 | 13937.5 | 15508.8 | 89.87 | PASS | 70-125 | 507212.7 | 538422.1 | 94.2 | PASS | 70-125 |
| CCB5 | CCB | 1 | 11531.1 | 15508.8 | 74.35 | PASS | 70-125 | 407237.9 | 538422.1 | 75.64 | PASS | 70-125 |
| N034106-009B | SAMP | 1 | 15294.2 | 15508.8 | 98.62 | PASS | 70-125 | 495379.7 | 538422.1 | 92.006 | PASS | 70-125 |
| CCV6 | CCV | 1 | 13750.7 | 15508.8 | 88.66 | PASS | 70-125 | 486172.4 | 538422.1 | 90.3 | PASS | 70-125 |
| CCB6 | CCB | 1 | 17610 | 15508.8 | 113.55 | PASS | 70-125 | 580601.9 | 538422.1 | 107.83 | PASS | 70-125 |
| CCV7 | CCV | 1 | 13229.1 | 15508.8 | 85.3 | PASS | 70-125 | 473870 | 538422.1 | 88.011 | PASS | 70-125 |
| CCB7 | CCB | 1 | 17938.2 | 15508.8 | 115.66 | PASS | 70-125 | 588292.1 | 538422.1 | 109.26 | PASS | 70-125 |
| CCV8 | CCV | 1 | 12990 | 15508.8 | 83.76 | PASS | 70-125 | 469579.9 | 538422.1 | 87.21 | PASS | 70-125 |
| CCB8 | CCB | 1 | 11455.5 | 15508.8 | 73.86 | PASS | 70-125 | 409836.1 | 538422.1 | 76.12 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 15247.5 | 15508.8 | 98.32 | PASS | 70-125 | 498593 | 538422.1 | 92.6 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 16022.8 | 15508.8 | 103.31 | PASS | 70-125 | 511299.3 | 538422.1 | 94.96 | PASS | 70-125 |
| CCV9 | CCV | 1 | 12801 | 15508.8 | 82.54 | PASS | 70-125 | 460006.1 | 538422.1 | 85.44 | PASS | 70-125 |
| CCB9 | CCB | 1 | 16687.9 | 15508.8 | 107.6 | PASS | 70-125 | 548782 | 538422.1 | 101.92 | PASS | 70-125 |
| CCV10 | CCV | 1 | 17338.6 | 15508.8 | 111.8 | PASS | 70-125 | 549145.1 | 538422.1 | 101.99 | PASS | 70-125 |
| CCB10 | CCB | 1 | 16496.6 | 15508.8 | 106.37 | PASS | 70-125 | 539750.4 | 538422.1 | 100.25 | PASS | 70-125 |
| ICSA4 | ICSA | 1 | 15812.6 | 15508.8 | 101.96 | PASS | 70-125 | 496902.8 | 538422.1 | 92.29 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 15831.5 | 15508.8 | 102.08 | PASS | 70-125 | 500666.8 | 538422.1 | 92.99 | PASS | 70-125 |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-MS-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034102
Test Method: EPA 6020
Analysis Date: 2/14/2019

Matrix: Groundwater
Batch No.: 72457

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to As and Se. The calculated concentration is <25RL.
Dilution test failed for Mn. However, PS passed criteria.

| Sample ID | Analyte | Units | Calc Val | OQual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|
| N034091-002B DT 5X | Arsenic | ug/L | 1.637008 | NA | 1.503834 | 8.86% | 10 |
| N034091-002B DT 5X | Chromium | ug/L | 36.56935 | PASS | 34.00435 | 7.54% | 10 |
| N034091-002B DT 5X | Manganese | ug/L | 22.51693 | FAIL | 20.18249 | 11.57% | 10 |
| N034091-002B DT 5X | Molybdenum | ug/L | 37.30239 | PASS | 38.289 | 2.58% | 10 |
| N034091-002B DT 5X | Selenium | ug/L | 4.554338 | NA | 3.379735 | 34.75% | 10 |

Note: NA - Not applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Sample ID **N034091-002B-PS** | SampType: **PS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | | | | RunNo: **131940** | |
| Client ID: **ZZZZZZ** | Batch ID: **72457** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | | | | SeqNo: **3293471** | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Arsenic | 12.027 | 0.10 | 10.00 | 1.504 | 105 | 80 | 120 | | | | |
| Manganese | 117.372 | 0.50 | 100.0 | 20.18 | 97.2 | 80 | 120 | | | | |
| Molybdenum | 48.750 | 0.50 | 10.00 | 38.29 | 105 | 80 | 120 | | | | |
| Selenium | 13.471 | 0.50 | 10.00 | 3.380 | 101 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034102
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | **N034091-002B-PS** | SampType: **PS** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **72457** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293602** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 39.422 | 1.0 | 10.00 | 34.00 | 54.2 | 80 | 120 | | | | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Amount of Sample:** 25 mL
**Units:** ug/L

| Analyte | AMT SPIKED, ppb | 1 | 2 | 3 | 4 | 5 | 6 | 7 | SD | MDL | LOD | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANTIMONY | 0.50 | 0.525 | 0.514 | 0.473 | 0.500 | 0.492 | 0.486 | 0.530 | 0.0210 | 0.0660 | 0.100 | 0.50 |
| ARSENIC | 0.10 | 0.099 | 0.104 | 0.087 | 0.048 | 0.060 | 0.069 | 0.120 | 0.0259 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 1.00 | 1.041 | 1.059 | 1.052 | 1.011 | 0.967 | 0.957 | 1.023 | 0.0403 | 0.1264 | 0.250 | 1.00 |
| BERYLLIUM | 0.50 | 0.469 | 0.476 | 0.473 | 0.495 | 0.480 | 0.488 | 0.507 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.50 | 0.515 | 0.513 | 0.492 | 0.534 | 0.499 | 0.483 | 0.508 | 0.0168 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 1.00 | 0.979 | 0.986 | 0.940 | 0.990 | 0.946 | 0.978 | 0.977 | 0.0197 | 0.0618 | 0.250 | 1.00 |
| COBALT | 0.50 | 0.499 | 0.489 | 0.486 | 0.488 | 0.465 | 0.502 | 0.505 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| COPPER | 1.00 | 1.110 | 0.667 | 1.039 | 1.060 | 1.006 | 1.099 | 1.075 | 0.1544 | 0.4850 | 0.500 | 1.00 |
| IRON | 10.00 | 10.873 | 10.802 | 10.142 | 9.991 | 9.846 | 9.852 | 10.596 | 0.4463 | 1.4014 | 2.500 | 10.00 |
| LEAD | 1.00 | 0.928 | 0.931 | 0.899 | 0.996 | 0.990 | 0.987 | 0.997 | 0.0406 | 0.1274 | 0.250 | 1.00 |
| MANGANESE | 0.50 | 0.577 | 0.588 | 0.561 | 0.566 | 0.517 | 0.541 | 0.520 | 0.0276 | 0.0866 | 0.100 | 0.50 |
| MOLYBDENUM | 0.50 | 0.514 | 0.504 | 0.467 | 0.478 | 0.456 | 0.433 | 0.527 | 0.0338 | 0.1061 | 0.250 | 0.50 |
| NICKEL | 1.00 | 0.961 | 0.965 | 0.977 | 0.907 | 0.914 | 0.962 | 1.075 | 0.0551 | 0.1731 | 0.250 | 1.00 |
| SELENIUM | 0.50 | 0.450 | 0.478 | 0.419 | 0.693 | 0.707 | 0.495 | 0.555 | 0.1155 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.50 | 0.558 | 0.511 | 0.490 | 0.542 | 0.458 | 0.490 | 0.684 | 0.0745 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.50 | 0.437 | 0.428 | 0.408 | 0.538 | 0.446 | 0.438 | 0.525 | 0.0504 | 0.1583 | 0.250 | 0.50 |
| URANIUM | 0.50 | 0.478 | 0.467 | 0.461 | 0.517 | 0.510 | 0.521 | 0.521 | 0.0267 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 1.00 | 0.950 | 0.969 | 0.900 | 0.844 | 0.829 | 0.848 | 1.053 | 0.0820 | 0.2574 | 0.500 | 1.00 |
| ZINC | 10.00 | 11.259 | 11.279 | 10.915 | 9.620 | 9.849 | 9.745 | 10.241 | 0.7235 | 2.2717 | 2.500 | 10.00 |

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Units:** ug/L

| Analyte | MDLs | MDLb | MDL | LOD | PQL |
|---|---|---|---|---|---|
| ANTIMONY | 0.0660 | 0.1564 | 0.1564 | 0.300 | 0.50 |
| ARSENIC | 0.0813 | 0.0387 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 0.1264 | 0.1497 | 0.1497 | 0.300 | 1.00 |
| BERYLLIUM | 0.0424 | 0.0153 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.0527 | 0.0060 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 0.0618 | 0.1298 | 0.1298 | 0.300 | 1.00 |
| COBALT | 0.0424 | 0.0339 | 0.0424 | 0.100 | 0.50 |
| COPPER | 0.4850 | 0.5459 | 0.5459 | 0.600 | 1.00 |
| IRON | 1.4014 | 4.3484 | 4.3484 | 5.000 | 10.00 |
| LEAD | 0.1274 | 0.1008 | 0.1274 | 0.300 | 1.00 |
| MANGANESE | 0.0866 | 0.2552 | 0.2552 | 0.300 | 0.50 |
| MOLYBDENUM | 0.1061 | 0.2149 | 0.2149 | 0.300 | 0.50 |
| NICKEL | 0.1731 | 0.2606 | 0.2606 | 0.300 | 1.00 |
| SELENIUM | 0.3628 | 0.0953 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.2340 | 0.2023 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.1583 | 0.1924 | 0.1924 | 0.300 | 0.50 |
| URANIUM | 0.0838 | 0.0020 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 0.2574 | 0.2768 | 0.2768 | 0.600 | 1.00 |
| ZINC | 2.2717 | 0.4511 | 2.2717 | 3.000 | 10.00 |

February 27, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034104

RE: PG&E Topock - RMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on February 12, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucao for

Quennie Manimtim
Laboratory Director

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**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034104

# CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling;sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Barium in QC samples N034104-001C-MS and N034104-001C-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034104
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034104-001A | C-TAZ-D-0219 | Groundwater | 2/12/2019 8:35:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-001B | C-TAZ-D-0219 | Groundwater | 2/12/2019 8:35:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-001C | C-TAZ-D-0219 | Groundwater | 2/12/2019 8:35:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-001D | C-TAZ-D-0219 | Groundwater | 2/12/2019 8:35:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-001E | C-TAZ-D-0219 | Groundwater | 2/12/2019 8:35:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-002A | C-TAZ-S-0219 | Groundwater | 2/12/2019 8:50:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-002B | C-TAZ-S-0219 | Groundwater | 2/12/2019 8:50:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-002C | C-TAZ-S-0219 | Groundwater | 2/12/2019 8:50:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-002D | C-TAZ-S-0219 | Groundwater | 2/12/2019 8:50:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-002E | C-TAZ-S-0219 | Groundwater | 2/12/2019 8:50:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-003A | C-I-3-D-0219 | Groundwater | 2/12/2019 9:25:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-003B | C-I-3-D-0219 | Groundwater | 2/12/2019 9:25:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-003C | C-I-3-D-0219 | Groundwater | 2/12/2019 9:25:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-003D | C-I-3-D-0219 | Groundwater | 2/12/2019 9:25:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-003E | C-I-3-D-0219 | Groundwater | 2/12/2019 9:25:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-004A | C-I-3-S-0219 | Groundwater | 2/12/2019 9:40:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-004B | C-I-3-S-0219 | Groundwater | 2/12/2019 9:40:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-004C | C-I-3-S-0219 | Groundwater | 2/12/2019 9:40:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-004D | C-I-3-S-0219 | Groundwater | 2/12/2019 9:40:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-004E | C-I-3-S-0219 | Groundwater | 2/12/2019 9:40:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-005A | MW-906-Q119 | Groundwater | 2/12/2019 9:50:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-005B | MW-906-Q119 | Groundwater | 2/12/2019 9:50:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-005C | MW-906-Q119 | Groundwater | 2/12/2019 9:50:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-005D | MW-906-Q119 | Groundwater | 2/12/2019 9:50:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-005E | MW-906-Q119 | Groundwater | 2/12/2019 9:50:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-006A | R63-0219 | Groundwater | 2/12/2019 10:25:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-006B | R63-0219 | Groundwater | 2/12/2019 10:25:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-006C | R63-0219 | Groundwater | 2/12/2019 10:25:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-006D | R63-0219 | Groundwater | 2/12/2019 10:25:00 AM | 2/12/2019 | 2/27/2019 |

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034104
**Contract No:**

# Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034104-006E | R63-0219 | Groundwater | 2/12/2019 10:25:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-007A | C-R22A-S-0219 | Groundwater | 2/12/2019 11:10:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-007B | C-R22A-S-0219 | Groundwater | 2/12/2019 11:10:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-007C | C-R22A-S-0219 | Groundwater | 2/12/2019 11:10:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-007D | C-R22A-S-0219 | Groundwater | 2/12/2019 11:10:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-007E | C-R22A-S-0219 | Groundwater | 2/12/2019 11:10:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-008A | C-R22A-D-0219 | Groundwater | 2/12/2019 10:55:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-008B | C-R22A-D-0219 | Groundwater | 2/12/2019 10:55:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-008C | C-R22A-D-0219 | Groundwater | 2/12/2019 10:55:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-008D | C-R22A-D-0219 | Groundwater | 2/12/2019 10:55:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-008E | C-R22A-D-0219 | Groundwater | 2/12/2019 10:55:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-009A | C-R27-D-0219 | Groundwater | 2/12/2019 12:05:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-009B | C-R27-D-0219 | Groundwater | 2/12/2019 12:05:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-009C | C-R27-D-0219 | Groundwater | 2/12/2019 12:05:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-009D | C-R27-D-0219 | Groundwater | 2/12/2019 12:05:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-009E | C-R27-D-0219 | Groundwater | 2/12/2019 12:05:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-010A | MW-908-Q119 | Groundwater | 2/12/2019 12:15:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-010B | MW-908-Q119 | Groundwater | 2/12/2019 12:15:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-010C | MW-908-Q119 | Groundwater | 2/12/2019 12:15:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-010D | MW-908-Q119 | Groundwater | 2/12/2019 12:15:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-010E | MW-908-Q119 | Groundwater | 2/12/2019 12:15:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-011A | C-R27-S-0219 | Groundwater | 2/12/2019 12:30:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-011B | C-R27-S-0219 | Groundwater | 2/12/2019 12:30:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-011C | C-R27-S-0219 | Groundwater | 2/12/2019 12:30:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-011D | C-R27-S-0219 | Groundwater | 2/12/2019 12:30:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-011E | C-R27-S-0219 | Groundwater | 2/12/2019 12:30:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-012A | C-BNS-0219 | Groundwater | 2/12/2019 11:35:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-012B | C-BNS-0219 | Groundwater | 2/12/2019 11:35:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-012C | C-BNS-0219 | Groundwater | 2/12/2019 11:35:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-012D | C-BNS-0219 | Groundwater | 2/12/2019 11:35:00 AM | 2/12/2019 | 2/27/2019 |

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034104
**Contract No:**

# Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034104-012E | C-BNS-0219 | Groundwater | 2/12/2019 11:35:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-013A | SW1-0219 | Groundwater | 2/12/2019 2:30:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-013B | SW1-0219 | Groundwater | 2/12/2019 2:30:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-013C | SW1-0219 | Groundwater | 2/12/2019 2:30:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-014A | SW2-0219 | Groundwater | 2/12/2019 2:45:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-014B | SW2-0219 | Groundwater | 2/12/2019 2:45:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-014C | SW2-0219 | Groundwater | 2/12/2019 2:45:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-015A | R-28-0219 | Groundwater | 2/12/2019 1:00:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-015B | R-28-0219 | Groundwater | 2/12/2019 1:00:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-015C | R-28-0219 | Groundwater | 2/12/2019 1:00:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-015D | R-28-0219 | Groundwater | 2/12/2019 1:00:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-015E | R-28-0219 | Groundwater | 2/12/2019 1:00:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-016A | AmbientBlank-1-0219 | Groundwater | 2/12/2019 10:20:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-017A | AmbientBlank-2-0219 | Groundwater | 2/12/2019 1:10:00 PM | 2/12/2019 | 2/27/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 8:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213C** | QC Batch: **R131802** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 860 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213C** | QC Batch: **R131802** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 880 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213C** | QC Batch: **R131802** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 870 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:40:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213C** | QC Batch: **R131802** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 860 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-906-Q119 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213C** | QC Batch: **R131802** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 860 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R63-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213D** | QC Batch: **R131803** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 870 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213D** | QC Batch: **R131803** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 870 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213D** | QC Batch: **R131803** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 880 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213D** | QC Batch: **R131803** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 880 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-908-Q119 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:15:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213D** | QC Batch: **R131803** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 880 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213D** | QC Batch: **R131803** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 900 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213D** | QC Batch: **R131803** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 890 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | SW1-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 2:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213D** | QC Batch: **R131803** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 960 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | SW2-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 2:45:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-014 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213D** | QC Batch: **R131803** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 960 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-28-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 1:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-015 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213D** | QC Batch: **R131803** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 930 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID | **N034103-001ADUP** | SampType: | **DUP** | TestCode: | **120.1_WPGE** | Units: | **umhos/cm** | Prep Date: | | RunNo: | **131802** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: | **R131802** | TestNo: | **EPA 120.1** | | | Analysis Date: | **2/13/2019** | SeqNo: | **3287910** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 56100.000 | 0.10 | | | | | | 56400 | 0.533 | 2 | |

| Sample ID | **N034103-011ADUP** | SampType: | **DUP** | TestCode: | **120.1_WPGE** | Units: | **umhos/cm** | Prep Date: | | RunNo: | **131802** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: | **R131802** | TestNo: | **EPA 120.1** | | | Analysis Date: | **2/13/2019** | SeqNo: | **3287920** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 50200.000 | 0.10 | | | | | | 50600 | 0.794 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

Sample ID **N034104-011BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **131803**
Client ID: **ZZZZZZ** Batch ID: **R131803** TestNo: **EPA 120.1** Analysis Date: **2/13/2019** SeqNo: **3287935**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 898.000 | 0.10 | | | | | | 895.0 | 0.335 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 8:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.0 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-003

**Client Sample ID:** C-I-3-D-0219
**Collection Date:** 2/12/2019 9:25:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:40:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-005

**Client Sample ID:** MW-906-Q119
**Collection Date:** 2/12/2019 9:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | PrepDate | | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R63-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-008

**Client Sample ID:** C-R22A-D-0219
**Collection Date:** 2/12/2019 10:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-010

**Client Sample ID:** MW-908-Q119
**Collection Date:** 2/12/2019 12:15:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.1 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-013

**Client Sample ID:** SW1-0219
**Collection Date:** 2/12/2019 2:30:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.6 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-014

**Client Sample ID:** SW2-0219
**Collection Date:** 2/12/2019 2:45:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | PrepDate | | | | Analyst: **LR** |
| pH | 7.6 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-28-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 1:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-015 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 6.8 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 150.1_4500H+B_W**

Sample ID **N034104-001BDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **131804**
Client ID: **ZZZZZZ** Batch ID: **R131804** TestNo: **SM4500-H+B** Analysis Date: **2/13/2019** SeqNo: **3287942**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 8.350 | 0.10 | | | | | | 8.320 | 0.360 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

Sample ID **N034104-012BDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **131804**
Client ID: **ZZZZZZ** Batch ID: **R131804** TestNo: **SM4500-H+B** Analysis Date: **2/13/2019** SeqNo: **3287954**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 8.290 | 0.10 | | | | | | 8.280 | 0.121 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 8:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214A** | QC Batch: **72490** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190214A** | QC Batch: **72490** | | | PrepDate | **2/14/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214A** | QC Batch: **72490** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:40:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190214A** | QC Batch: **72490** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-906-Q119 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214A** | QC Batch: **72490** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R63-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190214A** | QC Batch: **72490** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190214A** | QC Batch: **72490** | | | PrepDate | **2/14/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190214A** | QC Batch: **72490** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214A** QC Batch: **72490** | | | | | PrepDate **2/14/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-908-Q119 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:15:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190214A** | QC Batch: **72490** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190214B** | QC Batch: **72491** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214B** QC Batch: **72491** | | | | | PrepDate **2/14/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-28-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 1:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-015 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190214B** QC Batch: **72491** | | | | PrepDate | **2/14/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | 31 | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.2_2540D_W**

| Sample ID | LCS-72490 | SampType: | LCS | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/14/2019 | RunNo: | 131839 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72490 | TestNo: | SM2540D | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288868 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | 941.000 | 10 | 1000 | 0 | 94.1 | 80 | 120 | | | | |

| Sample ID | MB-72490 | SampType: | MBLK | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/14/2019 | RunNo: | 131839 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72490 | TestNo: | SM2540D | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288869 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 10 | | | | | | | | | |

| Sample ID | N034104-001BDUP | SampType: | DUP | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/14/2019 | RunNo: | 131839 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72490 | TestNo: | SM2540D | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288871 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 5.0 | | | | | | 0 | 0 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.2_2540D_W**

| Sample ID | LCS-72491 | SampType: | LCS | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/14/2019 | RunNo: | 131840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72491 | TestNo: | SM2540D | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288883 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | 937.000 | 10 | 1000 | 0 | 93.7 | 80 | 120 | | | | |

| Sample ID | MB-72491 | SampType: | MBLK | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/14/2019 | RunNo: | 131840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72491 | TestNo: | SM2540D | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288884 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 10 | | | | | | | | | |

| Sample ID | N034129-002BDUP | SampType: | DUP | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/14/2019 | RunNo: | 131840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72491 | TestNo: | SM2540D | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288889 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 5.0 | | | | | | 0 | 0 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 8:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** | QC Batch: **R132010** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 10:54 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190214B** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 08:17 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 11:05 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 08:44 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 11:15 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 08:50 PM |

**Qualifiers:**

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|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:40:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 11:24 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 09:06 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-906-Q119 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 11:34 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 09:12 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R63-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 11:43 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 09:17 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 11:53 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 09:23 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 12:02 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 09:28 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190221A** QC Batch: **R132043** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/21/2019 02:49 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 09:34 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-908-Q119 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:15:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 12:40 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 09:40 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 02:43 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 09:46 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 02:52 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 09:51 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | SW1-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 2:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** | QC Batch: **R132010** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 03:02 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190214B** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 09:57 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | SW2-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 2:45:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-014 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 03:11 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 10:13 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-015

**Client Sample ID:** R-28-0219
**Collection Date:** 2/12/2019 1:00:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 03:21 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 10:19 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | AmbientBlank-1-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:20:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-016 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** | QC Batch: **R132010** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 06:09 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | AmbientBlank-2-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 1:10:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-017 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** | QC Batch: **R132010** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 03:40 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **MB-R132010** | SampType: **MBLK** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297698** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **LCS-R132010** | SampType: **LCS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297699** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.723 | 0.20 | 5.000 | 0 | 94.5 | 90 | 110 | | | | |

| Sample ID **N034104-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297712** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.043 | 0.20 | 1.000 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **N034104-002AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297713** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.027 | 0.20 | 1.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **N034104-003AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297714** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.056 | 0.20 | 1.000 | 0 | 106 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034104-004AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132010 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132010 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3297715 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.037 | 0.20 | 1.000 | 0.04340 | 99.4 | 90 | 110 | | | | |

| Sample ID | N034104-005AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132010 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132010 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3297716 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.035 | 0.20 | 1.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID | N034104-006AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132010 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132010 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3297717 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.039 | 0.20 | 1.000 | 0.05090 | 98.8 | 90 | 110 | | | | |

| Sample ID | N034104-007AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132010 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132010 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3297718 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.045 | 0.20 | 1.000 | 0 | 105 | 90 | 110 | | | | |

| Sample ID | N034104-008AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132010 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132010 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3297719 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.070 | 0.20 | 1.000 | 0 | 107 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034104-010AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132010 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132010 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3297723 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.067 | 0.20 | 1.000 | 0 | 107 | 90 | 110 | | | | |

| Sample ID | N034104-011AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132010 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132010 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3297735 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.050 | 0.20 | 1.000 | 0.05750 | 99.3 | 90 | 110 | | | | |

| Sample ID | N034104-012AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132010 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132010 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3297736 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.039 | 0.20 | 1.000 | 0 | 104 | 90 | 110 | | | | |

| Sample ID | N034104-013AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132010 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132010 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3297737 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.015 | 0.20 | 1.000 | 0 | 101 | 90 | 110 | | | | |

| Sample ID | N034104-014AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132010 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132010 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3297738 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.047 | 0.20 | 1.000 | 0 | 105 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **N034104-015AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132010**
Client ID: **ZZZZZZ** Batch ID: **R132010** TestNo: **EPA 218.6** Analysis Date: **2/20/2019** SeqNo: **3297739**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.041 | 0.20 | 1.000 | 0 | 104 | 90 | 110 | | | | |

Sample ID **N034104-016AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132010**
Client ID: **ZZZZZZ** Batch ID: **R132010** TestNo: **EPA 218.6** Analysis Date: **2/20/2019** SeqNo: **3297741**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.062 | 0.20 | 1.000 | 0 | 106 | 90 | 110 | | | | |

Sample ID **N034238-002BDUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132010**
Client ID: **ZZZZZZ** Batch ID: **R132010** TestNo: **EPA 218.6** Analysis Date: **2/20/2019** SeqNo: **3297742**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.133 | 0.20 | | | | | | 0.1396 | 0 | 20 | |

Sample ID **N034104-017AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132010**
Client ID: **ZZZZZZ** Batch ID: **R132010** TestNo: **EPA 218.6** Analysis Date: **2/20/2019** SeqNo: **3297747**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.013 | 0.20 | 1.000 | 0 | 101 | 90 | 110 | | | | |

Sample ID **N034104-017AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132010**
Client ID: **ZZZZZZ** Batch ID: **R132010** TestNo: **EPA 218.6** Analysis Date: **2/20/2019** SeqNo: **3297748**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.012 | 0.20 | 1.000 | 0 | 101 | 90 | 110 | 1.013 | 0.158 | 20 | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **MB-R132043** SampType: **MBLK** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132043**
Client ID: **PBW** Batch ID: **R132043** TestNo: **EPA 218.6** Analysis Date: **2/21/2019** SeqNo: **3298893**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

Sample ID **LCS-R132043** SampType: **LCS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132043**
Client ID: **LCSW** Batch ID: **R132043** TestNo: **EPA 218.6** Analysis Date: **2/21/2019** SeqNo: **3298894**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.106 | 0.20 | 5.000 | 0 | 102 | 90 | 110 | | | | |

Sample ID **N034269-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132043**
Client ID: **ZZZZZZ** Batch ID: **R132043** TestNo: **EPA 218.6** Analysis Date: **2/21/2019** SeqNo: **3298901**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.384 | 1.0 | 5.000 | 0 | 108 | 90 | 110 | | | | |

Sample ID **N034104-009AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132043**
Client ID: **ZZZZZZ** Batch ID: **R132043** TestNo: **EPA 218.6** Analysis Date: **2/21/2019** SeqNo: **3298902**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.134 | 0.20 | 1.000 | 0.09750 | 104 | 90 | 110 | | | | |

Sample ID **N034104-009AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132043**
Client ID: **ZZZZZZ** Batch ID: **R132043** TestNo: **EPA 218.6** Analysis Date: **2/21/2019** SeqNo: **3298903**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.155 | 0.20 | 1.000 | 0.09750 | 106 | 90 | 110 | 1.134 | 1.81 | 20 | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034107-018ADUP | SampType: | DUP | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132043 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132043 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/21/2019 | SeqNo: | 3298904 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 28.897 | 1.0 | | | | | | 29.28 | 1.31 | 20 | |

| Sample ID | N034271-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132043 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132043 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/21/2019 | SeqNo: | 3298905 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 995.220 | 20 | 500.0 | 483.9 | 102 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | MB-72458 | SampType: | MBLK | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72458 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293629 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-72458 | SampType: | LCS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72458 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293630 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.179 | 1.0 | 10.00 | 0 | 102 | 85 | 115 | | | | |

| Sample ID | N034104-001C-MS | SampType: | MS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72458 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293634 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.535 | 1.0 | 10.00 | 0 | 95.4 | 75 | 125 | | | | |

| Sample ID | N034104-001C-MSD | SampType: | MSD | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72458 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293635 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.594 | 1.0 | 10.00 | 0 | 95.9 | 75 | 125 | 9.535 | 0.618 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 8:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.35 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.36 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.35 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:40:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.36 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-906-Q119 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R63-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.35 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.36 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.34 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.33 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-908-Q119 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:15:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.32 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.33 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-28-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 1:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-015 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.32 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | MB-R131879 | SampType: | MBLK | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 131879 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R131879 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/15/2019 | SeqNo: | 3289931 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID | LCS-R131879 | SampType: | LCS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 131879 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R131879 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/15/2019 | SeqNo: | 3289932 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.487 | 0.050 | 0.5000 | 0 | 97.4 | 85 | 115 | | | | |

| Sample ID | N034102-004CDUP | SampType: | DUP | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 131879 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131879 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/15/2019 | SeqNo: | 3289936 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.151 | 0.050 | | | | | | 0.1343 | 11.6 | 20 | |

| Sample ID | N034104-001DMS | SampType: | MS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 131879 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131879 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/15/2019 | SeqNo: | 3289938 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.829 | 0.050 | 0.5000 | 0.3514 | 95.5 | 75 | 125 | | | | |

| Sample ID | N034104-001DMSD | SampType: | MSD | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 131879 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131879 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/15/2019 | SeqNo: | 3289939 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.848 | 0.050 | 0.5000 | 0.3514 | 99.4 | 75 | 125 | 0.8291 | 2.30 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-001

**Client Sample ID:** C-TAZ-D-0219
**Collection Date:** 2/12/2019 8:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 21 | 18 | 20 | | ug/L | 1 | 2/14/2019 04:07 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 22 | 18 | 20 | | ug/L | 1 | 2/14/2019 08:32 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-002

**Client Sample ID:** C-TAZ-S-0219
**Collection Date:** 2/12/2019 8:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 04:38 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 08:53 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-003

**Client Sample ID:** C-I-3-D-0219
**Collection Date:** 2/12/2019 9:25:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 04:42 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 23 | 18 | 20 | | ug/L | 1 | 2/14/2019 09:06 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-004

**Client Sample ID:** C-I-3-S-0219
**Collection Date:** 2/12/2019 9:40:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 04:46 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 09:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-906-Q119 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 04:50 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 09:14 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-006

**Client Sample ID:** R63-0219
**Collection Date:** 2/12/2019 10:25:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190227H** | QC Batch: **72664** | | | PrepDate | **2/26/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/27/2019 10:37 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 25 | 18 | 20 | | ug/L | 1 | 2/14/2019 09:18 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 22 | 18 | 20 | | ug/L | 1 | 2/14/2019 04:59 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 46 | 18 | 20 | | ug/L | 1 | 2/14/2019 09:23 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 26 | 18 | 20 | | ug/L | 1 | 2/14/2019 05:03 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 42 | 18 | 20 | | ug/L | 1 | 2/14/2019 09:27 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-009

**Client Sample ID:** C-R27-D-0219
**Collection Date:** 2/12/2019 12:05:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 26 | 18 | 20 | | ug/L | 1 | 2/14/2019 05:16 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 24 | 18 | 20 | | ug/L | 1 | 2/14/2019 09:31 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-908-Q119 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:15:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 05:20 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 29 | 18 | 20 | | ug/L | 1 | 2/14/2019 09:36 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 05:24 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 63 | 18 | 20 | | ug/L | 1 | 2/14/2019 09:40 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 05:28 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 37 | 18 | 20 | | ug/L | 1 | 2/14/2019 09:44 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-015

**Client Sample ID:** R-28-0219
**Collection Date:** 2/12/2019 1:00:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 05:33 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 160 | 18 | 20 | | ug/L | 1 | 2/19/2019 08:00 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **MB-72468** | SampType: **MBLK** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **2/13/2019** | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72468** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3289177** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID **LCS-72468** | SampType: **LCS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **2/13/2019** | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72468** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3289178** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 109.124 | 20 | 100.0 | 0 | 109 | 85 | 115 | | | | |

| Sample ID **N034104-001C-MS** | SampType: **MS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **2/13/2019** | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72468** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3289184** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 135.479 | 20 | 100.0 | 20.68 | 115 | 75 | 125 | | | | |

| Sample ID **N034104-001C-MSD** | SampType: **MSD** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **2/13/2019** | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72468** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3289185** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 135.291 | 20 | 100.0 | 20.68 | 115 | 75 | 125 | 135.5 | 0.139 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID | MB-72664 | SampType: | MBLK | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 2/26/2019 | RunNo: | 132152 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72664 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/27/2019 | SeqNo: | 3303589 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID | LCS-72664 | SampType: | LCS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 2/26/2019 | RunNo: | 132152 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72664 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/27/2019 | SeqNo: | 3303590 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 107.628 | 20 | 100.0 | 0 | 108 | 85 | 115 | | | | |

| Sample ID | N034104-006C-MS | SampType: | MS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 2/26/2019 | RunNo: | 132152 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72664 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/27/2019 | SeqNo: | 3303594 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 97.095 | 20 | 100.0 | 0 | 97.1 | 75 | 125 | | | | |

| Sample ID | N034104-006C-MSD | SampType: | MSD | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 2/26/2019 | RunNo: | 132152 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72664 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/27/2019 | SeqNo: | 3303595 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 99.844 | 20 | 100.0 | 0 | 99.8 | 75 | 125 | 97.09 | 2.79 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID | MB-72464 | SampType: | MBLK | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 2/13/2019 | RunNo: | 131849 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72464 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3289125 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID | LCS-72464 | SampType: | LCS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 2/13/2019 | RunNo: | 131849 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72464 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3289126 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 109.084 | 20 | 100.0 | 0 | 109 | 85 | 115 | | | | |

| Sample ID | N034104-001E-MS | SampType: | MS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 2/13/2019 | RunNo: | 131849 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72464 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3289130 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 131.993 | 20 | 100.0 | 22.42 | 110 | 75 | 125 | | | | |

| Sample ID | N034104-001E-MSD | SampType: | MSD | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 2/13/2019 | RunNo: | 131849 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72464 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3289131 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 131.961 | 20 | 100.0 | 22.42 | 110 | 75 | 125 | 132.0 | 0.0243 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 8:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Arsenic | 2.3 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 08:17 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 08:17 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 08:17 PM |
| Molybdenum | 5.4 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 08:17 PM |
| Selenium | 2.1 | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 08:17 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-002

**Client Sample ID:** C-TAZ-S-0219
**Collection Date:** 2/12/2019 8:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 08:44 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 08:44 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 08:44 PM |
| Molybdenum | 5.2 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 08:44 PM |
| Selenium | 1.9 | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 08:44 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** | | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | | PrepDate | **2/13/2019** | Analyst: **CEI** |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 08:50 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 08:50 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 08:50 PM |
| Molybdenum | 4.8 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 08:50 PM |
| Selenium | 2.1 | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 08:50 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**ASSET Laboratories**

# ANALYTICAL RESULTS

**Print Date:** *26-Feb-19*

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:40:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | | PrepDate | **2/13/2019** | Analyst: **CEI** |
| Arsenic | 2.0 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 09:06 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 09:06 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 09:06 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 09:06 PM |
| Selenium | 1.7 | 0.36 | 0.50 | | µg/L | 1 | 2/22/2019 08:08 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-005

**Client Sample ID:** MW-906-Q119
**Collection Date:** 2/12/2019 9:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 09:12 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 09:12 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 09:12 PM |
| Molybdenum | 4.8 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 09:12 PM |
| Selenium | 1.4 | 0.36 | 0.50 | | µg/L | 1 | 2/22/2019 08:15 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R63-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** | | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 09:17 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 09:17 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 09:17 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 09:17 PM |
| Selenium | 1.1 | 0.36 | 0.50 | | µg/L | 1 | 2/22/2019 08:21 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** | | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Arsenic | 1.9 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 09:23 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 09:23 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 09:23 PM |
| Molybdenum | 4.8 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 09:23 PM |
| Selenium | 1.5 | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 09:23 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** | | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 09:28 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 09:28 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 09:28 PM |
| Molybdenum | 4.8 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 09:28 PM |
| Selenium | 1.5 | 0.36 | 0.50 | | µg/L | 1 | 2/22/2019 08:27 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | | PrepDate | **2/13/2019** | Analyst: **CEI** |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 09:34 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 09:34 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 09:34 PM |
| Molybdenum | 5.1 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 09:34 PM |
| Selenium | 2.0 | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 09:34 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-908-Q119 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:15:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | | PrepDate | **2/13/2019** | Analyst: **CEI** |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 09:40 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 09:40 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 09:40 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 09:40 PM |
| Selenium | 1.9 | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 09:40 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** | | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 09:46 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 09:46 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 09:46 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 09:46 PM |
| Selenium | 1.6 | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 09:46 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | | PrepDate | **2/13/2019** | Analyst: **CEI** |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 09:51 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 09:51 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 09:51 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 09:51 PM |
| Selenium | 1.8 | 0.36 | 0.50 | | µg/L | 1 | 2/22/2019 08:32 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-015

**Client Sample ID:** R-28-0219
**Collection Date:** 2/12/2019 1:00:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 10:19 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 10:19 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 10:19 PM |
| Molybdenum | 5.1 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 10:19 PM |
| Selenium | 2.0 | 0.36 | 0.50 | | µg/L | 1 | 2/22/2019 08:43 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **MB-72458** | SampType: **MBLK** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72458** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293498** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **LCS-72458** | SampType: **LCS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72458** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293499** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.765 | 0.10 | 10.00 | 0 | 97.7 | 85 | 115 | | | | |
| Barium | 11.221 | 1.0 | 10.00 | 0 | 112 | 85 | 115 | | | | |
| Manganese | 105.130 | 0.50 | 100.0 | 0 | 105 | 85 | 115 | | | | |
| Molybdenum | 10.050 | 0.50 | 10.00 | 0 | 101 | 85 | 115 | | | | |
| Selenium | 9.582 | 0.50 | 10.00 | 0 | 95.8 | 85 | 115 | | | | |

| Sample ID **N034104-001C-MS** | SampType: **MS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72458** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293503** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 12.156 | 0.10 | 10.00 | 2.291 | 98.6 | 75 | 125 | | | | |
| Barium | 125.264 | 1.0 | 10.00 | 122.0 | 32.3 | 75 | 125 | | | | S |
| Manganese | 98.455 | 0.50 | 100.0 | 0 | 98.5 | 75 | 125 | | | | |
| Molybdenum | 17.010 | 0.50 | 10.00 | 5.378 | 116 | 75 | 125 | | | | |
| Selenium | 12.002 | 0.50 | 10.00 | 2.094 | 99.1 | 75 | 125 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **N034104-001C-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **2/13/2019** RunNo: **131940**
Client ID: **ZZZZZZ** Batch ID: **72458** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **2/14/2019** SeqNo: **3293504**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 12.048 | 0.10 | 10.00 | 2.291 | 97.6 | 75 | 125 | 12.16 | 0.892 | 20 | |
| Barium | 125.348 | 1.0 | 10.00 | 122.0 | 33.1 | 75 | 125 | 125.3 | 0.0668 | 20 | S |
| Manganese | 98.616 | 0.50 | 100.0 | 0 | 98.6 | 75 | 125 | 98.45 | 0.163 | 20 | |
| Molybdenum | 17.060 | 0.50 | 10.00 | 5.378 | 117 | 75 | 125 | 17.01 | 0.291 | 20 | |
| Selenium | 12.636 | 0.50 | 10.00 | 2.094 | 105 | 75 | 125 | 12.00 | 5.15 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD

Page 1 of 2

| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID: |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: | Sample Receipt Condition: Y N; 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number 72 |
| Phone: 916-788-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@pivox.com | P.O.# SWA-ASSET-C9817-057 |
| Submitted By: Joe Gatel | | Phone: 949-727-1400, ext 200 | Fax: |
| Title: Scientist 1 | Phone: 916-786-3302 Fax: | | 6. Method of Cooling: ICE |
| Signature: Date: 2/12/2019 | Sampled By: Jason Mahan | Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid | Sample Temp: 2.3°C |
| I hereby authorize ASSET Labs to perform the tests indicated below. | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | | Courier: ASSET |
| Project Name: PG&E Topock - RMP | Signature: Date: 2/12/2019 | | Tracking No.: |
| Project Number: RC000753.801D | | | |

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH | Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH | pH (SM4500-HB) | Specific Conductance (E120.1) | TSS (SM2540 D) | Dissolved metals (SW6020) FF; HNO3 Ar,Ba | Dissolved metals (SW6010B) FF; HNO3 Fe, Mn, Mo | Dissolved metals (SW6020A) FF; HNO3 Se | Dissolved metals (SW6020) FF; HNO3 Cr | Nitrate/Nitrite (SM4500N03) Nitrogen: H2SO4 | Total metals (SW6010B); HNO3 Fe | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 3x250 mL poly | 250 mL poly | 1 liter poly | 1 liter poly | 1 liter poly | 500mL poly | 500mL poly | 500mL poly | 500mL poly | 125 mL poly | 500 mL poly | | | | | |
| 1 | N034104-01 | C-TAZ-D-0219 | 2/12/2019 | 08:35 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 2 | -02 | C-TAZ-S-0219 | 2/12/2019 | 08:50 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 3 | -03 | C-I-3-D-0219 | 2/12/2019 | 09:25 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 4 | -04 | C-I-3-S-0219 | 2/12/2019 | 09:40 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 5 | -05 | MW-906-Q119 | 2/12/2019 | 09:50 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 6 | -06 | R63-0219 | 2/12/2019 | 10:25 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 7 | -07 | C-R22A-S-0219 | 2/12/2019 | 11:10 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 8 | -08 | C-R22A-D-0219 | 2/12/2019 | 10:55 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 9 | -09 | C-R27-D-0219 | 2/12/2019 | 12:05 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 10 | -10 | MW-908-Q119 | 2/12/2019 | 12:15 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 11 | -11 | C-R27-S-0219 | 2/12/2019 | 12:30 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 12 | -12 | C-BNS-0219 | 2/12/2019 | 11:35 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 13 | -13 | SW1-0219 | 2/12/2019 | 14:30 | | X | | X | X | | | | | X | | | E | 5 | P | BNS | |
| 14 | -14 | SW2-0219 | 2/12/2019 | 14:45 | | X | | X | X | | | | | X | | | E | 5 | P | BNS | |

Reliquished by (Signature and Printed Name): Jason Mahan Date/Time: 2/12/19 1600
Reliquished by (Signature and Printed Name): JORDAN ICE Date/Time: 2-12-19 1610
Reliquished by (Signature and Printed Name): JORDAN ICE Date/Time: 2/12/2019
Reliquished by (Signature and Printed Name): JORDAN ICE Date/Time: 2-12-19 1830

**Turn Around Time (TAT)**

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM

**Special Instruction:**

Terms:
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis.
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total.
5. Trip Blanks and Equipment Blanks are billable sample
6. Asset Laboratories is not responsible for samples collected using incorrect methodology
7. Terms are net 30 days
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary

**Preservatives:**

| | | | |
|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C |
| Z=Zn(AC)$_2$ | O=NaOH | T=$Na_2S_2O_3$ | |
| Others/Specify: | B | (NH4)2SO4/NH4OH | |

**Container Type:**

| | | |
|---|---|---|
| T=Tube | V=VOA | P=Pint |
| J=Jar | B=Tedlar | G=Glass |
| M=Metal | M=Metal | C=Can |

White=Laboratory Copy
Yellow=Customer's Copy

# ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

## CHAIN OF CUSTODY RECORD

Page 2 of 2


Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com


| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID: |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State: |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: | Sample Receipt Condition (Y N): 1. Chilled ✓; 2. Headspace; 3. Container Intact; 4. Seal Present; 5. IR number; 6. Method of Cooling: ICE; Sample Temp: 2.0°c |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661 | Email to: mbloes@pivox.com P.O.# SWA-ASSET-C9817-057 | Courier: ASSET; Tracking No.: |
| Submitted By: Joe Gatel | Phone: 916-786-3302 Fax: | Phone: 949-727-1400, ext 200 Fax: | |
| Title: Scientist 1 | | | |
| Signature: Date: 2/12/2019 | Sampled By: | Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid | |
| I hereby authorize ASSET Labs to perform the tests indicated below. | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | | |
| Project Name: PG&E Topock - RMP | Signature: Date: 2/12/2019 | | |
| Project Number: RC000753.801D | | | |

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly) | Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly) | pH (SM4500-HB) (1 liter poly) | Specific Conductance (E120.1) (1 liter poly) | TSS (SM2540 D) (1 liter poly) | Dissolved metals (SW6020) FF; HNO3 Ar,Ba, (500mL poly) | Dissolved metals (SW6010B) FF; HNO3 Fe, Mn, Mo (500mL poly) | Dissolved metals (SW6020A) FF; HNO3 Se (500mL poly) | Dissolved metals (SW6020) FF; HNO3 Cr (500mL poly) | Nitrate/Nitrite (SM4500NO3) Nitrogen; H2SO4 (125 mL poly) | Total metals (SW6010B); HNO3 Fe (500 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034104-15 | R-28-0219 | 2/12/2019 | 13:00 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BN | |
| 2 | -16 | AmbientBlank-1-0219 | 2/12/2019 | 10:20 | | | X | | | | | | | | | | E | 1 | P | B | |
| 3 | -17 | AmbientBlank-2-0219 | 2/12/2019 | 13:10 | | | X | | | | | | | | | | E | 1 | P | B | |
| 4 | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | | | | |

| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| Jason Mahn | 2/12/19 1610 | Jordan Lee | 2-12-19 1610 |
| Jordan Lee | 2/12/19 1830 | Jordan Lee | 2-12-19 1830 |
| | | | |

**Turn Around Time (TAT)**

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total
5. Trip Blanks and Equipment Blanks are billable sample
6. Asset Laboratories is not responsible for samples collected using incorrect methodology
7. Terms are net 30 days
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

| Preservatives: | | | | Container Type: | | |
|---|---|---|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C | T=Tube | V=VOA | P=Pint |
| Z=Zn(AC)$_2$ | O=NaOH | T=$Na_2S_2O_3$ | | J=Jar | S=Tedlar | G=Glass |
| Others/Specify: | B (NH4)2SO4/NH4OH | | | M=Metal | M=Metal | C=Can |

White=Laboratory Copy

Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

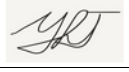
If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

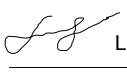
| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 2/12/2019 | Workorder: | N034104 |
| Rep sample Temp (Deg C): | 2.8 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | NA | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☐ | No ☑ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☑ | No ☐ | NA ☐ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments: Samples fro pH were past holding time upon receipt.

Checklist Completed By: YR  2/13/2019

Reviewed By:  LG 022019

## Mary Ann Balilu (maryann.balilu@assetlaboratoriesph.com)

**From:** Madsen, Laura <Laura.Madsen@arcadis.com>
**Sent:** Thursday, February 14, 2019 12:08 PM
**To:** Yoandra Rodriguez
**Cc:** maryann.balilu@assetlaboratoriesph.com; 'Andreafe. Gallardo'; 'Sonny. Lorenzo'; Gatel, Joe
**Subject:** RE: PG&E Topock - RMP, RC000753.801D (Asset Labs N034104 and N034129)

Hi,
"As" is the correct analyte and please use the historic method 6020.

Thanks,
Laura

---

**From:** Yoandra Rodriguez <yoandra@assetlaboratories.com>
**Sent:** Thursday, February 14, 2019 1:58 PM
**To:** Madsen, Laura <Laura.Madsen@arcadis.com>
**Cc:** maryann.balilu@assetlaboratoriesph.com; 'Andreafe. Gallardo' <andrea.gallardo@assetlaboratories.com>; 'Sonny. Lorenzo' <sonny.lorenzo@assetlaboratories.com>
**Subject:** PG&E Topock - RMP, RC000753.801D (Asset Labs N034104 and N034129)

Hi Laura,

I'd like to confirm the analysis for Mn and Mo on the attached COCs. You are requesting 6010, but per history we do it by 6020.

Please also note there's a mistake on "RMP" COCs, Ar is written instead of As. So we assume it should be As.

--
**Thanks,**

**Yoandra Rodriguez**
Sample Control Officer
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436

ASSET LABORATORIES - Serving Clients with Passion and Professionalism

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# ASSET Laboratories

## WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034104

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-001A | C-TAZ-D-0219 | 2/12/2019 8:35:00 AM | 2/26/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-001B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-001C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-001D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-001E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-002A | C-TAZ-S-0219 | 2/12/2019 8:50:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-002B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-002C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034104

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-002C | C-TAZ-S-0219 | 2/12/2019 8:50:00 AM | 2/26/2019 | Groundwater | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-002D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-002E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-003A | C-I-3-D-0219 | 2/12/2019 9:25:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-003B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-003C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-003D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-003E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-004A | C-I-3-S-0219 | 2/12/2019 9:40:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-004B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034104

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-004B | C-I-3-S-0219 | 2/12/2019 9:40:00 AM | 2/26/2019 | Groundwater | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-004C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-004D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-004E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-005A | MW-906-Q119 | 2/12/2019 9:50:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-005B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-005C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-005D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-005E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034104

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-005E | MW-906-Q119 | 2/12/2019 9:50:00 AM | 2/26/2019 | Groundwater | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-006A | R63-0219 | 2/12/2019 10:25:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-006B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-006C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-006D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-006E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-007A | C-R22A-S-0219 | 2/12/2019 11:10:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-007B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-007C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034104

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-007C | C-R22A-S-0219 | 2/12/2019 11:10:00 AM | 2/26/2019 | Groundwater | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-007D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-007E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-008A | C-R22A-D-0219 | 2/12/2019 10:55:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-008B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-008C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-008D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-008E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-009A | C-R27-D-0219 | 2/12/2019 12:05:00 PM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-009B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |

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## WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034104

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-009B | C-R27-D-0219 | 2/12/2019 12:05:00 PM | 2/26/2019 | Groundwater | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-009C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-009D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-009E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-010A | MW-908-Q119 | 2/12/2019 12:15:00 PM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-010B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-010C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-010D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034104

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-010E | MW-908-Q119 | 2/12/2019 12:15:00 PM | 2/26/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-011A | C-R27-S-0219 | 2/12/2019 12:30:00 PM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-011B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-011C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-011D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-011E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-012A | C-BNS-0219 | 2/12/2019 11:35:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-012B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-012C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034104

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-012C | C-BNS-0219 | 2/12/2019 11:35:00 AM | 2/26/2019 | Groundwater | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-012D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-012E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-013A | SW1-0219 | 2/12/2019 2:30:00 PM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-013B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| N034104-013C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-014A | SW2-0219 | 2/12/2019 2:45:00 PM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-014B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| N034104-014C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-015A | R-28-0219 | 2/12/2019 1:00:00 PM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-015B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-015C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034104

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-015C | R-28-0219 | 2/12/2019 1:00:00 PM | 2/26/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-015D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-015E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-016A | AmbientBlank-1-0219 | 2/12/2019 10:20:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-017A | AmbientBlank-2-0219 | 2/12/2019 1:10:00 PM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-018A | FOLDER | 2/26/2019 | 2/26/2019 | | EDD | RWQCB | ☐ | ☐ | ☐ | LAB |
| | | | 2/26/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 2/26/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# *ARCADIS*

Project: PG&E Topock - RMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N034104

## *ANALYTICAL and QC RESULTS*
## *SAMPLE RECEIVING ITEMS*

*PRIVILEGED AND CONFIDENTIAL*

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| EPA 120.1 | 140-143 |
| SM 4500-H+B | 144-147 |
| SM 2540D | 148-163 |
| EPA 218.6 | 164-367 |
| SM 4500-NO3F | 368-383 |
| EPA 6010B_Dissolved | 384-429 |
| EPA 6010B | 430-482 |
| EPA 6020_Dissolved | 483-558 |

February 27, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034104

RE: PG&E Topock - RMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on February 12, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034104

# CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling;sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Barium in QC samples N034104-001C-MS and N034104-001C-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

## ASSET Laboratories

**Date:** *27-Feb-19*

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034104
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034104-001A | C-TAZ-D-0219 | Groundwater | 2/12/2019 8:35:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-001B | C-TAZ-D-0219 | Groundwater | 2/12/2019 8:35:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-001C | C-TAZ-D-0219 | Groundwater | 2/12/2019 8:35:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-001D | C-TAZ-D-0219 | Groundwater | 2/12/2019 8:35:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-001E | C-TAZ-D-0219 | Groundwater | 2/12/2019 8:35:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-002A | C-TAZ-S-0219 | Groundwater | 2/12/2019 8:50:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-002B | C-TAZ-S-0219 | Groundwater | 2/12/2019 8:50:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-002C | C-TAZ-S-0219 | Groundwater | 2/12/2019 8:50:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-002D | C-TAZ-S-0219 | Groundwater | 2/12/2019 8:50:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-002E | C-TAZ-S-0219 | Groundwater | 2/12/2019 8:50:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-003A | C-I-3-D-0219 | Groundwater | 2/12/2019 9:25:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-003B | C-I-3-D-0219 | Groundwater | 2/12/2019 9:25:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-003C | C-I-3-D-0219 | Groundwater | 2/12/2019 9:25:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-003D | C-I-3-D-0219 | Groundwater | 2/12/2019 9:25:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-003E | C-I-3-D-0219 | Groundwater | 2/12/2019 9:25:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-004A | C-I-3-S-0219 | Groundwater | 2/12/2019 9:40:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-004B | C-I-3-S-0219 | Groundwater | 2/12/2019 9:40:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-004C | C-I-3-S-0219 | Groundwater | 2/12/2019 9:40:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-004D | C-I-3-S-0219 | Groundwater | 2/12/2019 9:40:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-004E | C-I-3-S-0219 | Groundwater | 2/12/2019 9:40:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-005A | MW-906-Q119 | Groundwater | 2/12/2019 9:50:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-005B | MW-906-Q119 | Groundwater | 2/12/2019 9:50:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-005C | MW-906-Q119 | Groundwater | 2/12/2019 9:50:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-005D | MW-906-Q119 | Groundwater | 2/12/2019 9:50:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-005E | MW-906-Q119 | Groundwater | 2/12/2019 9:50:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-006A | R63-0219 | Groundwater | 2/12/2019 10:25:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-006B | R63-0219 | Groundwater | 2/12/2019 10:25:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-006C | R63-0219 | Groundwater | 2/12/2019 10:25:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-006D | R63-0219 | Groundwater | 2/12/2019 10:25:00 AM | 2/12/2019 | 2/27/2019 |

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034104
**Contract No:**

# Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034104-006E | R63-0219 | Groundwater | 2/12/2019 10:25:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-007A | C-R22A-S-0219 | Groundwater | 2/12/2019 11:10:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-007B | C-R22A-S-0219 | Groundwater | 2/12/2019 11:10:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-007C | C-R22A-S-0219 | Groundwater | 2/12/2019 11:10:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-007D | C-R22A-S-0219 | Groundwater | 2/12/2019 11:10:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-007E | C-R22A-S-0219 | Groundwater | 2/12/2019 11:10:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-008A | C-R22A-D-0219 | Groundwater | 2/12/2019 10:55:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-008B | C-R22A-D-0219 | Groundwater | 2/12/2019 10:55:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-008C | C-R22A-D-0219 | Groundwater | 2/12/2019 10:55:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-008D | C-R22A-D-0219 | Groundwater | 2/12/2019 10:55:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-008E | C-R22A-D-0219 | Groundwater | 2/12/2019 10:55:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-009A | C-R27-D-0219 | Groundwater | 2/12/2019 12:05:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-009B | C-R27-D-0219 | Groundwater | 2/12/2019 12:05:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-009C | C-R27-D-0219 | Groundwater | 2/12/2019 12:05:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-009D | C-R27-D-0219 | Groundwater | 2/12/2019 12:05:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-009E | C-R27-D-0219 | Groundwater | 2/12/2019 12:05:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-010A | MW-908-Q119 | Groundwater | 2/12/2019 12:15:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-010B | MW-908-Q119 | Groundwater | 2/12/2019 12:15:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-010C | MW-908-Q119 | Groundwater | 2/12/2019 12:15:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-010D | MW-908-Q119 | Groundwater | 2/12/2019 12:15:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-010E | MW-908-Q119 | Groundwater | 2/12/2019 12:15:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-011A | C-R27-S-0219 | Groundwater | 2/12/2019 12:30:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-011B | C-R27-S-0219 | Groundwater | 2/12/2019 12:30:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-011C | C-R27-S-0219 | Groundwater | 2/12/2019 12:30:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-011D | C-R27-S-0219 | Groundwater | 2/12/2019 12:30:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-011E | C-R27-S-0219 | Groundwater | 2/12/2019 12:30:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-012A | C-BNS-0219 | Groundwater | 2/12/2019 11:35:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-012B | C-BNS-0219 | Groundwater | 2/12/2019 11:35:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-012C | C-BNS-0219 | Groundwater | 2/12/2019 11:35:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-012D | C-BNS-0219 | Groundwater | 2/12/2019 11:35:00 AM | 2/12/2019 | 2/27/2019 |

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034104
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034104-012E | C-BNS-0219 | Groundwater | 2/12/2019 11:35:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-013A | SW1-0219 | Groundwater | 2/12/2019 2:30:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-013B | SW1-0219 | Groundwater | 2/12/2019 2:30:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-013C | SW1-0219 | Groundwater | 2/12/2019 2:30:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-014A | SW2-0219 | Groundwater | 2/12/2019 2:45:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-014B | SW2-0219 | Groundwater | 2/12/2019 2:45:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-014C | SW2-0219 | Groundwater | 2/12/2019 2:45:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-015A | R-28-0219 | Groundwater | 2/12/2019 1:00:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-015B | R-28-0219 | Groundwater | 2/12/2019 1:00:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-015C | R-28-0219 | Groundwater | 2/12/2019 1:00:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-015D | R-28-0219 | Groundwater | 2/12/2019 1:00:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-015E | R-28-0219 | Groundwater | 2/12/2019 1:00:00 PM | 2/12/2019 | 2/27/2019 |
| N034104-016A | AmbientBlank-1-0219 | Groundwater | 2/12/2019 10:20:00 AM | 2/12/2019 | 2/27/2019 |
| N034104-017A | AmbientBlank-2-0219 | Groundwater | 2/12/2019 1:10:00 PM | 2/12/2019 | 2/27/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 8:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213C** | QC Batch: **R131802** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 860 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213C** | QC Batch: **R131802** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 880 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213C** | QC Batch: **R131802** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 870 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:40:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213C** | QC Batch: **R131802** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 860 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-906-Q119 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213C** | QC Batch: **R131802** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 860 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R63-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213D** | QC Batch: **R131803** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 870 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213D** | QC Batch: **R131803** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 870 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213D** | QC Batch: **R131803** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 880 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213D** | QC Batch: **R131803** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 880 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-908-Q119 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:15:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213D** | QC Batch: **R131803** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 880 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213D** | QC Batch: **R131803** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 900 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213D** | QC Batch: **R131803** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 890 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | SW1-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 2:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213D** | QC Batch: **R131803** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 960 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | SW2-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 2:45:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-014 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213D** | QC Batch: **R131803** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 960 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-28-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 1:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-015 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190213D** | QC Batch: **R131803** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 930 | 0.10 | 0.10 | | umhos/cm | 1 | 2/13/2019 10:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID **N034103-001ADUP** | SampType: **DUP** | TestCode: **120.1_WPGE** | Units: **umhos/cm** | Prep Date: | RunNo: **131802** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131802** | TestNo: **EPA 120.1** | | Analysis Date: **2/13/2019** | SeqNo: **3287910** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 56100.000 | 0.10 | | | | | | 56400 | 0.533 | 2 | |

| Sample ID **N034103-011ADUP** | SampType: **DUP** | TestCode: **120.1_WPGE** | Units: **umhos/cm** | Prep Date: | RunNo: **131802** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131802** | TestNo: **EPA 120.1** | | Analysis Date: **2/13/2019** | SeqNo: **3287920** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 50200.000 | 0.10 | | | | | | 50600 | 0.794 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID | N034104-011BDUP | SampType: | DUP | TestCode: | 120.1_WPGE | Units: | umhos/cm | Prep Date: | | RunNo: | 131803 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131803 | TestNo: | EPA 120.1 | | | Analysis Date: | 2/13/2019 | SeqNo: | 3287935 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 898.000 | 0.10 | | | | | | 895.0 | 0.335 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-001

**Client Sample ID:** C-TAZ-D-0219
**Collection Date:** 2/12/2019 8:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.0 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:40:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-005

**Client Sample ID:** MW-906-Q119
**Collection Date:** 2/12/2019 9:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-006

**Client Sample ID:** R63-0219
**Collection Date:** 2/12/2019 10:25:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-007

**Client Sample ID:** C-R22A-S-0219
**Collection Date:** 2/12/2019 11:10:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-009

**Client Sample ID:** C-R27-D-0219
**Collection Date:** 2/12/2019 12:05:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-010

**Client Sample ID:** MW-908-Q119
**Collection Date:** 2/12/2019 12:15:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-011

**Client Sample ID:** C-R27-S-0219
**Collection Date:** 2/12/2019 12:30:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.1 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-012

**Client Sample ID:** C-BNS-0219
**Collection Date:** 2/12/2019 11:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | SW1-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 2:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.6 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | SW2-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 2:45:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-014 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.6 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-28-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 1:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-015 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190213E** | QC Batch: **R131804** | | | PrepDate | | | Analyst: **LR** |
| pH | 6.8 | 0.10 | 0.10 | H | pH Units | 1 | 2/13/2019 04:55 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/13/2019 04:55 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 150.1_4500H+B_W**

Sample ID **N034104-001BDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **131804**
Client ID: **ZZZZZZ** Batch ID: **R131804** TestNo: **SM4500-H+B** Analysis Date: **2/13/2019** SeqNo: **3287942**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 8.350 | 0.10 | | | | | | 8.320 | 0.360 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

Sample ID **N034104-012BDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **131804**
Client ID: **ZZZZZZ** Batch ID: **R131804** TestNo: **SM4500-H+B** Analysis Date: **2/13/2019** SeqNo: **3287954**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 8.290 | 0.10 | | | | | | 8.280 | 0.121 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 8:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214A** | QC Batch: **72490** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214A** | QC Batch: **72490** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214A** QC Batch: **72490** | | | | PrepDate | **2/14/2019** | Analyst: **LR** | |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:40:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190214A** | QC Batch: **72490** | | | PrepDate | **2/14/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-906-Q119 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214A** | QC Batch: **72490** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R63-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214A** | QC Batch: **72490** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214A** QC Batch: **72490** | | | | PrepDate | **2/14/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214A** | QC Batch: **72490** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214A** | QC Batch: **72490** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-908-Q119 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:15:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214A** | QC Batch: **72490** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214B** | QC Batch: **72491** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214B** QC Batch: **72491** | | | | PrepDate | **2/14/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-28-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 1:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-015 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214B** QC Batch: **72491** | | | | | PrepDate **2/14/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | 31 | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.2_2540D_W**

| Sample ID | LCS-72490 | SampType: | LCS | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/14/2019 | RunNo: | 131839 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72490 | TestNo: | SM2540D | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288868 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | 941.000 | 10 | 1000 | 0 | 94.1 | 80 | 120 | | | | |

| Sample ID | MB-72490 | SampType: | MBLK | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/14/2019 | RunNo: | 131839 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72490 | TestNo: | SM2540D | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288869 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 10 | | | | | | | | | |

| Sample ID | N034104-001BDUP | SampType: | DUP | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/14/2019 | RunNo: | 131839 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72490 | TestNo: | SM2540D | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288871 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 5.0 | | | | | | 0 | 0 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.2_2540D_W**

| Sample ID | LCS-72491 | SampType: | LCS | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/14/2019 | RunNo: | 131840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72491 | TestNo: | SM2540D | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288883 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | 937.000 | 10 | 1000 | 0 | 93.7 | 80 | 120 | | | | |

| Sample ID | MB-72491 | SampType: | MBLK | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/14/2019 | RunNo: | 131840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72491 | TestNo: | SM2540D | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288884 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 10 | | | | | | | | | |

| Sample ID | N034129-002BDUP | SampType: | DUP | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/14/2019 | RunNo: | 131840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72491 | TestNo: | SM2540D | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288889 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 5.0 | | | | | | 0 | 0 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 8:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| **EPA 218.6** | | | | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 10:54 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** **EPA 6020** | | | | | | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 08:17 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 11:05 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 08:44 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 11:15 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 08:50 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:40:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 11:24 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 09:06 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-906-Q119 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 11:34 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 09:12 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R63-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 11:43 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 09:17 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 11:53 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 09:23 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| **EPA 218.6** | | | | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 12:02 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** **EPA 6020** | | | | | | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 09:28 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190221A** QC Batch: **R132043** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/21/2019 02:49 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 09:34 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-908-Q119 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:15:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 12:40 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 09:40 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 02:43 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 09:46 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 02:52 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 09:51 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | SW1-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 2:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 03:02 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 09:57 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | SW2-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 2:45:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-014 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 03:11 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 10:13 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-28-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 1:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-015 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** QC Batch: **R132010** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 03:21 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214B** QC Batch: **72458** | | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/14/2019 10:19 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | AmbientBlank-1-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:20:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-016 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** | QC Batch: **R132010** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 06:09 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | AmbientBlank-2-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 1:10:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-017 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190220A** | QC Batch: **R132010** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/20/2019 03:40 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **MB-R132010** | SampType: **MBLK** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297698** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **LCS-R132010** | SampType: **LCS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297699** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.723 | 0.20 | 5.000 | 0 | 94.5 | 90 | 110 | | | | |

| Sample ID **N034104-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297712** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.043 | 0.20 | 1.000 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **N034104-002AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297713** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.027 | 0.20 | 1.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **N034104-003AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297714** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.056 | 0.20 | 1.000 | 0 | 106 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **N034104-004AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297715** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.037 | 0.20 | 1.000 | 0.04340 | 99.4 | 90 | 110 | | | | |

| Sample ID **N034104-005AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297716** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.035 | 0.20 | 1.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **N034104-006AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297717** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.039 | 0.20 | 1.000 | 0.05090 | 98.8 | 90 | 110 | | | | |

| Sample ID **N034104-007AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297718** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.045 | 0.20 | 1.000 | 0 | 105 | 90 | 110 | | | | |

| Sample ID **N034104-008AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297719** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.070 | 0.20 | 1.000 | 0 | 107 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034104-010AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132010 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132010 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3297723 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.067 | 0.20 | 1.000 | 0 | 107 | 90 | 110 | | | | |

| Sample ID | N034104-011AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132010 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132010 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3297735 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.050 | 0.20 | 1.000 | 0.05750 | 99.3 | 90 | 110 | | | | |

| Sample ID | N034104-012AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132010 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132010 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3297736 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.039 | 0.20 | 1.000 | 0 | 104 | 90 | 110 | | | | |

| Sample ID | N034104-013AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132010 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132010 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3297737 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.015 | 0.20 | 1.000 | 0 | 101 | 90 | 110 | | | | |

| Sample ID | N034104-014AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132010 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132010 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3297738 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.047 | 0.20 | 1.000 | 0 | 105 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **N034104-015AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132010**
Client ID: **ZZZZZZ** Batch ID: **R132010** TestNo: **EPA 218.6** Analysis Date: **2/20/2019** SeqNo: **3297739**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.041 | 0.20 | 1.000 | 0 | 104 | 90 | 110 | | | | |

Sample ID **N034104-016AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132010**
Client ID: **ZZZZZZ** Batch ID: **R132010** TestNo: **EPA 218.6** Analysis Date: **2/20/2019** SeqNo: **3297741**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.062 | 0.20 | 1.000 | 0 | 106 | 90 | 110 | | | | |

Sample ID **N034238-002BDUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132010**
Client ID: **ZZZZZZ** Batch ID: **R132010** TestNo: **EPA 218.6** Analysis Date: **2/20/2019** SeqNo: **3297742**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.133 | 0.20 | | | | | | 0.1396 | 0 | 20 | |

Sample ID **N034104-017AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132010**
Client ID: **ZZZZZZ** Batch ID: **R132010** TestNo: **EPA 218.6** Analysis Date: **2/20/2019** SeqNo: **3297747**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.013 | 0.20 | 1.000 | 0 | 101 | 90 | 110 | | | | |

Sample ID **N034104-017AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132010**
Client ID: **ZZZZZZ** Batch ID: **R132010** TestNo: **EPA 218.6** Analysis Date: **2/20/2019** SeqNo: **3297748**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.012 | 0.20 | 1.000 | 0 | 101 | 90 | 110 | 1.013 | 0.158 | 20 | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **MB-R132043** | SampType: **MBLK** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132043** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R132043** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3298893** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **LCS-R132043** | SampType: **LCS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132043** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R132043** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3298894** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.106 | 0.20 | 5.000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **N034269-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132043** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132043** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3298901** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.384 | 1.0 | 5.000 | 0 | 108 | 90 | 110 | | | | |

| Sample ID **N034104-009AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132043** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132043** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3298902** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.134 | 0.20 | 1.000 | 0.09750 | 104 | 90 | 110 | | | | |

| Sample ID **N034104-009AMSD** | SampType: **MSD** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132043** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132043** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3298903** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.155 | 0.20 | 1.000 | 0.09750 | 106 | 90 | 110 | 1.134 | 1.81 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034107-018ADUP | SampType: | DUP | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132043 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132043 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/21/2019 | SeqNo: | 3298904 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 28.897 | 1.0 | | | | | | 29.28 | 1.31 | 20 | |

| Sample ID | N034271-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132043 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132043 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/21/2019 | SeqNo: | 3298905 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 995.220 | 20 | 500.0 | 483.9 | 102 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | MB-72458 | SampType: | MBLK | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72458 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293629 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-72458 | SampType: | LCS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72458 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293630 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.179 | 1.0 | 10.00 | 0 | 102 | 85 | 115 | | | | |

| Sample ID | N034104-001C-MS | SampType: | MS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72458 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293634 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.535 | 1.0 | 10.00 | 0 | 95.4 | 75 | 125 | | | | |

| Sample ID | N034104-001C-MSD | SampType: | MSD | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131941 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72458 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293635 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.594 | 1.0 | 10.00 | 0 | 95.9 | 75 | 125 | 9.535 | 0.618 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 8:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.35 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.36 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.35 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:40:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.36 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-906-Q119 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R63-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.35 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.36 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.34 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.33 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-908-Q119 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:15:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.32 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.33 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-28-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 1:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-015 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190215B** | QC Batch: **R131879** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.32 | 0.032 | 0.050 | | mg/L | 1 | 2/15/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **MB-R131879** | SampType: **MBLK** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289931** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **LCS-R131879** | SampType: **LCS** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289932** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.487 | 0.050 | 0.5000 | 0 | 97.4 | 85 | 115 | | | | |

| Sample ID **N034102-004CDUP** | SampType: **DUP** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289936** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.151 | 0.050 | | | | | | 0.1343 | 11.6 | 20 | |

| Sample ID **N034104-001DMS** | SampType: **MS** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289938** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.829 | 0.050 | 0.5000 | 0.3514 | 95.5 | 75 | 125 | | | | |

| Sample ID **N034104-001DMSD** | SampType: **MSD** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289939** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.848 | 0.050 | 0.5000 | 0.3514 | 99.4 | 75 | 125 | 0.8291 | 2.30 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-001

**Client Sample ID:** C-TAZ-D-0219
**Collection Date:** 2/12/2019 8:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 21 | 18 | 20 | | ug/L | 1 | 2/14/2019 04:07 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 22 | 18 | 20 | | ug/L | 1 | 2/14/2019 08:32 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-002

**Client Sample ID:** C-TAZ-S-0219
**Collection Date:** 2/12/2019 8:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 04:38 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 08:53 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 04:42 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 23 | 18 | 20 | | ug/L | 1 | 2/14/2019 09:06 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-004

**Client Sample ID:** C-I-3-S-0219
**Collection Date:** 2/12/2019 9:40:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 04:46 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 09:10 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-005

**Client Sample ID:** MW-906-Q119
**Collection Date:** 2/12/2019 9:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 04:50 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 09:14 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-006

**Client Sample ID:** R63-0219
**Collection Date:** 2/12/2019 10:25:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190227H** | QC Batch: **72664** | | | PrepDate | **2/26/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/27/2019 10:37 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 25 | 18 | 20 | | ug/L | 1 | 2/14/2019 09:18 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 22 | 18 | 20 | | ug/L | 1 | 2/14/2019 04:59 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 46 | 18 | 20 | | ug/L | 1 | 2/14/2019 09:23 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-008

**Client Sample ID:** C-R22A-D-0219
**Collection Date:** 2/12/2019 10:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 26 | 18 | 20 | | ug/L | 1 | 2/14/2019 05:03 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 42 | 18 | 20 | | ug/L | 1 | 2/14/2019 09:27 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-009

**Client Sample ID:** C-R27-D-0219
**Collection Date:** 2/12/2019 12:05:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 26 | 18 | 20 | | ug/L | 1 | 2/14/2019 05:16 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 24 | 18 | 20 | | ug/L | 1 | 2/14/2019 09:31 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-010

**Client Sample ID:** MW-908-Q119
**Collection Date:** 2/12/2019 12:15:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 05:20 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 29 | 18 | 20 | | ug/L | 1 | 2/14/2019 09:36 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-011

**Client Sample ID:** C-R27-S-0219
**Collection Date:** 2/12/2019 12:30:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 05:24 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 63 | 18 | 20 | | ug/L | 1 | 2/14/2019 09:40 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-012

**Client Sample ID:** C-BNS-0219
**Collection Date:** 2/12/2019 11:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 05:28 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 37 | 18 | 20 | | ug/L | 1 | 2/14/2019 09:44 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-28-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 1:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-015 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190214B** | QC Batch: **72468** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/14/2019 05:33 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72464** | | | PrepDate | **2/13/2019** | | Analyst: **CEI** |
| Iron | 160 | 18 | 20 | | ug/L | 1 | 2/19/2019 08:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID | **MB-72468** | SampType: | **MBLK** | TestCode: | **6010_WDPG** | Units: | **ug/L** | Prep Date: | **2/13/2019** | RunNo: | **131849** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **PBW** | Batch ID: | **72468** | TestNo: | **EPA 6010B** | **EPA 3010A** | | Analysis Date: | **2/14/2019** | SeqNo: | **3289177** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID | **LCS-72468** | SampType: | **LCS** | TestCode: | **6010_WDPG** | Units: | **ug/L** | Prep Date: | **2/13/2019** | RunNo: | **131849** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **LCSW** | Batch ID: | **72468** | TestNo: | **EPA 6010B** | **EPA 3010A** | | Analysis Date: | **2/14/2019** | SeqNo: | **3289178** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 109.124 | 20 | 100.0 | 0 | 109 | 85 | 115 | | | | |

| Sample ID | **N034104-001C-MS** | SampType: | **MS** | TestCode: | **6010_WDPG** | Units: | **ug/L** | Prep Date: | **2/13/2019** | RunNo: | **131849** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: | **72468** | TestNo: | **EPA 6010B** | **EPA 3010A** | | Analysis Date: | **2/14/2019** | SeqNo: | **3289184** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 135.479 | 20 | 100.0 | 20.68 | 115 | 75 | 125 | | | | |

| Sample ID | **N034104-001C-MSD** | SampType: | **MSD** | TestCode: | **6010_WDPG** | Units: | **ug/L** | Prep Date: | **2/13/2019** | RunNo: | **131849** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: | **72468** | TestNo: | **EPA 6010B** | **EPA 3010A** | | Analysis Date: | **2/14/2019** | SeqNo: | **3289185** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 135.291 | 20 | 100.0 | 20.68 | 115 | 75 | 125 | 135.5 | 0.139 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID | MB-72664 | SampType: | MBLK | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 2/26/2019 | RunNo: | 132152 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72664 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/27/2019 | SeqNo: | 3303589 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID | LCS-72664 | SampType: | LCS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 2/26/2019 | RunNo: | 132152 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72664 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/27/2019 | SeqNo: | 3303590 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 107.628 | 20 | 100.0 | 0 | 108 | 85 | 115 | | | | |

| Sample ID | N034104-006C-MS | SampType: | MS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 2/26/2019 | RunNo: | 132152 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72664 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/27/2019 | SeqNo: | 3303594 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 97.095 | 20 | 100.0 | 0 | 97.1 | 75 | 125 | | | | |

| Sample ID | N034104-006C-MSD | SampType: | MSD | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 2/26/2019 | RunNo: | 132152 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72664 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/27/2019 | SeqNo: | 3303595 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 99.844 | 20 | 100.0 | 0 | 99.8 | 75 | 125 | 97.09 | 2.79 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID | MB-72464 | SampType: | MBLK | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 2/13/2019 | RunNo: | 131849 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72464 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3289125 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID | LCS-72464 | SampType: | LCS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 2/13/2019 | RunNo: | 131849 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72464 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3289126 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 109.084 | 20 | 100.0 | 0 | 109 | 85 | 115 | | | | |

| Sample ID | N034104-001E-MS | SampType: | MS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 2/13/2019 | RunNo: | 131849 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72464 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3289130 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 131.993 | 20 | 100.0 | 22.42 | 110 | 75 | 125 | | | | |

| Sample ID | N034104-001E-MSD | SampType: | MSD | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 2/13/2019 | RunNo: | 131849 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72464 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3289131 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 131.961 | 20 | 100.0 | 22.42 | 110 | 75 | 125 | 132.0 | 0.0243 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-001

**Client Sample ID:** C-TAZ-D-0219
**Collection Date:** 2/12/2019 8:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 2.3 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 08:17 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 08:17 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 08:17 PM |
| Molybdenum | 5.4 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 08:17 PM |
| Selenium | 2.1 | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 08:17 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-002

**Client Sample ID:** C-TAZ-S-0219
**Collection Date:** 2/12/2019 8:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 08:44 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 08:44 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 08:44 PM |
| Molybdenum | 5.2 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 08:44 PM |
| Selenium | 1.9 | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 08:44 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-D-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:25:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** | | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 08:50 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 08:50 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 08:50 PM |
| Molybdenum | 4.8 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 08:50 PM |
| Selenium | 2.1 | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 08:50 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 9:40:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | | PrepDate | **2/13/2019** | Analyst: **CEI** |
| Arsenic | 2.0 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 09:06 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 09:06 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 09:06 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 09:06 PM |
| Selenium | 1.7 | 0.36 | 0.50 | | µg/L | 1 | 2/22/2019 08:08 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-005

**Client Sample ID:** MW-906-Q119
**Collection Date:** 2/12/2019 9:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 09:12 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 09:12 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 09:12 PM |
| Molybdenum | 4.8 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 09:12 PM |
| Selenium | 1.4 | 0.36 | 0.50 | | µg/L | 1 | 2/22/2019 08:15 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-006

**Client Sample ID:** R63-0219
**Collection Date:** 2/12/2019 10:25:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 09:17 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 09:17 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 09:17 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 09:17 PM |
| Selenium | 1.1 | 0.36 | 0.50 | | µg/L | 1 | 2/22/2019 08:21 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-007

**Client Sample ID:** C-R22A-S-0219
**Collection Date:** 2/12/2019 11:10:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 1.9 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 09:23 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 09:23 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 09:23 PM |
| Molybdenum | 4.8 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 09:23 PM |
| Selenium | 1.5 | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 09:23 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-008

**Client Sample ID:** C-R22A-D-0219
**Collection Date:** 2/12/2019 10:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 09:28 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 09:28 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 09:28 PM |
| Molybdenum | 4.8 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 09:28 PM |
| Selenium | 1.5 | 0.36 | 0.50 | | µg/L | 1 | 2/22/2019 08:27 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-009

**Client Sample ID:** C-R27-D-0219
**Collection Date:** 2/12/2019 12:05:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 09:34 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 09:34 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 09:34 PM |
| Molybdenum | 5.1 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 09:34 PM |
| Selenium | 2.0 | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 09:34 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-010

**Client Sample ID:** MW-908-Q119
**Collection Date:** 2/12/2019 12:15:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 09:40 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 09:40 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 09:40 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 09:40 PM |
| Selenium | 1.9 | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 09:40 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-011

**Client Sample ID:** C-R27-S-0219
**Collection Date:** 2/12/2019 12:30:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 09:46 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 09:46 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 09:46 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 09:46 PM |
| Selenium | 1.6 | 0.36 | 0.50 | | µg/L | 1 | 2/14/2019 09:46 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**ASSET Laboratories**

# ANALYTICAL RESULTS

**Print Date:** *26-Feb-19*

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0219 |
| **Lab Order:** | N034104 | **Collection Date:** | 2/12/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034104-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 09:51 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 09:51 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 09:51 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 09:51 PM |
| Selenium | 1.8 | 0.36 | 0.50 | | µg/L | 1 | 2/22/2019 08:32 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034104-015

**Client Sample ID:** R-28-0219
**Collection Date:** 2/12/2019 1:00:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190214A** | QC Batch: **72458** | | | PrepDate | **2/13/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/14/2019 10:19 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/14/2019 10:19 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/14/2019 10:19 PM |
| Molybdenum | 5.1 | 0.21 | 0.50 | | µg/L | 1 | 2/14/2019 10:19 PM |
| Selenium | 2.0 | 0.36 | 0.50 | | µg/L | 1 | 2/22/2019 08:43 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **MB-72458** | SampType: **MBLK** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72458** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293498** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **LCS-72458** | SampType: **LCS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72458** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293499** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.765 | 0.10 | 10.00 | 0 | 97.7 | 85 | 115 | | | | |
| Barium | 11.221 | 1.0 | 10.00 | 0 | 112 | 85 | 115 | | | | |
| Manganese | 105.130 | 0.50 | 100.0 | 0 | 105 | 85 | 115 | | | | |
| Molybdenum | 10.050 | 0.50 | 10.00 | 0 | 101 | 85 | 115 | | | | |
| Selenium | 9.582 | 0.50 | 10.00 | 0 | 95.8 | 85 | 115 | | | | |

| Sample ID **N034104-001C-MS** | SampType: **MS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/13/2019** | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72458** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293503** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 12.156 | 0.10 | 10.00 | 2.291 | 98.6 | 75 | 125 | | | | |
| Barium | 125.264 | 1.0 | 10.00 | 122.0 | 32.3 | 75 | 125 | | | | S |
| Manganese | 98.455 | 0.50 | 100.0 | 0 | 98.5 | 75 | 125 | | | | |
| Molybdenum | 17.010 | 0.50 | 10.00 | 5.378 | 116 | 75 | 125 | | | | |
| Selenium | 12.002 | 0.50 | 10.00 | 2.094 | 99.1 | 75 | 125 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | N034104-001C-MSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/13/2019 | RunNo: | 131940 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72458 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/14/2019 | SeqNo: | 3293504 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 12.048 | 0.10 | 10.00 | 2.291 | 97.6 | 75 | 125 | 12.16 | 0.892 | 20 | |
| Barium | 125.348 | 1.0 | 10.00 | 122.0 | 33.1 | 75 | 125 | 125.3 | 0.0668 | 20 | S |
| Manganese | 98.616 | 0.50 | 100.0 | 0 | 98.6 | 75 | 125 | 98.45 | 0.163 | 20 | |
| Molybdenum | 17.060 | 0.50 | 10.00 | 5.378 | 117 | 75 | 125 | 17.01 | 0.291 | 20 | |
| Selenium | 12.636 | 0.50 | 10.00 | 2.094 | 105 | 75 | 125 | 12.00 | 5.15 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD

Page 1 of 2

| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID: |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: | Sample Receipt Condition: 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number; 6. Method of Cooling: ICE |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@pivox.com | P.O.# SWA-ASSET-C9817-057 |
| Submitted By: Joe Gatel | | Phone: 949-727-1400, ext 200 | Fax: |
| Title: Scientist 1 | Phone: 916-786-3302 Fax: | | Sample Temp: 2.3°C |
| Signature: Date: 2/12/2019 | Sampled By: Jason Mahan | Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid | Courier: ASSET |
| I hereby authorize ASSET Labs to perform the tests indicated below. | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | | Tracking No.: |
| Project Name: PG&E Topock - RMP | Signature: Date: 2/12/2019 | | |
| Project Number: RC000753.801D | | | |

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly) | Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly) | pH (SM4500-HB) (1 liter poly) | Specific Conductance (E120.1) (1 liter poly) | TSS (SM2540 D) (1 liter poly) | Dissolved metals (SW6020) FF; HNO3 Ar,Ba (500mL poly) | Dissolved metals (SW6010B) FF; HNO3 Fe, Mn, Mo (500mL poly) | Dissolved metals (SW6020A) FF; HNO3 Se (500mL poly) | Dissolved metals (SW6020) FF; HNO3 Cr (500mL poly) | Nitrate/Nitrite (SM4500N03) Nitrogen: H2SO4 (125 mL poly) | Total metals (SW6010B); HNO3 Fe (500 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034104-01 | C-TAZ-D-0219 | 2/12/2019 | 08:35 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 2 | -02 | C-TAZ-S-0219 | 2/12/2019 | 08:50 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 3 | -03 | C-I-3-D-0219 | 2/12/2019 | 09:25 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 4 | -04 | C-I-3-S-0219 | 2/12/2019 | 09:40 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 5 | -05 | MW-906-Q119 | 2/12/2019 | 09:50 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 6 | -06 | R63-0219 | 2/12/2019 | 10:25 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 7 | -07 | C-R22A-S-0219 | 2/12/2019 | 11:10 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 8 | -08 | C-R22A-D-0219 | 2/12/2019 | 10:55 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 9 | -09 | C-R27-D-0219 | 2/12/2019 | 12:05 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 10 | -10 | MW-908-Q119 | 2/12/2019 | 12:15 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 11 | -11 | C-R27-S-0219 | 2/12/2019 | 12:30 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 12 | -12 | C-BNS-0219 | 2/12/2019 | 11:35 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 13 | -13 | SW1-0219 | 2/12/2019 | 14:30 | | X | | X | X | | | | | X | | | E | 5 | P | BNS | |
| 14 | -14 | SW2-0219 | 2/12/2019 | 14:45 | | X | | X | X | | | | | X | | | E | 5 | P | BNS | |

| Relinquished by (Signature and Printed Name): | Date/Time: | Received by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| Jason Mahan | 2/12/19 1600 | JORDAN IGE | 2-12-19 1610 |
| JORDAN IGE | 2/12/2019 | JORDAN IGE | 2-12-19 1830 |
| | | | |

Turn Around Time (TAT)

| | | |
|---|---|---|
| | A | < 24 Hrs or Same Day TAT |
| | B | = Next Workday |
| | C | = 2 Workdays |
| | D | = 3 Workdays |
| X | E | = Routine 5-7 Workdays |

TAT Starts at 8 AM the following day if samples received after 3:00PM

Special Instruction:

Terms:
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis.
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total.
5. Trip Blanks and Equipment Blanks are billable sample
6. Asset Laboratories is not responsible for samples collected using incorrect methodology
7. Terms are net 30 days
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary

Preservatives:

| | | | | |
|---|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C | |
| Z=Zn(AC)$_2$ | O=NaOH | T=$Na_2S_2O_3$ | | |
| Others/Specify: | B | (NH4)2SO4/NH4OH | | |

Container Type:

| | | |
|---|---|---|
| T=Tube | V=VOA | P=Pint |
| J=Jar | B=Tedlar | G=Glass |
| M=Metal | M=Metal | C=Can |

White=Laboratory Copy
Yellow=Customer's Copy

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P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD

Page 2 of 2

| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID: |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State: |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: | Sample Receipt Condition (Y N): 1. Chilled ✓; 2. Headspace; 3. Container Intact; 4. Seal Present; 5. IR number; 6. Method of Cooling: ICE; Sample Temp: 2.0°c |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661 | Email to: mbloes@pivox.com | P.O.# SWA-ASSET-C9817-057 |
| Submitted By: Joe Gatel | | Phone: 949-727-1400, ext 200 | Fax: |
| Title: Scientist 1 | Phone: 916-786-3302 Fax: | | |
| Signature: Date: 2/12/2019 | Sampled By: | Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid | Courier: ASSET; Tracking No.: |
| I hereby authorize ASSET Labs to perform the tests indicated below. | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | | |
| Project Name: PG&E Topock - RMP | Signature: Date: 2/12/2019 | | |
| Project Number: RC000753.801D | | | |

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly) | Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly) | pH (SM4500-HB) (1 liter poly) | Specific Conductance (E120.1) (1 liter poly) | TSS (SM2540 D) (1 liter poly) | Dissolved metals (SW6020) FF; HNO3 Ar,Ba, (500mL poly) | Dissolved metals (SW6010B) FF; HNO3 Fe, Mn, Mo (500mL poly) | Dissolved metals (SW6020A) FF; HNO3 Se (500mL poly) | Dissolved metals (SW6020) FF; HNO3 Cr (500mL poly) | Nitrate/Nitrite (SM4500NO3) Nitrogen; H2SO4 (125 mL poly) | Total metals (SW6010B); HNO3 Fe (500 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034104-15 | R-28-0219 | 2/12/2019 | 13:00 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BN | |
| 2 | -16 | AmbientBlank-1-0219 | 2/12/2019 | 10:20 | | | X | | | | | | | | | | E | 1 | P | B | |
| 3 | -17 | AmbientBlank-2-0219 | 2/12/2019 | 13:10 | | | X | | | | | | | | | | E | 1 | P | B | |
| 4 | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | | | | |

| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| Jason Mahn | 2/12/19 1610 | Jordan Lee | 2-12-19 1610 |
| Jordan Lee | 2/12/19 1830 | Jordan Lee | 2-12-19 1830 |
| | | | |

**Turn Around Time (TAT)**

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total
5. Trip Blanks and Equipment Blanks are billable sample
6. Asset Laboratories is not responsible for samples collected using incorrect methodology
7. Terms are net 30 days
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

| Preservatives: | | | | Container Type: | | |
|---|---|---|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C | T=Tube | V=VOA | P=Pint |
| Z=Zn(AC)$_2$ | O=NaOH | T=$Na_2S_2O_3$ | | J=Jar | S=Tedlar | G=Glass |
| Others/Specify: | B (NH4)2SO4/NH4OH | | | M=Metal | M=Metal | C=Can |

White=Laboratory Copy
Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 2/12/2019 | Workorder: | N034104 |
| Rep sample Temp (Deg C): | 2.8 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | NA | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☐ | No ☑ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☑ | No ☐ | NA ☐ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments: Samples fro pH were past holding time upon receipt.

Checklist Completed By: YR 2/13/2019

Reviewed By: LG 022019

## Mary Ann Balilu (maryann.balilu@assetlaboratoriesph.com)

**From:** Madsen, Laura <Laura.Madsen@arcadis.com>
**Sent:** Thursday, February 14, 2019 12:08 PM
**To:** Yoandra Rodriguez
**Cc:** maryann.balilu@assetlaboratoriesph.com; 'Andreafe. Gallardo'; 'Sonny. Lorenzo'; Gatel, Joe
**Subject:** RE: PG&E Topock - RMP, RC000753.801D (Asset Labs N034104 and N034129)

Hi,
"As" is the correct analyte and please use the historic method 6020.

Thanks,
Laura

---

**From:** Yoandra Rodriguez <yoandra@assetlaboratories.com>
**Sent:** Thursday, February 14, 2019 1:58 PM
**To:** Madsen, Laura <Laura.Madsen@arcadis.com>
**Cc:** maryann.balilu@assetlaboratoriesph.com; 'Andreafe. Gallardo' <andrea.gallardo@assetlaboratories.com>; 'Sonny. Lorenzo' <sonny.lorenzo@assetlaboratories.com>
**Subject:** PG&E Topock - RMP, RC000753.801D (Asset Labs N034104 and N034129)

Hi Laura,

I'd like to confirm the analysis for Mn and Mo on the attached COCs. You are requesting 6010, but per history we do it by 6020.

Please also note there's a mistake on "RMP" COCs, Ar is written instead of As. So we assume it should be As.

--
**Thanks,**

**Yoandra Rodriguez**
Sample Control Officer
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436

ASSET LABORATORIES - Serving Clients with Passion and Professionalism

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# ASSET Laboratories

## WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034104

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-001A | C-TAZ-D-0219 | 2/12/2019 8:35:00 AM | 2/26/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-001B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-001C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-001D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-001E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-002A | C-TAZ-S-0219 | 2/12/2019 8:50:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-002B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-002C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034104

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-002C | C-TAZ-S-0219 | 2/12/2019 8:50:00 AM | 2/26/2019 | Groundwater | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-002D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-002E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-003A | C-I-3-D-0219 | 2/12/2019 9:25:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-003B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-003C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-003D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-003E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-004A | C-I-3-S-0219 | 2/12/2019 9:40:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-004B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034104

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-004B | C-I-3-S-0219 | 2/12/2019 9:40:00 AM | 2/26/2019 | Groundwater | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-004C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-004D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-004E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-005A | MW-906-Q119 | 2/12/2019 9:50:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-005B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-005C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-005D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-005E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034104

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-005E | MW-906-Q119 | 2/12/2019 9:50:00 AM | 2/26/2019 | Groundwater | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-006A | R63-0219 | 2/12/2019 10:25:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-006B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-006C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-006D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-006E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-007A | C-R22A-S-0219 | 2/12/2019 11:10:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-007B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-007C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034104

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-007C | C-R22A-S-0219 | 2/12/2019 11:10:00 AM | 2/26/2019 | Groundwater | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-007D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-007E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-008A | C-R22A-D-0219 | 2/12/2019 10:55:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-008B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-008C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-008D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-008E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-009A | C-R27-D-0219 | 2/12/2019 12:05:00 PM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-009B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |

## WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034104

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-009B | C-R27-D-0219 | 2/12/2019 12:05:00 PM | 2/26/2019 | Groundwater | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-009C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-009D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-009E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-010A | MW-908-Q119 | 2/12/2019 12:15:00 PM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-010B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-010C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-010D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |

## WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034104

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-010E | MW-908-Q119 | 2/12/2019 12:15:00 PM | 2/26/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-011A | C-R27-S-0219 | 2/12/2019 12:30:00 PM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-011B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-011C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-011D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-011E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-012A | C-BNS-0219 | 2/12/2019 11:35:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-012B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-012C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034104

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-012C | C-BNS-0219 | 2/12/2019 11:35:00 AM | 2/26/2019 | Groundwater | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-012D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-012E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-013A | SW1-0219 | 2/12/2019 2:30:00 PM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-013B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| N034104-013C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-014A | SW2-0219 | 2/12/2019 2:45:00 PM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-014B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| N034104-014C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-015A | R-28-0219 | 2/12/2019 1:00:00 PM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-015B | | | 2/26/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034104-015C | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*13-Feb-19*

**WorkOrder:** N034104

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/12/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-015C | R-28-0219 | 2/12/2019 1:00:00 PM | 2/26/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034104-015D | | | 2/26/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034104-015E | | | 2/26/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/26/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034104-016A | AmbientBlank-1-0219 | 2/12/2019 10:20:00 AM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-017A | AmbientBlank-2-0219 | 2/12/2019 1:10:00 PM | 2/26/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034104-018A | FOLDER | 2/26/2019 | 2/26/2019 | | EDD | RWQCB | ☐ | ☐ | ☐ | LAB |
| | | | 2/26/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 2/26/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# List of Analysts

## ASSET Laboratories Work Order: N034104

| NAME | TEST METHOD |
|---|---|
| Quennie Manimtim | SM 4500-NO3F |
| Claire Ignacio | EPA 6010B_Dissolved, EPA 6010B, EPA 6020_Dissolved |
| Lilia Ramit | EPA 120.1, SM 4500-H+B, SM 2540D |
| Hanah Glodoviza | EPA 218.6 |

# EPA 120.1

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R131802/1803 **Analyst:** LSR

**ASSET #:** N034104 **Date Analyzed:** 13-Feb

**Method:** EPA 120.1

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | | | X | | | |
| 11. LCS compounds within control limits. | | | X | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 2/25/2019

2nd Level Reviewer: Nancy 2/26/2019 Date: —

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

# Conductivity Logbook

**Date:** 2/13/19 1055

**Analyst:** LSR (CONTD)

| Standard | Std ID | Reading | Comments |
|---|---|---|---|
| 11.26 mS/cm | CIW-181011A | 11.43 @17.7C | % Rec: (90-110%) |
| 1410 | 1901670 | 1442 @ 18.1C | |
| 09988 | 1807311 | 10200 @ 18.3C | |
| 99621 | 1811218 | 10070 @ 18.5C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | NO34103-009A | H2O | 10430 @17.5C | |
| 2 | 10A | | 1818 @ 17.0C | |
| 3 | 11A | | 50600 @ 16.8C | |
| 4 | 11A DUP | | 50200 @16.6C | |
| 5 | 12A | | 2210 @ 17.1C | |
| 6 | 13A | | 9790 @ 17.0C | |
| 7 | NO34104-001B | | 865 @17.2C | |
| 8 | 2B | | 875 @17.2C | |
| 9 | 3B | | 874 @ 17.1C | |
| 10 | 4B | | 857 @17.1C | |
| Dup | 5B | | 860 @ 17.0C | Accept: 10% water, 20% soil |
| | Std Chk: | | | % Rec: (90-110%) |

**Date:** 2/13/19 10:55 Julia Ramit 2/25/2019

**Analyst:** LSR

| Standard | Std ID | Reading | Comments |
|---|---|---|---|
| 1413 mS/cm | CIW-181022A | 1467 @17.8C | % Rec: (90-110%) |
| 10000 | B | 9990 @ 18.1C | |
| 99922 | C | 9700V @18.2C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | NO34104 006B | H2O | 867 @16.7C | |
| 2 | 7B | | 872 @16.8C | STD CHECK |
| 3 | 8B | | 878 @17.0C | 1413 CIW 181022A |
| 4 | 9B | | 875 @17.0C | = 1455 @ 18.4C |
| 5 | 10B | | 883 @ 16.9C | 10000 CIW 181022B |
| 6 | 11B | | 895 @ 16.7C | = 9993 @ 18.4C |
| 7 | 11B DUP | | 898 @16.6C | 99922 CIW 181022C |
| 8 | 12B | | 893 @ 16.7C | = 9780V @ 18.4C |
| 9 | 13B | | 955 @ 16.8C | |
| 10 | 14B | | 959 @ 16.8C | |
| Dup | 15B | | 932 @ 16.9C | Accept: 10% water, 20% soil |
| | Std Chk: | | | % Rec: (90-110%) |



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# SM 4500-H+B

# pH Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R131804 **Instrument ID:** pH meter

**ASSET #:** N034104 **Analyst:** LSR

**Date Analyzed:** 13-Feb

**Method:** EPA 150.1

| pH Meter Calibration | 1st Level Review Y | 1st Level Review N | 1st Level Review N/A | 2nd Level Review Y | 2nd Level Review N | 2nd Level Review N/A |
|---|---|---|---|---|---|---|
| 1. Was the meter calibrated using 3 buffers (4,7 and 10)? | X | | | | | |
| 2. Was a closing buffer used at the end of analysis? | X | | | | | |
| 3. Was the meter checked every 10 samples? | X | | | | | |
| **Sample Information** | | | | | | |
| 4. Are all samples analyzed within hold time. | | X | | | | |
| **QC Items** | | | | | | |
| 5. Was a duplicate sample analyzed? | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 6. Are Non-Conformances documented | | | X | | | |
| 7. Runlog complete and included in package. | X | | | | | |
| **Preliminary Report** | | | | | | |
| 8. Does the raw data match the preliminary report? | X | | | | | |
| 9. Are analytical results correct? | X | | | | | |
| 10. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer Julia Ramit Date: 2/26/2019

2nd Level Reviewer 2/26/2019 Date:

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

# pH Logbook

**Date:** 2/13/19 1655
**Analyst:** LBR

| Standard | Std ID | pH | Comments |
|---|---|---|---|
| Buffer 7 | cnw - 180914C | 7.05 @ 25C | |
| Buffer 4 | 180914D | 4.01 @ 25C | |
| Buffer 10 | 180919C | 10.01 @ 25C | |
| Slope | | 95.6% | Acceptance Criteria: 95%-105% |

| | Sample ID | Matrix | pH | Comments |
|---|---|---|---|---|
| 1 | N034104-001B | H2O | 8.32 @ 25C | |
| 2 | 1BDUP | | 8.35 @ 25C | |
| 3 | 2B | | 8.05 @ 25C | |
| 4 | 3B | | 8.30 @ 25C | |
| 5 | 4B | | 8.29 @ 25C | |
| 6 | 5B | | 8.28 @ 25C | |
| 7 | 6B | | 8.33 @ 25C | |
| 8 | 7B | | 8.29 @ 25C | |
| 9 | 8B | | 8.30 @ 25C | |
| 10 | 9B | | 8.28 @ 25C | |
| ~~Dup~~ | 10B | | 8.28 @ 25C | Accept: 10% water, 20% soil |
| | Buffer (7), 4, 10 (Circle one) | cnw - 180802E | 6.99 @ 25C | Accept: +/-0.05 pH units from expected value |

**Date:** CONTD
**Analyst:**

Julia Ramit 2/26/2019

| Standard | Std ID | pH | Comments |
|---|---|---|---|
| Buffer 7 | | | |
| Buffer 4 | | | |
| Buffer 10 | | | |
| Slope | | | Acceptance Criteria: 95%-105% |

| | Sample ID | Matrix | pH | Comments |
|---|---|---|---|---|
| 1 | N034104-011B | H2O | 7.08 @ 25C | |
| 2 | 12B | | 8.28 @ 25C | |
| 3 | 12BDUP | | 8.29 @ 25C | |
| 4 | 13B | | 7.63 @ 25C | |
| 5 | 14B | | 7.57 @ 25C | |
| 6 | 15B | | 6.81 @ 25C | |
| 7 | N034108-001D | | 7.81 @ 25C | |
| 8 | 1DUP | | 7.84 @ 25C | Buffer 7 cnw 180802E = 6.98 @ 25C |
| 9 | | | | |
| 10 | | | | |
| Du | | | | Accept: 10% water, 20% soil |
| | Buffer 7, 4, 10 | | | Accept: +/-0.05 pH units from expected value |

# SM 2540D

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72490/72491 **Analyst:** LSR

**ASSET #:** N034104 **Date Analyzed:** 14-Feb

**Method:** EPA 160.2 / SM 2540D

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | | | |
| 11. LCS compounds within control limits. | X | | | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 2/21/2019

2nd Level Reviewer: [illegible] 2/26/2019 Date: ~

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** SM 2540D
**TEST NAME:** Total Non-Filterable Residue
**MATRIX:** Water

FORMULA:

Calculate TSS concentration in mg/L, in the original sample as follows:

$$\text{TSS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N034104-001B,** TSS concentration in mg/L is calculated as follows:

$$\text{TSS, mg/L} = \frac{(1.4071- 1.4066) *1000000}{200}$$
$$= 2.5 \text{ mg/L}$$

Since reporting limit is 10 mg/L, therefore:

TSS = ND mg/L

Silvia Ramit 2/21/2019

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/14/2019 9:29:30 A**
Prep End Date: **2/14/2019 3:00:00 P**

Reviewed/ Date: 2/26/2019
Initials/ Date: Lilia Ramit 2/21/2019

Prep Batch **72490** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Temp. (°C): **105**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72490 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-72490 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034104-001B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034104-001B-DU | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034104-002B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034104-003B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034104-004B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034104-005B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034104-006B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034104-007B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034104-008B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034104-009B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034104-010B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10403 | Glass Fiber Filter, 47mm |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| IWST190107D | 1000 ppm Talc | LCS | 100 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/14/2019 9:29:30 A**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 2/21/2019

Prep Batch **72490** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: mL / mL

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72490 | Water | 1W5T1901075 | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-72490 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034104-001B | Groundwater | | 100 / 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034104-001B-DU | Groundwater | | 100 / 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034104-002B | Groundwater | | 100 / 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034104-003B | Groundwater | | 100 / 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034104-004B | Groundwater | | 100 / 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034104-005B | Groundwater | | 100 / 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034104-006B | Groundwater | | 100 / 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034104-007B | Groundwater | | 100 / 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034104-008B | Groundwater | | 100 / 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034104-009B | Groundwater | | 100 / 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034104-010B | Groundwater | | 100 / 200 | ☐ | 0 | 0 | 100 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10403

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/14/2019 9:29:45 A**
Prep End Date: **2/14/2019 3:00:00 P**

Reviewed/ Date: 2/26/2019
Initials/ Date: Lilia Ramit 2/21/2019

Prep Batch **72491** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Temp. (°C): **105**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72491 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-72491 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034104-011B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034104-012B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034104-015B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-002B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-002B-DU | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-003B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-004B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-005B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-006B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-007B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-008B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10403 | Glass Fiber Filter, 47mm |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| IWST190107D | 1000 ppm Talc | LCS | 100 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/14/2019 9:29:45 A**
Prep End Date:

Reviewed/ Date: _____

Initials/ Date: Lilia Ramit 2/21/2019

Prep Batch **72491** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: mL / mL

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72491 | Water | IWST190107D | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-72491 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034104-011B | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034104-012B | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034104-015B | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-002B | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-002B-DU | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-003B | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-004B | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-005B | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-006B | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-007B | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-008B | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10403

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

## SOLIDS RAW DATA

TEST : (TSS)/ TDS/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 2/14/19 929 | MB 72490 | 100 | 1.3977<br>1.3976 | 1.3974<br>1.3974 | |
| | LCS 72490 | 100 | 1.3885<br>1.3884 | 1.4826<br>1.4825 | |
| 1 | NO34104-001B | 200 | 1.4064<br>1.4066 | 1.4072<br>1.4071 | |
| DUP1 | 1B DUP | 200 | 1.4148<br>1.4146 | 1.4151<br>1.4152 | |
| 2 | 2B | 200 | 1.4098<br>1.4095 | 1.4101<br>1.4100 | |
| 3 | 3B | 200 | 1.3941<br>1.3940 | 1.3944<br>1.3944 | |
| 4 | 4B | 200 | 1.4160<br>1.4159 | 1.4164<br>1.4163 | |
| 5 | 5B | 200 | 1.3876<br>1.3873 | 1.3878<br>1.3878 | |
| 6 | 6B | 200 | 1.4073<br>1.4072 | 1.4075<br>1.4074 | |
| 7 | 7B | 200 | 1.3991<br>1.3989 | 1.3993<br>1.3993 | |

Julia Ramit 2/21/2019



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3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922

## SOLIDS RAW DATA

TEST : TSS/ TDS/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 2/14/19 8 | N034104-008B | 200 | 1.4107<br>1.4106 | 1.4110<br>1.4109 | |
| 9 | 9B " | 200 | 1.4221<br>1.4221 | 1.4226<br>1.4226 | |
| 10 | 10B | 200 | 1.4102<br>1.4101 | 1.4107<br>1.4104 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | Julia Ramit | 2/21/2019 | | | |



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ELAP Cert 2676 | NV Cert NV0

# TOTAL SUSPENDED SOLIDS, TSS

## TSS, mg/L = (A-B) * 10000*PF

**where:**

**A =** weight in g of aluminum dish + filter disc + residue after drying
**B =** weight in g of aluminum dish + filter disc
**PF =** 100/volume of sample used in mL

| Date: | vol of sample (mL) | weight in g of aluminum dish + filter disc (B) | weight in g of aluminum dish + filter disc + residue after drying (A) | A-B*10000 | Prep Fact (PF) | TSS, mg/L | Sample Type |
|---|---|---|---|---|---|---|---|
| 2/14/2019 | | | | | | | |
| MB-72490 | 100 | 1.3976 | 1.3974 | -2.0000 | 1.00 | -2 | MBLK |
| LCS-72490 | 100 | 1.3884 | 1.4825 | 941.0000 | 1.00 | 941 | LCS |
| N034104-001B | 200 | 1.4066 | 1.4071 | 5.0000 | 0.50 | 2.5 | SAMP |
| N034104-001BDUP | 200 | 1.4146 | 1.4152 | 6.0000 | 0.50 | 3 | DUP |
| N034104-002B | 200 | 1.4095 | 1.41 | 5.0000 | 0.50 | 2.5 | SAMP |
| N034104-003B | 200 | 1.394 | 1.3944 | 4.0000 | 0.50 | 2 | SAMP |
| N034104-004B | 200 | 1.4159 | 1.4163 | 4.0000 | 0.50 | 2 | SAMP |
| N034104-005B | 200 | 1.3873 | 1.3878 | 5.0000 | 0.50 | 2.5 | SAMP |
| N034104-006B | 200 | 1.4072 | 1.4074 | 2.0000 | 0.50 | 1 | SAMP |
| N034104-007B | 200 | 1.3989 | 1.3993 | 4.0000 | 0.50 | 2 | SAMP |
| N034104-008B | 200 | 1.4106 | 1.4109 | 3.0000 | 0.50 | 1.5 | SAMP |
| N034104-009B | 200 | 1.4221 | 1.4226 | 5.0000 | 0.50 | 2.5 | SAMP |
| N034104-010B | 200 | 1.4101 | 1.4104 | 3.0000 | 0.50 | 1.5 | SAMP |

Silvia Ramit 2/21/2019

## SOLIDS RAW DATA

TEST (TSS/ TDS/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 2/14/19 929 | MB 72491 | 100 | 1.4029 1.4029 | 1.4027 1.4028 | |
| | LCS 72491 | 100 | 1.4078 1.4077 | 1.5014 1.5014 | |
| 11 | NO34104-011B | 200 | 1.3940 1.3939 | 1.3941 1.3940 | |
| 12 | 12B | 200 | 1.4003 1.4001 | 1.4003 1.4005 | |
| extra TB | 15B | 200 | 2/21/19 1.4059 1.3893 1.4059 1.3892 | 1.3955 1.3954 | |
| 14 | NO34129-002B | 200 | 1.3977 1.3976 | 1.3982 1.3982 | |
| DUP2 | 2B DUP | 200 | ~~1.4024~~ 1.4119 1.4117 2/21/19 | 1.4121 1.4122 | |
| 15 | 3B | 200 | 1.4024 1.4024 | 1.4027 1.4026 | |
| 16 | 4B | 200 | 1.4105 1.4103 | 1.4164 1.4164 | |
| 17 | 5B | 200 | 1.4158 1.4158 | 1.4169 1.4168 | |

Julia Ramit 2/21/2019



ASSET LABORATORIES
CALIFORNIA | P:562.219.7435 F:562.219.7436
11110 Artesia Blvd., Ste B, Cerritos, CA 90703
ELAP Cert 2921
NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00

## SOLIDS RAW DATA

TEST (TSS/ TDS/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 2/14/19 18 | N034129-006B | 200 | 1.4055<br>1.4053 | 1.4058<br>1.4058 | |
| 19 | 117B | 200 | 1.3951<br>1.3950 | 1.3955<br>1.3954 | |
| 20 | 8B | 200 | 1.4068<br>1.4067 | 1.4072<br>1.4071 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | Julia Ramit | | 2/21/2019 | | |
| | 0.9999 | (2) | 1500 2/14/19 LKN | | |

# TOTAL SUSPENDED SOLIDS, TSS

## TSS, mg/L = (A-B) * 10000*PF

**where:**

**A =** weight in g of aluminum dish + filter disc + residue after drying
**B =** weight in g of aluminum dish + filter disc
**PF =** 100/volume of sample used in mL

| Date: | vol of sample (mL) | weight in g of aluminum dish + filter disc (B) | weight in g of aluminum dish + filter disc + residue after drying (A) | A-B*10000 | Prep Fact (PF) | TSS, mg/L | Sample Type |
|---|---|---|---|---|---|---|---|
| 2/14/2019 | | | | | | | |
| MB-72491 | 100 | 1.4029 | 1.4028 | -1.0000 | 1.00 | -1 | MBLK |
| LCS-72491 | 100 | 1.4077 | 1.5014 | 937.0000 | 1.00 | 937 | LCS |
| N034104-011B | 200 | 1.3939 | 1.394 | 1.0000 | 0.50 | 0.5 | SAMP |
| N034104-012B | 200 | 1.4001 | 1.4005 | 4.0000 | 0.50 | 2 | SAMP |
| N034104-015B | 200 | 1.3892 | 1.3954 | 62.0000 | 0.50 | 31 | SAMP |
| N034129-002B | 200 | 1.3976 | 1.3982 | 6.0000 | 0.50 | 3 | SAMP |
| N034129-002BDUP | 200 | 1.4117 | 1.4122 | 5.0000 | 0.50 | 2.5 | DUP |
| N034129-003B | 200 | 1.4024 | 1.4026 | 2.0000 | 0.50 | 1 | SAMP |
| N034129-004B | 200 | 1.4103 | 1.4164 | 61.0000 | 0.50 | 30.5 | SAMP |
| N034129-005B | 200 | 1.4158 | 1.4168 | 10.0000 | 0.50 | 5 | SAMP |
| N034129-006B | 200 | 1.4053 | 1.4058 | 5.0000 | 0.50 | 2.5 | SAMP |
| N034129-007B | 200 | 1.395 | 1.3954 | 4.0000 | 0.50 | 2 | SAMP |
| N034129-008B | 200 | 1.4067 | 1.4071 | 4.0000 | 0.50 | 2 | SAMP |

Julia Ramit 2/21/2019

# EPA 218.6

# IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R132010
**ASSET #:** N034104

**Instrument ID:** IC-07
**Analyst:** HSG
**Date Analyzed:** 2/20/2019

**Method:**

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | X | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | X | | |
| 3. ICV within ± 10% of expected value. | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | X | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | ~~X~~ | X | |
| 6. Calibration blanks run after ICV and CCV? | X | | | X | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | X | | | X | | |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | X | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | X | | | X | | |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | X | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | X | | | X | | |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | X |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | X | | | X | | |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | X |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | X | | | X | | |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | X |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | X | | | X | | |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | X |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | X | | |
| 21. Are all samples analyzed within hold time? | X | | | X | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | X |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | X | | |
| 24. LCS compounds are within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | X | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | X |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | X |
| 29. All manual integrations initialed, date and reasons included. | X | | | X | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | X | | |
| 31. All samples and QC raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | X | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 34 Is the QC summary report present and complete? | X | | | X | | |

Comments:

CCV-3 is biased high however, samples affected are non-detect.

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: HSG Date: 2/26/19

2nd Level Reviewer: 2/26/2019 Date: —

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R132043
**ASSET #:** N034104

**Instrument ID:** IC-07
**Analyst:** HSG
**Date Analyzed:** 2/21/2019

**Method:**

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | X | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | X | | |
| 3. ICV within ± 10% of expected value. | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | X | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | X | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | X | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | X | | | X | | |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | | X | | | X | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | X | | | X | | |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | X | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | X | | | X | | |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | X |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | X | | | X | | |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | X |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | X | | | X | | |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | X |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | X | | | X | | |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | X |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | X | | |
| 21. Are all samples analyzed within hold time? | X | | | X | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | X |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | X | | |
| 24. LCS compounds are within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | X | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | X |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | X |
| 29. All manual integrations initialed, date and reasons included. | X | | | X | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | X | | |
| 31. All samples and QC raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | X | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 34 Is the QC summary report present and complete? | X | | | X | | |

Comments:

non-detect

Detection in CCB-1 was >0.02 ppb criteria. However, N034104 sample affected was ~~>5X the CBB detection~~. Thus, sample/s were reported.

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: HSG Date: 2/26/19

2nd Level Reviewer: 2/26/2019 Date: —

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 218.6
**TEST NAME:** HEXAVALENT CHROMIUM BY IC
**MATRIX:** Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N034104-004A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.0434 * 1$$

$$Cr^{+6}, \mu g/L = 0.0434$$

Since PQL is 0.2 µg/L,

$$\mathbf{Cr^{+6}, \mu g/L = ND}$$

NS 2/26/2019

# ANALYSIS RUN LOG

**INJECTION LOG: 190204A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:31 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:41 AM | Not Reported |
| 3 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:54 AM | Not Reported |
| 4 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/04/19 10:22 AM | Reported |
| 5 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:35 AM | Reported |
| 6 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:47 AM | Reported |
| 7 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:56 AM | Reported |
| 8 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:06 AM | Reported |
| 9 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:15 AM | Reported |
| 10 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:25 AM | Reported |
| 11 | ICV | ICV | 1 | Hexavalent Chromium | 02/04/19 11:45 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/04/19 11:56 AM | Reported |
| 13 | ICB | ICB | 1 | Hexavalent Chromium | 02/04/19 12:06 PM | Not Reported |
| 14 | ICB | ICB | 1 | Hexavalent Chromium | 02/04/19 12:19 PM | Reported |
| 15 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 12:32 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190204A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **04/Feb/19 15:07:18** |
| *No. of Injections:* | **18** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:31 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 02/04/2019 09:41 | Finished | BLANK |
| 3 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:54 | Finished | BLANK |
| 4 | iBLANK | 2 | 1000 | Unknown | | 02/04/2019 10:22 | Finished | INSTRUMENT BLANK |
| 5 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/04/2019 10:35 | Finished | 0.2 ppb, IWST-181022C |
| 6 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/04/2019 10:47 | Finished | 1.0 ppb, IWST-181022C |
| 7 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/04/2019 10:56 | Finished | 5.0 ppb, IWST-181022C |
| 8 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/04/2019 11:06 | Finished | 10 ppb, IWST-181022C |
| 9 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/04/2019 11:15 | Finished | 15 ppb, IWST-181022C |
| 10 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/04/2019 11:25 | Finished | 20 ppb, IWST-181022C |
| 11 | ICV,ICV,1, | 9 | 1000 | Unknown | | 02/04/2019 11:45 | Finished | ICV @5ppb, IWST-181022D |
| 12 | PQL@0.2ppb,CCV2,1 | 10 | 1000 | Unknown | | 02/04/2019 11:56 | Finished | PQL @ 0.2ppb |
| 13 | ICB,ICB,1, | 11 | 1000 | Unknown | | 02/04/2019 12:06 | Finished | ICB R190115A |
| 14 | ICB,ICB,1, | 12 | 1000 | Unknown | | 02/04/2019 12:19 | Finished | ICB R190115A |
| 15 | BLANK | 13 | 1000 | Unknown | | 02/04/2019 12:32 | Finished | BLANK |
| 16 | SHUTDOWN | 14 | 1000 | Unknown | | 02/04/2019 14:44 | Finished | |
| 17 | Eluent: R190130B | 15 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 18 | PCR: R190130A | 16 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

**INJECTION LOG: 180220A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:31 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:41 AM | Not Reported |
| 3 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:54 AM | Not Reported |
| 4 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/04/19 10:22 AM | Reported |
| 5 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:35 AM | Reported |
| 6 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:47 AM | Reported |
| 7 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:56 AM | Reported |
| 8 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:06 AM | Reported |
| 9 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:15 AM | Reported |
| 10 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:25 AM | Reported |
| 11 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/20/19 9:29 AM | Not Reported |
| 12 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/20/19 9:40 AM | Not Reported |
| 13 | CCV-1 | CCV | 1 | Hexavalent Chromium | 02/20/19 9:49 AM | Reported |
| 14 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/20/19 9:59 AM | Reported |
| 15 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/20/19 10:08 AM | Reported |
| 16 | MB-R132010 | MBLK | 1 | Hexavalent Chromium | 02/20/19 10:22 AM | Reported |
| 17 | LCS-R132010 | LCS | 1 | Hexavalent Chromium | 02/20/19 10:33 AM | Reported |
| 18 | N034104-001A | SAMP | 1 | Hexavalent Chromium | 02/20/19 10:54 AM | Reported |
| 19 | N034104-002A | SAMP | 1 | Hexavalent Chromium | 02/20/19 11:05 AM | Reported |
| 20 | N034104-003A | SAMP | 1 | Hexavalent Chromium | 02/20/19 11:15 AM | Reported |
| 21 | N034104-004A | SAMP | 1 | Hexavalent Chromium | 02/20/19 11:24 AM | Reported |
| 22 | N034104-005A | SAMP | 1 | Hexavalent Chromium | 02/20/19 11:34 AM | Reported |
| 23 | N034104-006A | SAMP | 1 | Hexavalent Chromium | 02/20/19 11:43 AM | Reported |
| 24 | N034104-007A | SAMP | 1 | Hexavalent Chromium | 02/20/19 11:53 AM | Reported |
| 25 | N034104-008A | SAMP | 1 | Hexavalent Chromium | 02/20/19 12:02 PM | Reported |
| 26 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 02/20/19 12:11 PM | Reported |
| 27 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/20/19 12:21 PM | Reported |
| 28 | N034104-009A | SAMP | 1 | Hexavalent Chromium | 02/20/19 12:30 PM | Not Reported |
| 29 | N034104-010A | SAMP | 1 | Hexavalent Chromium | 02/20/19 12:40 PM | Reported |
| 30 | N034104-001AMS | MS | 1 | Hexavalent Chromium | 02/20/19 12:49 PM | Reported |
| 31 | N034104-002AMS | MS | 1 | Hexavalent Chromium | 02/20/19 12:59 PM | Reported |
| 32 | N034104-003AMS | MS | 1 | Hexavalent Chromium | 02/20/19 1:08 PM | Reported |
| 33 | N034104-004AMS | MS | 1 | Hexavalent Chromium | 02/20/19 1:18 PM | Reported |
| 34 | N034104-005AMS | MS | 1 | Hexavalent Chromium | 02/20/19 1:27 PM | Reported |
| 35 | N034104-006AMS | MS | 1 | Hexavalent Chromium | 02/20/19 1:37 PM | Reported |
| 36 | N034104-007AMS | MS | 1 | Hexavalent Chromium | 02/20/19 1:46 PM | Reported |
| 37 | N034104-008AMS | MS | 1 | Hexavalent Chromium | 02/20/19 1:56 PM | Reported |
| 38 | CCV-3 | CCV | 1 | Hexavalent Chromium | 02/20/19 2:05 PM | Reported |
| 39 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/20/19 2:14 PM | Reported |
| 40 | N034104-009AMS | MS | 1 | Hexavalent Chromium | 02/20/19 2:24 PM | Not Reported |
| 41 | N034104-010AMS | MS | 1 | Hexavalent Chromium | 02/20/19 2:33 PM | Reported |
| 42 | N034104-011A | SAMP | 1 | Hexavalent Chromium | 02/20/19 2:43 PM | Reported |

**INJECTION LOG: 180220A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034104-012A | SAMP | 1 | Hexavalent Chromium | 02/20/19 2:52 PM | Reported |
| 44 | N034104-013A | SAMP | 1 | Hexavalent Chromium | 02/20/19 3:02 PM | Reported |
| 45 | N034104-014A | SAMP | 1 | Hexavalent Chromium | 02/20/19 3:11 PM | Reported |
| 46 | N034104-015A | SAMP | 1 | Hexavalent Chromium | 02/20/19 3:21 PM | Reported |
| 47 | N034104-016A | SAMP | 2 | Hexavalent Chromium | 02/20/19 3:30 PM | Not Reported |
| 48 | N034104-017A | SAMP | 1 | Hexavalent Chromium | 02/20/19 3:40 PM | Reported |
| 49 | N034238-002B | SAMP | 1 | Hexavalent Chromium | 02/20/19 3:49 PM | Reported |
| 50 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/20/19 3:59 PM | Not Reported |
| 51 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/20/19 4:08 PM | Not Reported |
| 52 | N034104-011AMS | MS | 1 | Hexavalent Chromium | 02/20/19 4:17 PM | Not Reported |
| 53 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/20/19 4:34 PM | Not Reported |
| 54 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/20/19 4:44 PM | Reported |
| 55 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/20/19 4:54 PM | Reported |
| 56 | N034104-011AMS | MS | 1 | Hexavalent Chromium | 02/20/19 5:03 PM | Reported |
| 57 | N034104-012AMS | MS | 1 | Hexavalent Chromium | 02/20/19 5:13 PM | Reported |
| 58 | N034104-013AMS | MS | 1 | Hexavalent Chromium | 02/20/19 5:22 PM | Reported |
| 59 | N034104-014AMS | MS | 1 | Hexavalent Chromium | 02/20/19 5:32 PM | Reported |
| 60 | N034104-015AMS | MS | 1 | Hexavalent Chromium | 02/20/19 5:41 PM | Reported |
| 61 | N034104-017AMS | MS | 1 | Hexavalent Chromium | 02/20/19 5:51 PM | Not Reported |
| 62 | N034104-017AMSD | MSD | 1 | Hexavalent Chromium | 02/20/19 6:00 PM | Not Reported |
| 63 | N034104-016A | SAMP | 1 | Hexavalent Chromium | 02/20/19 6:09 PM | Reported |
| 64 | N034104-016AMS | MS | 1 | Hexavalent Chromium | 02/20/19 6:19 PM | Reported |
| 65 | N034238-002BDUP | DUP | 1 | Hexavalent Chromium | 02/20/19 6:28 PM | Reported |
| 66 | CCV-5 | CCV | 1 | Hexavalent Chromium | 02/20/19 6:38 PM | Reported |
| 67 | CCB-5 | CCB | 1 | Hexavalent Chromium | 02/20/19 6:47 PM | Reported |
| 68 | N034107-001A | SAMP | 1 | Hexavalent Chromium | 02/20/19 7:00 PM | Reported |
| 69 | N034107-002A | SAMP | 1 | Hexavalent Chromium | 02/20/19 7:11 PM | Reported |
| 70 | N034104-017AMS | MS | 1 | Hexavalent Chromium | 02/20/19 7:20 PM | Reported |
| 71 | N034104-017AMSD | MSD | 1 | Hexavalent Chromium | 02/20/19 7:30 PM | Reported |
| 72 | MB-R132012 | MBLK | 1 | Hexavalent Chromium | 02/20/19 7:39 PM | Reported |
| 73 | LCS-R132012 | LCS | 1 | Hexavalent Chromium | 02/20/19 7:49 PM | Reported |
| 74 | N034107-003A | SAMP | 10 | Hexavalent Chromium | 02/20/19 7:58 PM | Not Reported |
| 75 | N034107-003AMS | MS | 10 | Hexavalent Chromium | 02/20/19 8:07 PM | Not Reported |
| 76 | N034107-003AMSD | MSD | 10 | Hexavalent Chromium | 02/20/19 8:17 PM | Not Reported |
| 77 | N034107-004A | SAMP | 10 | Hexavalent Chromium | 02/20/19 8:26 PM | Not Reported |
| 78 | CCV-6 | CCV1 | 1 | Hexavalent Chromium | 02/20/19 8:36 PM | Reported |
| 79 | CCB-6 | CCB | 1 | Hexavalent Chromium | 02/20/19 8:45 PM | Reported |
| 80 | N034107-005A | SAMP | 50 | Hexavalent Chromium | 02/20/19 8:55 PM | Reported |
| 81 | N034107-005ADUP | DUP | 50 | Hexavalent Chromium | 02/20/19 9:04 PM | Reported |
| 82 | N034107-021A | SAMP | 5 | Hexavalent Chromium | 02/20/19 9:14 PM | Reported |
| 83 | N034107-021AMS | MS | 5 | Hexavalent Chromium | 02/20/19 9:23 PM | Reported |
| 84 | N034107-006A | SAMP | 50 | Hexavalent Chromium | 02/20/19 9:33 PM | Reported |

**INJECTION LOG: 180220A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 85 | N034107-007A | SAMP | 20 | Hexavalent Chromium | 02/20/19 9:42 PM | Not Reported |
| 86 | N034107-008A | SAMP | 1 | Hexavalent Chromium | 02/20/19 9:52 PM | Reported |
| 87 | N034107-009A | SAMP | 1 | Hexavalent Chromium | 02/20/19 10:01 PM | Reported |
| 88 | N034107-010A | SAMP | 1 | Hexavalent Chromium | 02/20/19 10:10 PM | Not Reported |
| 89 | N034107-011A | SAMP | 1 | Hexavalent Chromium | 02/20/19 10:20 PM | Reported |
| 90 | CCV-7 | CCV | 1 | Hexavalent Chromium | 02/20/19 10:29 PM | Reported |
| 91 | CCB-7 | CCB | 1 | Hexavalent Chromium | 02/20/19 10:39 PM | Reported |
| 92 | N034107-003A | SAMP | 20 | Hexavalent Chromium | 02/20/19 10:48 PM | Reported |
| 93 | N034107-003AMS | MS | 20 | Hexavalent Chromium | 02/20/19 10:58 PM | Reported |
| 94 | N034107-003AMSD | MSD | 20 | Hexavalent Chromium | 02/20/19 11:07 PM | Reported |
| 95 | N034107-004A | SAMP | 20 | Hexavalent Chromium | 02/20/19 11:17 PM | Reported |
| 96 | N034107-012A | SAMP | 1 | Hexavalent Chromium | 02/20/19 11:26 PM | Reported |
| 97 | N034107-013A | SAMP | 1 | Hexavalent Chromium | 02/20/19 11:36 PM | Reported |
| 98 | N034107-014A | SAMP | 1 | Hexavalent Chromium | 02/20/19 11:45 PM | Reported |
| 99 | N034107-015A | SAMP | 1 | Hexavalent Chromium | 02/20/19 11:55 PM | Reported |
| 100 | N034107-016A | SAMP | 1 | Hexavalent Chromium | 02/21/19 12:04 AM | Reported |
| 101 | N034107-017A | SAMP | 1 | Hexavalent Chromium | 02/21/19 12:13 AM | Reported |
| 102 | CCV-8 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 12:23 AM | Reported |
| 103 | CCB-8 | CCB | 1 | Hexavalent Chromium | 02/21/19 12:32 AM | Reported |
| 104 | N034107-018A | SAMP | 1 | Hexavalent Chromium | 02/21/19 12:42 AM | Not Reported |
| 105 | N034107-019A | SAMP | 1 | Hexavalent Chromium | 02/21/19 12:51 AM | Reported |
| 106 | N034107-020A | SAMP | 1 | Hexavalent Chromium | 02/21/19 1:01 AM | Reported |
| 107 | N034107-022A | SAMP | 1 | Hexavalent Chromium | 02/21/19 1:10 AM | Reported |
| 108 | N034107-007A | SAMP | 50 | Hexavalent Chromium | 02/21/19 1:20 AM | Reported |
| 109 | N034107-010A | SAMP | 20 | Hexavalent Chromium | 02/21/19 1:29 AM | Reported |
| 110 | CCV-9 | CCV | 1 | Hexavalent Chromium | 02/21/19 1:39 AM | Reported |
| 111 | CCB-9 | CCB | 1 | Hexavalent Chromium | 02/21/19 1:48 AM | Reported |
| 112 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 1:58 AM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190220A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **21/Feb/19 10:13:14** |
| *No. of Injections:* | **115** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:31 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 02/04/2019 09:41 | Finished | BLANK |
| 3 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:54 | Finished | BLANK |
| 4 | iBLANK | 2 | 1000 | Unknown | | 02/04/2019 10:22 | Finished | INSTRUMENT BLANK |
| 5 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/04/2019 10:35 | Finished | 0.2 ppb, IWST-181022C |
| 6 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/04/2019 10:47 | Finished | 1.0 ppb, IWST-181022C |
| 7 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/04/2019 10:56 | Finished | 5.0 ppb, IWST-181022C |
| 8 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/04/2019 11:06 | Finished | 10 ppb, IWST-181022C |
| 9 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/04/2019 11:15 | Finished | 15 ppb, IWST-181022C |
| 10 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/04/2019 11:25 | Finished | 20 ppb, IWST-181022C |
| 11 | BLANK | 1 | 1000 | Unknown | | 02/20/2019 09:29 | Finished | BLANK |
| 12 | BLANK | 2 | 1000 | Unknown | | 02/20/2019 09:40 | Finished | BLANK |
| 13 | CCV-1,CCV,1, | 3 | 1000 | Unknown | | 02/20/2019 09:49 | Finished | CCV @5ppb, IWST-181022C |
| 14 | PQL@0.2ppb,CCV2,1 | 4 | 1000 | Unknown | | 02/20/2019 09:59 | Finished | PQL @ 0.2ppb |
| 15 | CCB-1,CCB,1, | 5 | 1000 | Unknown | | 02/20/2019 10:08 | Finished | CCB R190115A |
| 16 | MB-H2O,MBLK,1, | 6 | 1000 | Unknown | | 02/20/2019 10:22 | Finished | MB R190115A |
| 17 | LCS-H2O,LCS,1, | 7 | 1000 | Unknown | | 02/20/2019 10:33 | Finished | LCS @5ppb, IWST-181022D |
| 18 | N034104-001A,SAMF | 8 | 1000 | Unknown | | 02/20/2019 10:54 | Finished | SAMP,10mL |
| 19 | N034104-002A,SAMF | 9 | 1000 | Unknown | | 02/20/2019 11:05 | Finished | SAMP,10mL |
| 20 | N034104-003A,SAMF | 10 | 1000 | Unknown | | 02/20/2019 11:15 | Finished | SAMP,10mL |
| 21 | N034104-004A,SAMF | 11 | 1000 | Unknown | | 02/20/2019 11:24 | Finished | SAMP,10mL |
| 22 | N034104-005A,SAMF | 12 | 1000 | Unknown | | 02/20/2019 11:34 | Finished | SAMP,10mL |
| 23 | N034104-006A,SAMF | 13 | 1000 | Unknown | | 02/20/2019 11:43 | Finished | SAMP,10mL |
| 24 | N034104-007A,SAMF | 14 | 1000 | Unknown | | 02/20/2019 11:53 | Finished | SAMP,10mL |
| 25 | N034104-008A,SAMF | 15 | 1000 | Unknown | | 02/20/2019 12:02 | Finished | SAMP,10mL |
| 26 | CCV-2,CCV1,1, | 16 | 1000 | Unknown | | 02/20/2019 12:11 | Finished | CCV @10ppb, IWST-181022C |
| 27 | CCB-2,CCB,1, | 17 | 1000 | Unknown | | 02/20/2019 12:21 | Finished | CCB R190115A |
| 28 | N034104-009A,SAMF | 18 | 1000 | Unknown | | 02/20/2019 12:30 | Finished | SAMP,10mL |
| 29 | N034104-010A,SAMF | 19 | 1000 | Unknown | | 02/20/2019 12:40 | Finished | SAMP,10mL |
| 30 | N034104-001AMS,MS | 20 | 1000 | Unknown | | 02/20/2019 12:49 | Finished | MS (1ppb), IWST-181022D,10 |
| 31 | N034104-002AMS,MS | 21 | 1000 | Unknown | | 02/20/2019 12:59 | Finished | MS (1ppb), IWST-181022D,10 |
| 32 | N034104-003AMS,MS | 22 | 1000 | Unknown | | 02/20/2019 13:08 | Finished | MS (1ppb), IWST-181022D,10 |
| 33 | N034104-004AMS,MS | 23 | 1000 | Unknown | | 02/20/2019 13:18 | Finished | MS (1ppb), IWST-181022D,10 |
| 34 | N034104-005AMS,MS | 24 | 1000 | Unknown | | 02/20/2019 13:27 | Finished | MS (1ppb), IWST-181022D,10 |
| 35 | N034104-006AMS,MS | 25 | 1000 | Unknown | | 02/20/2019 13:37 | Finished | MS (1ppb), IWST-181022D,10 |
| 36 | N034104-007AMS,MS | 26 | 1000 | Unknown | | 02/20/2019 13:46 | Finished | MS (1ppb), IWST-181022D,10 |
| 37 | N034104-008AMS,MS | 27 | 1000 | Unknown | | 02/20/2019 13:56 | Finished | MS (1ppb), IWST-181022D,10 |
| 38 | CCV-3,CCV,1, | 28 | 1000 | Unknown | | 02/20/2019 14:05 | Finished | CCV @5ppb, IWST-181022C |
| 39 | CCB-3,CCB,1, | 29 | 1000 | Unknown | | 02/20/2019 14:14 | Finished | CCB R190115A |
| 40 | N034104-009AMS,MS | 30 | 1000 | Unknown | | 02/20/2019 14:24 | Finished | SAMP,2>10mL |
| 41 | N034104-010AMS,MS | 31 | 1000 | Unknown | | 02/20/2019 14:33 | Finished | SAMP,2>10mL |
| 42 | N034104-011A,SAMF | 32 | 1000 | Unknown | | 02/20/2019 14:43 | Finished | MS (1ppb), IWST-181022D,10 |
| 43 | N034104-012A,SAMF | 33 | 1000 | Unknown | | 02/20/2019 14:52 | Finished | MS (1ppb), IWST-181022D,2>1 |
| 44 | N034104-013A,SAMF | 34 | 1000 | Unknown | | 02/20/2019 15:02 | Finished | SAMP,10mL |
| 45 | N034104-014A,SAMF | 35 | 1000 | Unknown | | 02/20/2019 15:11 | Finished | SAMP,10mL |
| 46 | N034104-015A,SAMF | 36 | 1000 | Unknown | | 02/20/2019 15:21 | Finished | SAMP,10mL |
| 47 | N034104-016A,SAMF | 37 | 1000 | Unknown | | 02/20/2019 15:30 | Finished | SAMP,5>10mL |
| 48 | N034104-017A,SAMF | 38 | 1000 | Unknown | | 02/20/2019 15:40 | Finished | SAMP,10mL |
| 49 | N034238-002B,SAMF | 39 | 1000 | Unknown | | 02/20/2019 15:49 | Finished | SAMP,10mL |
| 50 | CCV-4,CCV1,1, | 40 | 1000 | Unknown | | 02/20/2019 15:59 | Finished | CCV @10ppb, IWST-181022C |
| 51 | CCB-4,CCB,1, | 41 | 1000 | Unknown | | 02/20/2019 16:08 | Finished | CCB R190115A |
| 52 | N034104-011AMS,MS | 42 | 1000 | Unknown | | 02/20/2019 16:17 | Interrupted | SAMP,10mL |
| 53 | CCV-4,CCV1,1, | 1 | 1000 | Unknown | | 02/20/2019 16:34 | Finished | SAMP,10mL |
| 54 | CCV-4,CCV1,1, | 2 | 1000 | Unknown | | 02/20/2019 16:44 | Finished | SAMP,10mL |
| 55 | CCB-4,CCB,1, | 3 | 1000 | Unknown | | 02/20/2019 16:54 | Finished | CCB R190115A |
| 56 | N034104-011AMS,MS | 4 | 1000 | Unknown | | 02/20/2019 17:03 | Finished | MS (1ppb), IWST-181022D,10 |
| 57 | N034104-012AMS,MS | 5 | 1000 | Unknown | | 02/20/2019 17:13 | Finished | MS (1ppb), IWST-181022D,10 |
| 58 | N034104-013AMS,MS | 6 | 1000 | Unknown | | 02/20/2019 17:22 | Finished | MS (1ppb), IWST-181022D,10 |
| 59 | N034104-014AMS,MS | 7 | 1000 | Unknown | | 02/20/2019 17:32 | Finished | MS (1ppb), IWST-181022D,10 |
| 60 | N034104-015AMS,MS | 8 | 1000 | Unknown | | 02/20/2019 17:41 | Finished | MS (1ppb), IWST-181022D,10 |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | N034104-017AMS,MS | 9 | 1000 | Unknown | | 02/20/2019 17:51 | Finished | MS (5ppb), IWST-181022D,10 |
| 62 | N034104-017AMSD,M | 10 | 1000 | Unknown | | 02/20/2019 18:00 | Finished | MSD (5ppb), IWST-181022D,1( |
| 63 | N034104-016A,SAMP | 11 | 1000 | Unknown | | 02/20/2019 18:09 | Finished | SAMP,10mL |
| 64 | N034104-016AMS,MS | 12 | 1000 | Unknown | | 02/20/2019 18:19 | Finished | MS (1ppb), IWST-181022D,10 |
| 65 | N034238-002BDUP,D | 13 | 1000 | Unknown | | 02/20/2019 18:28 | Finished | DUP,10mL |
| 66 | CCV-5,CCV,1, | 14 | 1000 | Unknown | | 02/20/2019 18:38 | Finished | CCV @5ppb, IWST-181022C |
| 67 | CCB-5,CCB,1, | 15 | 1000 | Unknown | | 02/20/2019 18:47 | Finished | CCB R190115A |
| 68 | N034107-001A,SAMP | 1 | 1000 | Unknown | | 02/20/2019 19:00 | Finished | SAMP,10mL |
| 69 | N034107-002A,SAMP | 2 | 1000 | Unknown | | 02/20/2019 19:11 | Finished | SAMP,10mL |
| 70 | N034104-017AMS,MS | 3 | 1000 | Unknown | | 02/20/2019 19:20 | Finished | MS (1ppb), IWST-181022D,10 |
| 71 | N034104-017AMSD,M | 4 | 1000 | Unknown | | 02/20/2019 19:30 | Finished | MSD (1ppb), IWST-181022D,1( |
| 72 | MB-H2O,MBLK,1, | 5 | 1000 | Unknown | | 02/20/2019 19:39 | Finished | MB R190115A |
| 73 | LCS-H2O,LCS,1, | 6 | 1000 | Unknown | | 02/20/2019 19:49 | Finished | LCS @5ppb, IWST-181022D |
| 74 | N034107-003A,SAMP | 7 | 1000 | Unknown | | 02/20/2019 19:58 | Finished | SAMP,1>10mL |
| 75 | N034107-003AMS,MS | 8 | 1000 | Unknown | | 02/20/2019 20:07 | Finished | MS (5ppb), IWST-181022D,1>1 |
| 76 | N034107-003AMSD,M | 9 | 1000 | Unknown | | 02/20/2019 20:17 | Finished | MSD (5ppb), IWST-181022D,1 |
| 77 | N034107-004A,SAMP | 10 | 1000 | Unknown | | 02/20/2019 20:26 | Finished | SAMP,1>10mL |
| 78 | CCV-6,CCV1,1, | 11 | 1000 | Unknown | | 02/20/2019 20:36 | Finished | CCV @10ppb, IWST-181022C |
| 79 | CCB-6,CCB,1, | 12 | 1000 | Unknown | | 02/20/2019 20:45 | Finished | CCB R190115A |
| 80 | N034107-005A,SAMP | 13 | 1000 | Unknown | | 02/20/2019 20:55 | Finished | SAMP,0.02>10mL |
| 81 | N034107-005ADUP,D | 14 | 1000 | Unknown | | 02/20/2019 21:04 | Finished | MS (5ppb), IWST-181022D,0.0 |
| 82 | N034107-021A,SAMP | 15 | 1000 | Unknown | | 02/20/2019 21:14 | Finished | SAMP,2>10mL |
| 83 | N034107-021AMS,MS | 16 | 1000 | Unknown | | 02/20/2019 21:23 | Finished | MS (5ppb), IWST-181022D,2>1 |
| 84 | N034107-006A,SAMP | 17 | 1000 | Unknown | | 02/20/2019 21:33 | Finished | SAMP,0.2>10mL |
| 85 | N034107-007A,SAMP | 18 | 1000 | Unknown | | 02/20/2019 21:42 | Finished | SAMP,0.5>10mL |
| 86 | N034107-008A,SAMP | 19 | 1000 | Unknown | | 02/20/2019 21:52 | Finished | SAMP,10mL |
| 87 | N034107-009A,SAMP | 20 | 1000 | Unknown | | 02/20/2019 22:01 | Finished | SAMP,10mL |
| 88 | N034107-010A,SAMP | 21 | 1000 | Unknown | | 02/20/2019 22:10 | Finished | SAMP,10mL |
| 89 | N034107-011A,SAMP | 22 | 1000 | Unknown | | 02/20/2019 22:20 | Finished | SAMP,10mL |
| 90 | CCV-7,CCV,1, | 23 | 1000 | Unknown | | 02/20/2019 22:29 | Finished | CCV @5ppb, IWST-181022C |
| 91 | CCB-7,CCB,1, | 24 | 1000 | Unknown | | 02/20/2019 22:39 | Finished | CCB R190115A |
| 92 | N034107-003A,SAMP | 25 | 1000 | Unknown | | 02/20/2019 22:48 | Finished | SAMP,0.5>10mL |
| 93 | N034107-003AMS,MS | 26 | 1000 | Unknown | | 02/20/2019 22:58 | Finished | MS (5ppb), IWST-181022D,0.5 |
| 94 | N034107-003AMSD,M | 27 | 1000 | Unknown | | 02/20/2019 23:07 | Finished | MSD (5ppb), IWST-181022D,0. |
| 95 | N034107-004A,SAMP | 28 | 1000 | Unknown | | 02/20/2019 23:17 | Finished | SAMP,0.5>10mL |
| 96 | N034107-012A,SAMP | 29 | 1000 | Unknown | | 02/20/2019 23:26 | Finished | SAMP,10mL |
| 97 | N034107-013A,SAMP | 30 | 1000 | Unknown | | 02/20/2019 23:36 | Finished | SAMP,10mL |
| 98 | N034107-014A,SAMP | 31 | 1000 | Unknown | | 02/20/2019 23:45 | Finished | SAMP,10mL |
| 99 | N034107-015A,SAMP | 32 | 1000 | Unknown | | 02/20/2019 23:55 | Finished | SAMP,10mL |
| 100 | N034107-016A,SAMP | 33 | 1000 | Unknown | | 02/21/2019 00:04 | Finished | SAMP,10mL |
| 101 | N034107-017A,SAMP | 34 | 1000 | Unknown | | 02/21/2019 00:13 | Finished | SAMP,10mL |
| 102 | CCV-8,CCV1,1, | 35 | 1000 | Unknown | | 02/21/2019 00:23 | Finished | CCV @10ppb, IWST-181022C |
| 103 | CCB-8,CCB,1, | 36 | 1000 | Unknown | | 02/21/2019 00:32 | Finished | CCB R190115A |
| 104 | N034107-018A,SAMP | 37 | 1000 | Unknown | | 02/21/2019 00:42 | Finished | SAMP,10mL |
| 105 | N034107-019A,SAMP | 38 | 1000 | Unknown | | 02/21/2019 00:51 | Finished | SAMP,10mL |
| 106 | N034107-020A,SAMP | 39 | 1000 | Unknown | | 02/21/2019 01:01 | Finished | SAMP,10mL |
| 107 | N034107-022A,SAMP | 40 | 1000 | Unknown | | 02/21/2019 01:10 | Finished | SAMP,10mL |
| 108 | N034107-007A,SAMP | 41 | 1000 | Unknown | | 02/21/2019 01:20 | Finished | SAMP,0.2>10mL |
| 109 | N034107-010A,SAMP | 42 | 1000 | Unknown | | 02/21/2019 01:29 | Finished | SAMP,0.5>10mL |
| 110 | CCV-9,CCV,1, | 43 | 1000 | Unknown | | 02/21/2019 01:39 | Finished | CCV @5ppb, IWST-181022C |
| 111 | CCB-9,CCB,1, | 44 | 1000 | Unknown | | 02/21/2019 01:48 | Finished | CCB R190115A |
| 112 | BLANK | 45 | 1000 | Unknown | | 02/21/2019 01:58 | Finished | BLANK |
| 113 | SHUTDOWN | 46 | 1000 | Unknown | | 02/21/2019 02:07 | Finished | |
| 114 | Eluent: R190219B | 47 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 115 | PCR: R190220A | 48 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 1:17 PM | Not Reported |
| 10 | ICV | ICV | 1 | Hexavalent Chromium | 02/21/19 1:28 PM | Reported |
| 11 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/21/19 1:37 PM | Reported |
| 12 | ICB | ICB | 1 | Hexavalent Chromium | 02/21/19 1:47 PM | Reported |
| 13 | MB-R132043 | MBLK | 1 | Hexavalent Chromium | 02/21/19 1:56 PM | Reported |
| 14 | LCS-R132043 | LCS | 1 | Hexavalent Chromium | 02/21/19 2:06 PM | Reported |
| 15 | N034269-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:18 PM | Not Reported |
| 16 | N034271-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:30 PM | Not Reported |
| 17 | N034271-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:39 PM | Not Reported |
| 18 | N034104-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:49 PM | Reported |
| 19 | N034107-018A | SAMP | 5 | Hexavalent Chromium | 02/21/19 2:58 PM | Reported |
| 20 | N034269-001AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:08 PM | Not Reported |
| 21 | N034271-002AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:17 PM | Not Reported |
| 22 | N034271-001A | SAMP | 100 | Hexavalent Chromium | 02/21/19 3:27 PM | Reported |
| 23 | CCV-1 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 3:36 PM | Reported |
| 24 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/21/19 3:46 PM | Reported |
| 25 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 3:55 PM | Not Reported |
| 26 | N034269-001A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:03 PM | Reported |
| 27 | N034269-001AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:14 PM | Reported |
| 28 | N034271-002A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:24 PM | Not Reported |
| 29 | N034271-002AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:33 PM | Not Reported |
| 30 | N034104-009AMS | MS | 1 | Hexavalent Chromium | 02/21/19 4:43 PM | Reported |
| 31 | N034104-009AMSD | MSD | 1 | Hexavalent Chromium | 02/21/19 4:52 PM | Reported |
| 32 | N034107-018ADUP | DUP | 5 | Hexavalent Chromium | 02/21/19 5:02 PM | Reported |
| 33 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 5:11 PM | Reported |
| 34 | N034271-002A | SAMP | 10 | Hexavalent Chromium | 02/21/19 5:20 PM | Not Reported |
| 35 | CCV-2 | CCV | 1 | Hexavalent Chromium | 02/21/19 5:30 PM | Reported |
| 36 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/21/19 5:39 PM | Reported |
| 37 | N034271-002AMS | MS | 10 | Hexavalent Chromium | 02/21/19 5:52 PM | Not Reported |
| 38 | N034121-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:03 PM | Reported |
| 39 | N034121-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:13 PM | Reported |
| 40 | N034121-003A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:22 PM | Reported |
| 41 | N034121-004A | SAMP | 50 | Hexavalent Chromium | 02/21/19 6:32 PM | Reported |
| 42 | N034121-005A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:41 PM | Reported |

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034121-006A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:50 PM | Reported |
| 44 | N034121-007A | SAMP | 20 | Hexavalent Chromium | 02/21/19 7:00 PM | Reported |
| 45 | N034121-008A | SAMP | 5 | Hexavalent Chromium | 02/21/19 7:09 PM | Not Reported |
| 46 | N034121-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:19 PM | Reported |
| 47 | CCV-3 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 7:28 PM | Reported |
| 48 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/21/19 7:38 PM | Reported |
| 49 | N034121-010A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:47 PM | Not Reported |
| 50 | N034121-011A | SAMP | 10 | Hexavalent Chromium | 02/21/19 7:57 PM | Reported |
| 51 | N034121-008A | SAMP | 10 | Hexavalent Chromium | 02/21/19 8:06 PM | Reported |
| 52 | N034121-011A | SAMP | 20 | Hexavalent Chromium | 02/21/19 8:16 PM | Not Reported |
| 53 | CCV-4 | CCV | 1 | Hexavalent Chromium | 02/21/19 8:25 PM | Reported |
| 54 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/21/19 8:35 PM | Reported |
| 55 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 8:44 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190221B** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **22/Feb/19 08:53:05** |
| *No. of Injections:* | **58** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 9 | 1000 | Unknown | | 02/21/2019 13:17 | Finished | BLANK |
| 10 | ICV,ICV,1, | 10 | 1000 | Unknown | | 02/21/2019 13:28 | Finished | ICV @5ppb, IWST-190221B |
| 11 | PQL@0.2ppb,CCV2, | 11 | 1000 | Unknown | | 02/21/2019 13:37 | Finished | PQL @ 0.2ppb |
| 12 | ICB,ICB,1, | 12 | 1000 | Unknown | | 02/21/2019 13:47 | Finished | ICB R190115A |
| 13 | MB-H2O,MBLK,1, | 13 | 1000 | Unknown | | 02/21/2019 13:56 | Finished | MB R190115A |
| 14 | LCS-H2O,LCS,1, | 14 | 1000 | Unknown | | 02/21/2019 14:06 | Finished | LCS @5ppb, IWST-190221B |
| 15 | N034269-001A,SAMP | 16 | 1000 | Unknown | | 02/21/2019 14:18 | Finished | SAMP,10mL |
| 16 | N034271-001A,SAMP | 17 | 1000 | Unknown | | 02/21/2019 14:30 | Finished | SAMP,10mL |
| 17 | N034271-002A,SAMP | 18 | 1000 | Unknown | | 02/21/2019 14:39 | Finished | SAMP,10mL |
| 18 | N034104-009A,SAMP | 19 | 1000 | Unknown | | 02/21/2019 14:49 | Finished | SAMP,10mL |
| 19 | N034107-018A,SAMP | 20 | 1000 | Unknown | | 02/21/2019 14:58 | Finished | SAMP,2>10mL |
| 20 | N034269-001AMS,MS | 21 | 1000 | Unknown | | 02/21/2019 15:08 | Finished | SAMP,10mL |
| 21 | N034271-002AMS,MS | 22 | 1000 | Unknown | | 02/21/2019 15:17 | Finished | SAMP,10mL |
| 22 | N034271-001A,SAMP | 23 | 1000 | Unknown | | 02/21/2019 15:27 | Finished | SAMP,10mL |
| 23 | CCV-1,CCV1,1, | 24 | 1000 | Unknown | | 02/21/2019 15:36 | Finished | CCV @10ppb, IWST-190221A |
| 24 | CCB-1,CCB,1, | 25 | 1000 | Unknown | | 02/21/2019 15:46 | Finished | CCB R190115A |
| 25 | N034271-001AMS,MS | 26 | 1000 | Unknown | | 02/21/2019 15:55 | Interrupted | SAMP,2>10mL |
| 26 | N034269-001A,SAMP | 27 | 1000 | Unknown | | 02/21/2019 16:03 | Finished | SAMP,2>10mL |
| 27 | N034269-001AMS,MS | 28 | 1000 | Unknown | | 02/21/2019 16:14 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 28 | N034271-002A,SAMP | 29 | 1000 | Unknown | | 02/21/2019 16:24 | Finished | SAMP,2>10mL |
| 29 | N034271-002AMS,MS | 30 | 1000 | Unknown | | 02/21/2019 16:33 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 30 | N034104-009AMS,MS | 31 | 1000 | Unknown | | 02/21/2019 16:43 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034104-009AMSD,M | 32 | 1000 | Unknown | | 02/21/2019 16:52 | Finished | MSD (1ppb), IWST-190221B,1( |
| 32 | N034107-018ADUP,D | 33 | 1000 | Unknown | | 02/21/2019 17:02 | Finished | DUP,10mL |
| 33 | N034271-001AMS,MS | 34 | 1000 | Unknown | | 02/21/2019 17:11 | Finished | SAMP,10mL |
| 34 | N034271-002A,SAMP | 35 | 1000 | Unknown | | 02/21/2019 17:20 | Finished | SAMP,1>10mL |
| 35 | CCV-2,CCV,1, | 36 | 1000 | Unknown | | 02/21/2019 17:30 | Finished | CCV @5ppb, IWST-190221A |
| 36 | CCB-2,CCB,1, | 37 | 1000 | Unknown | | 02/21/2019 17:39 | Finished | CCB R190115A |
| 37 | N034271-002AMS,MS | 1 | 1000 | Unknown | | 02/21/2019 17:52 | Finished | MS (1ppb), IWST-190221B,1>1 |
| 38 | N034121-001A,SAMP | 2 | 1000 | Unknown | | 02/21/2019 18:03 | Finished | SAMP,10mL |
| 39 | N034121-002A,SAMP | 3 | 1000 | Unknown | | 02/21/2019 18:13 | Finished | SAMP,10mL |
| 40 | N034121-003A,SAMP | 4 | 1000 | Unknown | | 02/21/2019 18:22 | Finished | SAMP,10mL |
| 41 | N034121-004A,SAMP | 5 | 1000 | Unknown | | 02/21/2019 18:32 | Finished | SAMP,10mL |
| 42 | N034121-005A,SAMP | 6 | 1000 | Unknown | | 02/21/2019 18:41 | Finished | SAMP,10mL |
| 43 | N034121-006A,SAMP | 7 | 1000 | Unknown | | 02/21/2019 18:50 | Finished | SAMP,10mL |
| 44 | N034121-007A,SAMP | 8 | 1000 | Unknown | | 02/21/2019 19:00 | Finished | SAMP,10mL |
| 45 | N034121-008A,SAMP | 9 | 1000 | Unknown | | 02/21/2019 19:09 | Finished | SAMP,10mL |
| 46 | N034121-009A,SAMP | 10 | 1000 | Unknown | | 02/21/2019 19:19 | Finished | SAMP,10mL |
| 47 | CCV-3,CCV1,1, | 11 | 1000 | Unknown | | 02/21/2019 19:28 | Finished | CCV @10ppb, IWST-190221A |
| 48 | CCB-3,CCB,1, | 12 | 1000 | Unknown | | 02/21/2019 19:38 | Finished | CCB R190115A |
| 49 | N034121-010A,SAMP | 13 | 1000 | Unknown | | 02/21/2019 19:47 | Finished | SAMP,10mL |
| 50 | N034121-011A,SAMP | 14 | 1000 | Unknown | | 02/21/2019 19:57 | Finished | SAMP,10mL |
| 51 | N034121-008A,SAMP | 15 | 1000 | Unknown | | 02/21/2019 20:06 | Finished | SAMP,1>10mL |
| 52 | N034121-011A,SAMP | 16 | 1000 | Unknown | | 02/21/2019 20:16 | Finished | SAMP,1>10mL |
| 53 | CCV-4,CCV,1, | 17 | 1000 | Unknown | | 02/21/2019 20:25 | Finished | CCV @5ppb, IWST-190221A |
| 54 | CCB-4,CCB,1, | 18 | 1000 | Unknown | | 02/21/2019 20:35 | Finished | CCB R190115A |
| 55 | BLANK | 19 | 1000 | Unknown | | 02/21/2019 20:44 | Finished | BLANK |
| 56 | SHUTDOWN | 20 | 1000 | Unknown | | 02/21/2019 20:53 | Finished | |
| 57 | Eluent: R190219B | 21 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 58 | PCR: R190220A | 22 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# SAMPLE PREPARATION LOG

# Hexavalent Chromium Preparation and Runlog

## Sample Preparation

Date Prepared: 2/13/19
Time Prepared: 1130
Prepared By: HSG

Slope: 95.69
pH4: 4.01
7: 7.05
10: 10.01

Reagent ID:
Sulfuric Acid: 10503
Diphenylcarbazide: CINV-181102A
NH4OH + NH4SO4 eluent: R190213A/R902198
NH4OH + NH4SO4 buffer: R190115A

R180911C (6N NaOH)

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | N034106-001A | 9.28 | 9.46 | ~250mL | ~250mL | 12 drops 6N NaOH | |
| 2) | 2A | 9.07 | 9.36 | | | 13 drops 6N NaOH | |
| 3) | 3A | 9.15 | 9.34 | | | 13 drops 6N NaOH | |
| 4) | 4A | 9.33 | – | | | | |
| 5) | 5A | 9.22 | 9.52 | | | 13 drops 6N NaOH | |
| 6) | 6A | 8.49 | 9.39 | | | 16 drops 6N NaOH | |
| 7) | 7A | 9.04 | 9.38 | | | 14 drops 6N NaOH | |
| 8) | 8A | 9.01 | 9.38 | | | 14 drops 6N NaOH | |
| 9) | 9A | 9.20 | 9.30 | | | 13 drops 6N NaOH | |
| 10) | N034104-1A | 9.68 | – | | | | |
| 11) | 1A | 9.68 | – | | | | |
| 12) | 1A | 9.69 | – | | | | |
| 13) | 2A | 9.67 | – | | | | |
| 14) | 2A | 9.70 | – | | | | |
| 15) | 2A | 9.69 | – | | | | |
| | 3A | 9.65 | – | | | | |

## Sample Preparation

Date Prepared: 2/13/19
Time Prepared: 1300
Prepared By: MT

Reagent ID:
Sulfuric Acid: 10503
Diphenylcarbazide: CINV-181102A
NH4OH + NH4SO4 eluent: ~~R190213A~~ HSG R190219B
NH4OH + NH4SO4 buffer: R190115A

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | N034104-3A | 9.69 | – | ~250mL | ~250mL | | |
| 2) | 3A | 9.66 | – | | | | |
| 3) | 4A | 9.67 | – | | | | |
| 4) | 4A | 9.64 | – | | | | |
| 5) | 4A | 9.69 | – | | | | retest 9.59 |
| 6) | 5A | 9.75 | | | | | 9.43 |
| 7) | 5A | 9.74 | | | | | 9.47 |
| 8) | 5A | 9.74 | | | | | 9.51 |
| 9) | 6A | 9.75 | | | | | 9.52 |
| 10) | 6A | 9.73 | | | | | 9.46 |
| 11) | 6A | 9.74 | | | | | 9.50 |
| 12) | 7A | 9.73 | | | | | 9.60 |
| 13) | 7A | 9.73 | | | | | 9.60 |
| 14) | 7A | 9.73 | | | | | |
| 15) | 8A | 9.67 | – | | | | |
| | 8A | 9.69 | – | | | | |

Logbook No. 15

# Hexavalent Chromium Preparation and Runlog

## Sample Preparation

Date Prepared: 2/13/19
Time Prepared: 1360
Prepared By: MB

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CINV-181102A
NH4OH + NH4SO4 eluent: R1902198
NH4OH + NH4SO4 buffer: R190115A

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | N034104 - 8A | 9.68 | - | ~250mL | ~250mL | | |
| 2) | 9A | 9.66 | - | | | | |
| 3) | 9A | 9.63 | - | | | | |
| 4) | 9A | 9.62 | - | | | | |
| 5) | 10A | 9.70 | - | | | | retest 9.66 |
| 6) | 10A | 9.72 | | | | | 9.66 |
| 7) | 10A | 9.72 | | | | | |
| 8) | 11A | 9.67 | - | | | | |
| 9) | 11A | 9.69 | - | | | | |
| 10) | 11A | 9.67 | - | | | | |
| 11) | 12A | 9.65 | - | | | | |
| 12) | 12A | 9.68 | - | | | | |
| 13) | 12A | 9.64 | - | | | | |
| 14) | 13A | 9.60 | - | | | | |
| 15) | 13A | 9.71 | - | | | | |
| | 13A | 9.70 | - | - | - | | |

## Sample Preparation

Date Prepared: 2/13/19
Time Prepared: 1300
Prepared By: MB

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CINV-181102A
NH4OH + NH4SO4 eluent: R1902134/R1902182/R1902198
NH4OH + NH4SO4 buffer: R190115A

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | N034104 - 14A | 9.71 | - | ~250mL | ~250mL | | |
| 2) | 14A | 9.70 | - | | | | |
| 3) | 14A | 9.68 | - | | | | retest 9.50 |
| 4) | 15A | 9.72 | | | | | |
| 5) | 15A | 9.72 | | | | | |
| 6) | 15A | 9.71 | | | | | pH is high |
| 7) | 16A | 10.07 | mb | | | +10drops 6N NaOH | |
| 8) | 17A | ~~9.35~~ | ~~9.39~~ | 9.25 - 9.45 | | | |
| 9) | N034105 - 1A | 9.58 | - | | | | |
| 10) | 2A | 9.48 | - | | | +8drops 6N NaOH | |
| 11) | 3A | 8.38 | 9.45 | | | +4drops 11 | |
| 12) | 4A | 9.17 | 9.44 | | | | retest 9.47 |
| 13) | 5A | 9.74 | | | | | |
| 14) | 6A | 9.70 | - | | | | |
| 15) | N034102 - 1A | ~~MB 7.72~~ | 9.64 | | | | |
| | 2A | ~~MB 7.72~~ | 9.73 | - | - | | |

Logbook No. 15

# INITIAL CALIBRATION DATA SUMMARY

**(EPA 218.6) - INITIAL CALIBRATION**

Instrument ID: IC-07
Date Calibrated: 2/4/2019

Initial Calibration:

| Hexavalent Chromium | STD1 | STD2 | STD3 | STD4 | STD5 | STD6 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0.2 | 1 | 5 | 10 | 15 | 20 | $R^2$ |
| Area,mAU*min | 0.0689 | 0.3011 | 1.4144 | 2.8548 | 4.3509 | 5.7324 | 0.9999 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock | Working |
|---|---|---|
| Standard Concentration: | 1,000,000 PPB | 1,000 PPB |
| Standard ID: | ISST-170814H | IWST-181022C |

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

**(EPA 218.6) - INITIAL CALIBRATION**

Instrument ID: IC-07
Date Calibrated: 2/21/2019

Initial Calibration:

| Hexavalent Chromium | STD1 | STD2 | STD3 | STD4 | STD5 | STD6 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0.2 | 1 | 5 | 10 | 15 | 20 | $R^2$ |
| Area,mAU*min | 0.0556 | 0.2392 | 1.2310 | 2.4655 | 3.7365 | 4.9505 | 1.0000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock | Working |
|---|---|---|
| Standard Concentration: | 1,000,000 PPB | 1,000 PPB |
| Standard ID: | ISST-170814H | IWST-~~181022C~~ |

190221A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

NS 2/27/2019
for HSG

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/4/2019** | SeqNo: **3297692** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.780 | 0.20 | 5.000 | 0 | 95.6 | 90 | 110 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/4/2019** | SeqNo: **3297693** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.231 | 0.20 | 0.2000 | 0 | 115 | 80 | 120 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297695** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.203 | 0.20 | 5.000 | 0 | 104 | 95 | 105 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297696** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.227 | 0.20 | 0.2000 | 0 | 114 | 80 | 120 | | | | |

| Sample ID **CCV-2** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297708** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.442 | 0.20 | 10.00 | 0 | 104 | 95 | 105 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **CCV-3** SampType: **CCV** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132010**
Client ID: **CCV** Batch ID: **R132010** TestNo: **EPA 218.6** Analysis Date: **2/20/2019** SeqNo: **3297720**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.285 | 0.20 | 5.000 | 0 | 106 | 95 | 105 | | | | S |

not reported

Sample ID **CCV-4** SampType: **CCV1** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132010**
Client ID: **ZZZZZZ** Batch ID: **R132010** TestNo: **EPA 218.6** Analysis Date: **2/20/2019** SeqNo: **3297732**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.442 | 0.20 | 10.00 | 0 | 104 | 95 | 105 | | | | |

Sample ID **CCV-4** SampType: **CCV1** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132010**
Client ID: **ZZZZZZ** Batch ID: **R132010** TestNo: **EPA 218.6** Analysis Date: **2/20/2019** SeqNo: **3297733**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.236 | 0.20 | 10.00 | 0 | 102 | 95 | 105 | | | | |

Sample ID **CCV-5** SampType: **CCV** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132010**
Client ID: **CCV** Batch ID: **R132010** TestNo: **EPA 218.6** Analysis Date: **2/20/2019** SeqNo: **3297743**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.168 | 0.20 | 5.000 | 0 | 103 | 95 | 105 | | | | |

Sample ID **CCV-6** SampType: **CCV1** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132010**
Client ID: **ZZZZZZ** Batch ID: **R132010** TestNo: **EPA 218.6** Analysis Date: **2/20/2019** SeqNo: **3297749**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.367 | 0.20 | 10.00 | 0 | 104 | 95 | 105 | | | | |

CCV-3 is biased high however, samples affected are non-detect.

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

2/26/2019

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132043** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132043** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3298890** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.126 | 0.20 | 5.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132043** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132043** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3298891** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.232 | 0.20 | 0.2000 | 0 | 116 | 80 | 120 | | | | |

| Sample ID **CCV-1** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132043** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132043** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3298898** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.145 | 0.20 | 10.00 | 0 | 101 | 95 | 105 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132043** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132043** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3298906** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.034 | 0.20 | 5.000 | 0 | 101 | 95 | 105 | | | | |

| Sample ID **CCV-3** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132043** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132043** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3298916** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.086 | 0.20 | 10.00 | 0 | 101 | 95 | 105 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **CCV-4** SampType: **CCV** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132043**
Client ID: **CCV** Batch ID: **R132043** TestNo: **EPA 218.6** Analysis Date: **2/21/2019** SeqNo: **3298920**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.035 | 0.20 | 5.000 | 0 | 101 | 95 | 105 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/4/2019** | SeqNo: **3297694** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297697** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297709** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297721** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297734** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCB-5** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297744** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-6** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132010** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132010** | TestNo: **EPA 218.6** | | Analysis Date: **2/20/2019** | SeqNo: **3297750** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132043** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132043** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3298892** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132043** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132043** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3298899** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.102 | 0.20 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132043** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132043** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3298907** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132043** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132043** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3298917** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.067 | 0.20 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132043** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132043** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3298921** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.051 | 0.20 | | | | | | | | | |

Detection in CCB-1, CCB-3, and CCB-4 are > 0.02ppb. However, affected N034104 sample is ND.

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |



NS 2/26/2019

# RETENTION TIME SUMMARY

## RETENTION TIME (RT) SUMMARY

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/20/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.131 | |
| CCV-1 | 4.106 | |
| CCV-2 | 4.106 | |
| CCV-3 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-5 | 4.106 | |
| CCV-6 | 4.106 | |
| CCV-7 | 4.106 | |
| CCV-8 | 4.106 | |
| CCV-9 | 4.090 | |
| **Average** | 4.105 | |
| **Actual RT Window** | 4.025 - 4.185 | |
| **Applied RT Window** | 3.905 - 4.305 | |
| MB-R132010 | N.A. | N.A. |
| LCS-R132010 | 4.106 | PASS |
| N034104-001A | N.A. | N.A. |
| N034104-002A | N.A. | N.A. |
| N034104-003A | N.A. | N.A. |
| N034104-004A | 4.073 | PASS |
| N034104-005A | N.A. | N.A. |
| N034104-006A | 4.090 | PASS |
| N034104-007A | N.A. | N.A. |
| N034104-008A | N.A. | N.A. |
| N034104-009A | N.A. | N.A. |
| N034104-010A | N.A. | N.A. |
| N034104-001AMS | 4.098 | PASS |
| N034104-002AMS | 4.098 | PASS |
| N034104-003AMS | 4.098 | PASS |
| N034104-004AMS | 4.098 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/20/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.131 | |
| CCV-1 | 4.106 | |
| CCV-2 | 4.106 | |
| CCV-3 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-5 | 4.106 | |
| CCV-6 | 4.106 | |
| CCV-7 | 4.106 | |
| CCV-8 | 4.106 | |
| CCV-9 | 4.090 | |
| **Average** | 4.105 | |
| **Actual RT Window** | 4.025 - 4.185 | |
| **Applied RT Window** | 3.905 - 4.305 | |
| N034104-005AMS | 4.098 | PASS |
| N034104-006AMS | 4.098 | PASS |
| N034104-007AMS | 4.098 | PASS |
| N034104-008AMS | 4.098 | PASS |
| N034104-009AMS | 4.098 | PASS |
| N034104-010AMS | 4.098 | PASS |
| N034104-011A | 4.081 | PASS |
| N034104-012A | N.A. | N.A. |
| N034104-013A | N.A. | N.A. |
| N034104-014A | N.A. | N.A. |
| N034104-015A | N.A. | N.A. |
| N034104-016A | N.A. | N.A. |
| N034104-017A | N.A. | N.A. |
| N034238-002B | 4.098 | PASS |
| N034104-011AMS | 4.098 | PASS |
| N034104-011AMS | 4.090 | PASS |
| N034104-012AMS | 4.081 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/20/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.131 | |
| CCV-1 | 4.106 | |
| CCV-2 | 4.106 | |
| CCV-3 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-5 | 4.106 | |
| CCV-6 | 4.106 | |
| CCV-7 | 4.106 | |
| CCV-8 | 4.106 | |
| CCV-9 | 4.090 | |
| **Average** | 4.105 | |
| **Actual RT Window** | 4.025 - 4.185 | |
| **Applied RT Window** | 3.905 - 4.305 | |
| N034104-013AMS | 4.098 | PASS |
| N034104-014AMS | 4.098 | PASS |
| N034104-015AMS | 4.090 | PASS |
| N034104-017AMS | 4.115 | PASS |
| N034104-017AMSD | 4.115 | PASS |
| N034104-016A | N.A. | N.A. |
| N034104-016AMS | 4.065 | PASS |
| N034238-002BDUP | 4.090 | PASS |
| N034107-001A | 4.131 | PASS |
| N034107-002A | 4.098 | PASS |
| N034104-017AMS | 4.098 | PASS |
| N034104-017AMSD | 4.098 | PASS |
| MB-R132012 | N.A. | N.A. |
| LCS-R132012 | 4.106 | PASS |
| N034107-003A | 4.098 | PASS |
| N034107-003AMS | 4.106 | PASS |
| N034107-003AMSD | 4.098 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/20/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.131 | |
| CCV-1 | 4.106 | |
| CCV-2 | 4.106 | |
| CCV-3 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-5 | 4.106 | |
| CCV-6 | 4.106 | |
| CCV-7 | 4.106 | |
| CCV-8 | 4.106 | |
| CCV-9 | 4.090 | |
| **Average** | 4.105 | |
| **Actual RT Window** | 4.025 - 4.185 | |
| **Applied RT Window** | 3.905 - 4.305 | |
| N034107-004A | 4.098 | PASS |
| N034107-005A | 4.106 | PASS |
| N034107-005ADUP | 4.106 | PASS |
| N034107-021A | 4.098 | PASS |
| N034107-021AMS | 4.115 | PASS |
| N034107-006A | 4.106 | PASS |
| N034107-007A | 4.106 | PASS |
| N034107-008A | N.A. | N.A. |
| N034107-009A | N.A. | N.A. |
| N034107-010A | 4.081 | PASS |
| N034107-011A | N.A. | N.A. |
| N034107-003A | 4.106 | PASS |
| N034107-003AMS | 4.098 | PASS |
| N034107-003AMSD | 4.106 | PASS |
| N034107-004A | 4.090 | PASS |
| N034107-012A | 4.098 | PASS |
| N034107-013A | 4.098 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/20/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.131 | |
| CCV-1 | 4.106 | |
| CCV-2 | 4.106 | |
| CCV-3 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-5 | 4.106 | |
| CCV-6 | 4.106 | |
| CCV-7 | 4.106 | |
| CCV-8 | 4.106 | |
| CCV-9 | 4.090 | |
| **Average** | 4.105 | |
| **Actual RT Window** | 4.025 - 4.185 | |
| **Applied RT Window** | 3.905 - 4.305 | |
| N034107-014A | 4.098 | PASS |
| N034107-015A | 4.015 | PASS |
| N034107-016A | 4.098 | PASS |
| N034107-017A | 4.090 | PASS |
| N034107-018A | 4.090 | PASS |
| N034107-019A | 4.098 | PASS |
| N034107-020A | 4.090 | PASS |
| N034107-022A | 4.090 | PASS |
| N034107-007A | 4.106 | PASS |
| N034107-010A | 4.106 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/21/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.106 | |
| CCV-1 | 4.106 | |
| CCV-2 | 4.098 | |
| CCV-3 | 4.098 | |
| CCV-4 | 4.106 | |
| **Average** | 4.103 | |
| **Actual RT Window** | 4.023 - 4.183 | |
| **Applied RT Window** | 3.903 - 4.303 | |
| MB-R132043 | N.A. | N.A. |
| LCS-R132043 | 4.098 | PASS |
| N034269-001A | N.A. | N.A. |
| N034271-001A | 4.056 | PASS |
| N034271-002A | N.A. | N.A. |
| N034104-009A | 4.073 | PASS |
| N034107-018A | 4.098 | PASS |
| N034269-001AMS | 3.931 | PASS |
| N034271-002AMS | 3.923 | PASS |
| N034271-001A | 4.098 | PASS |
| N034271-001AMS | 4.098 | PASS |
| N034269-001A | N.A. | N.A. |
| N034269-001AMS | 4.065 | PASS |
| N034271-002A | N.A. | N.A. |
| N034271-002AMS | 4.065 | PASS |
| N034104-009AMS | 4.081 | PASS |
| N034104-009AMSD | 4.090 | PASS |
| N034107-018ADUP | 4.090 | PASS |
| N034271-001AMS | 4.098 | PASS |
| N034271-002A | N.A. | N.A. |
| N034271-002AMS | 4.098 | PASS |
| N034121-001A | 4.098 | PASS |
| N034121-002A | 4.090 | PASS |
| N034121-003A | 4.098 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/21/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.106 | |
| CCV-1 | 4.106 | |
| CCV-2 | 4.098 | |
| CCV-3 | 4.098 | |
| CCV-4 | 4.106 | |
| **Average** | 4.103 | |
| **Actual RT Window** | 4.023 - 4.183 | |
| **Applied RT Window** | 3.903 - 4.303 | |
| N034121-004A | 4.098 | PASS |
| N034121-005A | 4.098 | PASS |
| N034121-006A | 4.098 | PASS |
| N034121-007A | 4.098 | PASS |
| N034121-008A | 4.098 | PASS |
| N034121-009A | N.A. | N.A. |
| N034121-010A | 4.090 | PASS |
| N034121-011A | 4.098 | PASS |
| N034121-008A | 4.098 | PASS |
| N034121-011A | 4.098 | PASS |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

| Datafile | 170505 | 170508 | 170509 | 170510 | 170511 | 170512 | 170515 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte** | **#1** | **#2** | **#3** | **#4** | **#5** | **#6** | **#7** | **Spike Conc., mg/L** | **SD** | **$t_{(n-1)}$ value** | **MDL** | **PQL** | **Remarks** |
| Hexavalent Chromium | 0.1949 | 0.2135 | 0.1840 | 0.1828 | 0.2011 | 0.1936 | 0.1911 | 0.20 | 0.0105 | 3.143 | **0.0331** | **0.20** | OK,meets criteria |

Students' **t** Values at 99% CL

| # | $t_{(n-1)}$ |
|---|---|
| 10 | 2.821 |
| 9 | 2.896 |
| 8 | 2.998 |
| 7 | 3.143 |

## LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

| Compound | MDL | LOD Spike Conc., µg/L | LOD actual Conc., µg/L |
|---|---|---|---|
| Hexavalent Chromium | 0.0331 | 0.100 | 0.116 |

| Compound | PQL | PQL Spike Conc., µg/L | PQL actual Conc., µg/L | % Recovery |
|---|---|---|---|---|
| Hexavalent Chromium | 0.200 | 0.200 | 0.201 | **100** |

# RAW DATA

# INITIAL CALIBRATION

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190204A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **04/Feb/19 15:07:18** |
| *No. of Injections:* | **18** | *Updated By:* | **ics 5000** |

## Injection Details

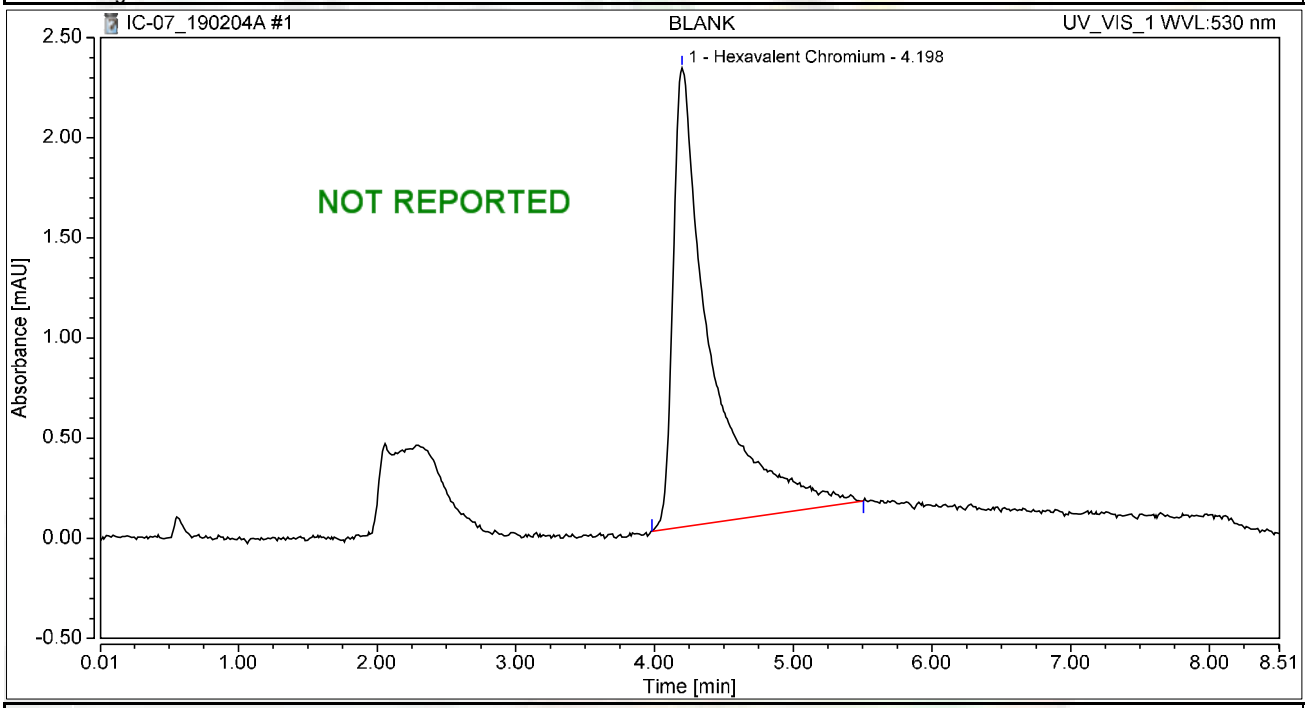
| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:31 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 02/04/2019 09:41 | Finished | BLANK |
| 3 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:54 | Finished | BLANK |
| 4 | iBLANK | 2 | 1000 | Unknown | | 02/04/2019 10:22 | Finished | INSTRUMENT BLANK |
| 5 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/04/2019 10:35 | Finished | 0.2 ppb, IWST-181022C |
| 6 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/04/2019 10:47 | Finished | 1.0 ppb, IWST-181022C |
| 7 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/04/2019 10:56 | Finished | 5.0 ppb, IWST-181022C |
| 8 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/04/2019 11:06 | Finished | 10 ppb, IWST-181022C |
| 9 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/04/2019 11:15 | Finished | 15 ppb, IWST-181022C |
| 10 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/04/2019 11:25 | Finished | 20 ppb, IWST-181022C |
| 11 | ICV,ICV,1, | 9 | 1000 | Unknown | | 02/04/2019 11:45 | Finished | ICV @5ppb, IWST-181022D |
| 12 | PQL@0.2ppb,CCV2,1 | 10 | 1000 | Unknown | | 02/04/2019 11:56 | Finished | PQL @ 0.2ppb |
| 13 | ICB,ICB,1, | 11 | 1000 | Unknown | | 02/04/2019 12:06 | Finished | ICB R190115A |
| 14 | ICB,ICB,1, | 12 | 1000 | Unknown | | 02/04/2019 12:19 | Finished | ICB R190115A |
| 15 | BLANK | 13 | 1000 | Unknown | | 02/04/2019 12:32 | Finished | BLANK |
| 16 | SHUTDOWN | 14 | 1000 | Unknown | | 02/04/2019 14:44 | Finished | |
| 17 | Eluent: R190130B | 15 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 18 | PCR: R190130A | 16 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 09:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

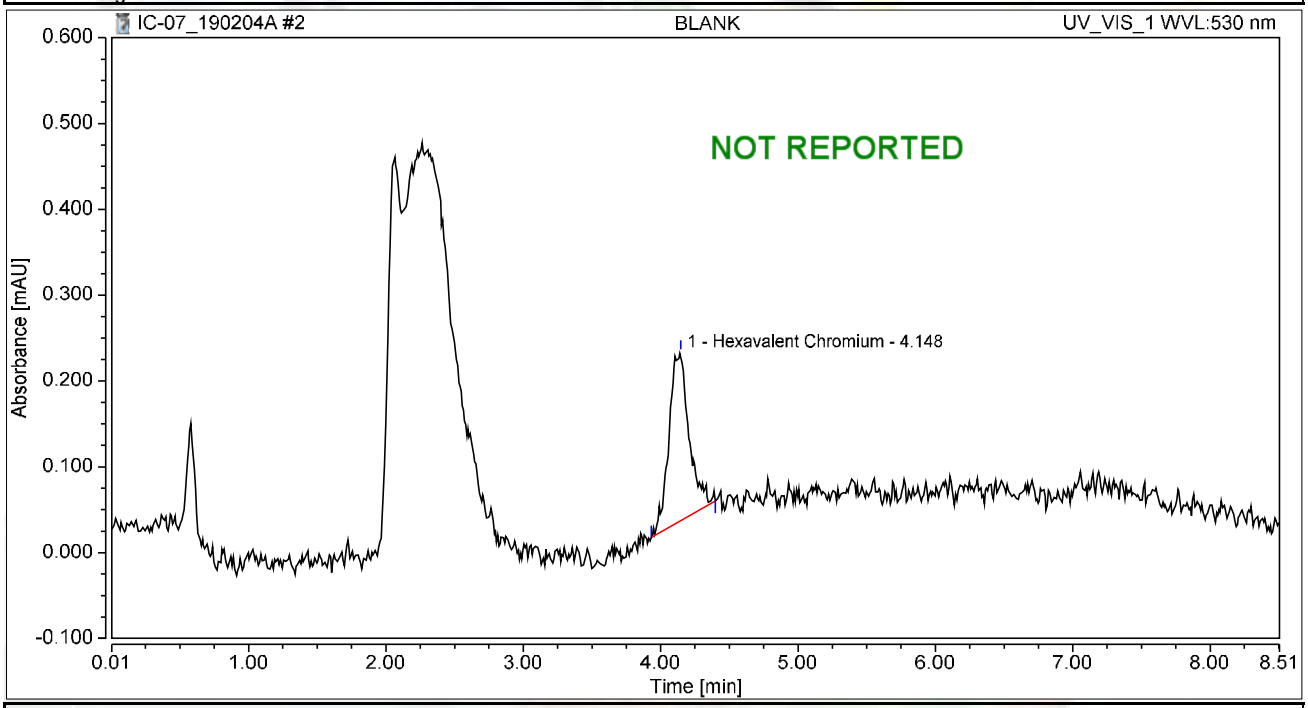
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.720 | 2.292 | 100.00 | 100.00 | 2.5055 |
| **Total:** | | | **0.720** | **2.292** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 09:41** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

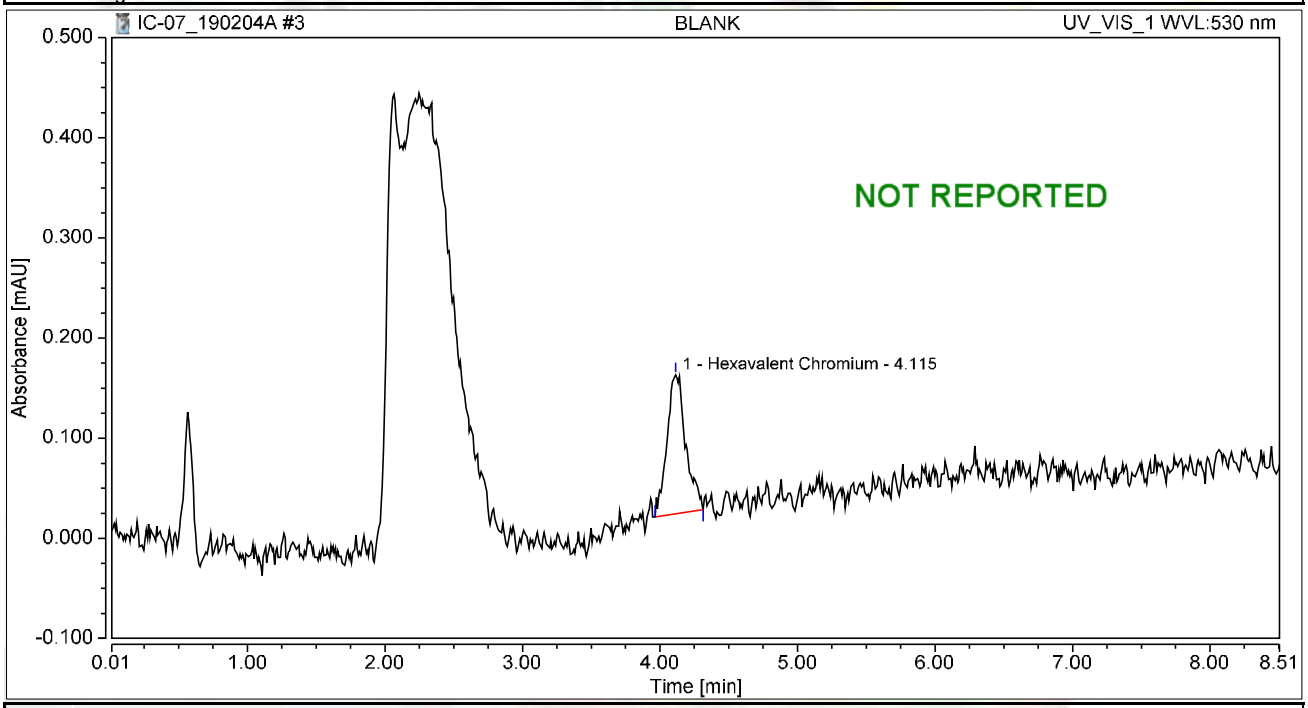
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.148 | 0.034 | 0.196 | 100.00 | 100.00 | 0.1167 |
| **Total:** | | | **0.034** | **0.196** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 09:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

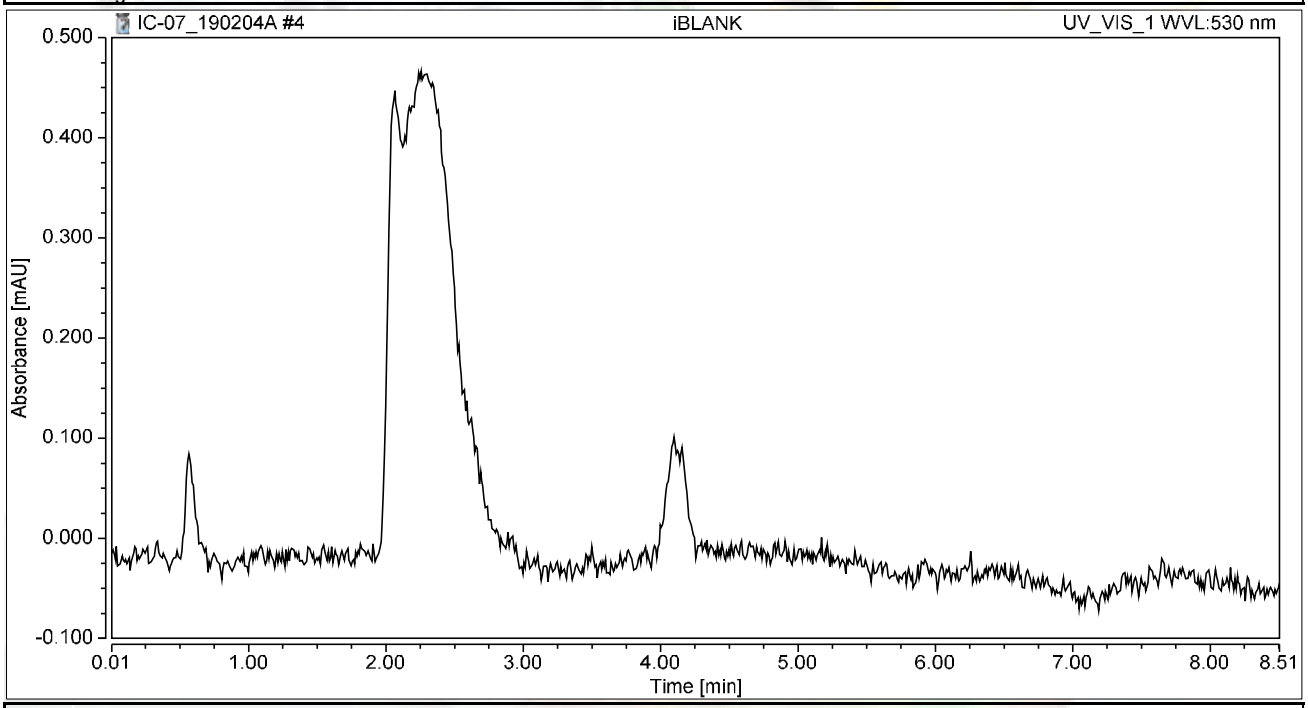
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 0.022 | 0.139 | 100.00 | 100.00 | 0.0765 |
| **Total:** | | | **0.022** | **0.139** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **iBLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 10:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

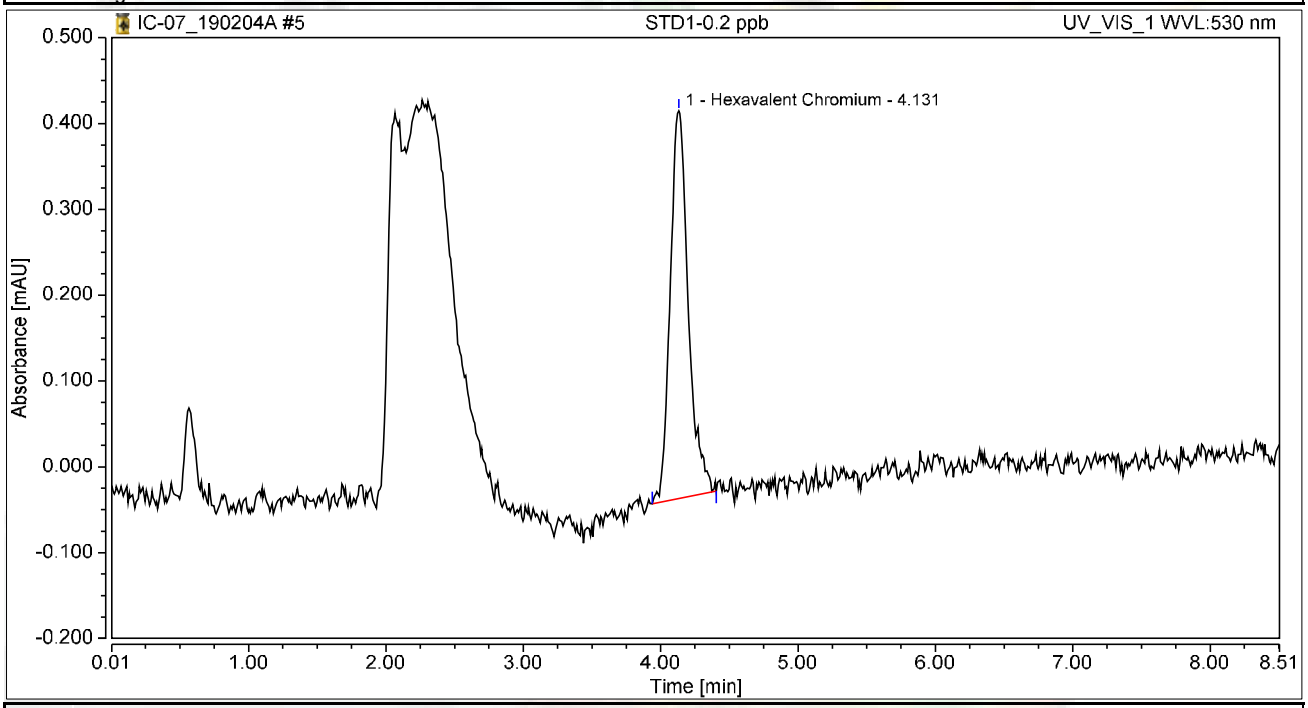
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD1-0.2 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **01** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 10:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

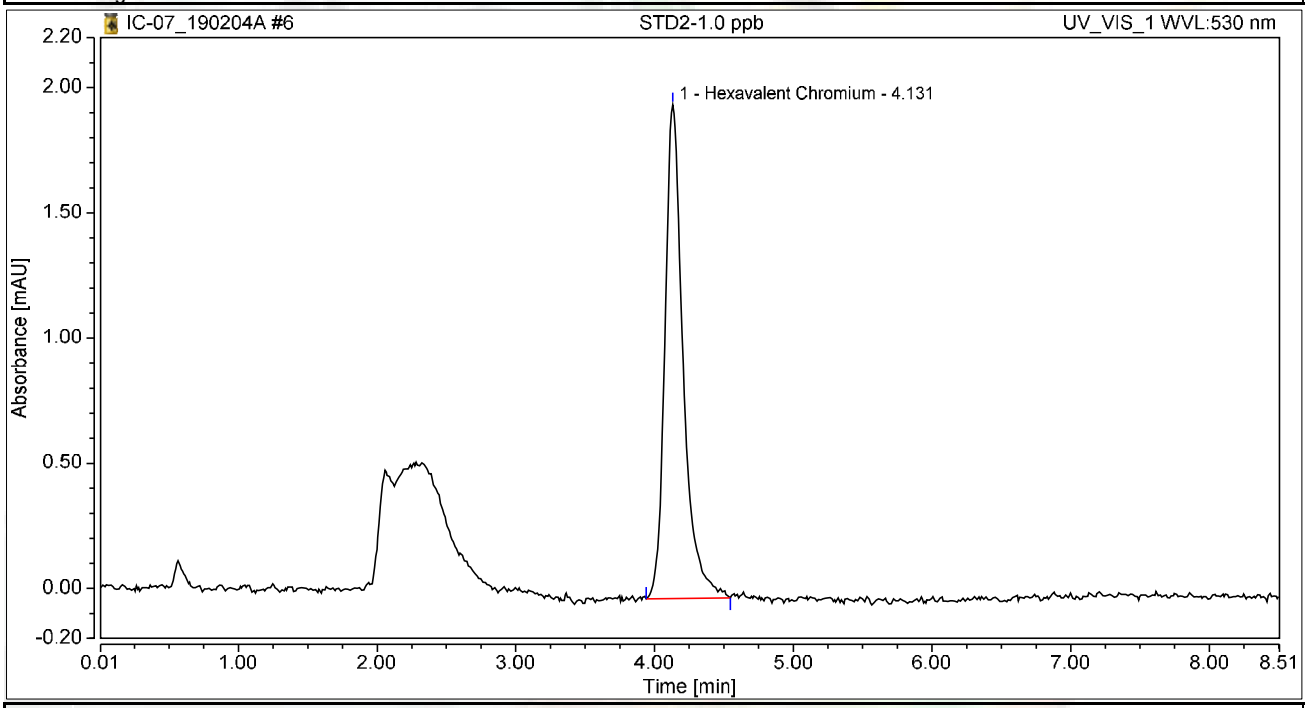
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 0.069 | 0.451 | 100.00 | 100.00 | 0.2397 |
| **Total:** | | | **0.069** | **0.451** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 10:47** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

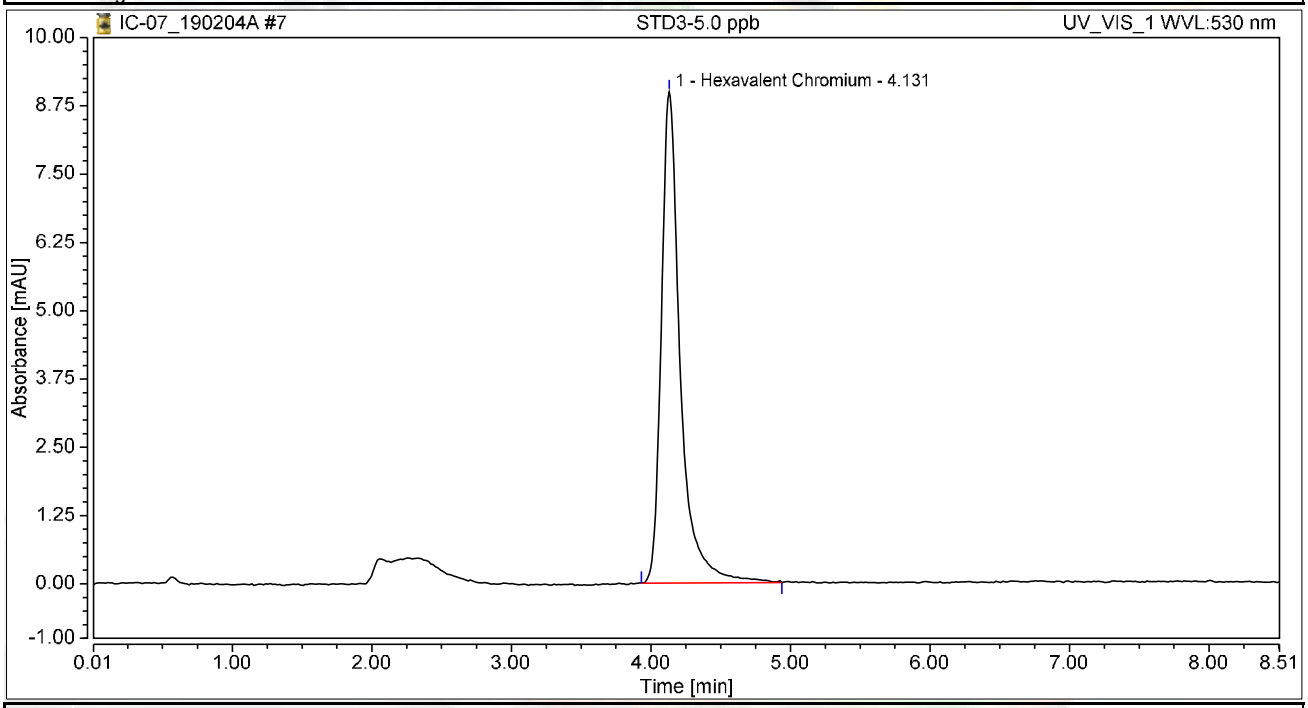
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 0.301 | 1.973 | 100.00 | 100.00 | 1.0477 |
| **Total:** | | | **0.301** | **1.973** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD3-5.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **03** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 10:56** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

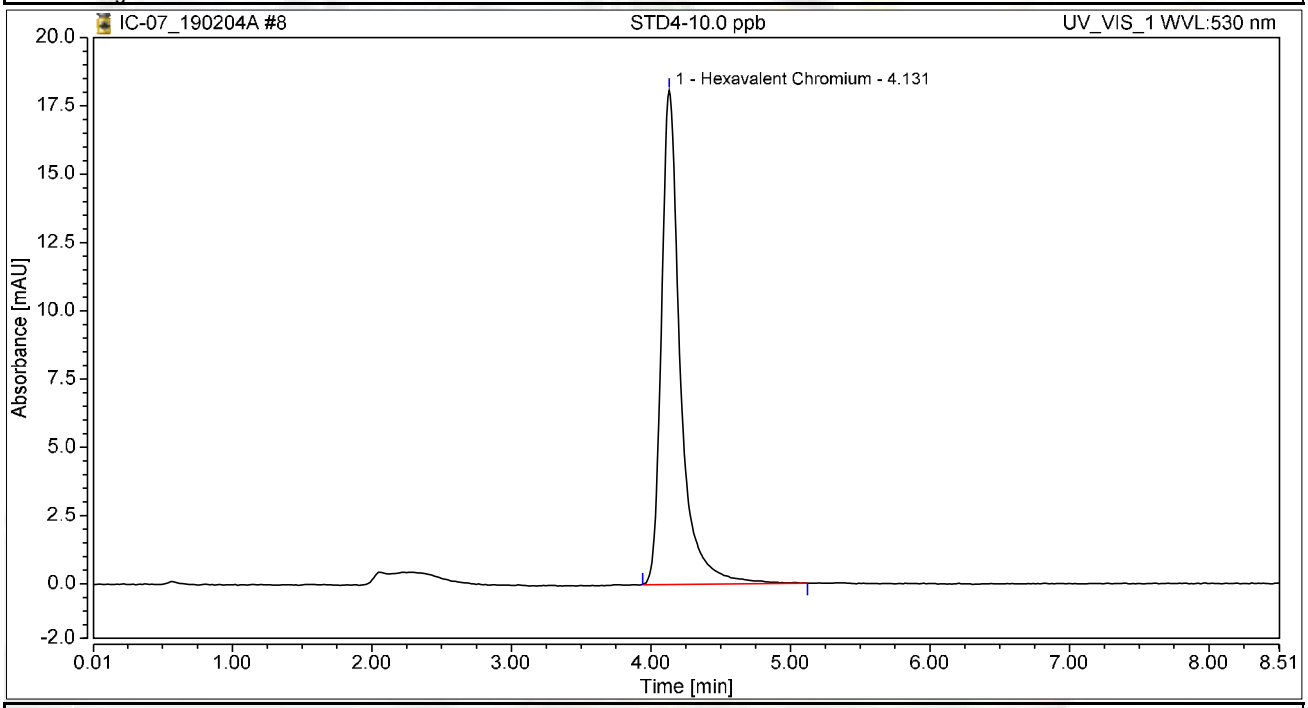
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 1.414 | 8.993 | 100.00 | 100.00 | 4.9215 |
| **Total:** | | | **1.414** | **8.993** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD4-10.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **04** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 11:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

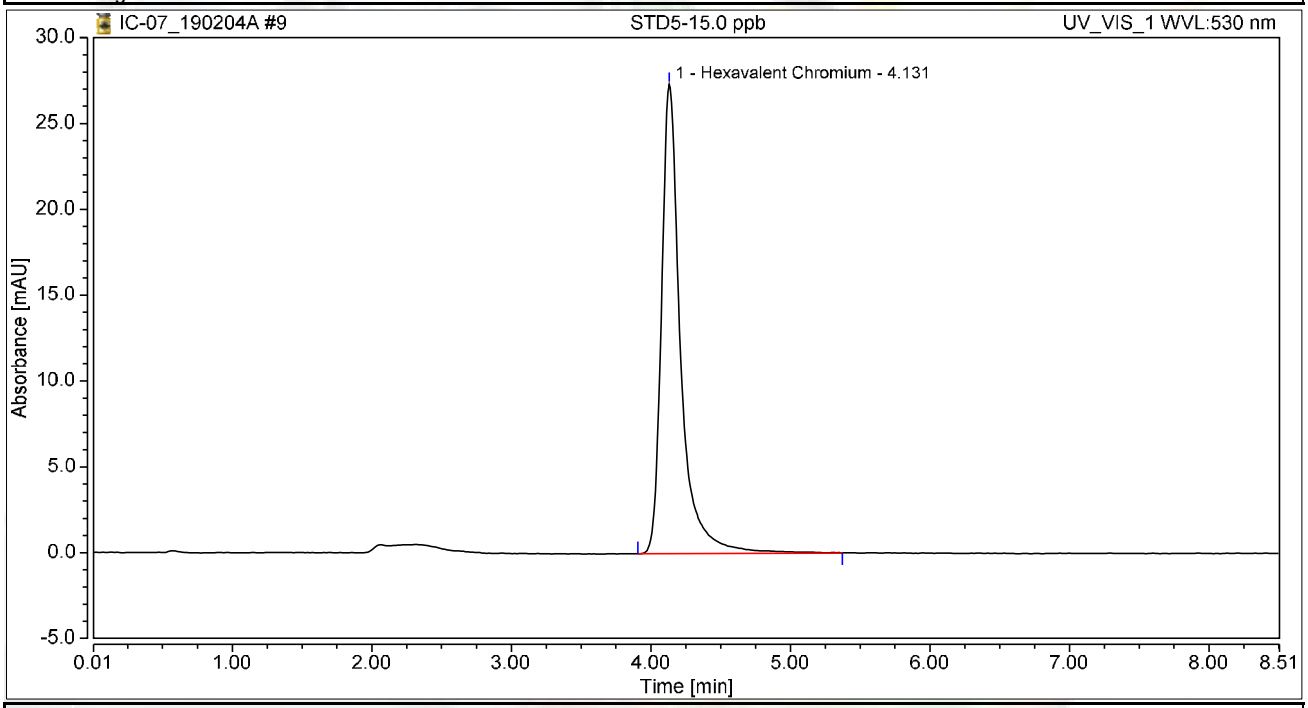
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 2.855 | 18.102 | 100.00 | 100.00 | 9.9332 |
| **Total:** | | | **2.855** | **18.102** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 11:15** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

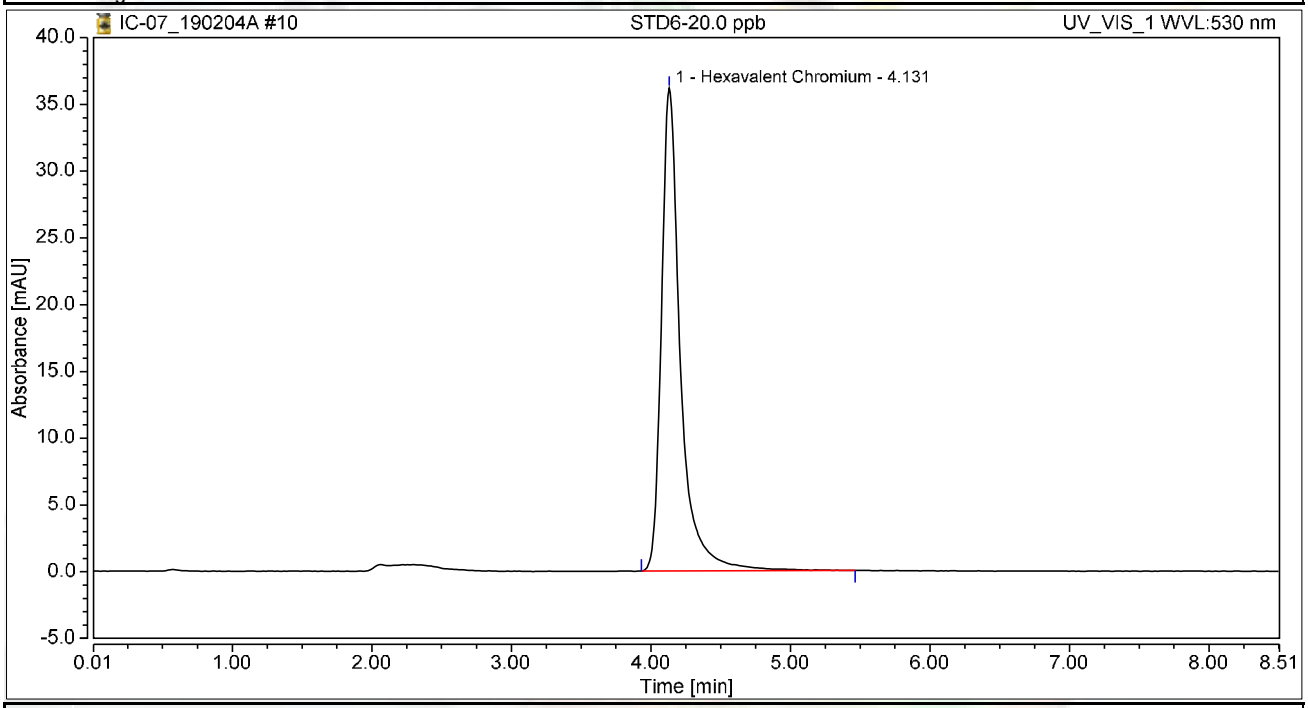
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 4.351 | 27.339 | 100.00 | 100.00 | 15.1391 |
| **Total:** | | | **4.351** | **27.339** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD6-20.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **06** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 11:25** | *Sample Weight:* | **1.0000** |

## Chromatogram



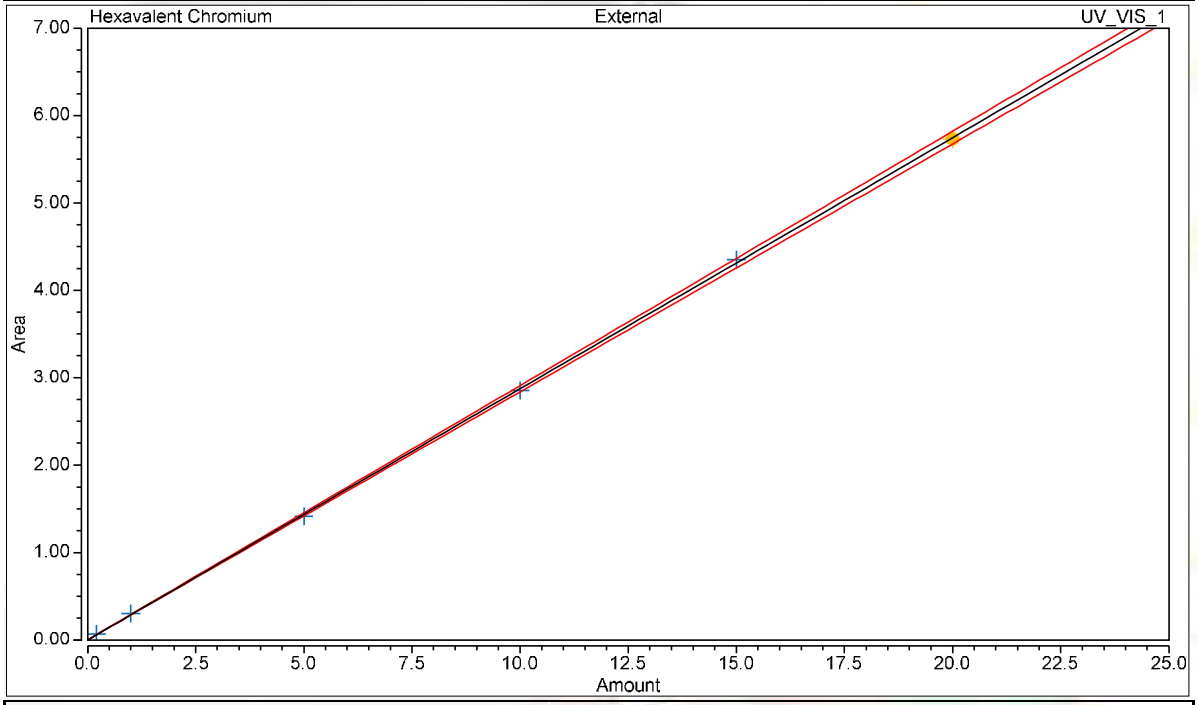

## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 5.732 | 36.163 | 100.00 | 100.00 | 19.9459 |
| **Total:** | | | **5.732** | **36.163** | **100.00** | **100.00** | |

# Initial Calibration Summary

| Calibration Details | Hexavalent Chromium | | |
|---|---|---|---|
| *Calibration Type* | Lin | *Offset (C0)* | 0.0000 |
| *Evaluation Type* | Area | *Slope (C1)* | 0.2874 |
| *Number of Calibration Points* | 6 | *Curve (C2)* | 0.0000 |
| *Number of disabled Calibration Points* | 0 | *R-Square* | 0.99988 |

Calibration Plot Hexavalent Chromium




Calibration Results Hexavalent Chromium

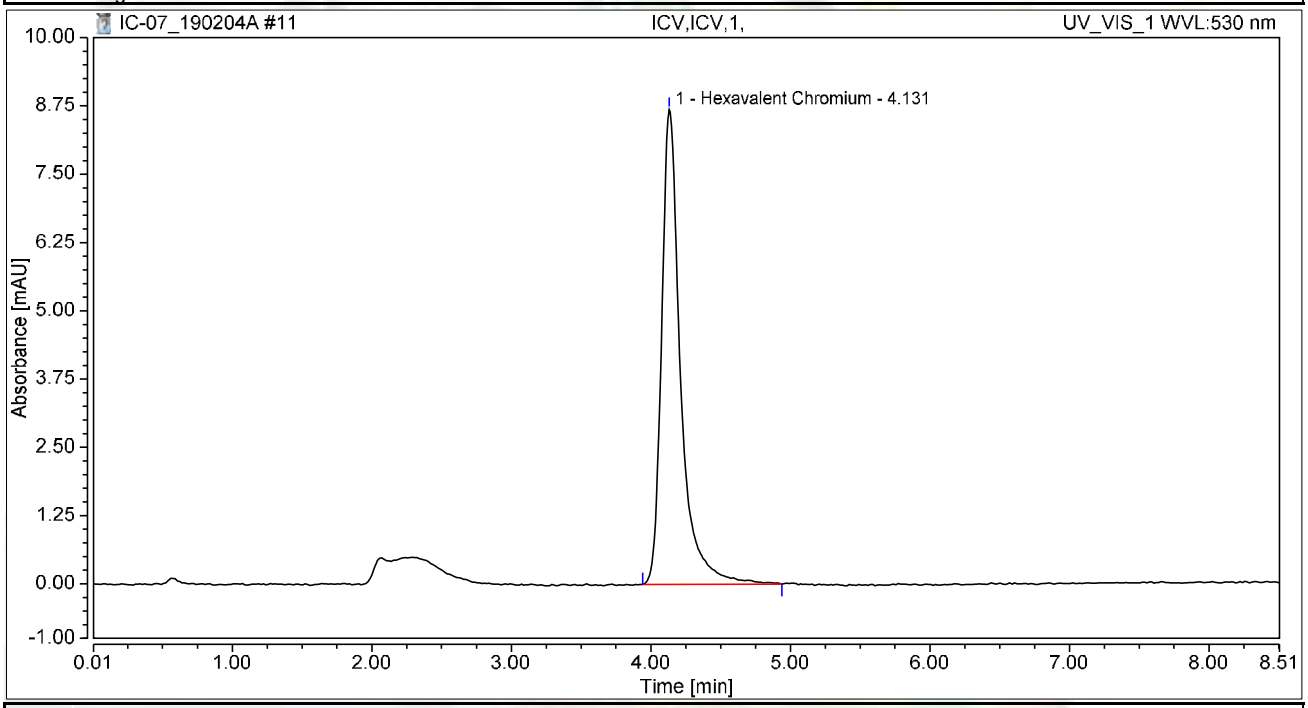
| No. | Injection Name | Calibration Level | X Value | Y Value | Area mAU*min | Height mAU |
|---|---|---|---|---|---|---|
| 5 | STD1-0.2 ppb | 01 | 0.2000 | 0.0689 | 0.069 | 0.451 |
| 6 | STD2-1.0 ppb | 02 | 1.0000 | 0.3011 | 0.301 | 1.973 |
| 7 | STD3-5.0 ppb | 03 | 5.0000 | 1.4144 | 1.414 | 8.993 |
| 8 | STD4-10.0 ppb | 04 | 10.0000 | 2.8548 | 2.855 | 18.102 |
| 9 | STD5-15.0 ppb | 05 | 15.0000 | 4.3509 | 4.351 | 27.339 |
| 10 | STD6-20.0 ppb | 06 | 20.0000 | 5.7324 | 5.732 | 36.163 |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICV,ICV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 11:45** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

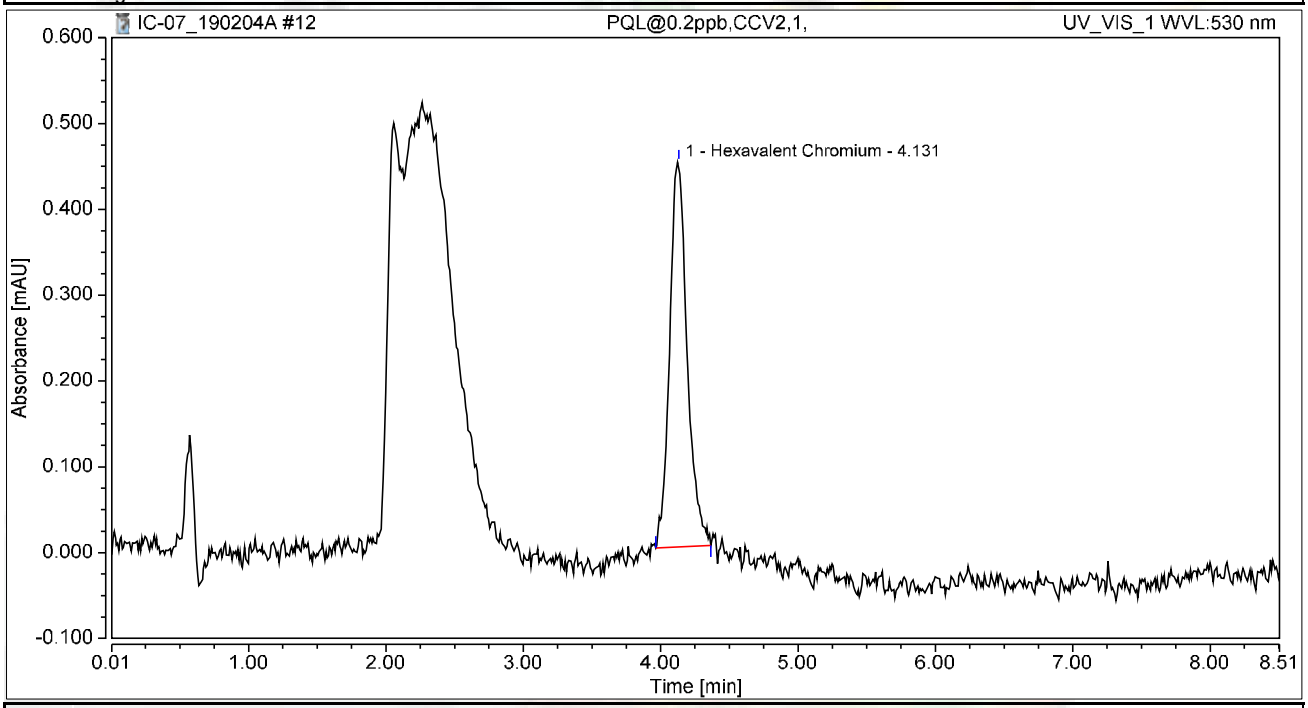
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 1.374 | 8.698 | 100.00 | 100.00 | 4.7795 |
| **Total:** | | | **1.374** | **8.698** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 11:56** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

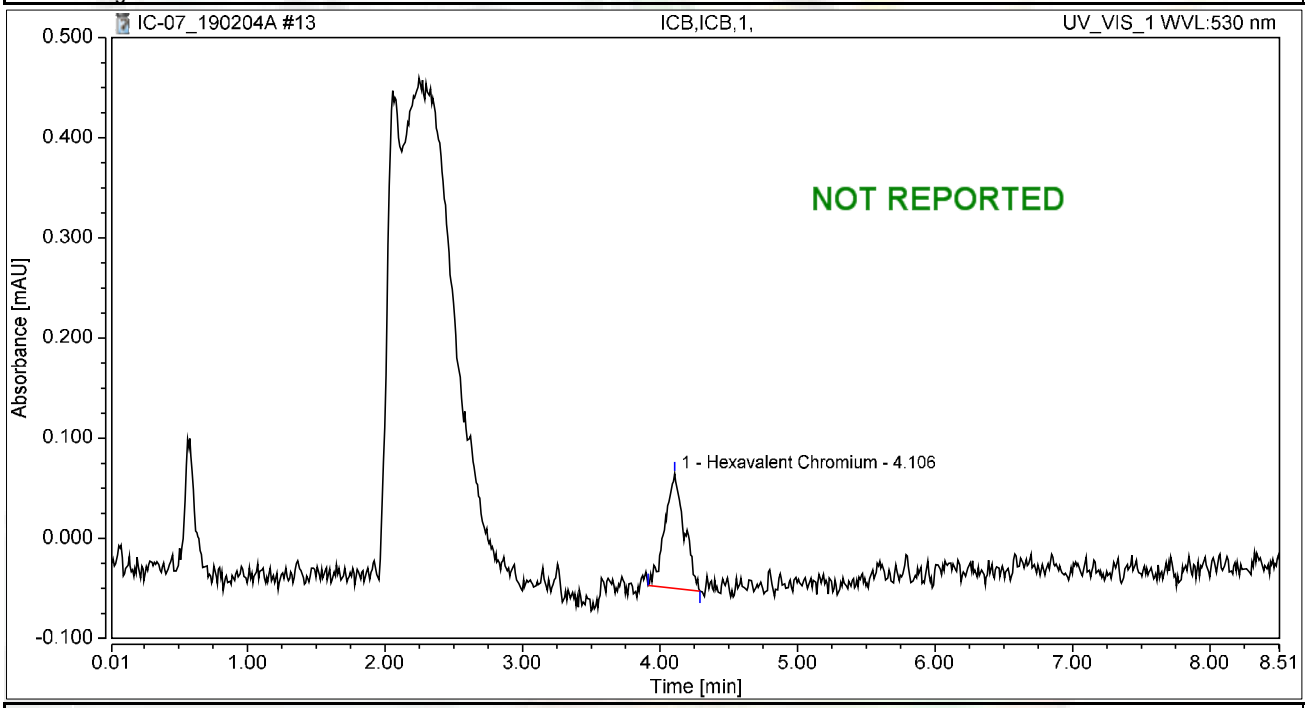
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 0.066 | 0.448 | 100.00 | 100.00 | 0.2307 |
| **Total:** | | | **0.066** | **0.448** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICB,ICB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 12:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

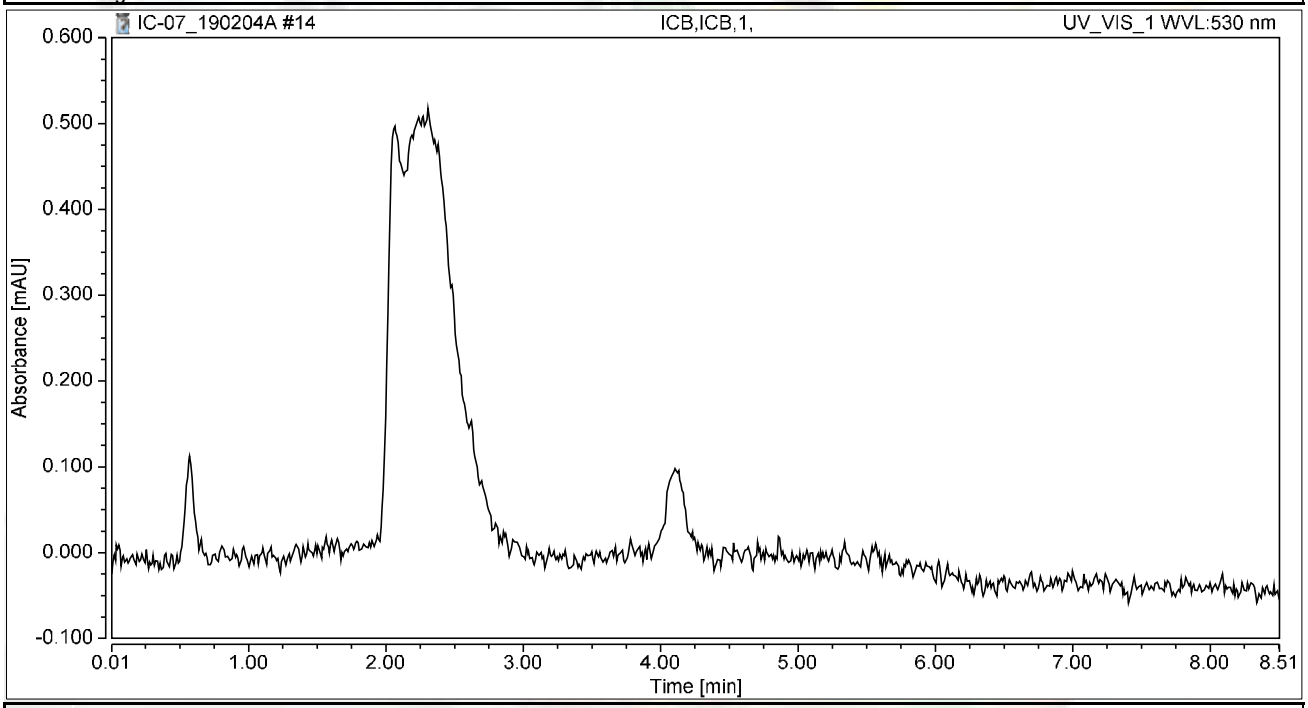
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.019 | 0.114 | 100.00 | 100.00 | 0.0647 |
| **Total:** | | | **0.019** | **0.114** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICB,ICB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 12:19** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

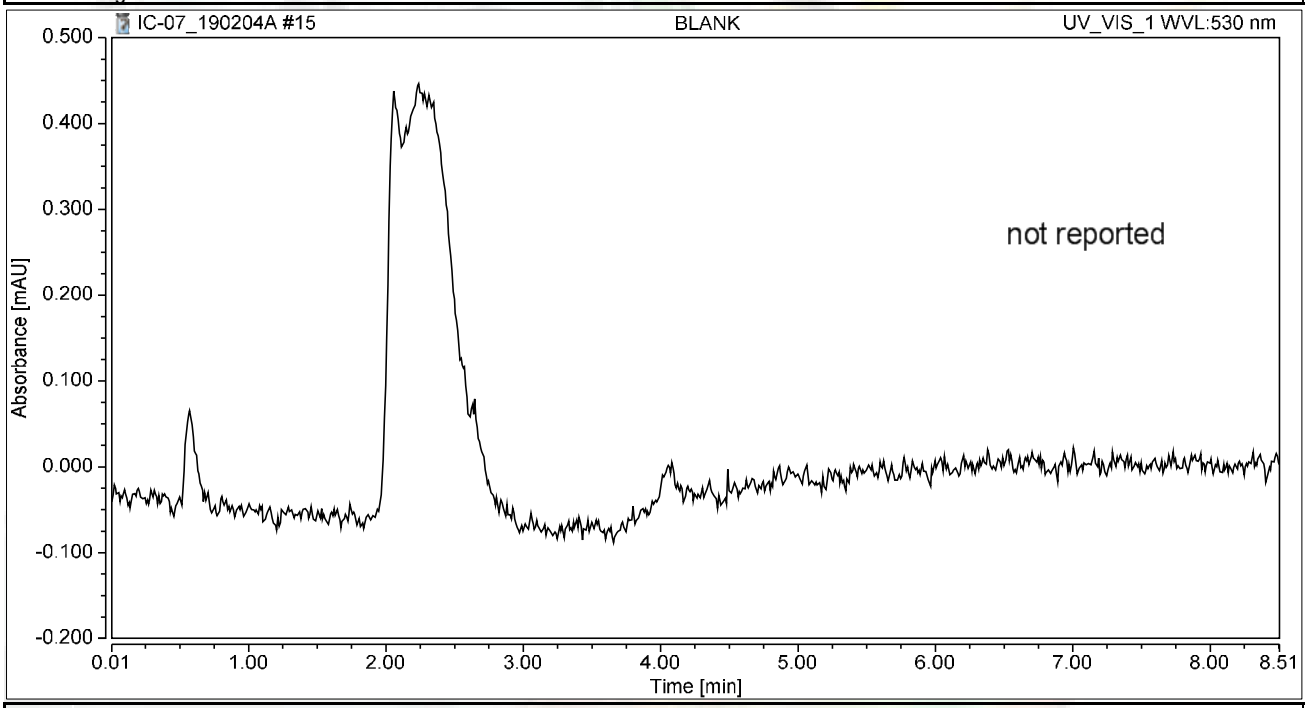
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 12:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# RAW DATA

**INJECTION LOG: 180220A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:31 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:41 AM | Not Reported |
| 3 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:54 AM | Not Reported |
| 4 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/04/19 10:22 AM | Reported |
| 5 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:35 AM | Reported |
| 6 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:47 AM | Reported |
| 7 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:56 AM | Reported |
| 8 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:06 AM | Reported |
| 9 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:15 AM | Reported |
| 10 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:25 AM | Reported |
| 11 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/20/19 9:29 AM | Not Reported |
| 12 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/20/19 9:40 AM | Not Reported |
| 13 | CCV-1 | CCV | 1 | Hexavalent Chromium | 02/20/19 9:49 AM | Reported |
| 14 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/20/19 9:59 AM | Reported |
| 15 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/20/19 10:08 AM | Reported |
| 16 | MB-R132010 | MBLK | 1 | Hexavalent Chromium | 02/20/19 10:22 AM | Reported |
| 17 | LCS-R132010 | LCS | 1 | Hexavalent Chromium | 02/20/19 10:33 AM | Reported |
| 18 | N034104-001A | SAMP | 1 | Hexavalent Chromium | 02/20/19 10:54 AM | Reported |
| 19 | N034104-002A | SAMP | 1 | Hexavalent Chromium | 02/20/19 11:05 AM | Reported |
| 20 | N034104-003A | SAMP | 1 | Hexavalent Chromium | 02/20/19 11:15 AM | Reported |
| 21 | N034104-004A | SAMP | 1 | Hexavalent Chromium | 02/20/19 11:24 AM | Reported |
| 22 | N034104-005A | SAMP | 1 | Hexavalent Chromium | 02/20/19 11:34 AM | Reported |
| 23 | N034104-006A | SAMP | 1 | Hexavalent Chromium | 02/20/19 11:43 AM | Reported |
| 24 | N034104-007A | SAMP | 1 | Hexavalent Chromium | 02/20/19 11:53 AM | Reported |
| 25 | N034104-008A | SAMP | 1 | Hexavalent Chromium | 02/20/19 12:02 PM | Reported |
| 26 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 02/20/19 12:11 PM | Reported |
| 27 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/20/19 12:21 PM | Reported |
| 28 | N034104-009A | SAMP | 1 | Hexavalent Chromium | 02/20/19 12:30 PM | Not Reported |
| 29 | N034104-010A | SAMP | 1 | Hexavalent Chromium | 02/20/19 12:40 PM | Reported |
| 30 | N034104-001AMS | MS | 1 | Hexavalent Chromium | 02/20/19 12:49 PM | Reported |
| 31 | N034104-002AMS | MS | 1 | Hexavalent Chromium | 02/20/19 12:59 PM | Reported |
| 32 | N034104-003AMS | MS | 1 | Hexavalent Chromium | 02/20/19 1:08 PM | Reported |
| 33 | N034104-004AMS | MS | 1 | Hexavalent Chromium | 02/20/19 1:18 PM | Reported |
| 34 | N034104-005AMS | MS | 1 | Hexavalent Chromium | 02/20/19 1:27 PM | Reported |
| 35 | N034104-006AMS | MS | 1 | Hexavalent Chromium | 02/20/19 1:37 PM | Reported |
| 36 | N034104-007AMS | MS | 1 | Hexavalent Chromium | 02/20/19 1:46 PM | Reported |
| 37 | N034104-008AMS | MS | 1 | Hexavalent Chromium | 02/20/19 1:56 PM | Reported |
| 38 | CCV-3 | CCV | 1 | Hexavalent Chromium | 02/20/19 2:05 PM | Reported |
| 39 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/20/19 2:14 PM | Reported |
| 40 | N034104-009AMS | MS | 1 | Hexavalent Chromium | 02/20/19 2:24 PM | Not Reported |
| 41 | N034104-010AMS | MS | 1 | Hexavalent Chromium | 02/20/19 2:33 PM | Reported |
| 42 | N034104-011A | SAMP | 1 | Hexavalent Chromium | 02/20/19 2:43 PM | Reported |

**INJECTION LOG: 180220A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034104-012A | SAMP | 1 | Hexavalent Chromium | 02/20/19 2:52 PM | Reported |
| 44 | N034104-013A | SAMP | 1 | Hexavalent Chromium | 02/20/19 3:02 PM | Reported |
| 45 | N034104-014A | SAMP | 1 | Hexavalent Chromium | 02/20/19 3:11 PM | Reported |
| 46 | N034104-015A | SAMP | 1 | Hexavalent Chromium | 02/20/19 3:21 PM | Reported |
| 47 | N034104-016A | SAMP | 2 | Hexavalent Chromium | 02/20/19 3:30 PM | Not Reported |
| 48 | N034104-017A | SAMP | 1 | Hexavalent Chromium | 02/20/19 3:40 PM | Reported |
| 49 | N034238-002B | SAMP | 1 | Hexavalent Chromium | 02/20/19 3:49 PM | Reported |
| 50 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/20/19 3:59 PM | Not Reported |
| 51 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/20/19 4:08 PM | Not Reported |
| 52 | N034104-011AMS | MS | 1 | Hexavalent Chromium | 02/20/19 4:17 PM | Not Reported |
| 53 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/20/19 4:34 PM | Not Reported |
| 54 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/20/19 4:44 PM | Reported |
| 55 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/20/19 4:54 PM | Reported |
| 56 | N034104-011AMS | MS | 1 | Hexavalent Chromium | 02/20/19 5:03 PM | Reported |
| 57 | N034104-012AMS | MS | 1 | Hexavalent Chromium | 02/20/19 5:13 PM | Reported |
| 58 | N034104-013AMS | MS | 1 | Hexavalent Chromium | 02/20/19 5:22 PM | Reported |
| 59 | N034104-014AMS | MS | 1 | Hexavalent Chromium | 02/20/19 5:32 PM | Reported |
| 60 | N034104-015AMS | MS | 1 | Hexavalent Chromium | 02/20/19 5:41 PM | Reported |
| 61 | N034104-017AMS | MS | 1 | Hexavalent Chromium | 02/20/19 5:51 PM | Not Reported |
| 62 | N034104-017AMSD | MSD | 1 | Hexavalent Chromium | 02/20/19 6:00 PM | Not Reported |
| 63 | N034104-016A | SAMP | 1 | Hexavalent Chromium | 02/20/19 6:09 PM | Reported |
| 64 | N034104-016AMS | MS | 1 | Hexavalent Chromium | 02/20/19 6:19 PM | Reported |
| 65 | N034238-002BDUP | DUP | 1 | Hexavalent Chromium | 02/20/19 6:28 PM | Reported |
| 66 | CCV-5 | CCV | 1 | Hexavalent Chromium | 02/20/19 6:38 PM | Reported |
| 67 | CCB-5 | CCB | 1 | Hexavalent Chromium | 02/20/19 6:47 PM | Reported |
| 68 | N034107-001A | SAMP | 1 | Hexavalent Chromium | 02/20/19 7:00 PM | Reported |
| 69 | N034107-002A | SAMP | 1 | Hexavalent Chromium | 02/20/19 7:11 PM | Reported |
| 70 | N034104-017AMS | MS | 1 | Hexavalent Chromium | 02/20/19 7:20 PM | Reported |
| 71 | N034104-017AMSD | MSD | 1 | Hexavalent Chromium | 02/20/19 7:30 PM | Reported |
| 72 | MB-R132012 | MBLK | 1 | Hexavalent Chromium | 02/20/19 7:39 PM | Reported |
| 73 | LCS-R132012 | LCS | 1 | Hexavalent Chromium | 02/20/19 7:49 PM | Reported |
| 74 | N034107-003A | SAMP | 10 | Hexavalent Chromium | 02/20/19 7:58 PM | Not Reported |
| 75 | N034107-003AMS | MS | 10 | Hexavalent Chromium | 02/20/19 8:07 PM | Not Reported |
| 76 | N034107-003AMSD | MSD | 10 | Hexavalent Chromium | 02/20/19 8:17 PM | Not Reported |
| 77 | N034107-004A | SAMP | 10 | Hexavalent Chromium | 02/20/19 8:26 PM | Not Reported |
| 78 | CCV-6 | CCV1 | 1 | Hexavalent Chromium | 02/20/19 8:36 PM | Reported |
| 79 | CCB-6 | CCB | 1 | Hexavalent Chromium | 02/20/19 8:45 PM | Reported |
| 80 | N034107-005A | SAMP | 50 | Hexavalent Chromium | 02/20/19 8:55 PM | Reported |
| 81 | N034107-005ADUP | DUP | 50 | Hexavalent Chromium | 02/20/19 9:04 PM | Reported |
| 82 | N034107-021A | SAMP | 5 | Hexavalent Chromium | 02/20/19 9:14 PM | Reported |
| 83 | N034107-021AMS | MS | 5 | Hexavalent Chromium | 02/20/19 9:23 PM | Reported |
| 84 | N034107-006A | SAMP | 50 | Hexavalent Chromium | 02/20/19 9:33 PM | Reported |

**INJECTION LOG: 180220A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 85 | N034107-007A | SAMP | 20 | Hexavalent Chromium | 02/20/19 9:42 PM | Not Reported |
| 86 | N034107-008A | SAMP | 1 | Hexavalent Chromium | 02/20/19 9:52 PM | Reported |
| 87 | N034107-009A | SAMP | 1 | Hexavalent Chromium | 02/20/19 10:01 PM | Reported |
| 88 | N034107-010A | SAMP | 1 | Hexavalent Chromium | 02/20/19 10:10 PM | Not Reported |
| 89 | N034107-011A | SAMP | 1 | Hexavalent Chromium | 02/20/19 10:20 PM | Reported |
| 90 | CCV-7 | CCV | 1 | Hexavalent Chromium | 02/20/19 10:29 PM | Reported |
| 91 | CCB-7 | CCB | 1 | Hexavalent Chromium | 02/20/19 10:39 PM | Reported |
| 92 | N034107-003A | SAMP | 20 | Hexavalent Chromium | 02/20/19 10:48 PM | Reported |
| 93 | N034107-003AMS | MS | 20 | Hexavalent Chromium | 02/20/19 10:58 PM | Reported |
| 94 | N034107-003AMSD | MSD | 20 | Hexavalent Chromium | 02/20/19 11:07 PM | Reported |
| 95 | N034107-004A | SAMP | 20 | Hexavalent Chromium | 02/20/19 11:17 PM | Reported |
| 96 | N034107-012A | SAMP | 1 | Hexavalent Chromium | 02/20/19 11:26 PM | Reported |
| 97 | N034107-013A | SAMP | 1 | Hexavalent Chromium | 02/20/19 11:36 PM | Reported |
| 98 | N034107-014A | SAMP | 1 | Hexavalent Chromium | 02/20/19 11:45 PM | Reported |
| 99 | N034107-015A | SAMP | 1 | Hexavalent Chromium | 02/20/19 11:55 PM | Reported |
| 100 | N034107-016A | SAMP | 1 | Hexavalent Chromium | 02/21/19 12:04 AM | Reported |
| 101 | N034107-017A | SAMP | 1 | Hexavalent Chromium | 02/21/19 12:13 AM | Reported |
| 102 | CCV-8 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 12:23 AM | Reported |
| 103 | CCB-8 | CCB | 1 | Hexavalent Chromium | 02/21/19 12:32 AM | Reported |
| 104 | N034107-018A | SAMP | 1 | Hexavalent Chromium | 02/21/19 12:42 AM | Not Reported |
| 105 | N034107-019A | SAMP | 1 | Hexavalent Chromium | 02/21/19 12:51 AM | Reported |
| 106 | N034107-020A | SAMP | 1 | Hexavalent Chromium | 02/21/19 1:01 AM | Reported |
| 107 | N034107-022A | SAMP | 1 | Hexavalent Chromium | 02/21/19 1:10 AM | Reported |
| 108 | N034107-007A | SAMP | 50 | Hexavalent Chromium | 02/21/19 1:20 AM | Reported |
| 109 | N034107-010A | SAMP | 20 | Hexavalent Chromium | 02/21/19 1:29 AM | Reported |
| 110 | CCV-9 | CCV | 1 | Hexavalent Chromium | 02/21/19 1:39 AM | Reported |
| 111 | CCB-9 | CCB | 1 | Hexavalent Chromium | 02/21/19 1:48 AM | Reported |
| 112 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 1:58 AM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190220A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **21/Feb/19 10:13:14** |
| *No. of Injections:* | **115** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:31 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 02/04/2019 09:41 | Finished | BLANK |
| 3 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:54 | Finished | BLANK |
| 4 | iBLANK | 2 | 1000 | Unknown | | 02/04/2019 10:22 | Finished | INSTRUMENT BLANK |
| 5 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/04/2019 10:35 | Finished | 0.2 ppb, IWST-181022C |
| 6 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/04/2019 10:47 | Finished | 1.0 ppb, IWST-181022C |
| 7 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/04/2019 10:56 | Finished | 5.0 ppb, IWST-181022C |
| 8 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/04/2019 11:06 | Finished | 10 ppb, IWST-181022C |
| 9 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/04/2019 11:15 | Finished | 15 ppb, IWST-181022C |
| 10 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/04/2019 11:25 | Finished | 20 ppb, IWST-181022C |
| 11 | BLANK | 1 | 1000 | Unknown | | 02/20/2019 09:29 | Finished | BLANK |
| 12 | BLANK | 2 | 1000 | Unknown | | 02/20/2019 09:40 | Finished | BLANK |
| 13 | CCV-1,CCV,1, | 3 | 1000 | Unknown | | 02/20/2019 09:49 | Finished | CCV @5ppb, IWST-181022C |
| 14 | PQL@0.2ppb,CCV2,1 | 4 | 1000 | Unknown | | 02/20/2019 09:59 | Finished | PQL @ 0.2ppb |
| 15 | CCB-1,CCB,1, | 5 | 1000 | Unknown | | 02/20/2019 10:08 | Finished | CCB R190115A |
| 16 | MB-H2O,MBLK,1, | 6 | 1000 | Unknown | | 02/20/2019 10:22 | Finished | MB R190115A |
| 17 | LCS-H2O,LCS,1, | 7 | 1000 | Unknown | | 02/20/2019 10:33 | Finished | LCS @5ppb, IWST-181022D |
| 18 | N034104-001A,SAMF | 8 | 1000 | Unknown | | 02/20/2019 10:54 | Finished | SAMP,10mL |
| 19 | N034104-002A,SAMF | 9 | 1000 | Unknown | | 02/20/2019 11:05 | Finished | SAMP,10mL |
| 20 | N034104-003A,SAMF | 10 | 1000 | Unknown | | 02/20/2019 11:15 | Finished | SAMP,10mL |
| 21 | N034104-004A,SAMF | 11 | 1000 | Unknown | | 02/20/2019 11:24 | Finished | SAMP,10mL |
| 22 | N034104-005A,SAMF | 12 | 1000 | Unknown | | 02/20/2019 11:34 | Finished | SAMP,10mL |
| 23 | N034104-006A,SAMF | 13 | 1000 | Unknown | | 02/20/2019 11:43 | Finished | SAMP,10mL |
| 24 | N034104-007A,SAMF | 14 | 1000 | Unknown | | 02/20/2019 11:53 | Finished | SAMP,10mL |
| 25 | N034104-008A,SAMF | 15 | 1000 | Unknown | | 02/20/2019 12:02 | Finished | SAMP,10mL |
| 26 | CCV-2,CCV1,1, | 16 | 1000 | Unknown | | 02/20/2019 12:11 | Finished | CCV @10ppb, IWST-181022C |
| 27 | CCB-2,CCB,1, | 17 | 1000 | Unknown | | 02/20/2019 12:21 | Finished | CCB R190115A |
| 28 | N034104-009A,SAMF | 18 | 1000 | Unknown | | 02/20/2019 12:30 | Finished | SAMP,10mL |
| 29 | N034104-010A,SAMF | 19 | 1000 | Unknown | | 02/20/2019 12:40 | Finished | SAMP,10mL |
| 30 | N034104-001AMS,MS | 20 | 1000 | Unknown | | 02/20/2019 12:49 | Finished | MS (1ppb), IWST-181022D,10 |
| 31 | N034104-002AMS,MS | 21 | 1000 | Unknown | | 02/20/2019 12:59 | Finished | MS (1ppb), IWST-181022D,10 |
| 32 | N034104-003AMS,MS | 22 | 1000 | Unknown | | 02/20/2019 13:08 | Finished | MS (1ppb), IWST-181022D,10 |
| 33 | N034104-004AMS,MS | 23 | 1000 | Unknown | | 02/20/2019 13:18 | Finished | MS (1ppb), IWST-181022D,10 |
| 34 | N034104-005AMS,MS | 24 | 1000 | Unknown | | 02/20/2019 13:27 | Finished | MS (1ppb), IWST-181022D,10 |
| 35 | N034104-006AMS,MS | 25 | 1000 | Unknown | | 02/20/2019 13:37 | Finished | MS (1ppb), IWST-181022D,10 |
| 36 | N034104-007AMS,MS | 26 | 1000 | Unknown | | 02/20/2019 13:46 | Finished | MS (1ppb), IWST-181022D,10 |
| 37 | N034104-008AMS,MS | 27 | 1000 | Unknown | | 02/20/2019 13:56 | Finished | MS (1ppb), IWST-181022D,10 |
| 38 | CCV-3,CCV,1, | 28 | 1000 | Unknown | | 02/20/2019 14:05 | Finished | CCV @5ppb, IWST-181022C |
| 39 | CCB-3,CCB,1, | 29 | 1000 | Unknown | | 02/20/2019 14:14 | Finished | CCB R190115A |
| 40 | N034104-009AMS,MS | 30 | 1000 | Unknown | | 02/20/2019 14:24 | Finished | SAMP,2>10mL |
| 41 | N034104-010AMS,MS | 31 | 1000 | Unknown | | 02/20/2019 14:33 | Finished | SAMP,2>10mL |
| 42 | N034104-011A,SAMF | 32 | 1000 | Unknown | | 02/20/2019 14:43 | Finished | MS (1ppb), IWST-181022D,10 |
| 43 | N034104-012A,SAMF | 33 | 1000 | Unknown | | 02/20/2019 14:52 | Finished | MS (1ppb), IWST-181022D,2>1 |
| 44 | N034104-013A,SAMF | 34 | 1000 | Unknown | | 02/20/2019 15:02 | Finished | SAMP,10mL |
| 45 | N034104-014A,SAMF | 35 | 1000 | Unknown | | 02/20/2019 15:11 | Finished | SAMP,10mL |
| 46 | N034104-015A,SAMF | 36 | 1000 | Unknown | | 02/20/2019 15:21 | Finished | SAMP,10mL |
| 47 | N034104-016A,SAMF | 37 | 1000 | Unknown | | 02/20/2019 15:30 | Finished | SAMP,5>10mL |
| 48 | N034104-017A,SAMF | 38 | 1000 | Unknown | | 02/20/2019 15:40 | Finished | SAMP,10mL |
| 49 | N034238-002B,SAMF | 39 | 1000 | Unknown | | 02/20/2019 15:49 | Finished | SAMP,10mL |
| 50 | CCV-4,CCV1,1, | 40 | 1000 | Unknown | | 02/20/2019 15:59 | Finished | CCV @10ppb, IWST-181022C |
| 51 | CCB-4,CCB,1, | 41 | 1000 | Unknown | | 02/20/2019 16:08 | Finished | CCB R190115A |
| 52 | N034104-011AMS,MS | 42 | 1000 | Unknown | | 02/20/2019 16:17 | Interrupted | SAMP,10mL |
| 53 | CCV-4,CCV1,1, | 1 | 1000 | Unknown | | 02/20/2019 16:34 | Finished | SAMP,10mL |
| 54 | CCV-4,CCV1,1, | 2 | 1000 | Unknown | | 02/20/2019 16:44 | Finished | SAMP,10mL |
| 55 | CCB-4,CCB,1, | 3 | 1000 | Unknown | | 02/20/2019 16:54 | Finished | CCB R190115A |
| 56 | N034104-011AMS,MS | 4 | 1000 | Unknown | | 02/20/2019 17:03 | Finished | MS (1ppb), IWST-181022D,10 |
| 57 | N034104-012AMS,MS | 5 | 1000 | Unknown | | 02/20/2019 17:13 | Finished | MS (1ppb), IWST-181022D,10 |
| 58 | N034104-013AMS,MS | 6 | 1000 | Unknown | | 02/20/2019 17:22 | Finished | MS (1ppb), IWST-181022D,10 |
| 59 | N034104-014AMS,MS | 7 | 1000 | Unknown | | 02/20/2019 17:32 | Finished | MS (1ppb), IWST-181022D,10 |
| 60 | N034104-015AMS,MS | 8 | 1000 | Unknown | | 02/20/2019 17:41 | Finished | MS (1ppb), IWST-181022D,10 |

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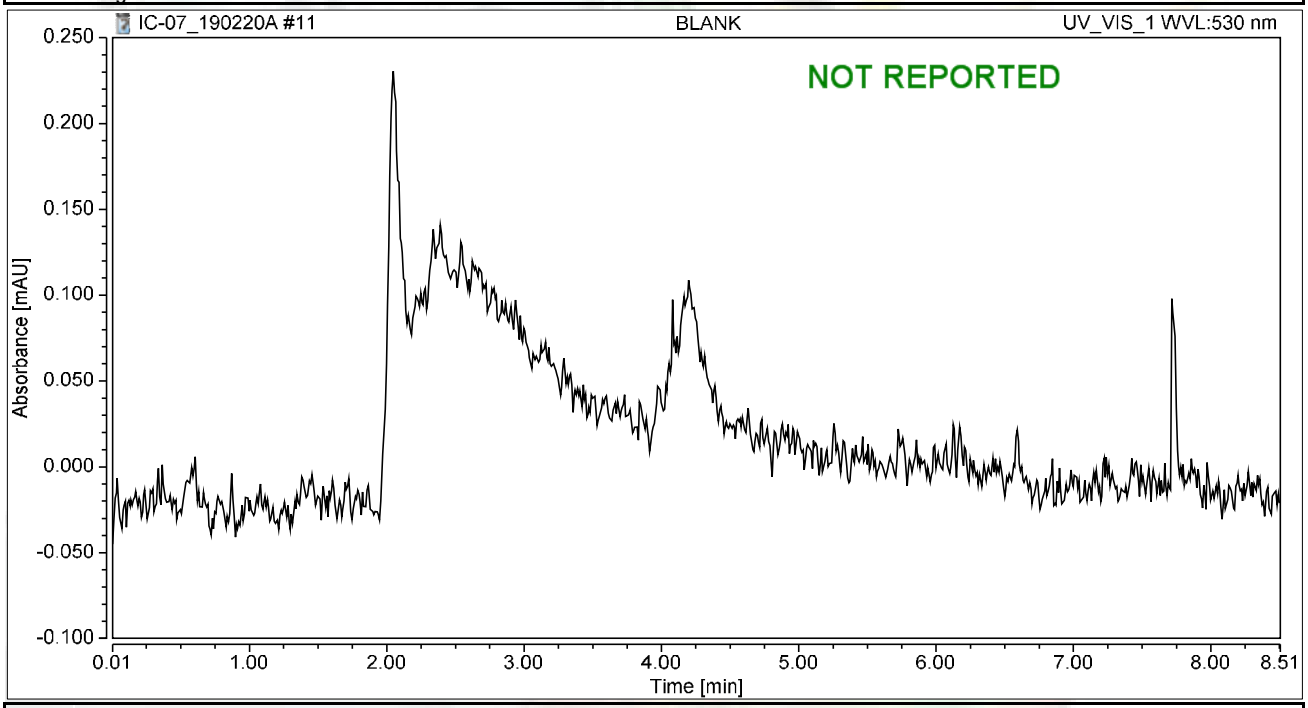
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | N034104-017AMS,MS | 9 | 1000 | Unknown | | 02/20/2019 17:51 | Finished | MS (5ppb), IWST-181022D,10 |
| 62 | N034104-017AMSD,M | 10 | 1000 | Unknown | | 02/20/2019 18:00 | Finished | MSD (5ppb), IWST-181022D,1( |
| 63 | N034104-016A,SAMP | 11 | 1000 | Unknown | | 02/20/2019 18:09 | Finished | SAMP,10mL |
| 64 | N034104-016AMS,MS | 12 | 1000 | Unknown | | 02/20/2019 18:19 | Finished | MS (1ppb), IWST-181022D,10 |
| 65 | N034238-002BDUP,D | 13 | 1000 | Unknown | | 02/20/2019 18:28 | Finished | DUP,10mL |
| 66 | CCV-5,CCV,1, | 14 | 1000 | Unknown | | 02/20/2019 18:38 | Finished | CCV @5ppb, IWST-181022C |
| 67 | CCB-5,CCB,1, | 15 | 1000 | Unknown | | 02/20/2019 18:47 | Finished | CCB R190115A |
| 68 | N034107-001A,SAMP | 1 | 1000 | Unknown | | 02/20/2019 19:00 | Finished | SAMP,10mL |
| 69 | N034107-002A,SAMP | 2 | 1000 | Unknown | | 02/20/2019 19:11 | Finished | SAMP,10mL |
| 70 | N034104-017AMS,MS | 3 | 1000 | Unknown | | 02/20/2019 19:20 | Finished | MS (1ppb), IWST-181022D,10 |
| 71 | N034104-017AMSD,M | 4 | 1000 | Unknown | | 02/20/2019 19:30 | Finished | MSD (1ppb), IWST-181022D,1( |
| 72 | MB-H2O,MBLK,1, | 5 | 1000 | Unknown | | 02/20/2019 19:39 | Finished | MB R190115A |
| 73 | LCS-H2O,LCS,1, | 6 | 1000 | Unknown | | 02/20/2019 19:49 | Finished | LCS @5ppb, IWST-181022D |
| 74 | N034107-003A,SAMP | 7 | 1000 | Unknown | | 02/20/2019 19:58 | Finished | SAMP,1>10mL |
| 75 | N034107-003AMS,MS | 8 | 1000 | Unknown | | 02/20/2019 20:07 | Finished | MS (5ppb), IWST-181022D,1>1 |
| 76 | N034107-003AMSD,M | 9 | 1000 | Unknown | | 02/20/2019 20:17 | Finished | MSD (5ppb), IWST-181022D,1 |
| 77 | N034107-004A,SAMP | 10 | 1000 | Unknown | | 02/20/2019 20:26 | Finished | SAMP,1>10mL |
| 78 | CCV-6,CCV1,1, | 11 | 1000 | Unknown | | 02/20/2019 20:36 | Finished | CCV @10ppb, IWST-181022C |
| 79 | CCB-6,CCB,1, | 12 | 1000 | Unknown | | 02/20/2019 20:45 | Finished | CCB R190115A |
| 80 | N034107-005A,SAMP | 13 | 1000 | Unknown | | 02/20/2019 20:55 | Finished | SAMP,0.02>10mL |
| 81 | N034107-005ADUP,D | 14 | 1000 | Unknown | | 02/20/2019 21:04 | Finished | MS (5ppb), IWST-181022D,0.0 |
| 82 | N034107-021A,SAMP | 15 | 1000 | Unknown | | 02/20/2019 21:14 | Finished | SAMP,2>10mL |
| 83 | N034107-021AMS,MS | 16 | 1000 | Unknown | | 02/20/2019 21:23 | Finished | MS (5ppb), IWST-181022D,2>1 |
| 84 | N034107-006A,SAMP | 17 | 1000 | Unknown | | 02/20/2019 21:33 | Finished | SAMP,0.2>10mL |
| 85 | N034107-007A,SAMP | 18 | 1000 | Unknown | | 02/20/2019 21:42 | Finished | SAMP,0.5>10mL |
| 86 | N034107-008A,SAMP | 19 | 1000 | Unknown | | 02/20/2019 21:52 | Finished | SAMP,10mL |
| 87 | N034107-009A,SAMP | 20 | 1000 | Unknown | | 02/20/2019 22:01 | Finished | SAMP,10mL |
| 88 | N034107-010A,SAMP | 21 | 1000 | Unknown | | 02/20/2019 22:10 | Finished | SAMP,10mL |
| 89 | N034107-011A,SAMP | 22 | 1000 | Unknown | | 02/20/2019 22:20 | Finished | SAMP,10mL |
| 90 | CCV-7,CCV,1, | 23 | 1000 | Unknown | | 02/20/2019 22:29 | Finished | CCV @5ppb, IWST-181022C |
| 91 | CCB-7,CCB,1, | 24 | 1000 | Unknown | | 02/20/2019 22:39 | Finished | CCB R190115A |
| 92 | N034107-003A,SAMP | 25 | 1000 | Unknown | | 02/20/2019 22:48 | Finished | SAMP,0.5>10mL |
| 93 | N034107-003AMS,MS | 26 | 1000 | Unknown | | 02/20/2019 22:58 | Finished | MS (5ppb), IWST-181022D,0.5 |
| 94 | N034107-003AMSD,M | 27 | 1000 | Unknown | | 02/20/2019 23:07 | Finished | MSD (5ppb), IWST-181022D,0. |
| 95 | N034107-004A,SAMP | 28 | 1000 | Unknown | | 02/20/2019 23:17 | Finished | SAMP,0.5>10mL |
| 96 | N034107-012A,SAMP | 29 | 1000 | Unknown | | 02/20/2019 23:26 | Finished | SAMP,10mL |
| 97 | N034107-013A,SAMP | 30 | 1000 | Unknown | | 02/20/2019 23:36 | Finished | SAMP,10mL |
| 98 | N034107-014A,SAMP | 31 | 1000 | Unknown | | 02/20/2019 23:45 | Finished | SAMP,10mL |
| 99 | N034107-015A,SAMP | 32 | 1000 | Unknown | | 02/20/2019 23:55 | Finished | SAMP,10mL |
| 100 | N034107-016A,SAMP | 33 | 1000 | Unknown | | 02/21/2019 00:04 | Finished | SAMP,10mL |
| 101 | N034107-017A,SAMP | 34 | 1000 | Unknown | | 02/21/2019 00:13 | Finished | SAMP,10mL |
| 102 | CCV-8,CCV1,1, | 35 | 1000 | Unknown | | 02/21/2019 00:23 | Finished | CCV @10ppb, IWST-181022C |
| 103 | CCB-8,CCB,1, | 36 | 1000 | Unknown | | 02/21/2019 00:32 | Finished | CCB R190115A |
| 104 | N034107-018A,SAMP | 37 | 1000 | Unknown | | 02/21/2019 00:42 | Finished | SAMP,10mL |
| 105 | N034107-019A,SAMP | 38 | 1000 | Unknown | | 02/21/2019 00:51 | Finished | SAMP,10mL |
| 106 | N034107-020A,SAMP | 39 | 1000 | Unknown | | 02/21/2019 01:01 | Finished | SAMP,10mL |
| 107 | N034107-022A,SAMP | 40 | 1000 | Unknown | | 02/21/2019 01:10 | Finished | SAMP,10mL |
| 108 | N034107-007A,SAMP | 41 | 1000 | Unknown | | 02/21/2019 01:20 | Finished | SAMP,0.2>10mL |
| 109 | N034107-010A,SAMP | 42 | 1000 | Unknown | | 02/21/2019 01:29 | Finished | SAMP,0.5>10mL |
| 110 | CCV-9,CCV,1, | 43 | 1000 | Unknown | | 02/21/2019 01:39 | Finished | CCV @5ppb, IWST-181022C |
| 111 | CCB-9,CCB,1, | 44 | 1000 | Unknown | | 02/21/2019 01:48 | Finished | CCB R190115A |
| 112 | BLANK | 45 | 1000 | Unknown | | 02/21/2019 01:58 | Finished | BLANK |
| 113 | SHUTDOWN | 46 | 1000 | Unknown | | 02/21/2019 02:07 | Finished | |
| 114 | Eluent: R190219B | 47 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 115 | PCR: R190220A | 48 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 09:29** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

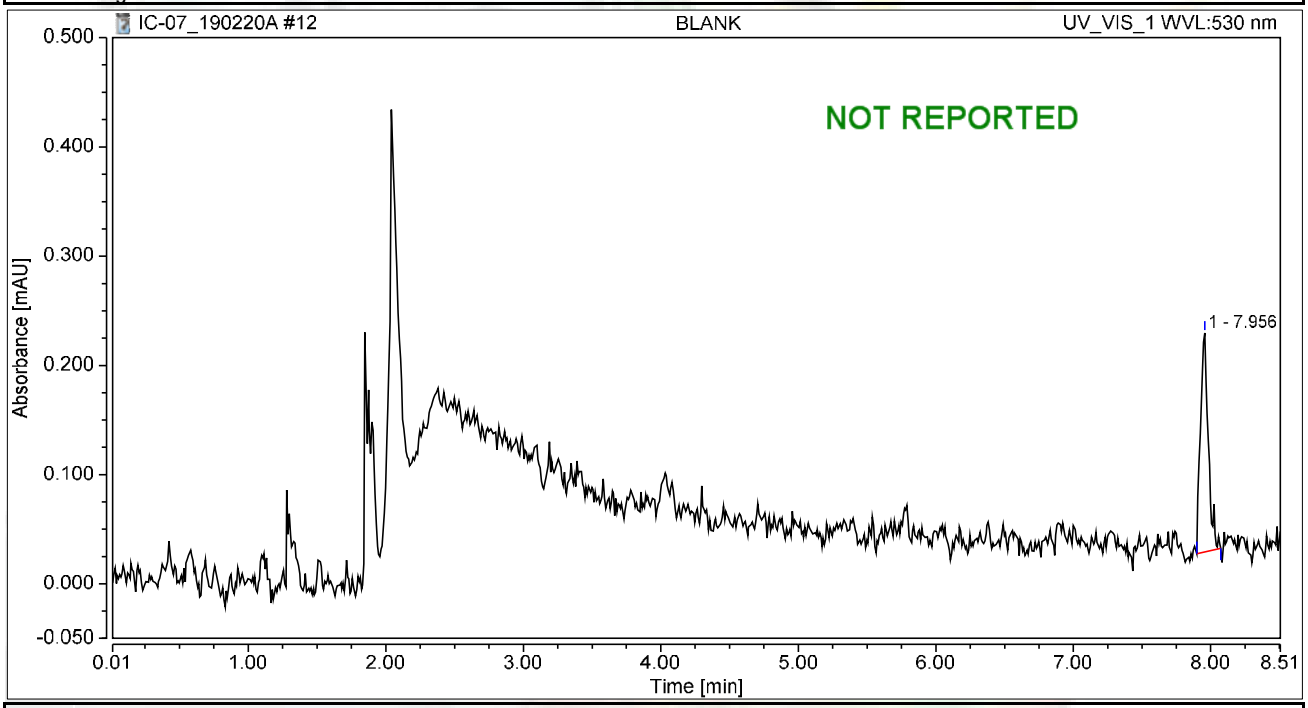
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 09:40** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

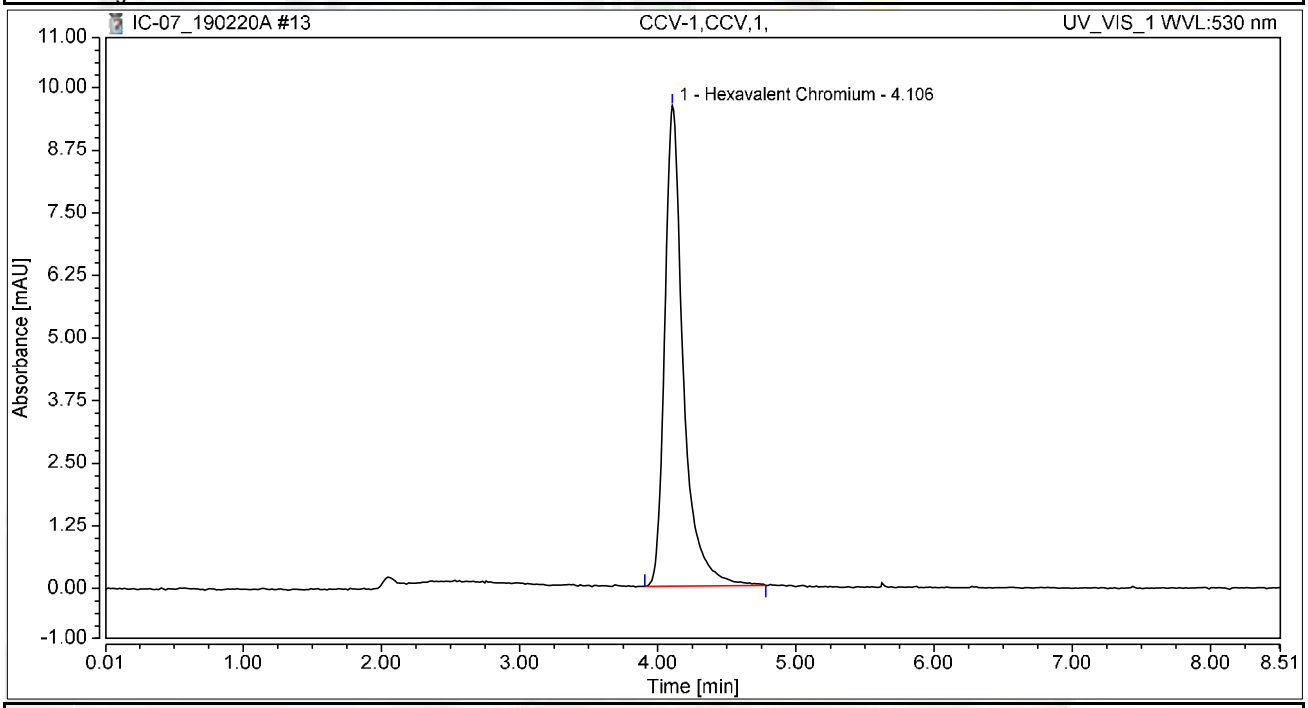
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 1 | | 7.956 | 0.013 | 0.201 | 100.00 | 100.00 | n.a. |
| **Total:** | | | **0.013** | **0.201** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-1,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 09:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

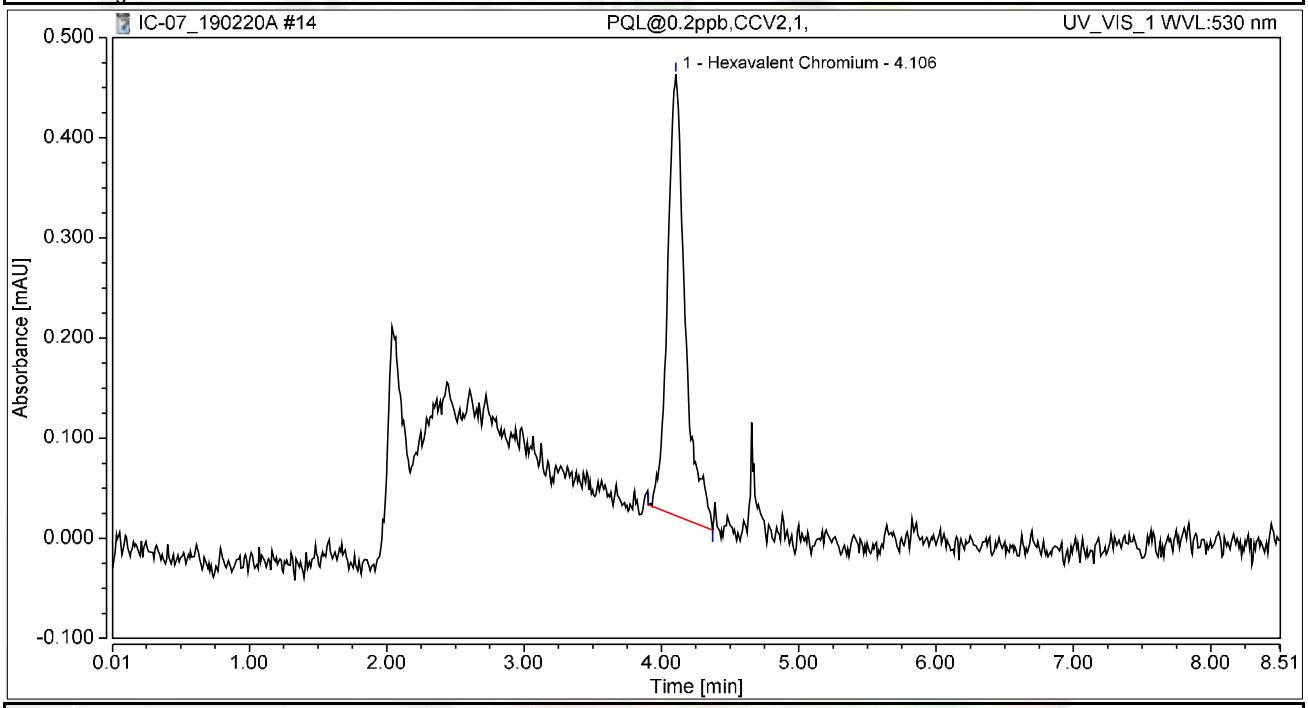
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.495 | 9.591 | 100.00 | 100.00 | 5.2032 |
| **Total:** | | | **1.495** | **9.591** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 09:59** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

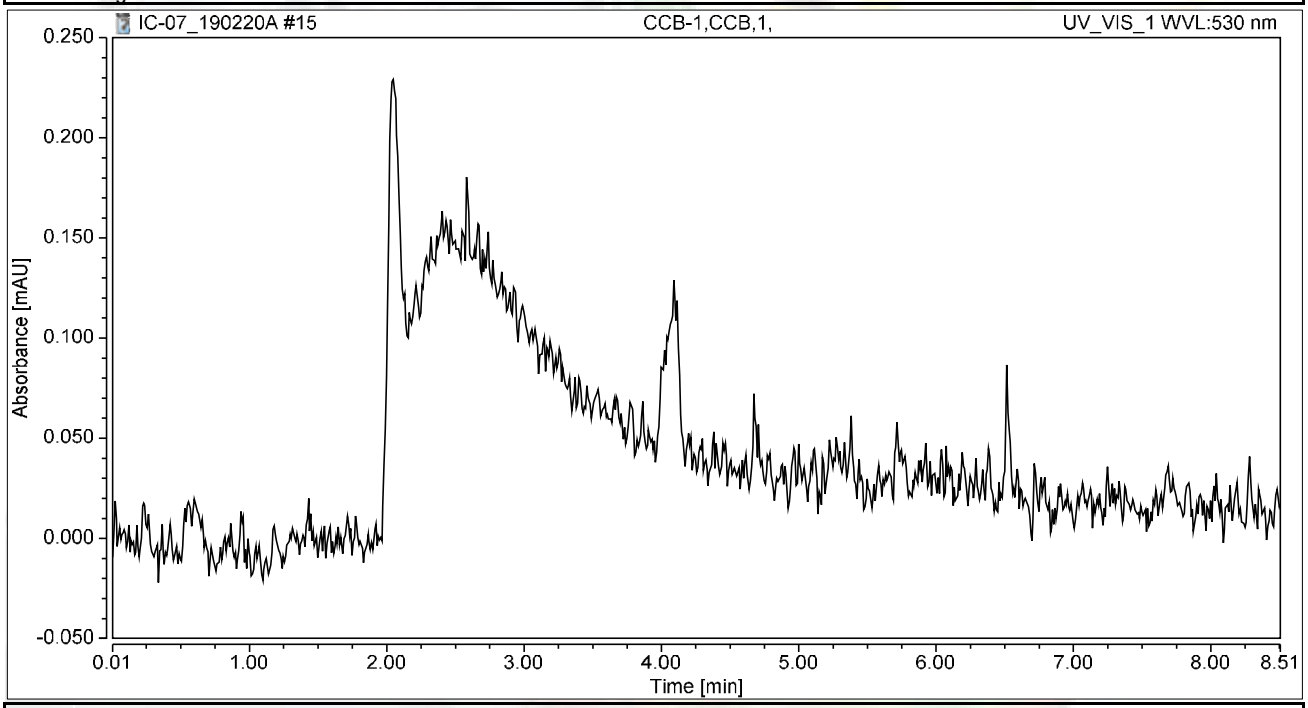
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.065 | 0.440 | 100.00 | 100.00 | 0.2273 |
| **Total:** | | | **0.065** | **0.440** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-1,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 10:08** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

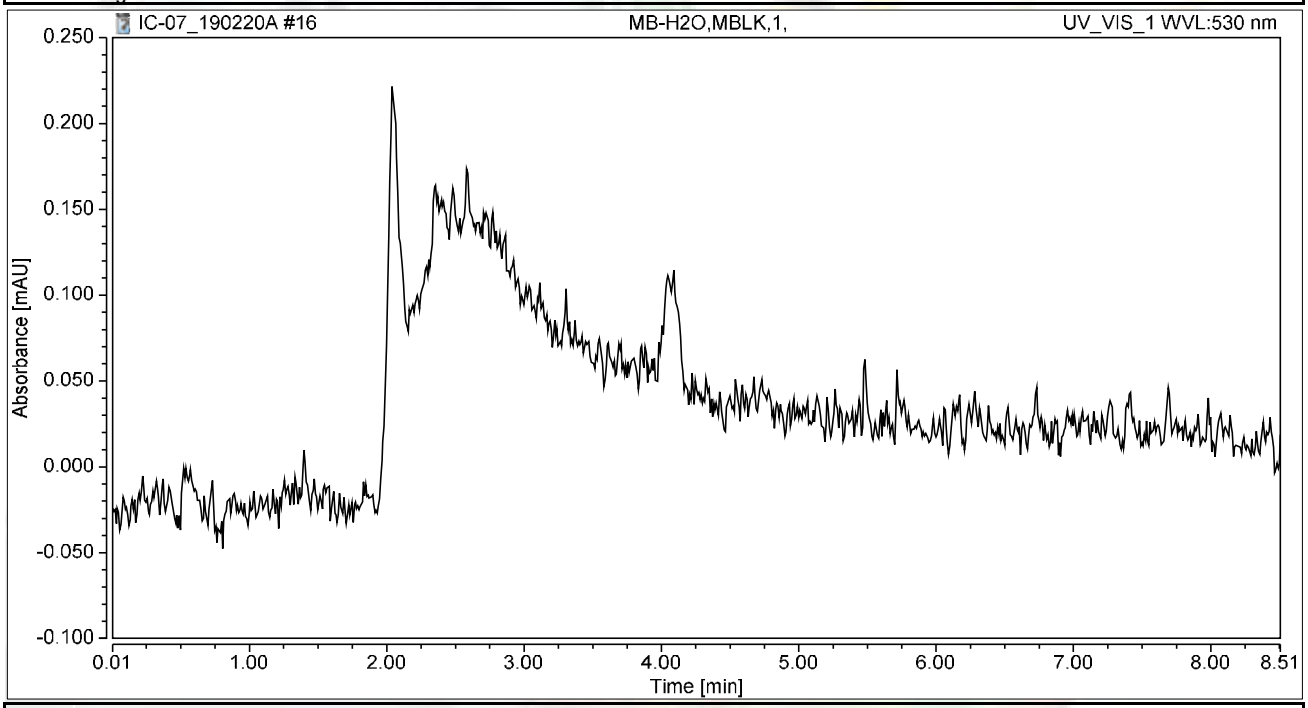
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **MB-H2O,MBLK,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 10:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

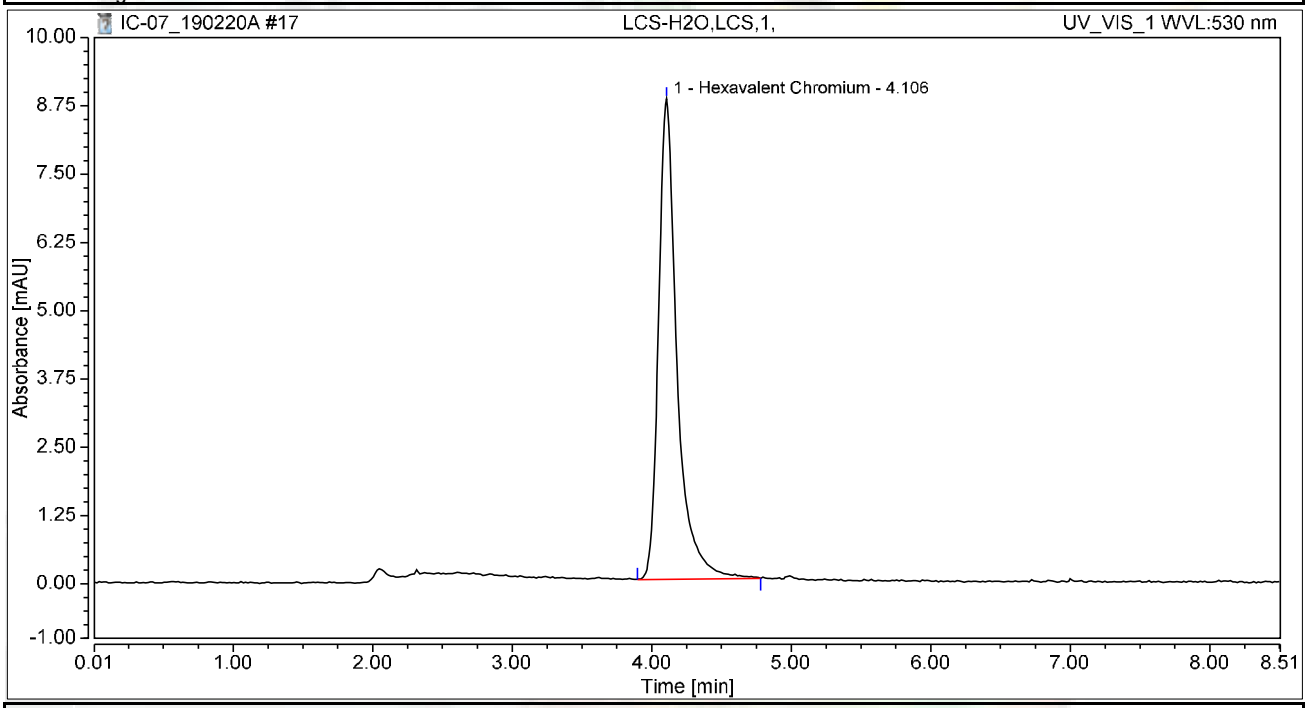
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **LCS-H2O,LCS,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 10:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

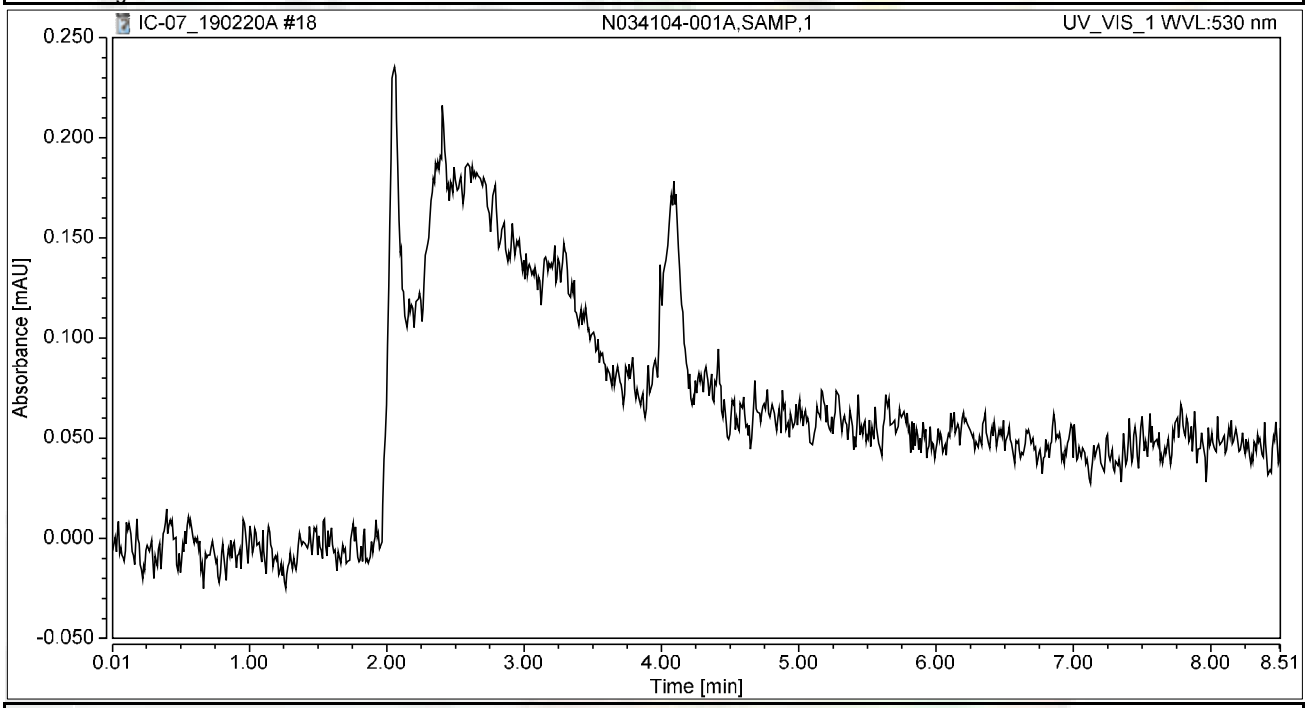
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.357 | 8.798 | 100.00 | 100.00 | 4.7227 |
| **Total:** | | | **1.357** | **8.798** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 10:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

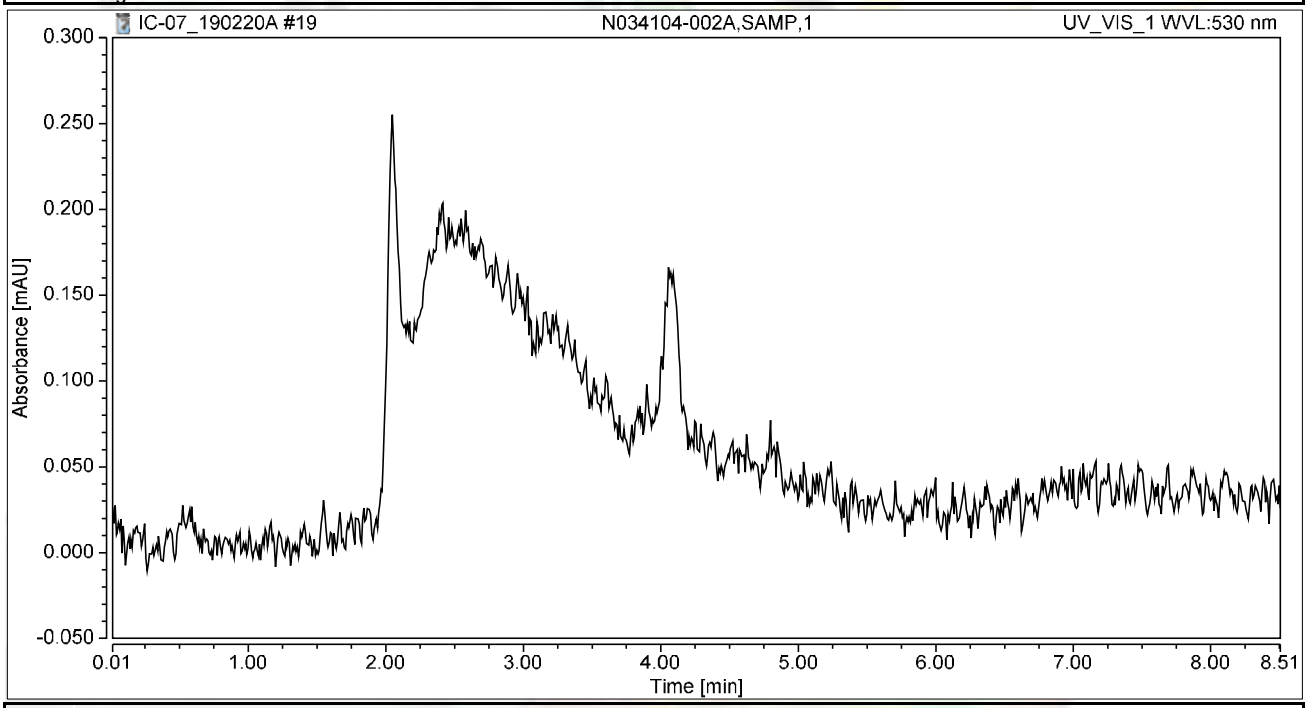
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-002A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 11:05** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

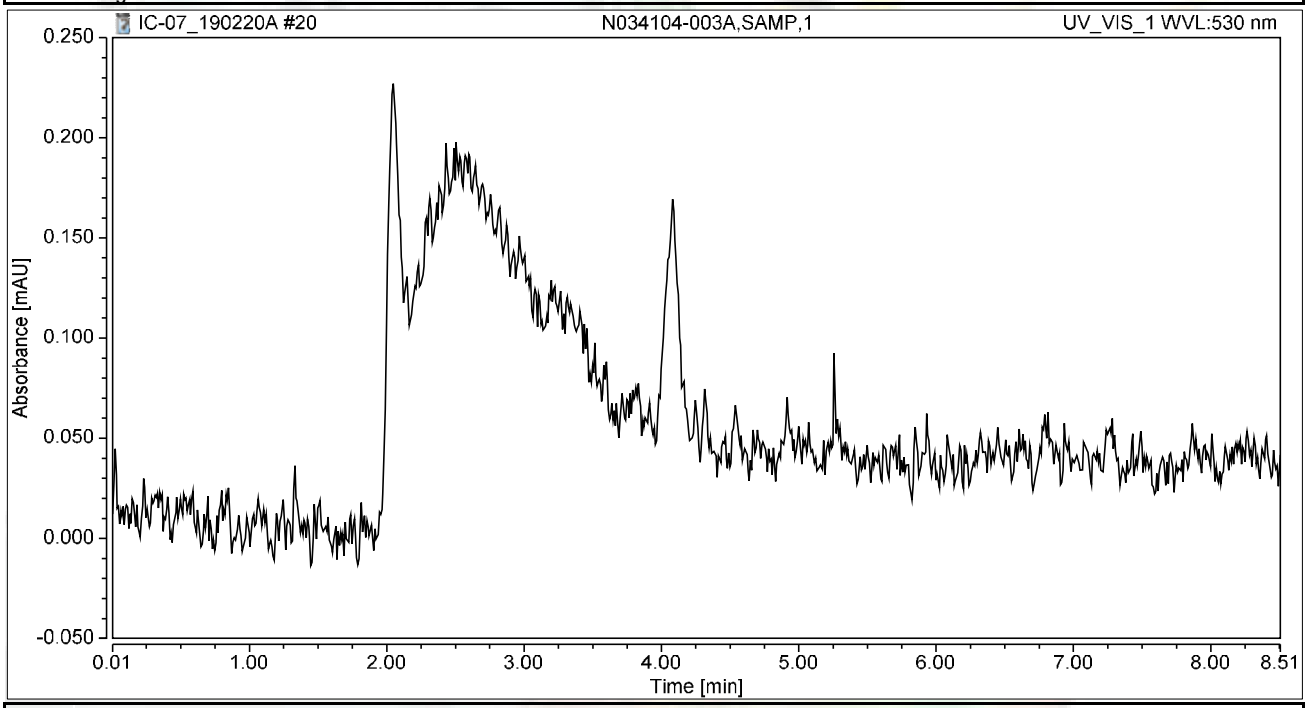
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-003A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 11:15** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

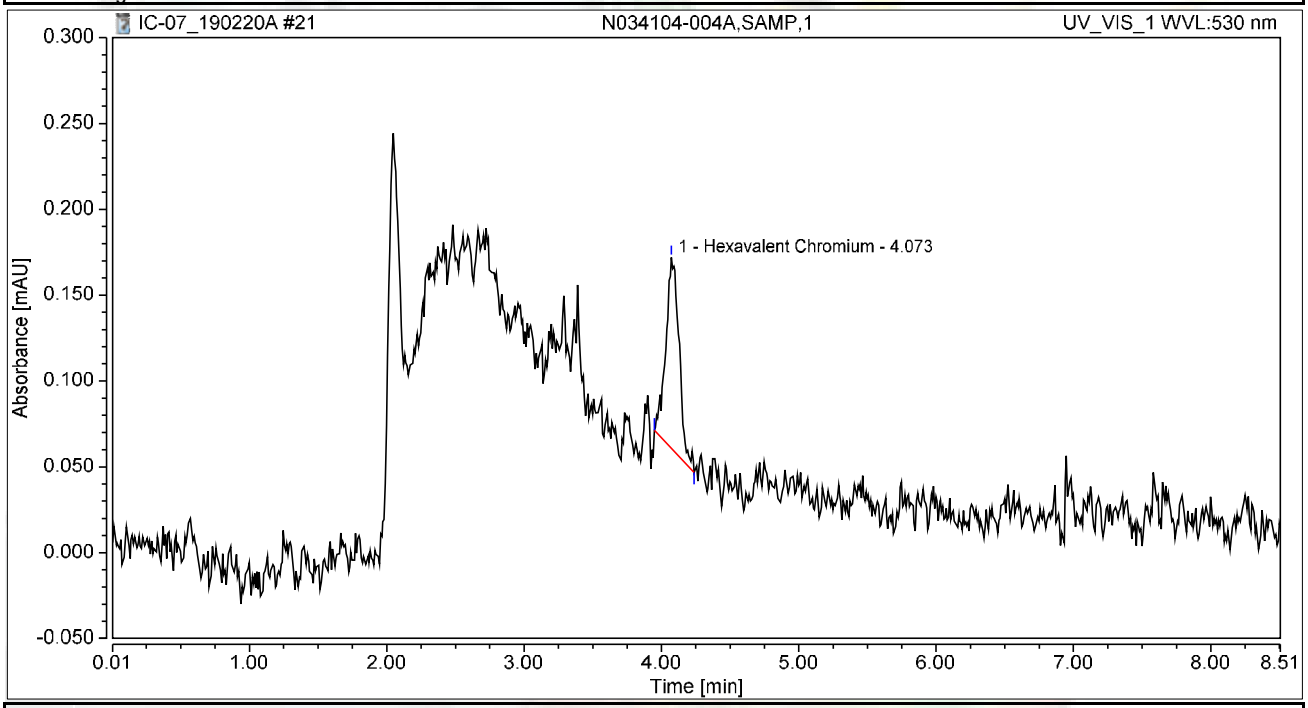
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-004A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 11:24** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

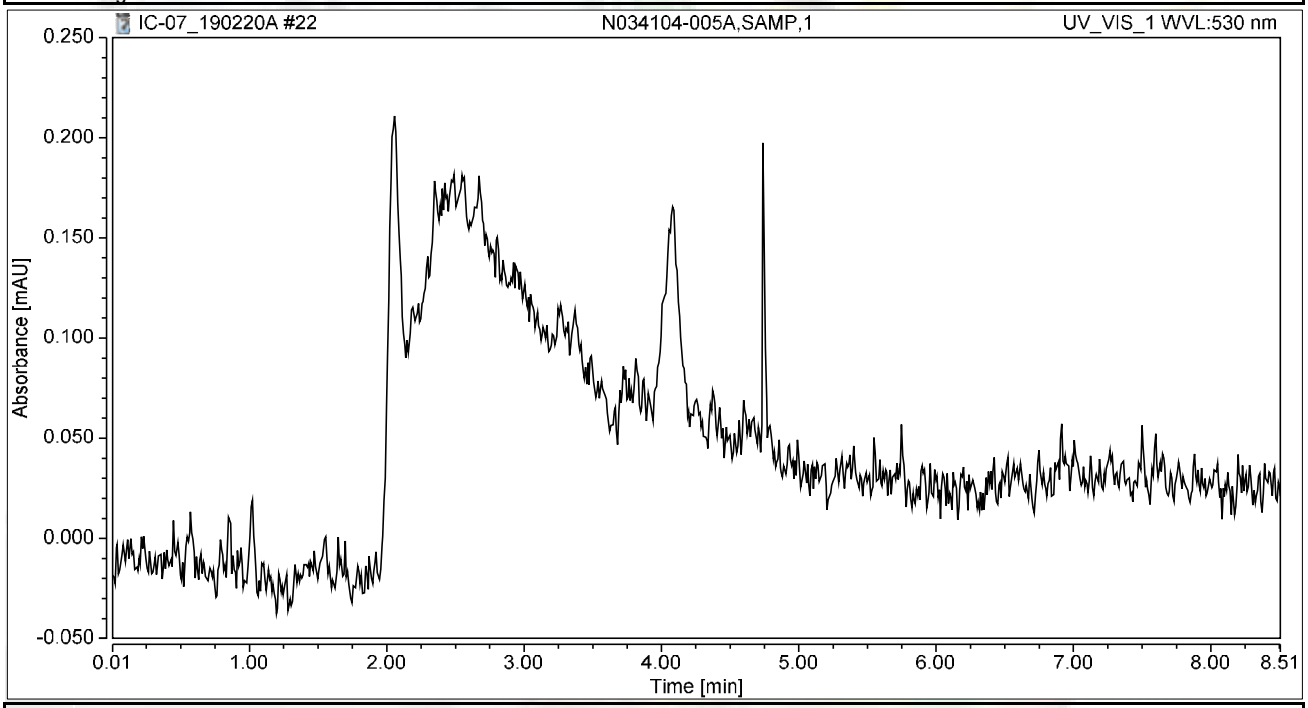
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 0.012 | 0.111 | 100.00 | 100.00 | 0.0434 |
| **Total:** | | | **0.012** | **0.111** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-005A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 11:34** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

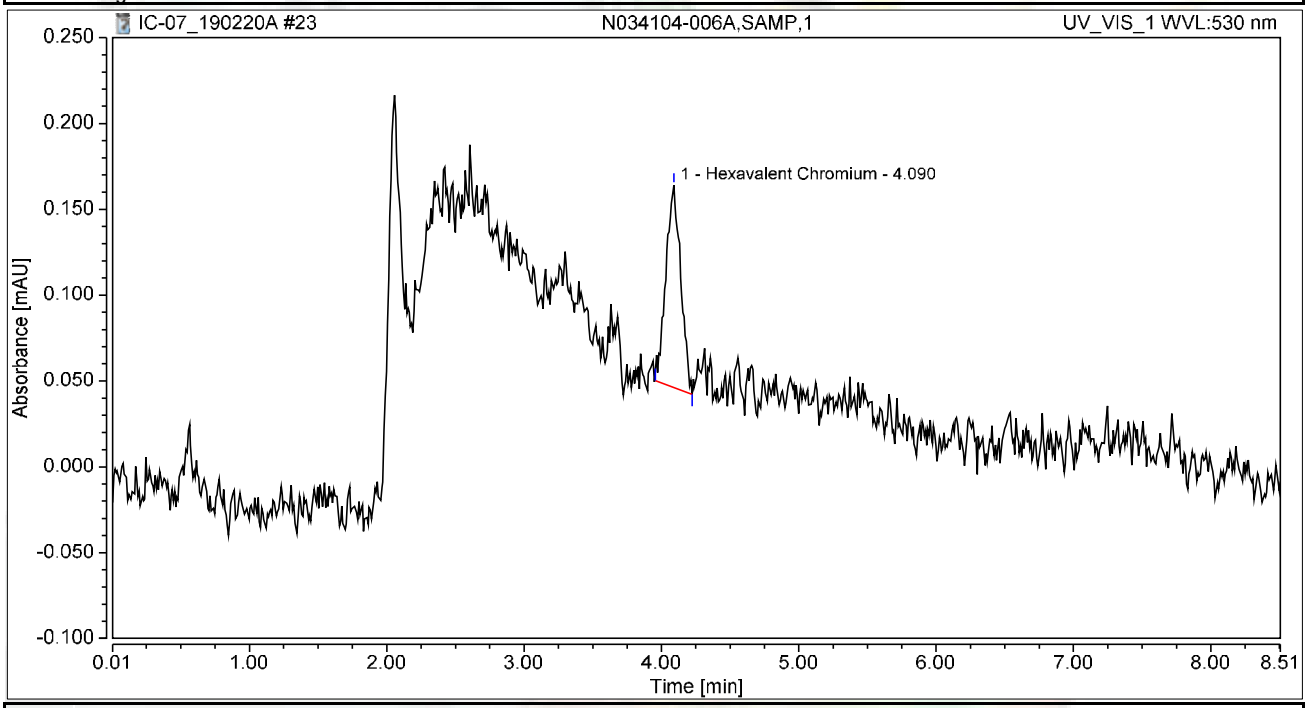
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-006A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 11:43** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

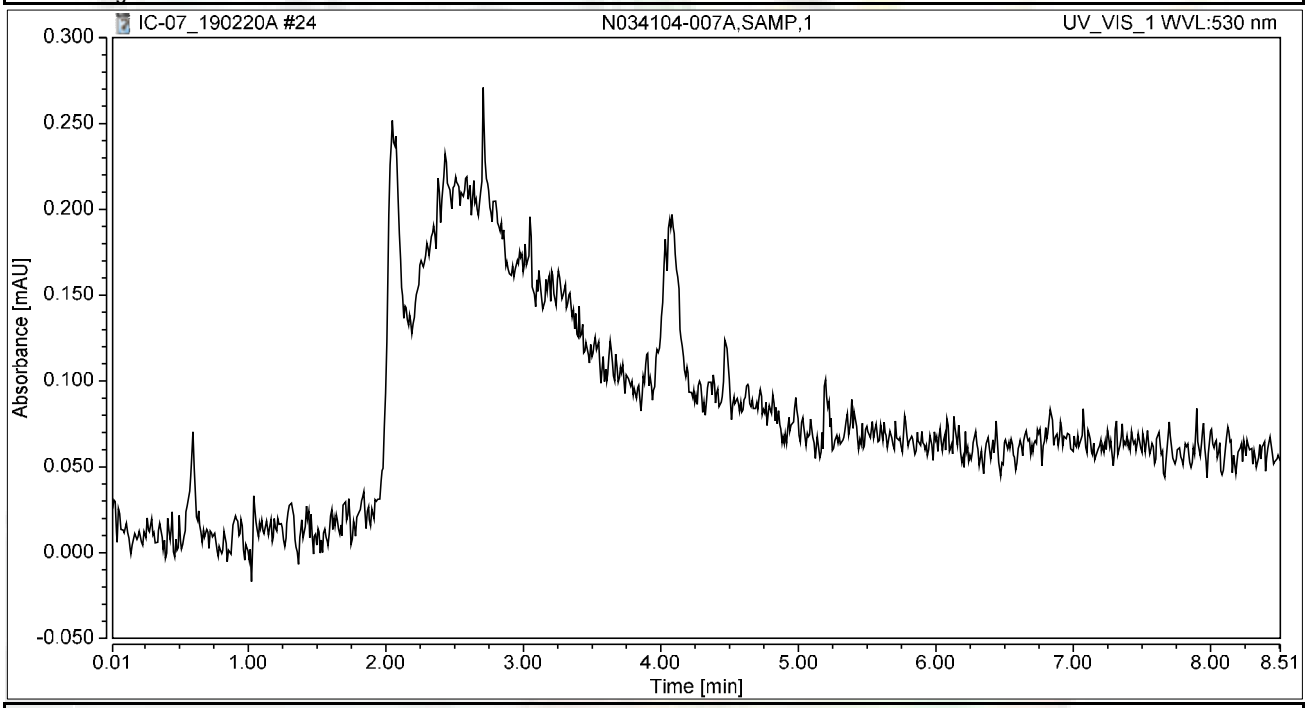
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.015 | 0.118 | 100.00 | 100.00 | 0.0509 |
| **Total:** | | | **0.015** | **0.118** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-007A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 11:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

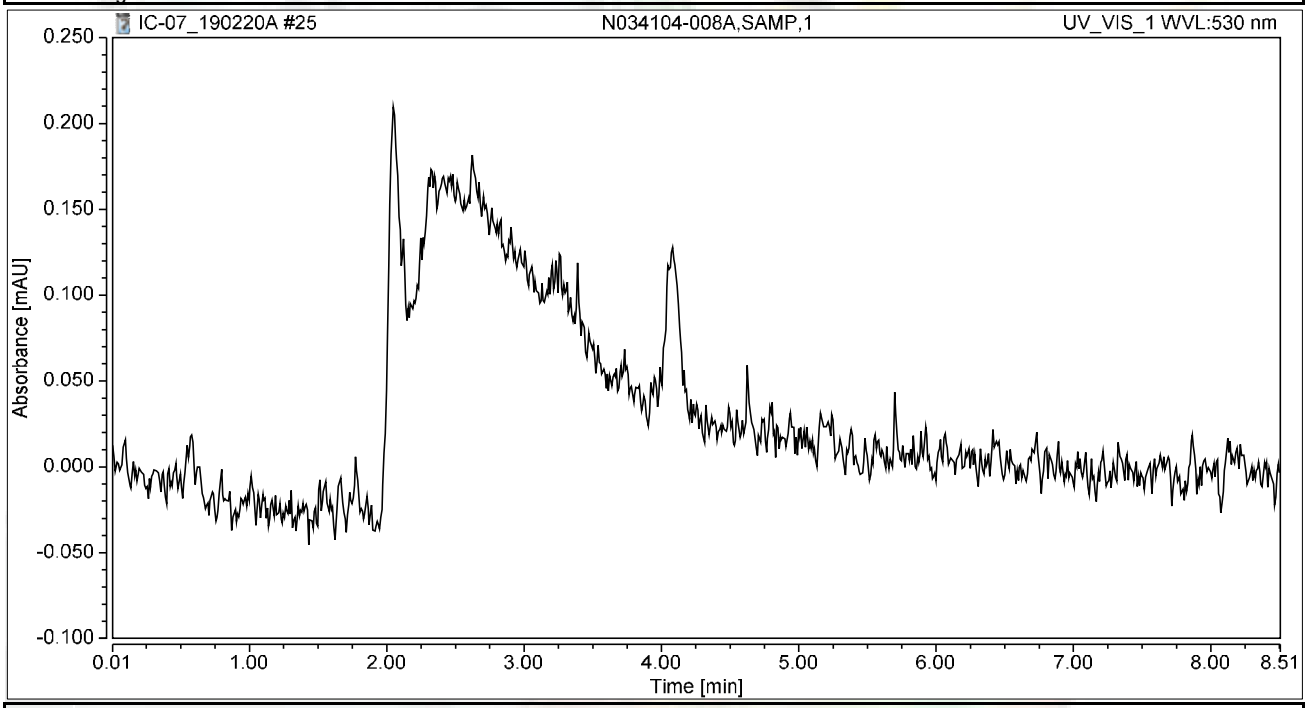
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-008A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 12:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

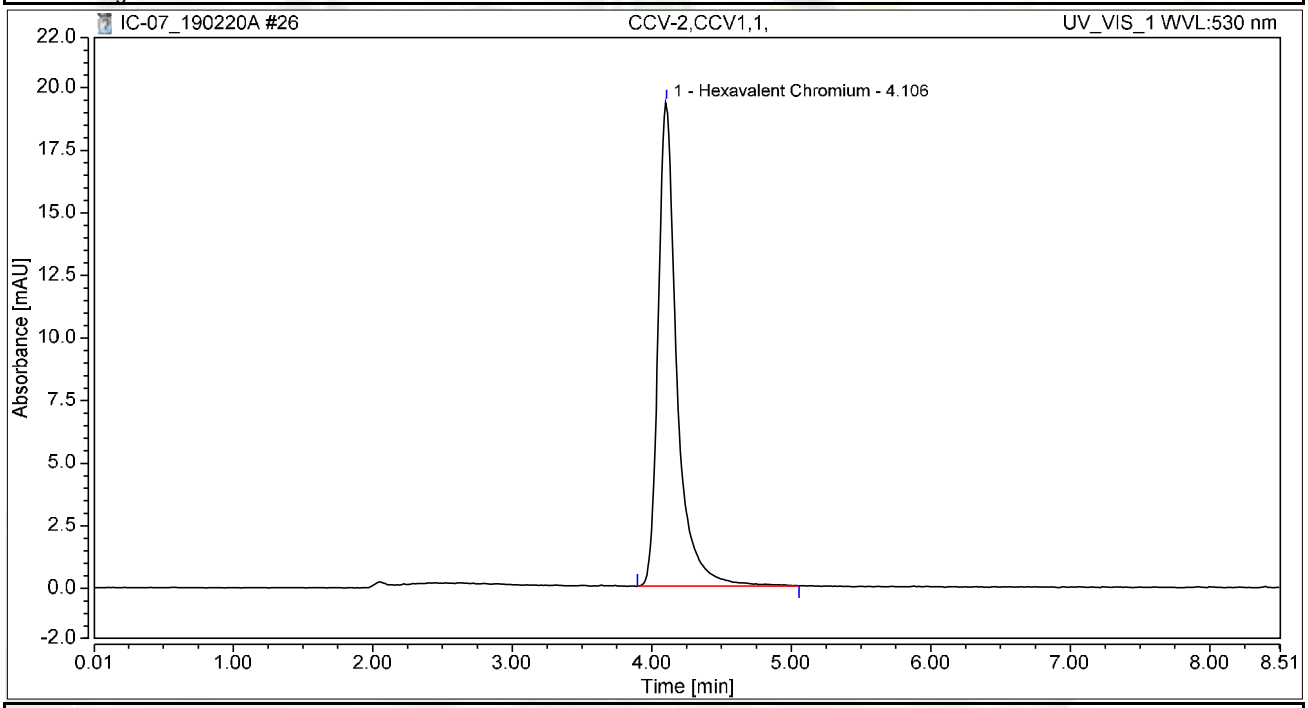
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-2,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 12:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

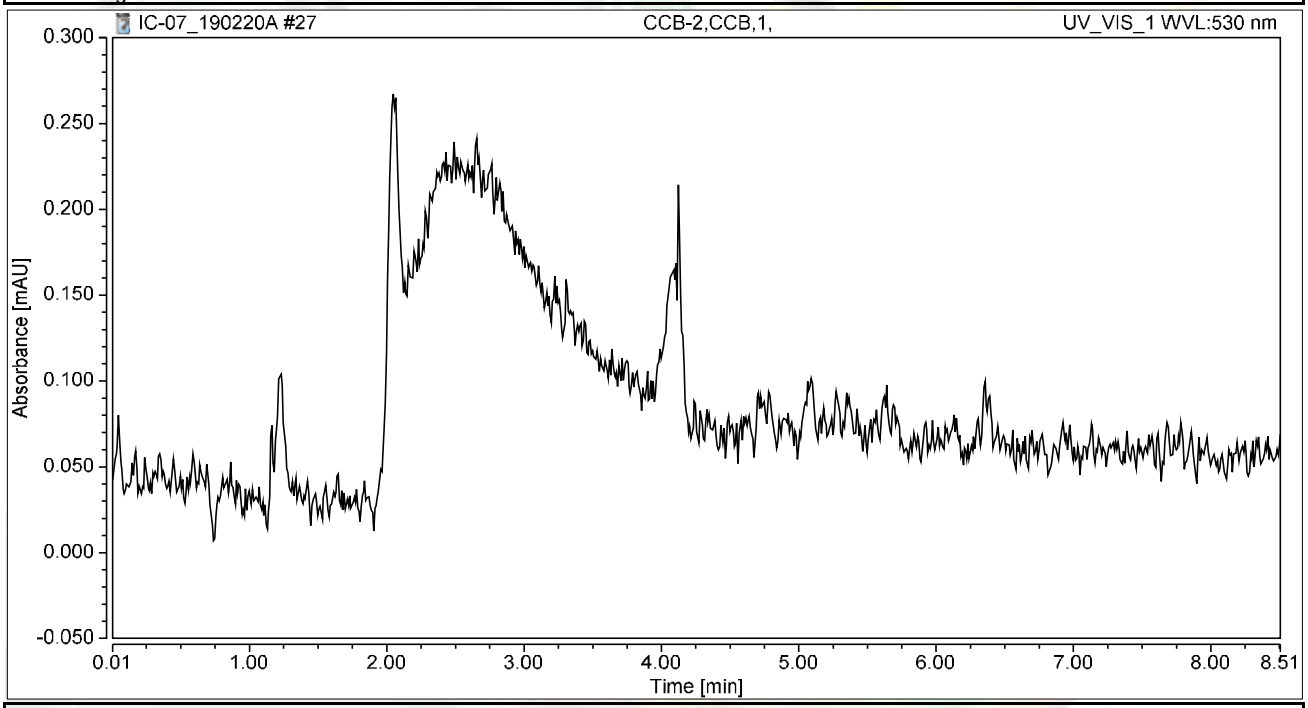
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 3.001 | 19.342 | 100.00 | 100.00 | 10.4424 |
| **Total:** | | | **3.001** | **19.342** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-2,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 12:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

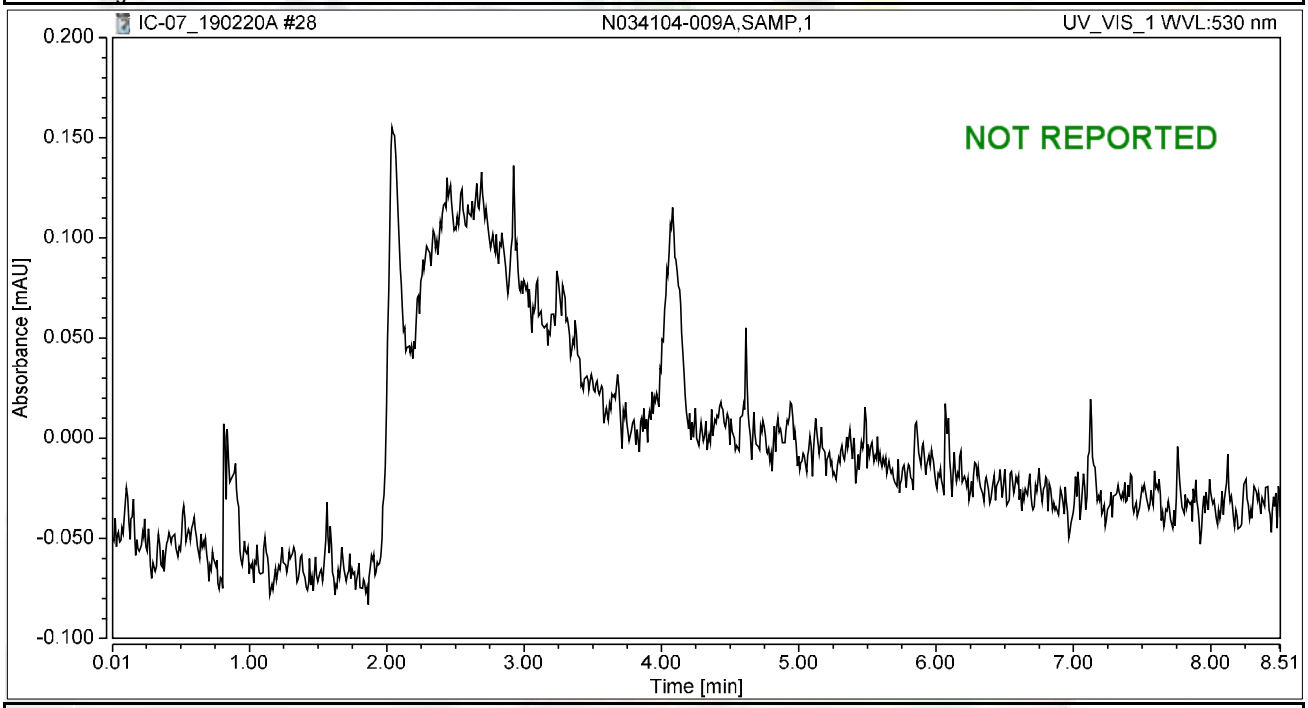
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-009A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 12:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

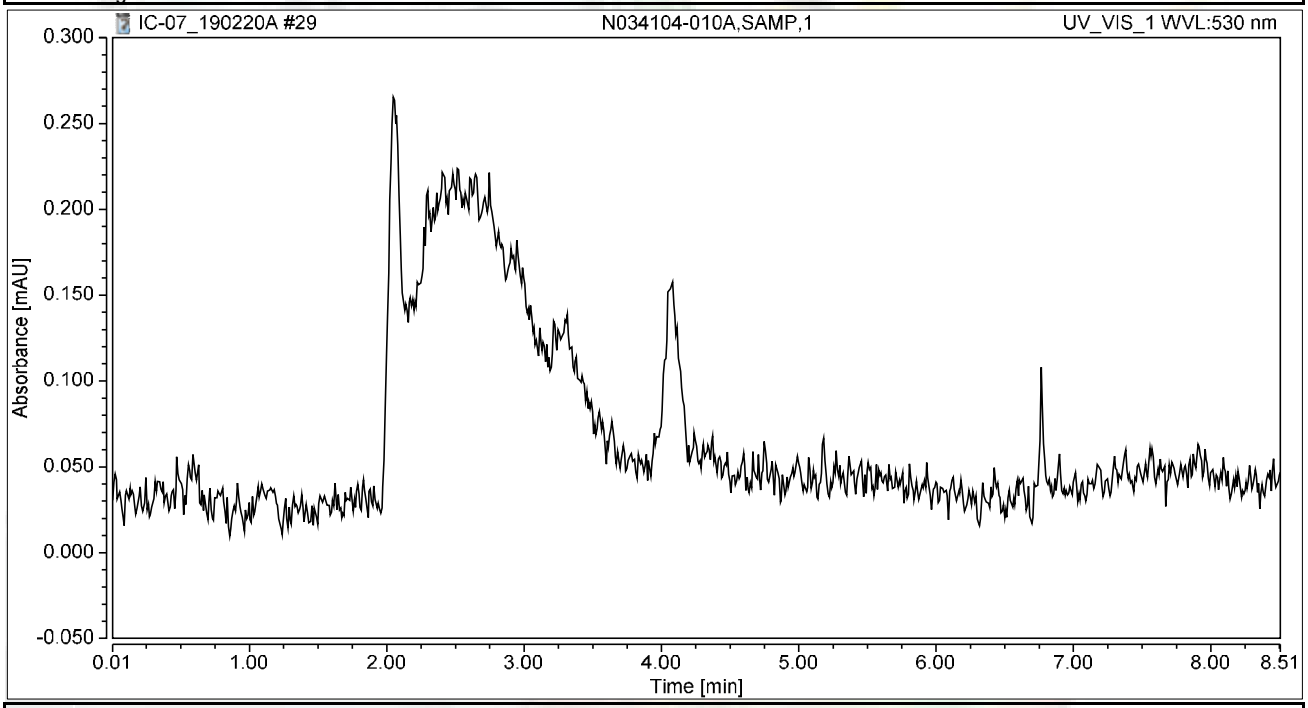
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-010A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 12:40** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

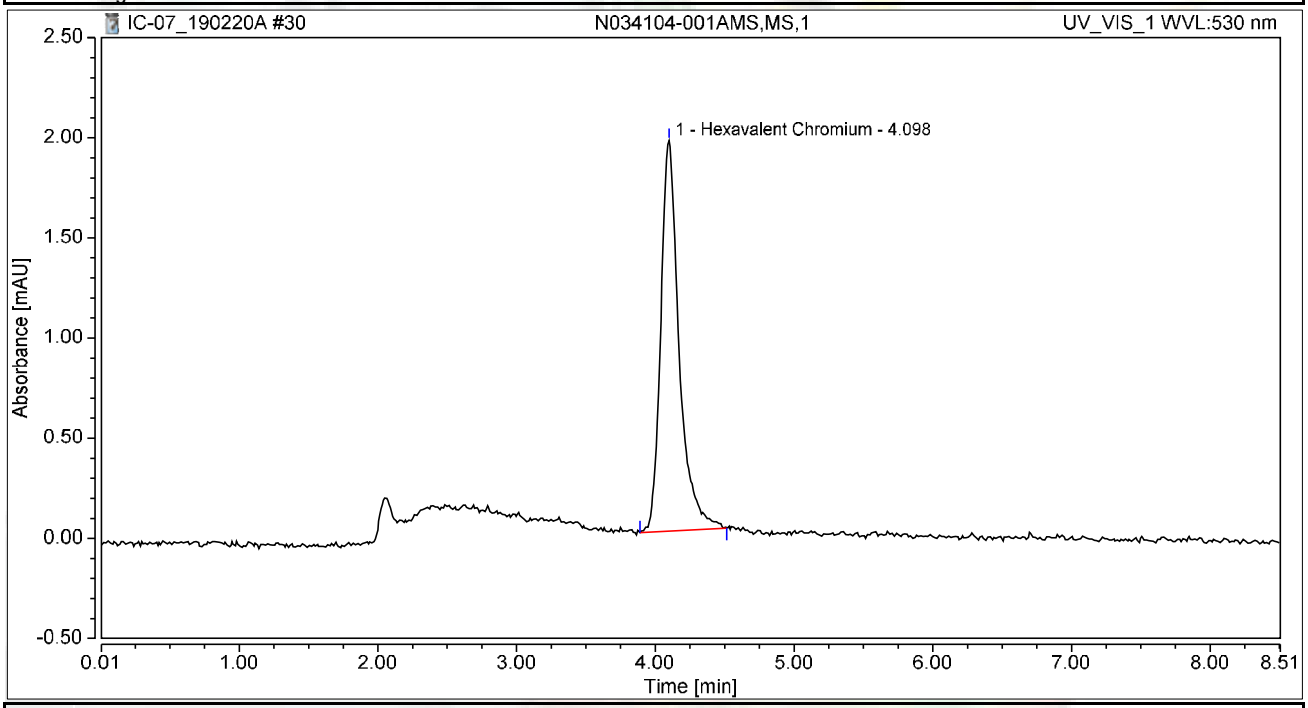
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **20** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 12:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

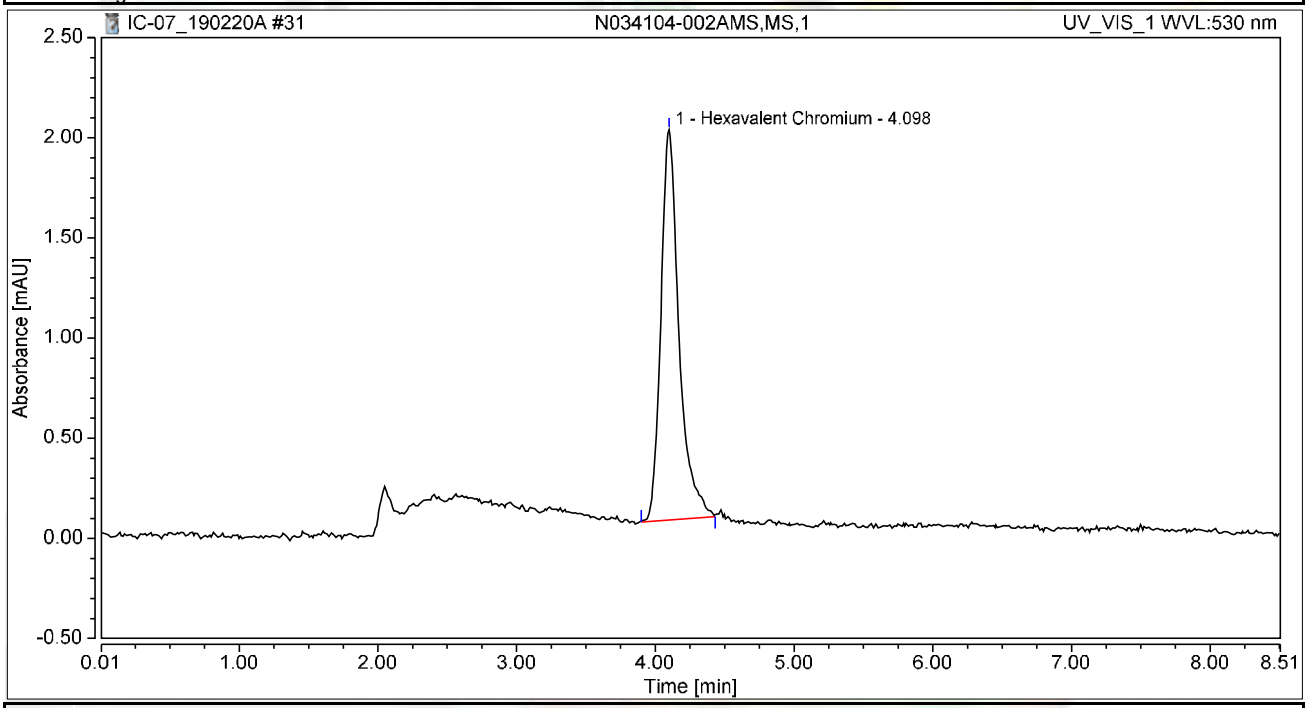
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.300 | 1.951 | 100.00 | 100.00 | 1.0429 |
| **Total:** | | | **0.300** | **1.951** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-002AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 12:59** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

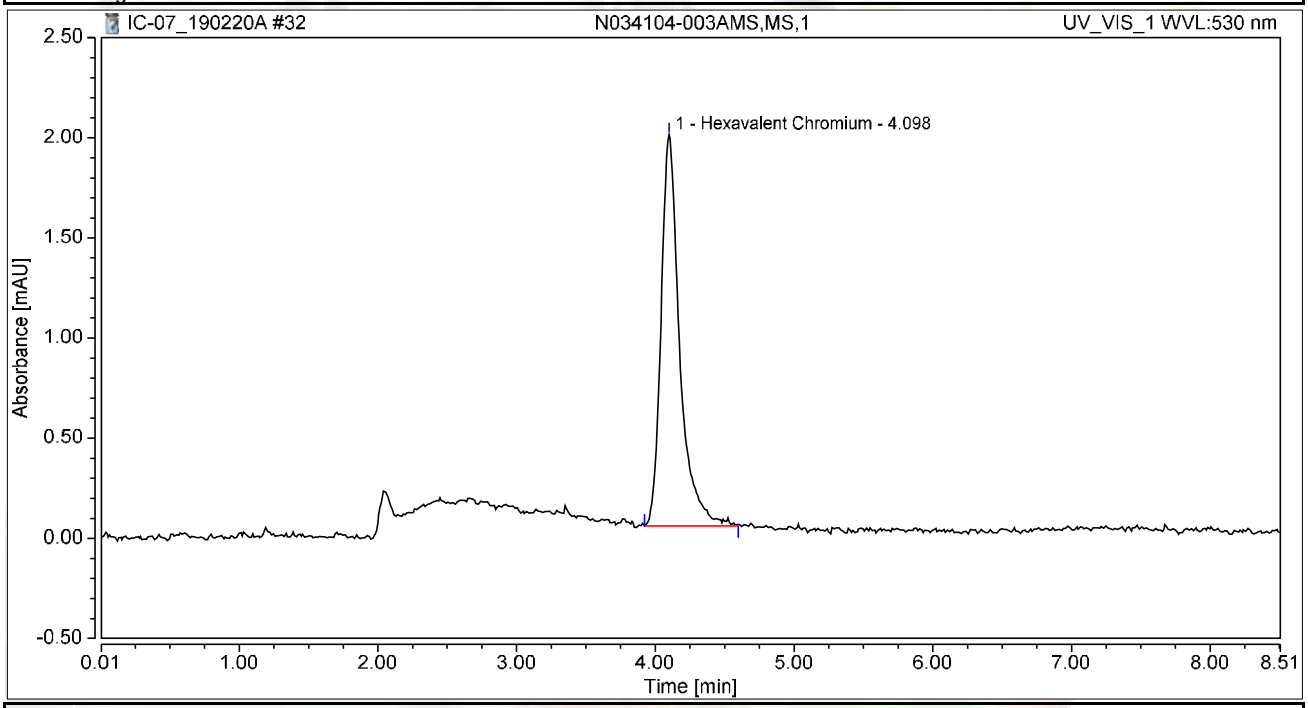
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.295 | 1.948 | 100.00 | 100.00 | 1.0268 |
| **Total:** | | | **0.295** | **1.948** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-003AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 13:08** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

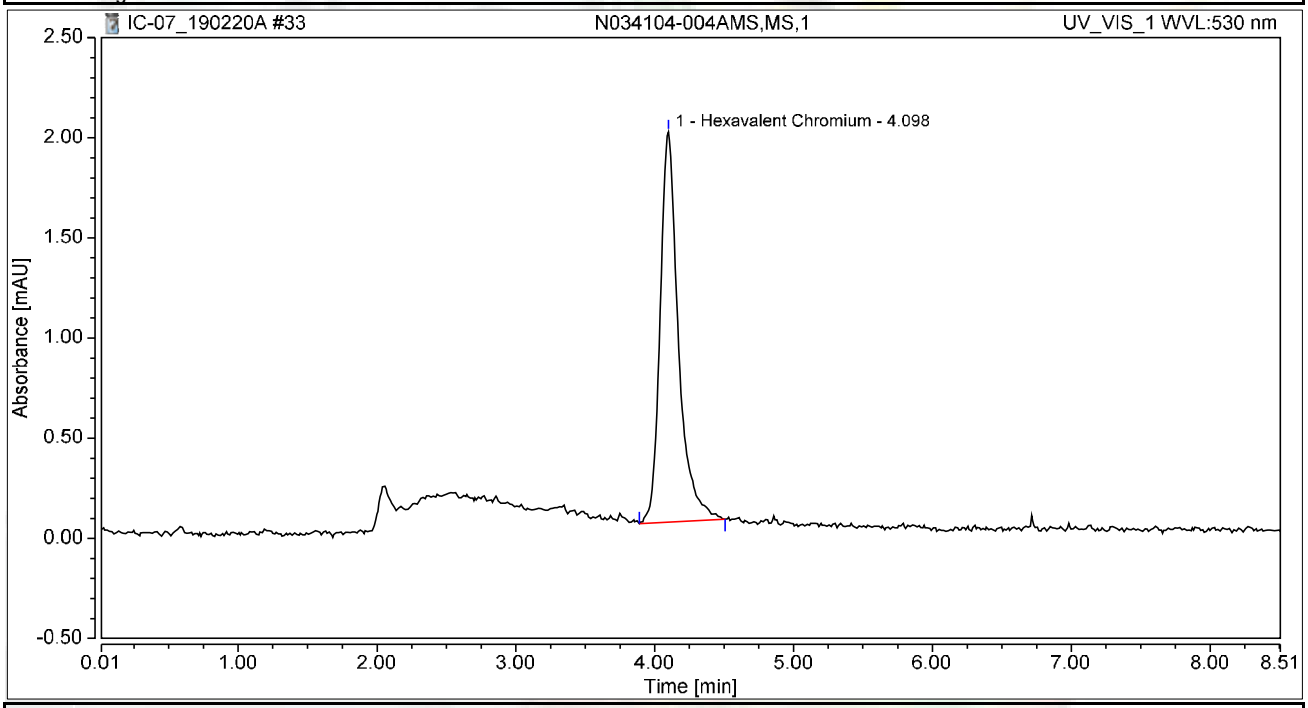
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.304 | 1.954 | 100.00 | 100.00 | 1.0562 |
| **Total:** | | | **0.304** | **1.954** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-004AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **23** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 13:18** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

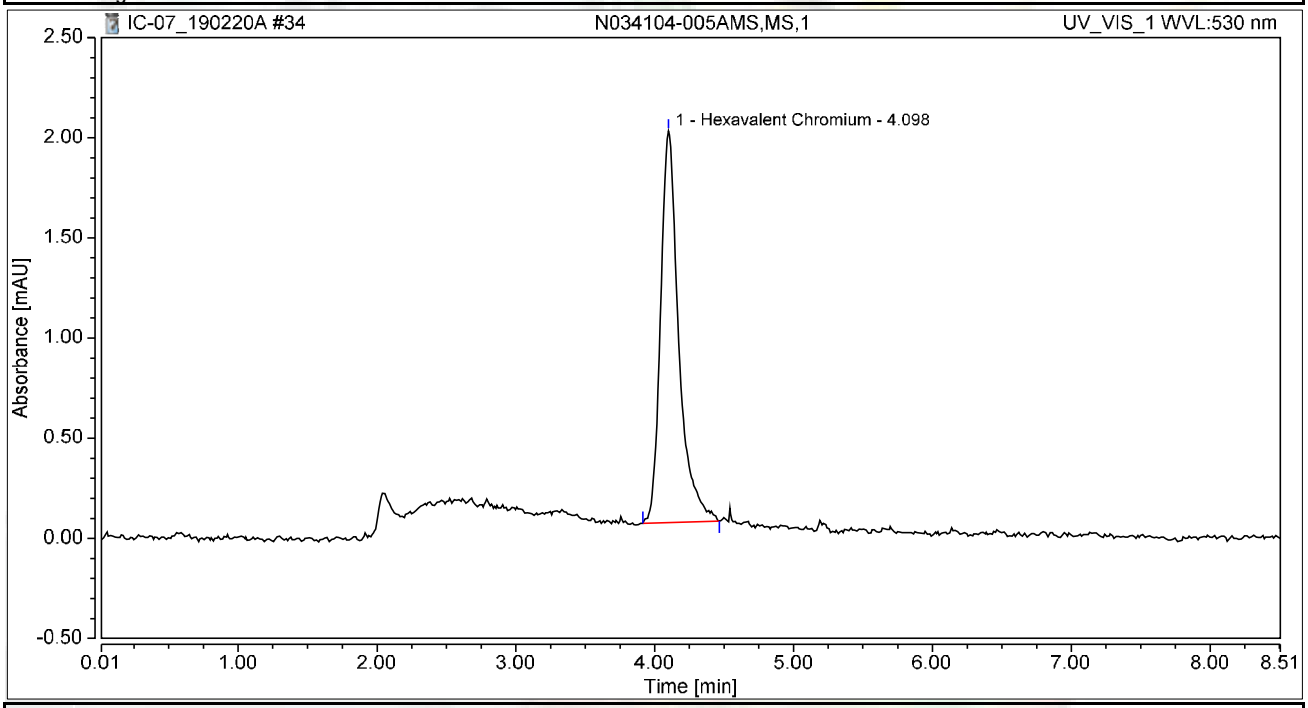
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.298 | 1.949 | 100.00 | 100.00 | 1.0372 |
| **Total:** | | | **0.298** | **1.949** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-005AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **24** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 13:27** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

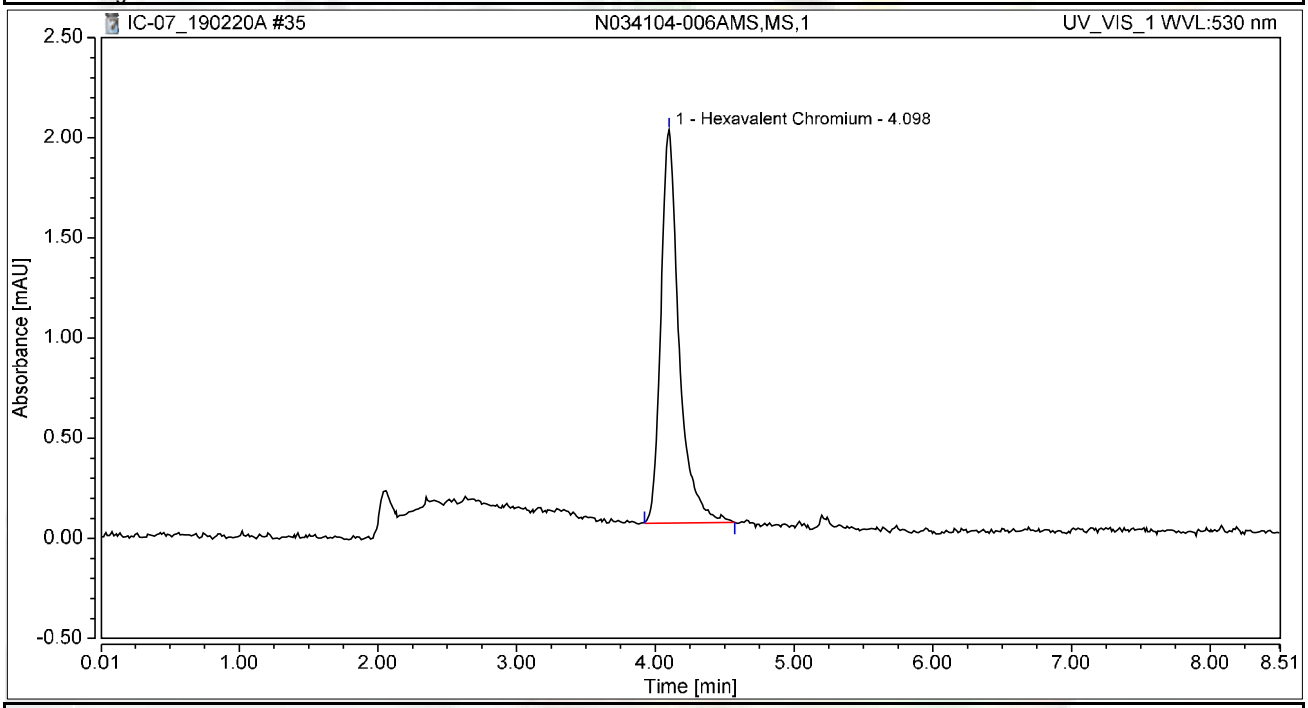
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.297 | 1.955 | 100.00 | 100.00 | 1.0348 |
| **Total:** | | | **0.297** | **1.955** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-006AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 13:37** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

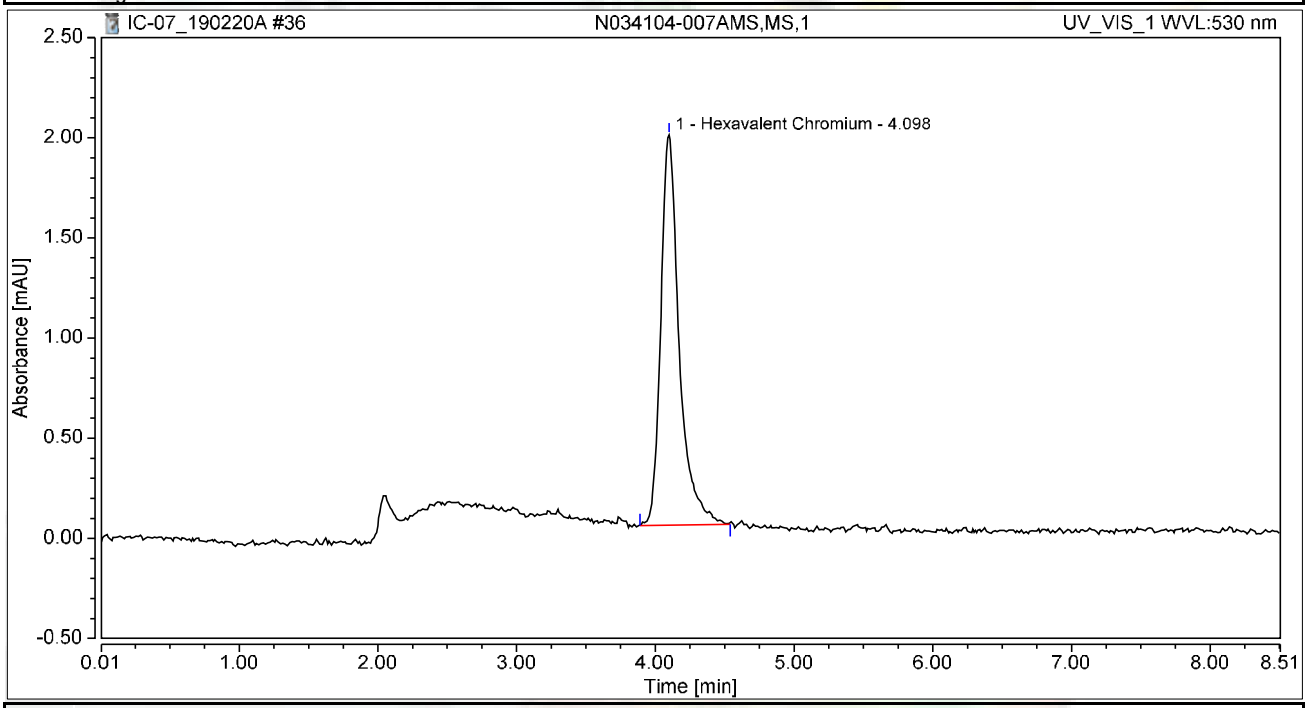
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.299 | 1.963 | 100.00 | 100.00 | 1.0387 |
| **Total:** | | | **0.299** | **1.963** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-007AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **26** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 13:46** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

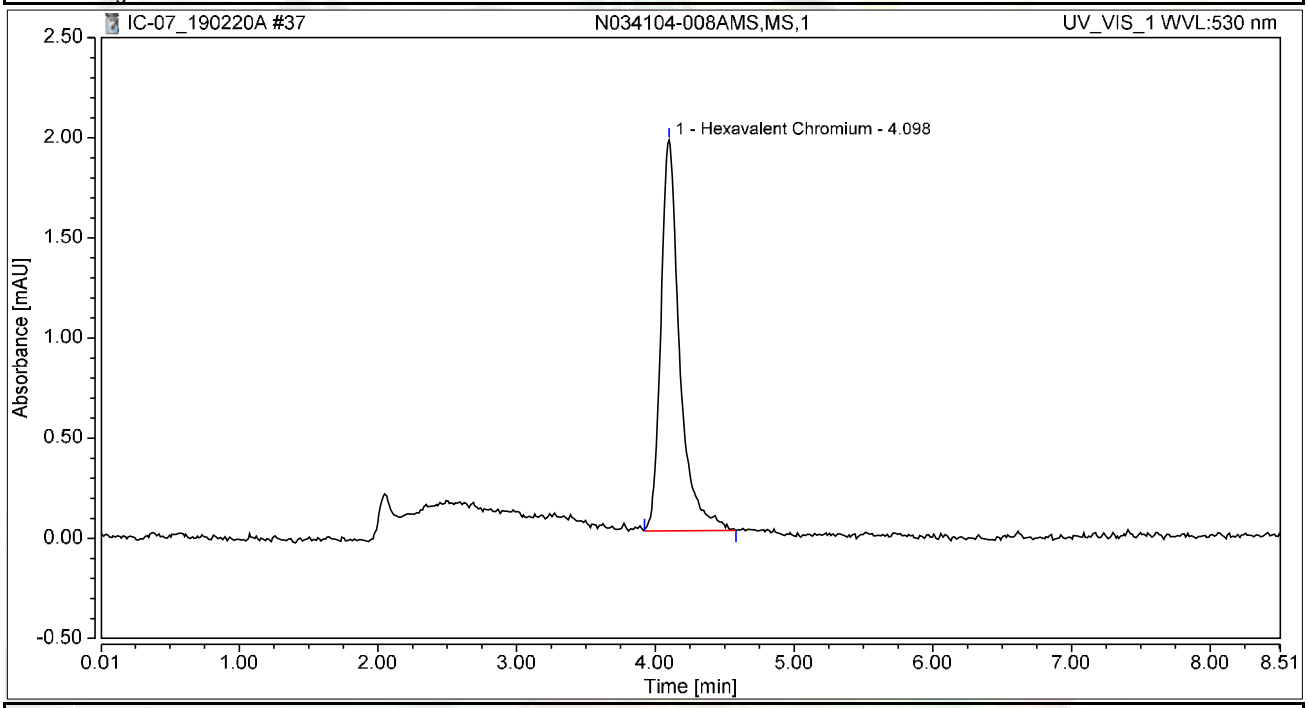
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.300 | 1.948 | 100.00 | 100.00 | 1.0451 |
| **Total:** | | | **0.300** | **1.948** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-008AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 13:56** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

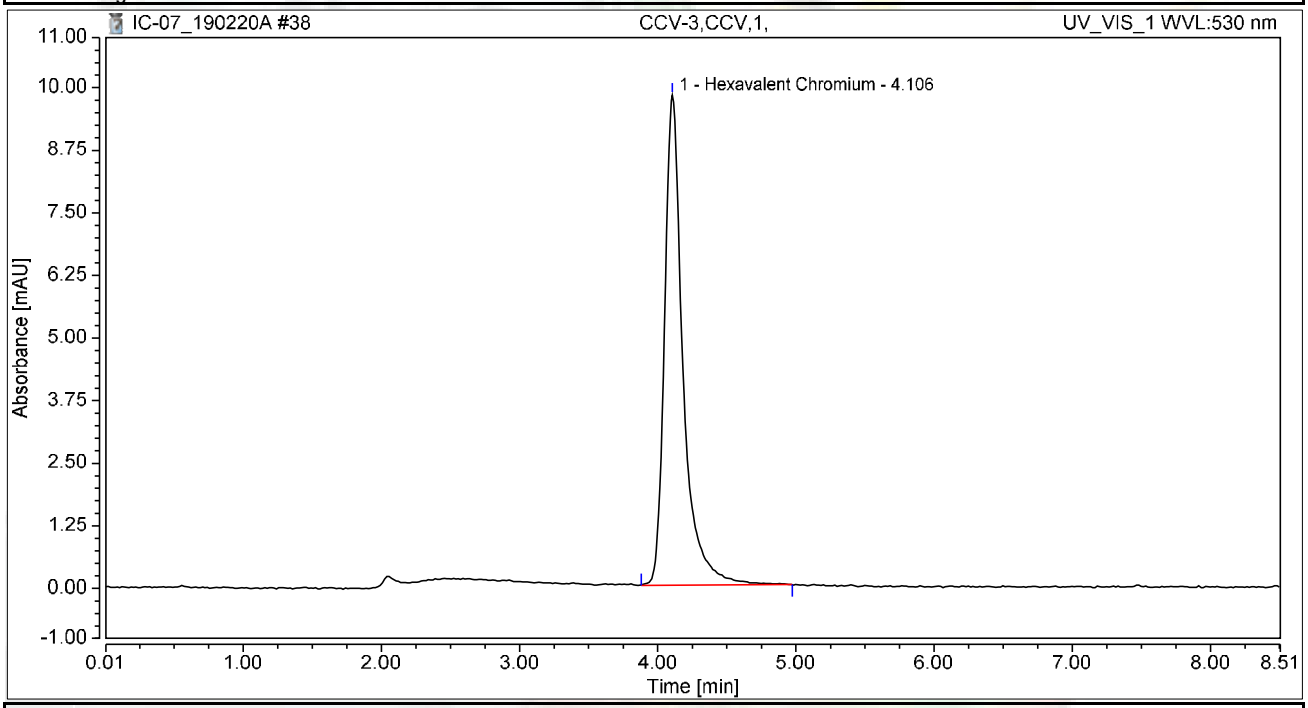
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.307 | 1.952 | 100.00 | 100.00 | 1.0699 |
| **Total:** | | | **0.307** | **1.952** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-3,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **28** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 14:05** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

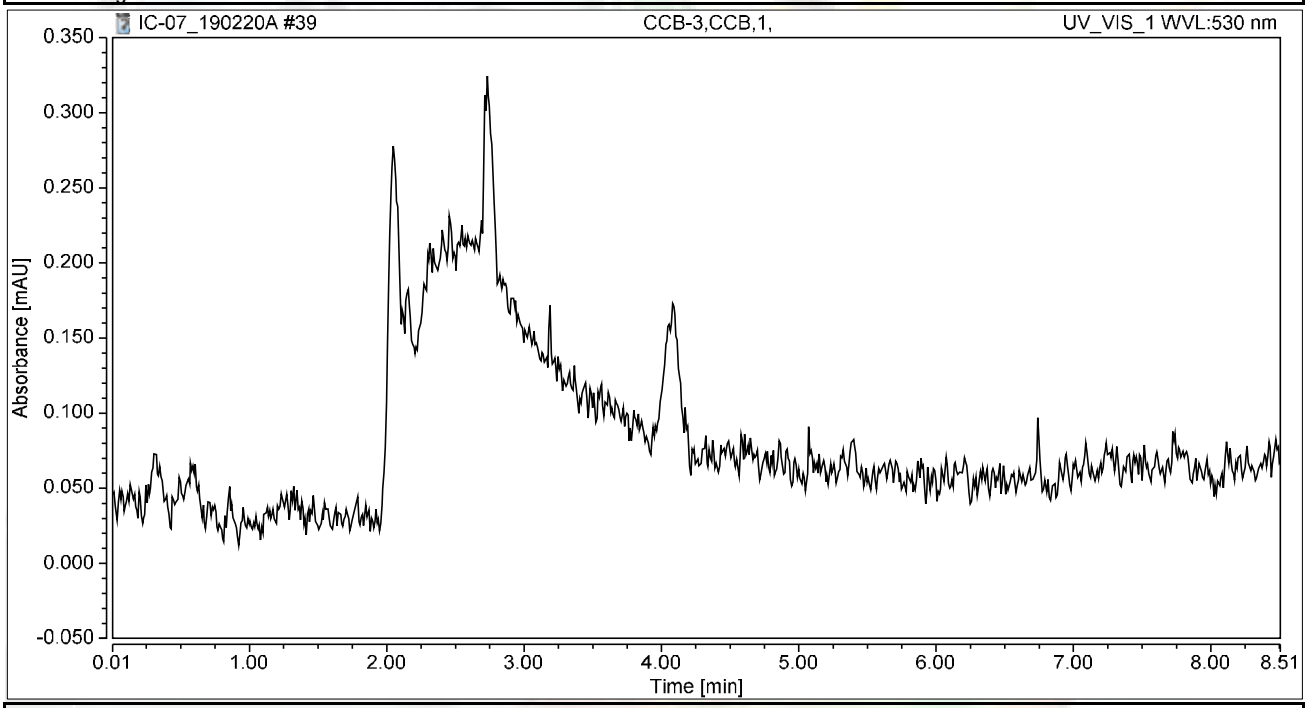
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.519 | 9.786 | 100.00 | 100.00 | 5.2851 |
| **Total:** | | | **1.519** | **9.786** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-3,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **29** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 14:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

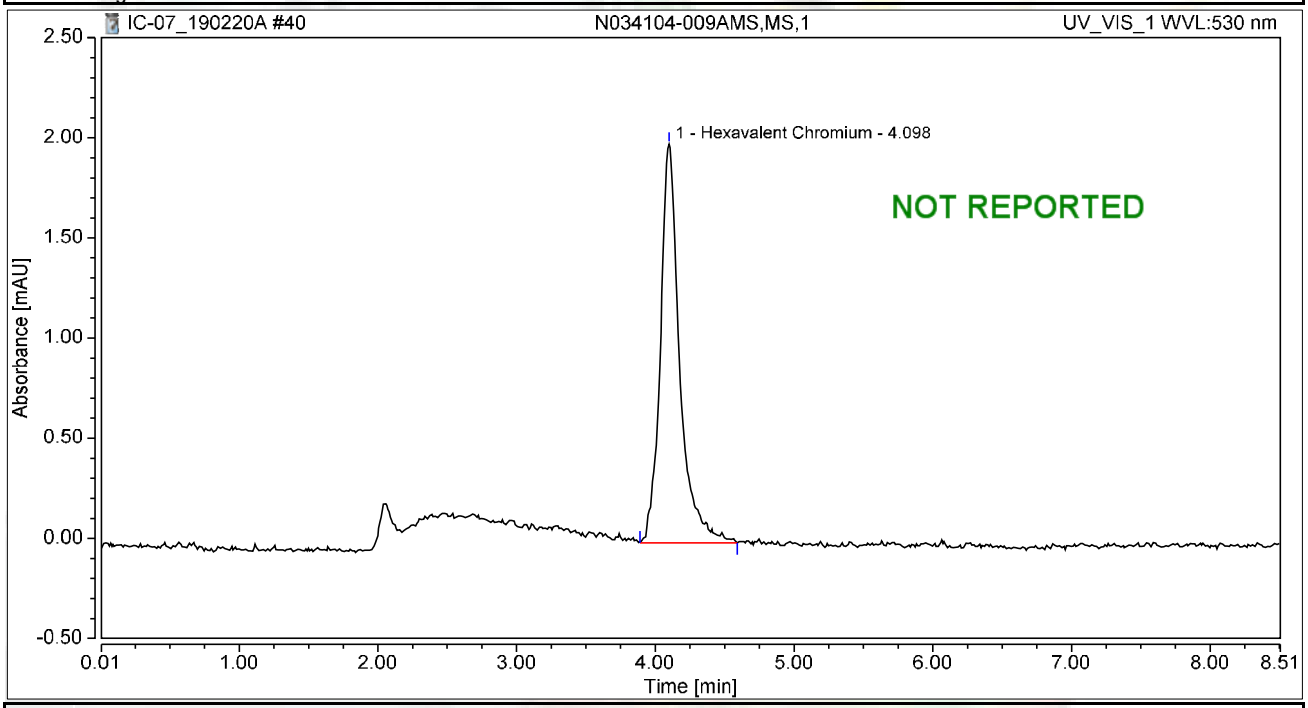
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-009AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **30** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 14:24** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

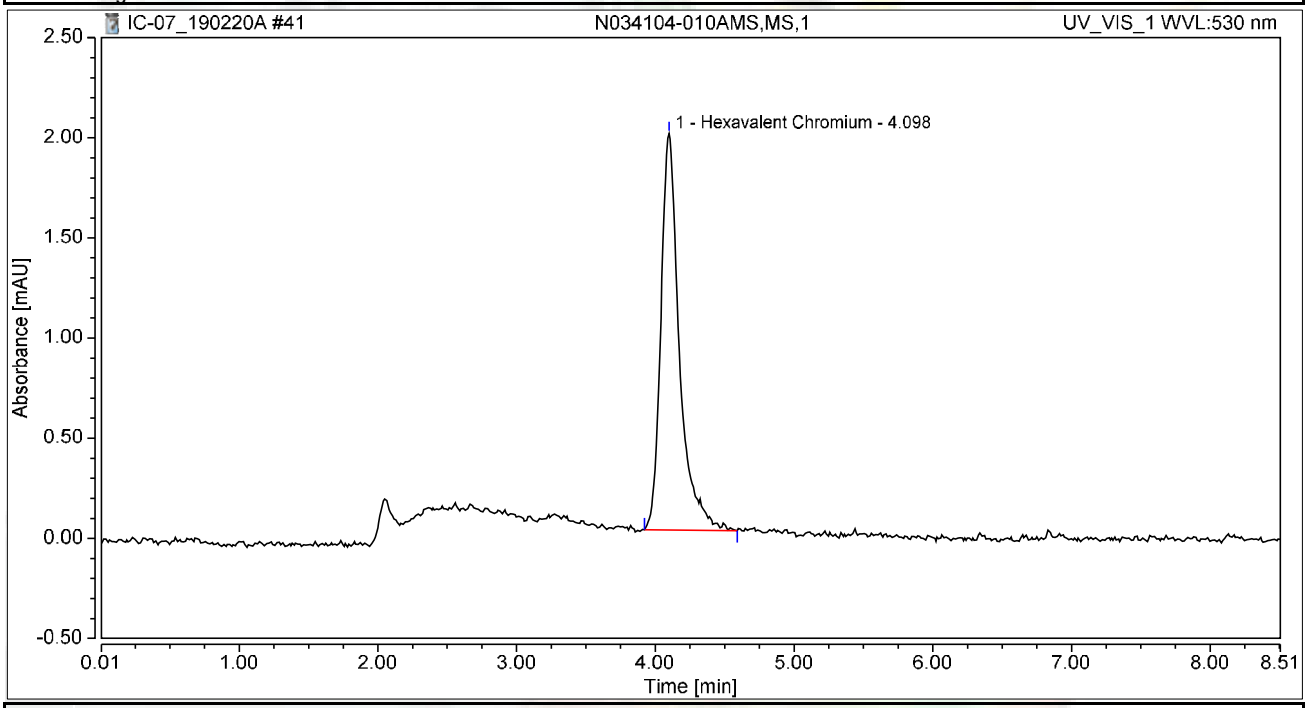
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.322 | 1.991 | 100.00 | 100.00 | 1.1196 |
| **Total:** | | | **0.322** | **1.991** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-010AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **31** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 14:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

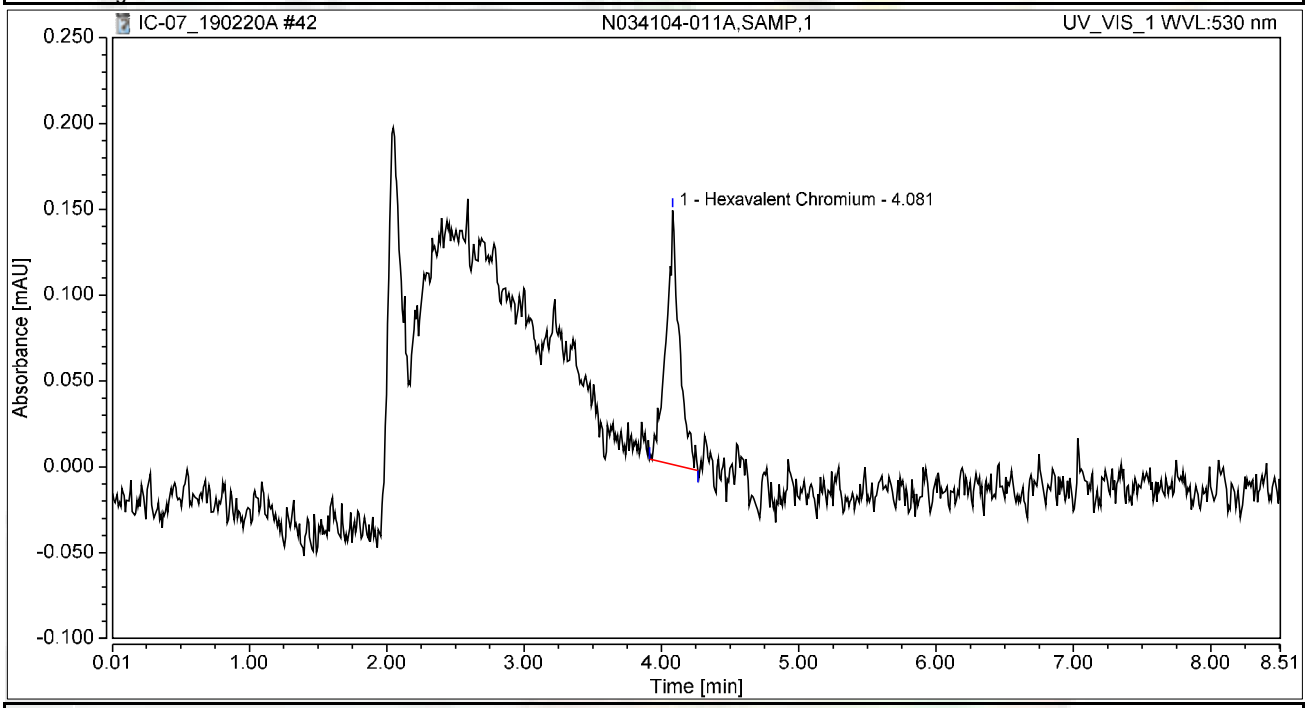
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.307 | 1.979 | 100.00 | 100.00 | 1.0673 |
| **Total:** | | | **0.307** | **1.979** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-011A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **32** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 14:43** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

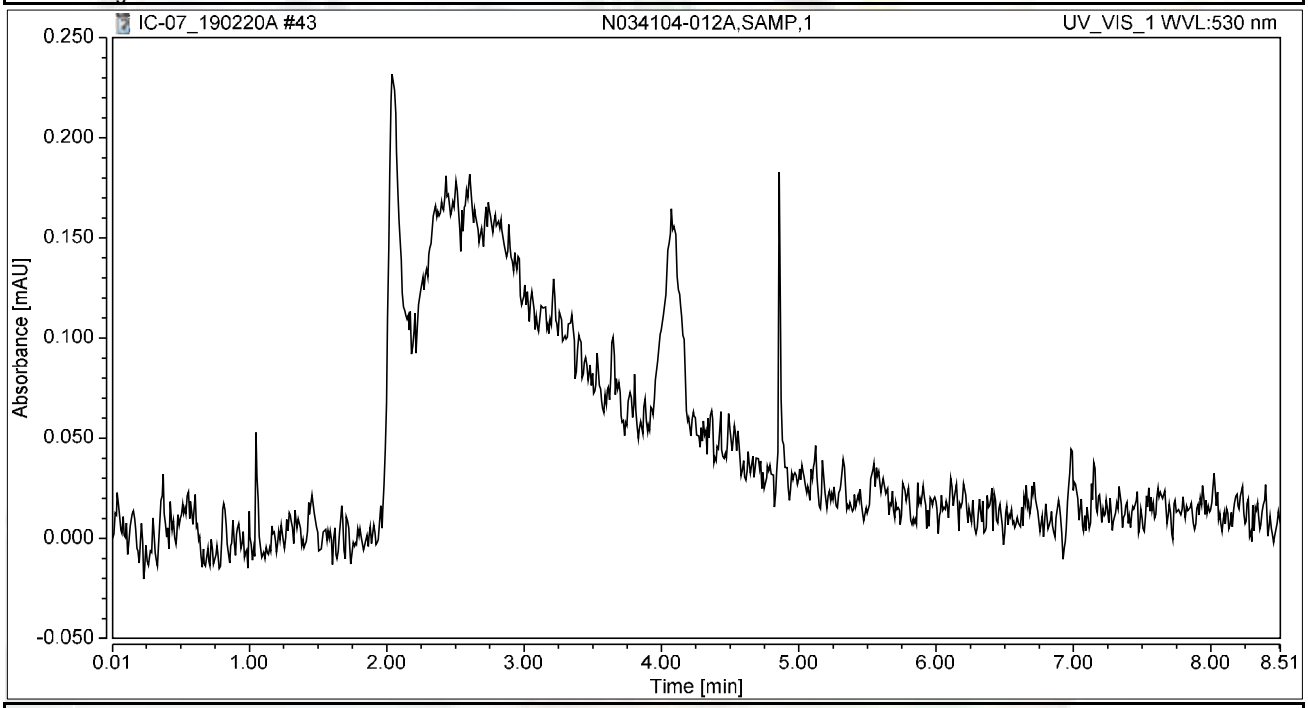
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.017 | 0.148 | 100.00 | 100.00 | 0.0575 |
| **Total:** | | | **0.017** | **0.148** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-012A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **33** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 14:52** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

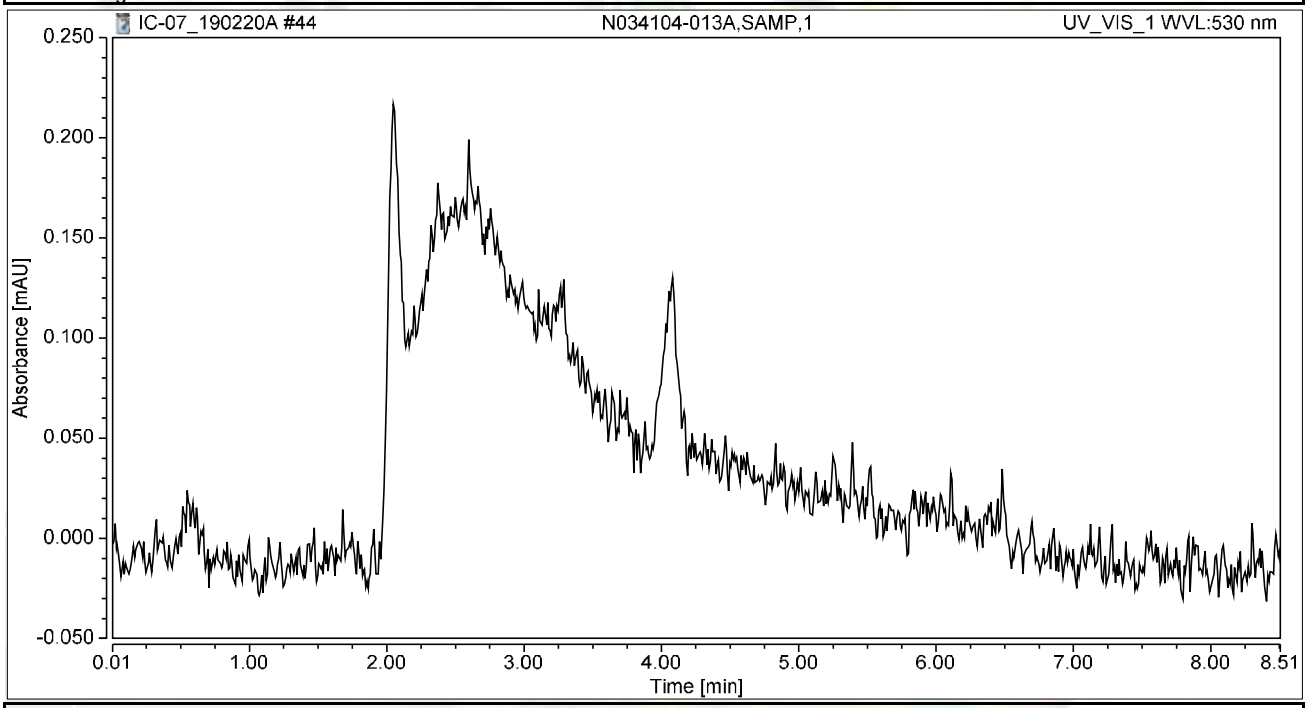
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-013A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **34** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 15:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

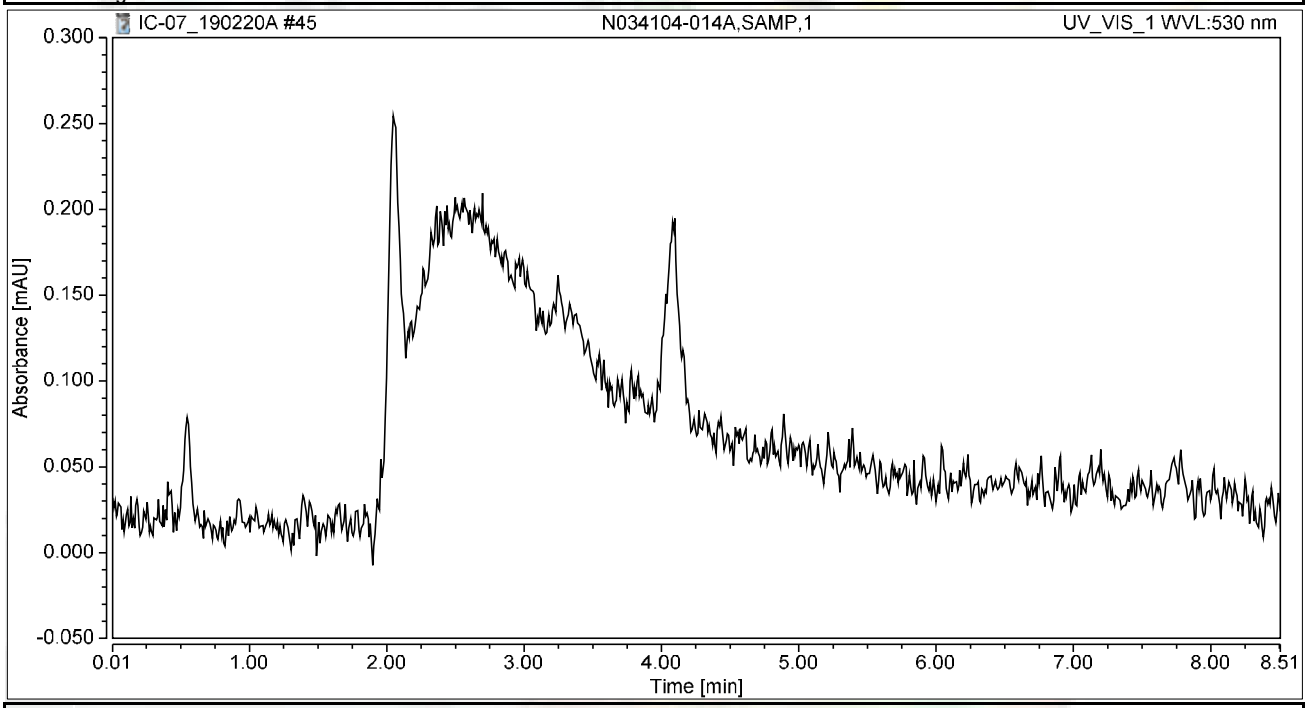
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-014A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **35** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 15:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

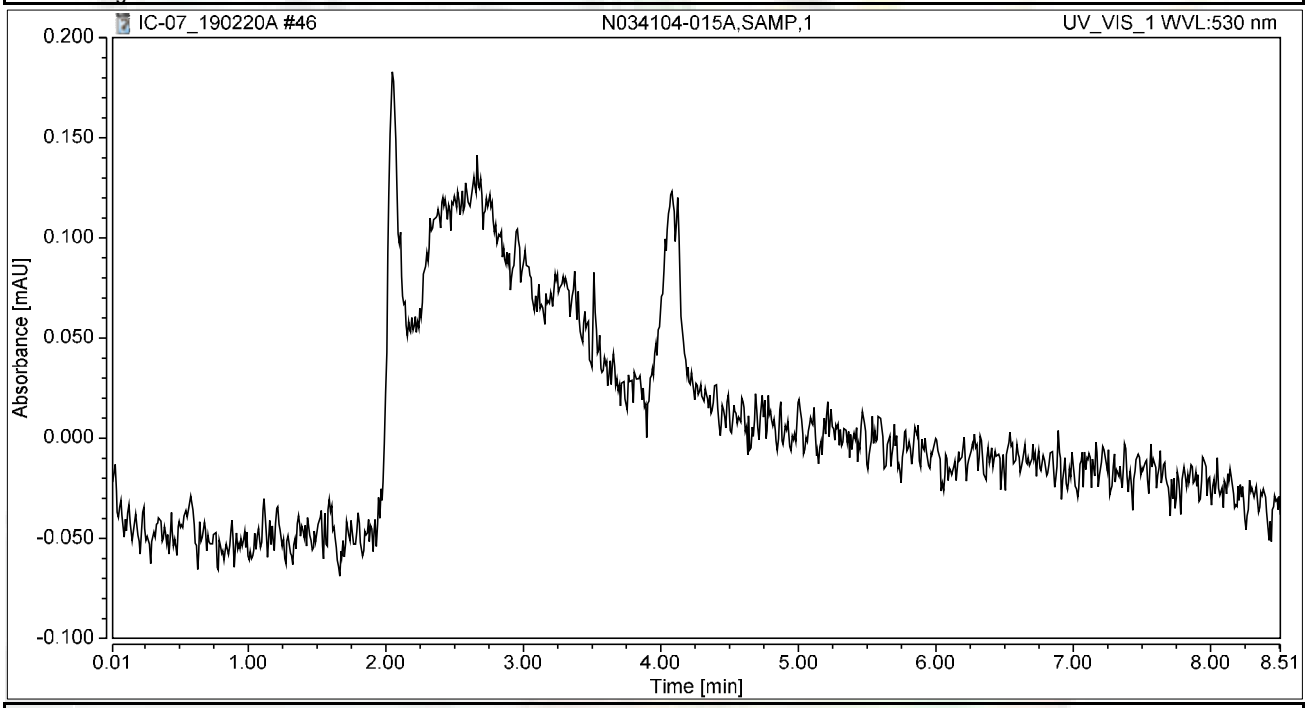
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-015A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **36** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 15:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

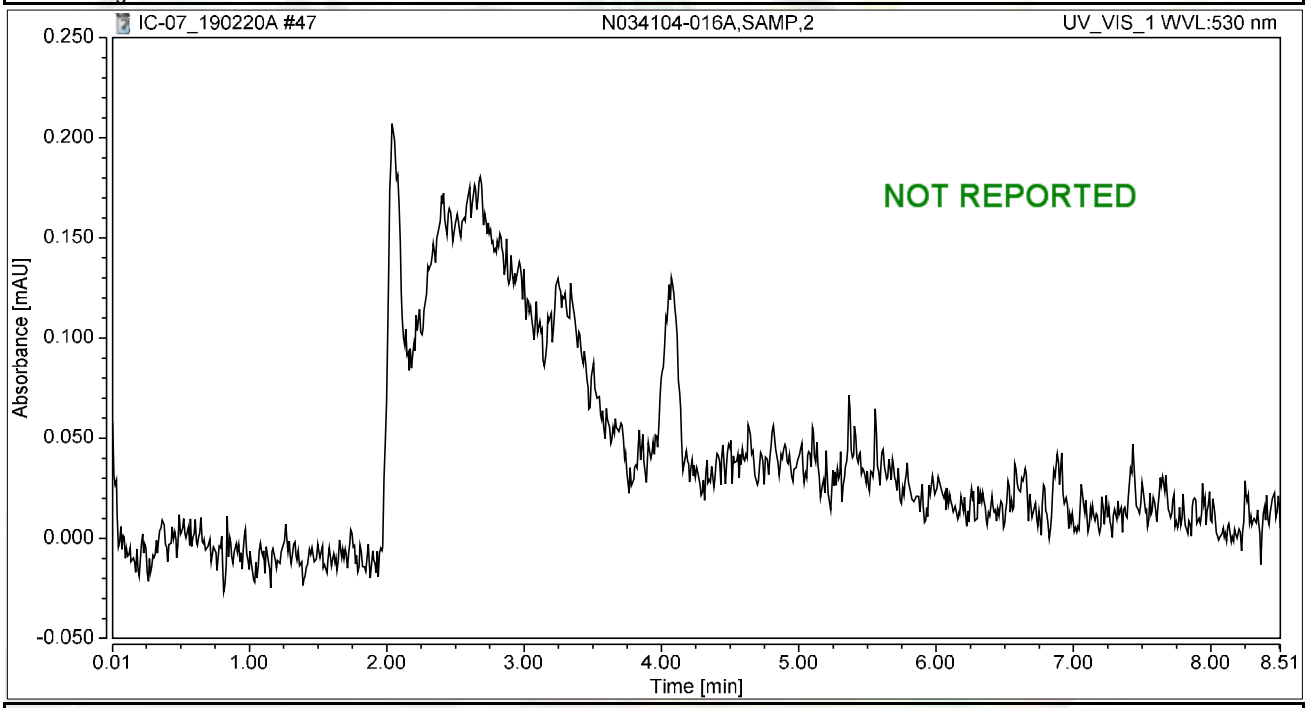
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-016A,SAMP,2** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **37** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 15:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

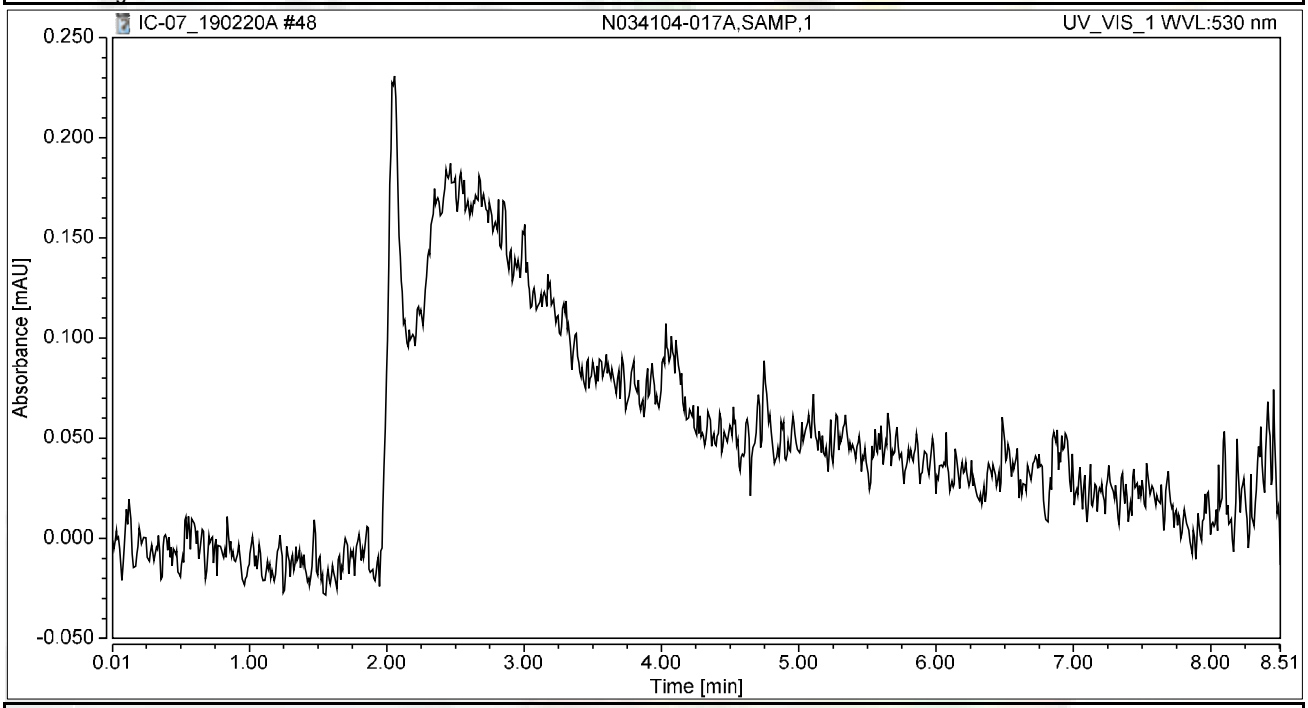
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-017A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **38** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 15:40** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

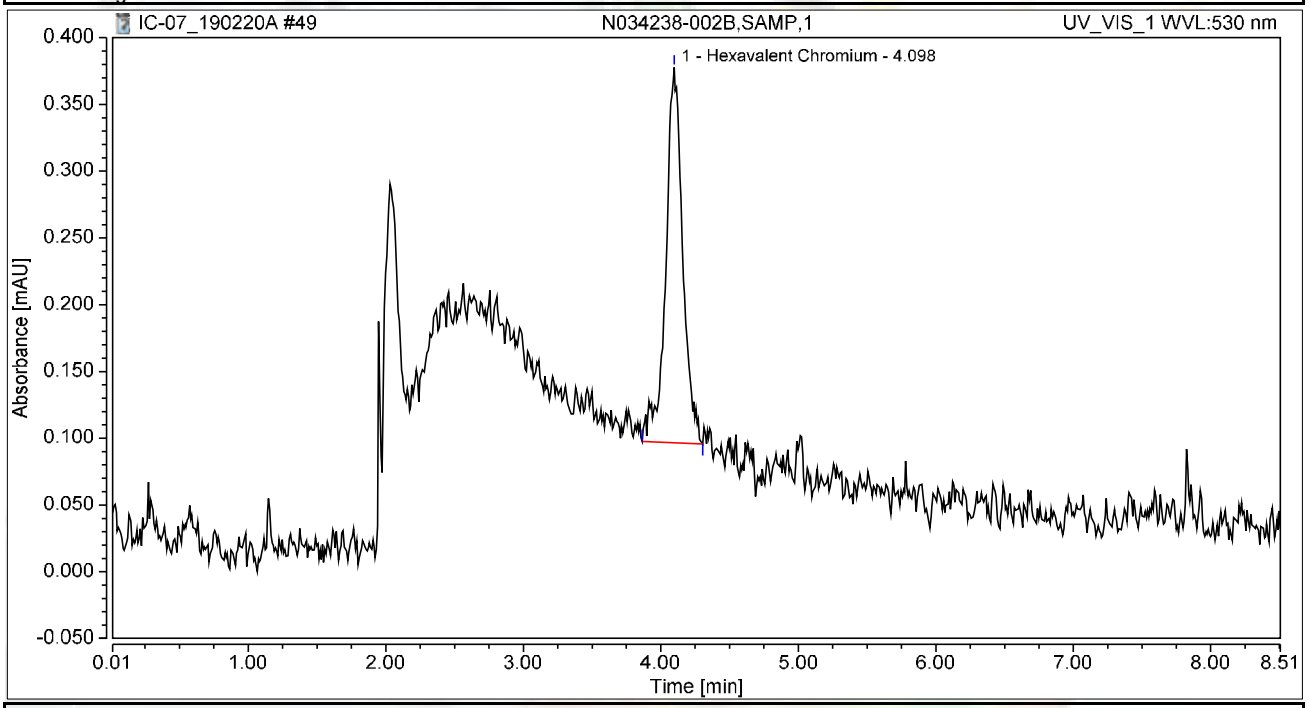
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034238-002B,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **39** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 15:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

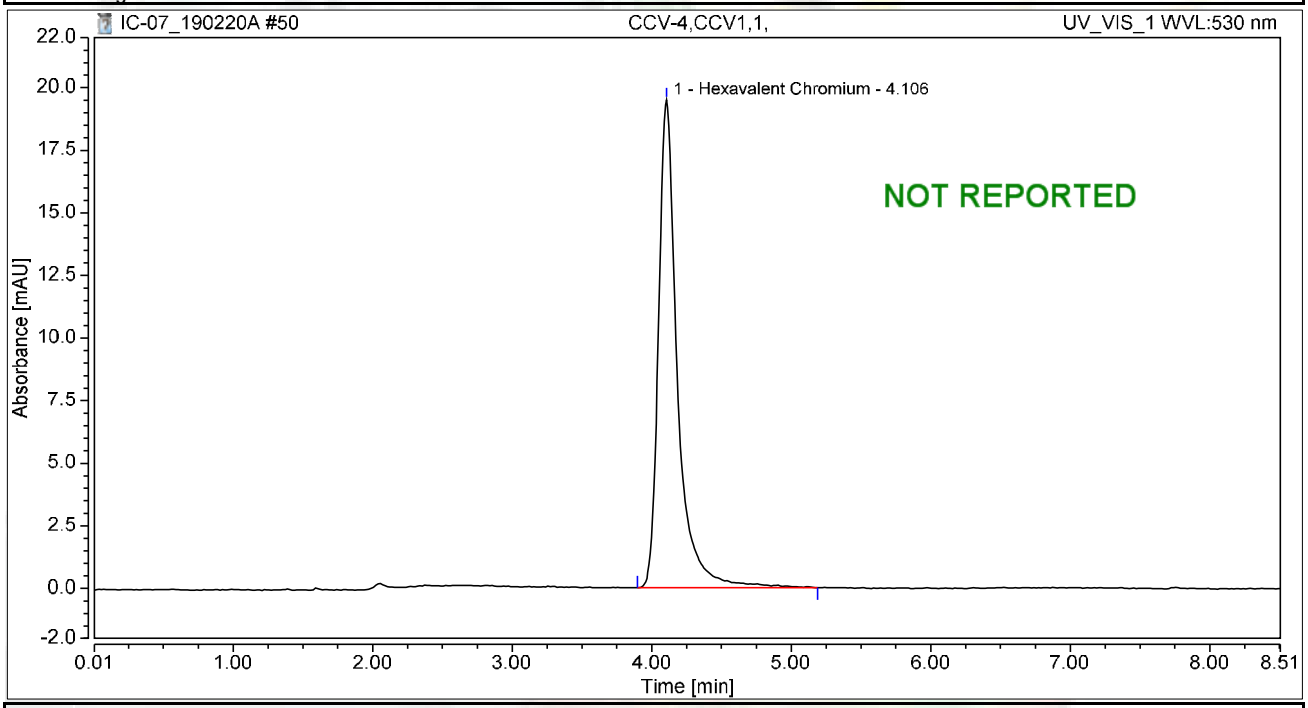
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.040 | 0.281 | 100.00 | 100.00 | 0.1396 |
| **Total:** | | | **0.040** | **0.281** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-4,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **40** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 15:59** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

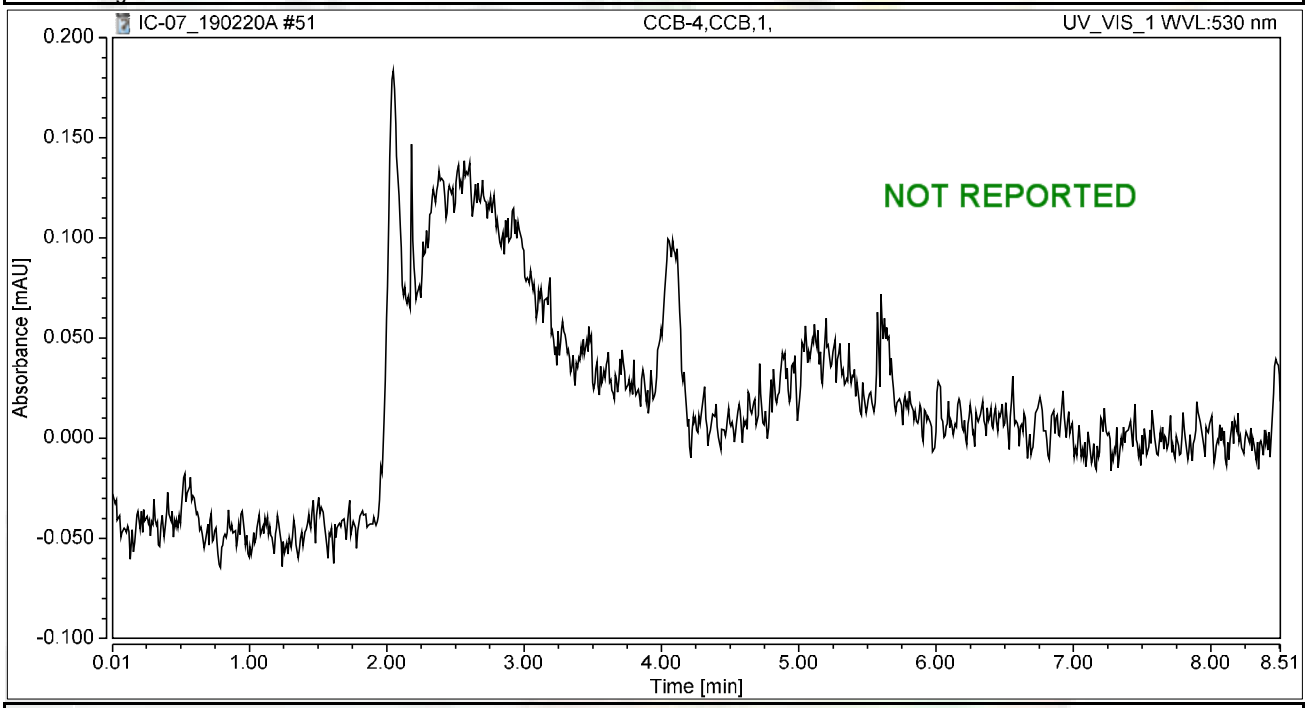
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 3.065 | 19.490 | 100.00 | 100.00 | 10.6651 |
| **Total:** | | | **3.065** | **19.490** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-4,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **41** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 16:08** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

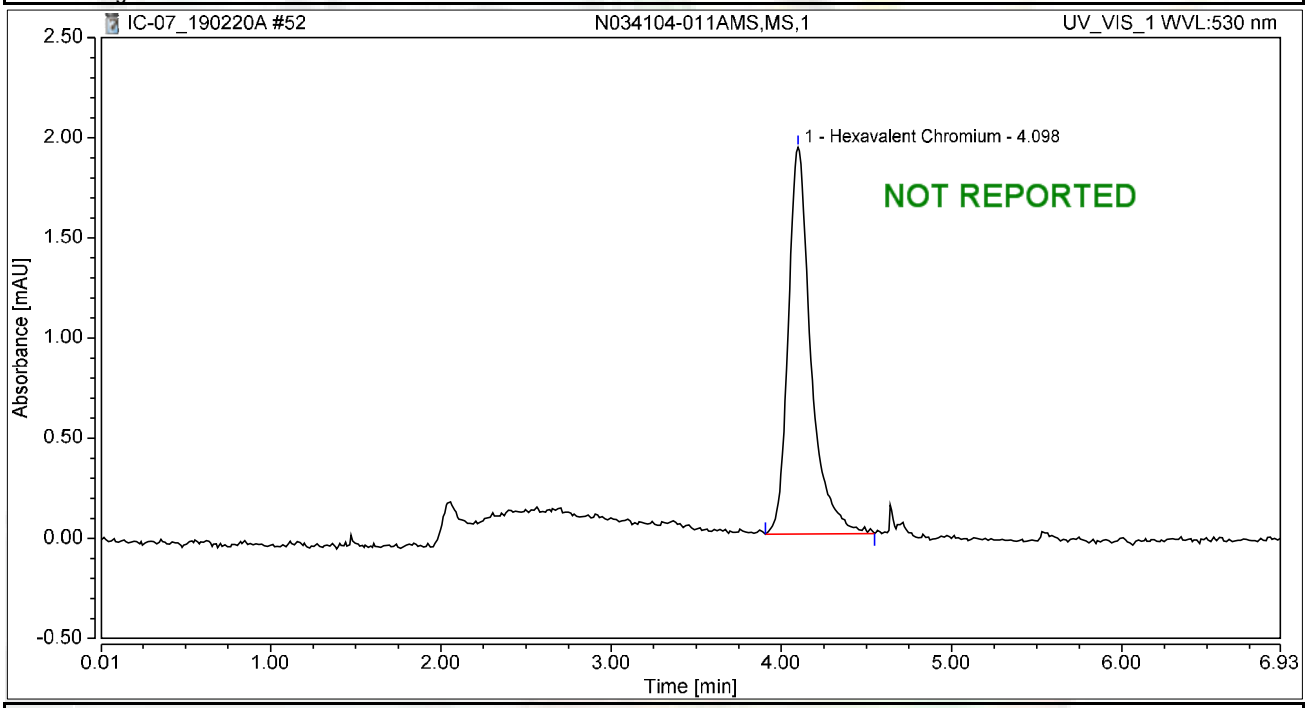
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-011AMS,MS,1** | *Run Time (min):* | **6.93** |
| *Vial Number:* | **42** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 16:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

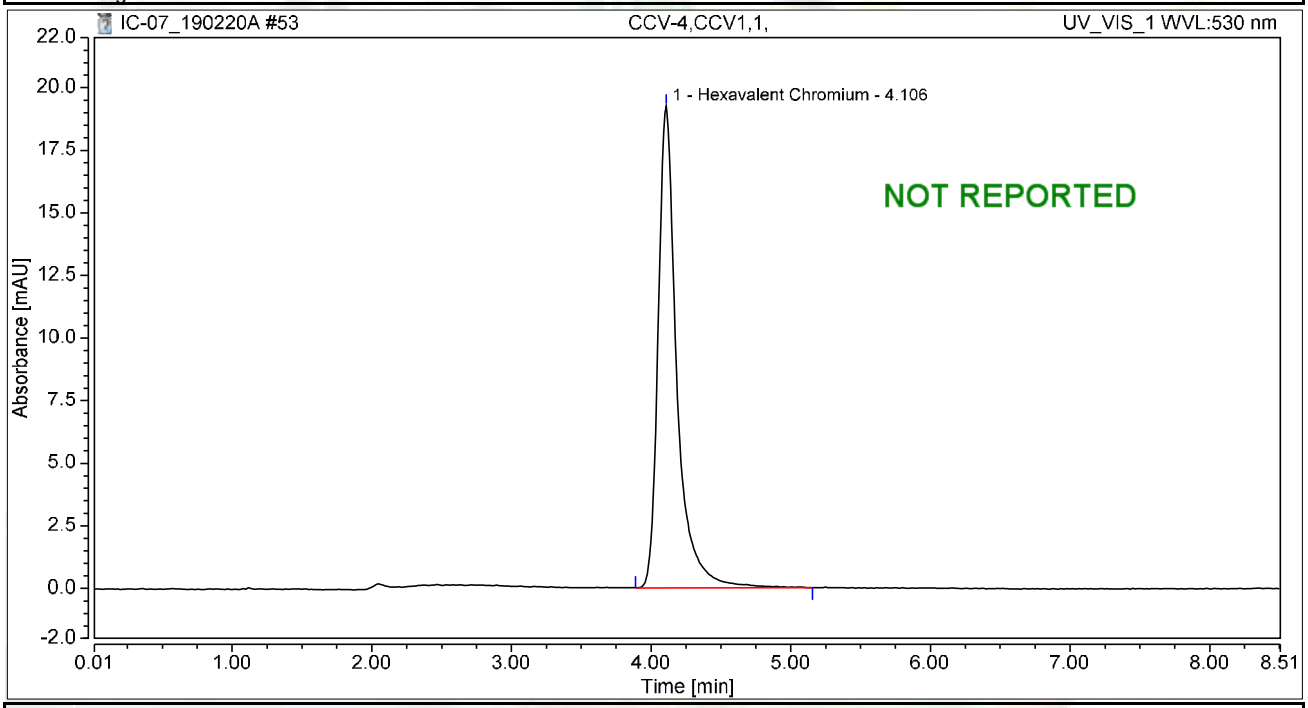
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.299 | 1.931 | 100.00 | 100.00 | 1.0396 |
| **Total:** | | | **0.299** | **1.931** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-4,CCV1,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 16:34** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

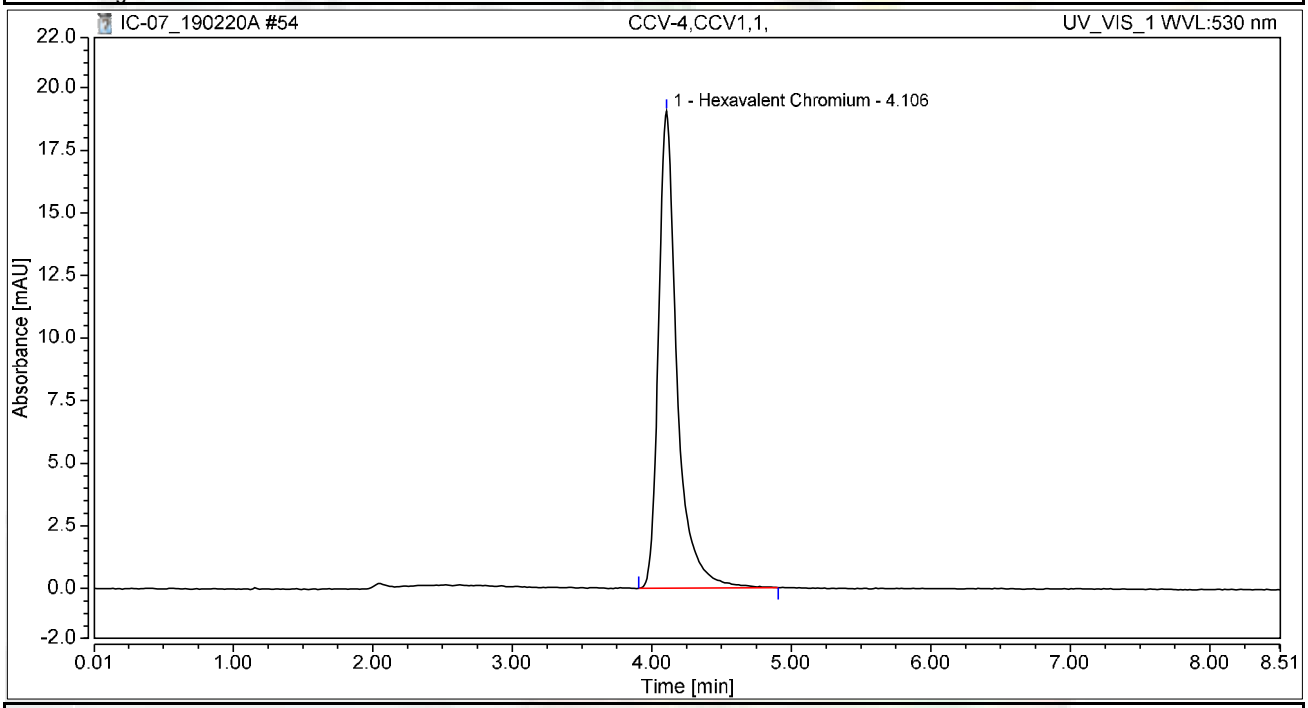
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 3.001 | 19.254 | 100.00 | 100.00 | 10.4420 |
| **Total:** | | | **3.001** | **19.254** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-4,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 16:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

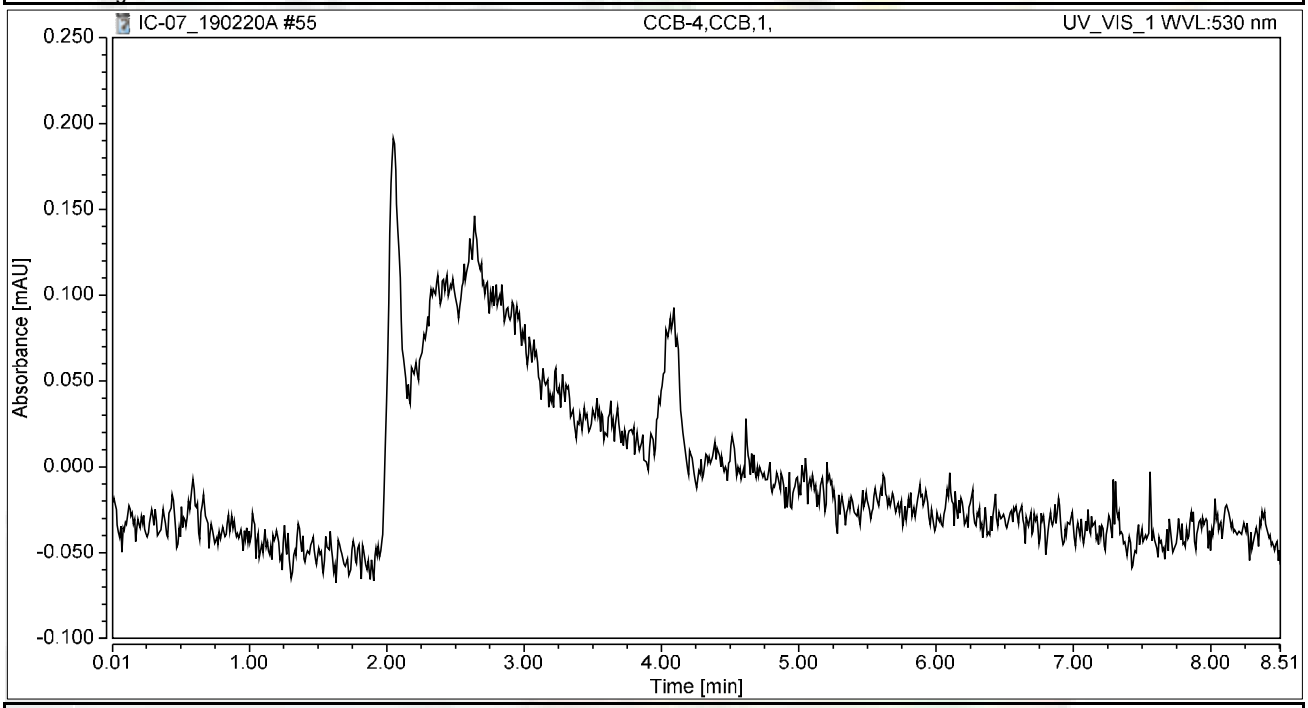
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 2.942 | 19.053 | 100.00 | 100.00 | 10.2362 |
| **Total:** | | | **2.942** | **19.053** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-4,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 16:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

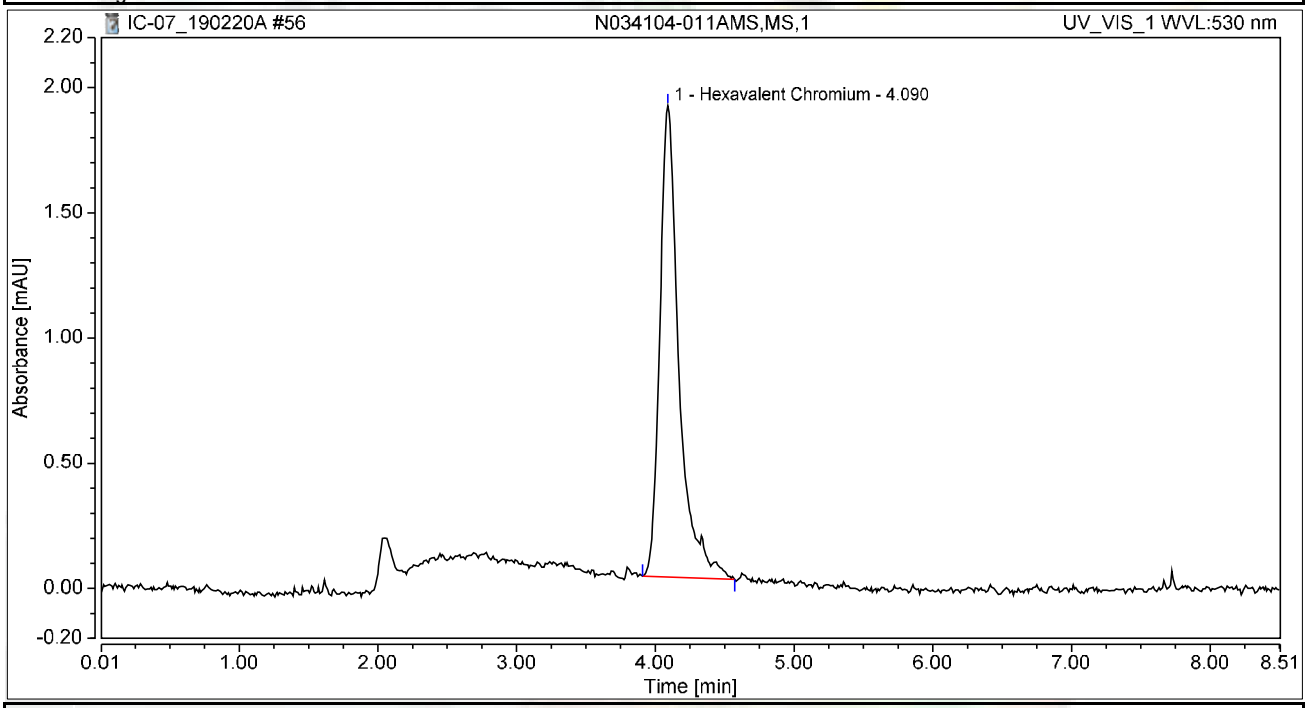
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-011AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 17:03** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

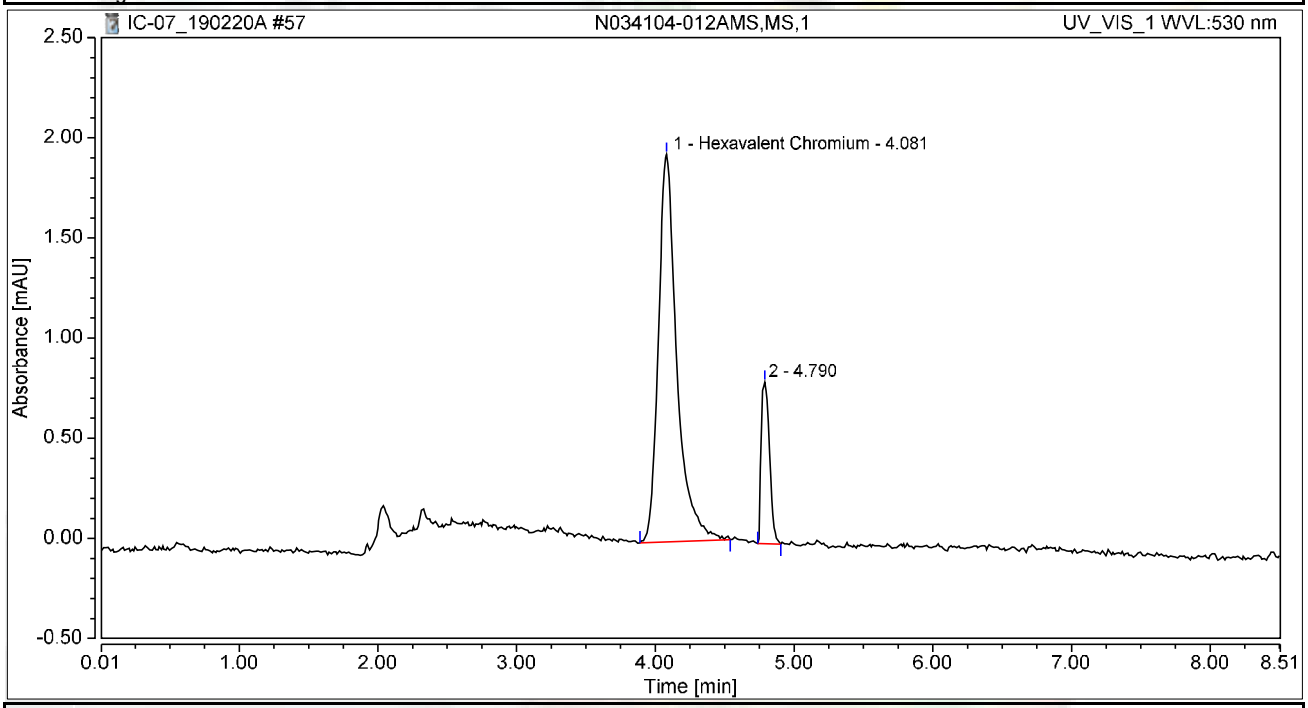
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.302 | 1.882 | 100.00 | 100.00 | 1.0503 |
| **Total:** | | | **0.302** | **1.882** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-012AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 17:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

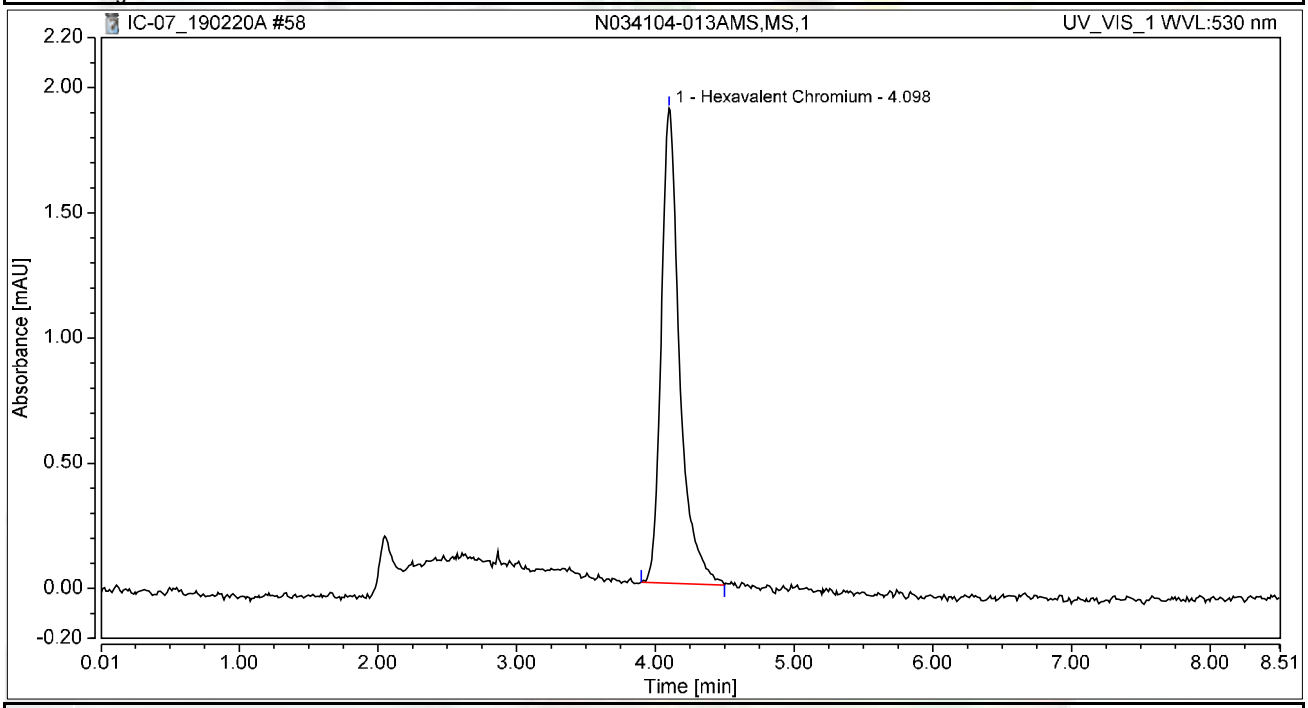
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.298 | 1.934 | 84.02 | 70.57 | 1.0385 |
| 2 | | 4.790 | 0.057 | 0.807 | 15.98 | 29.43 | n.a. |
| **Total:** | | | **0.355** | **2.741** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-013AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 17:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

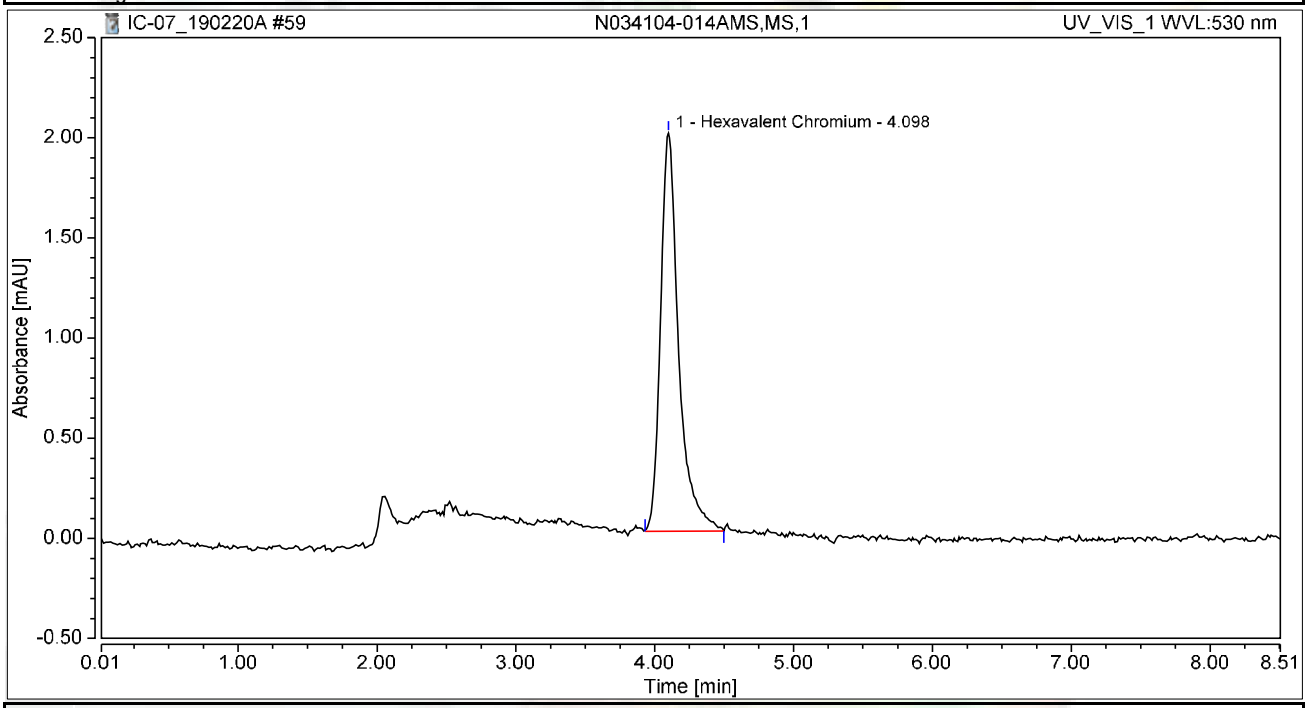
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.292 | 1.897 | 100.00 | 100.00 | 1.0146 |
| **Total:** | | | **0.292** | **1.897** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-014AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 17:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

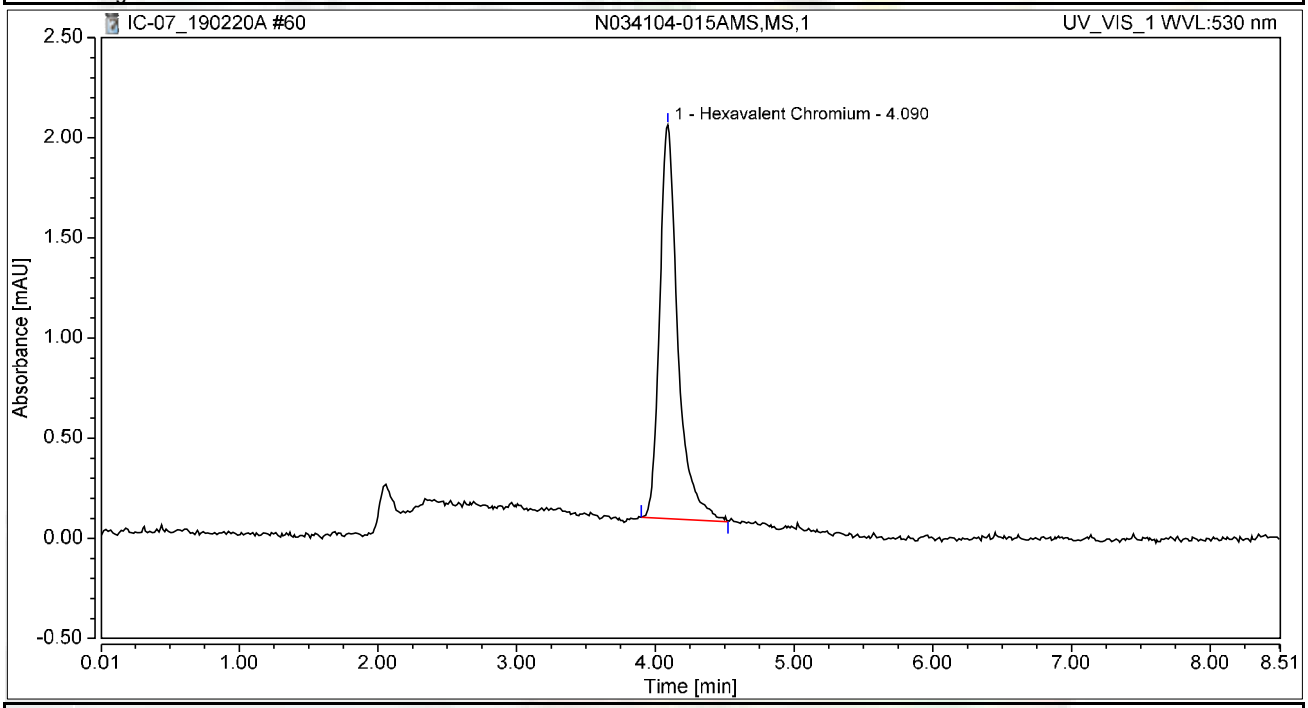
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.301 | 1.988 | 100.00 | 100.00 | 1.0469 |
| **Total:** | | | **0.301** | **1.988** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-015AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 17:41** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

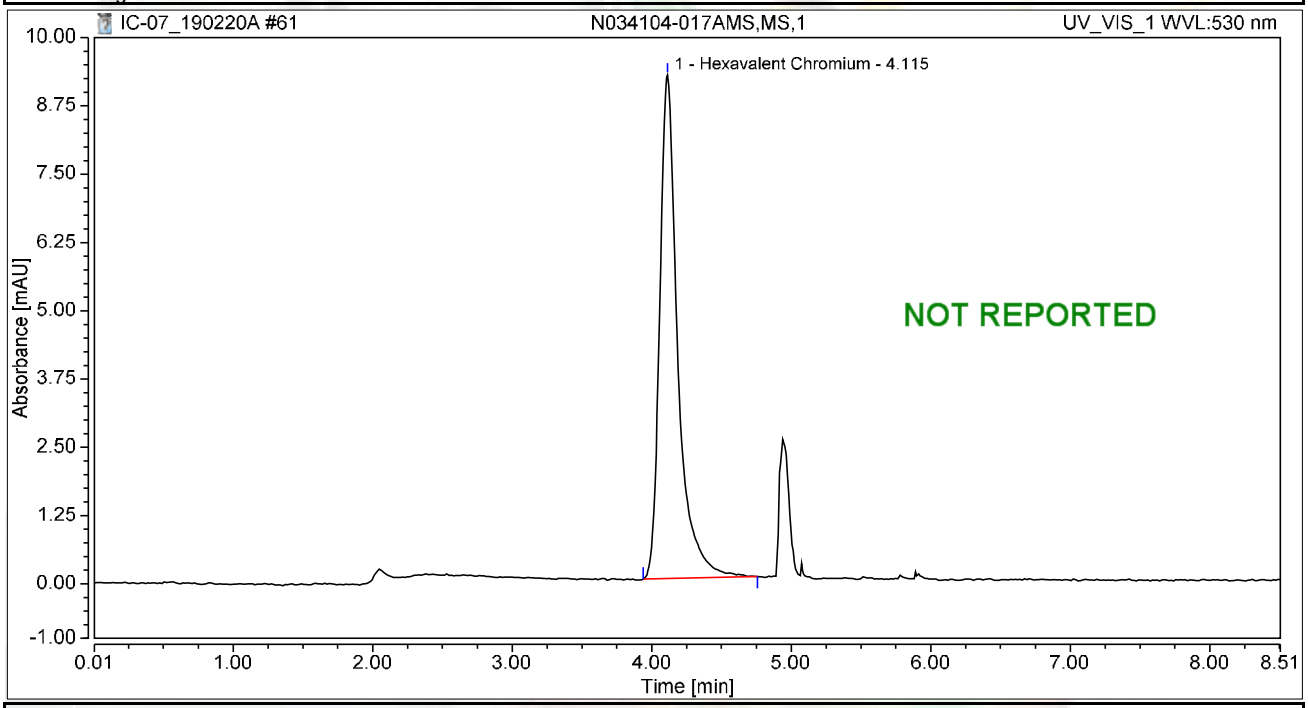
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.299 | 1.965 | 100.00 | 100.00 | 1.0413 |
| **Total:** | | | **0.299** | **1.965** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-017AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 17:51** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

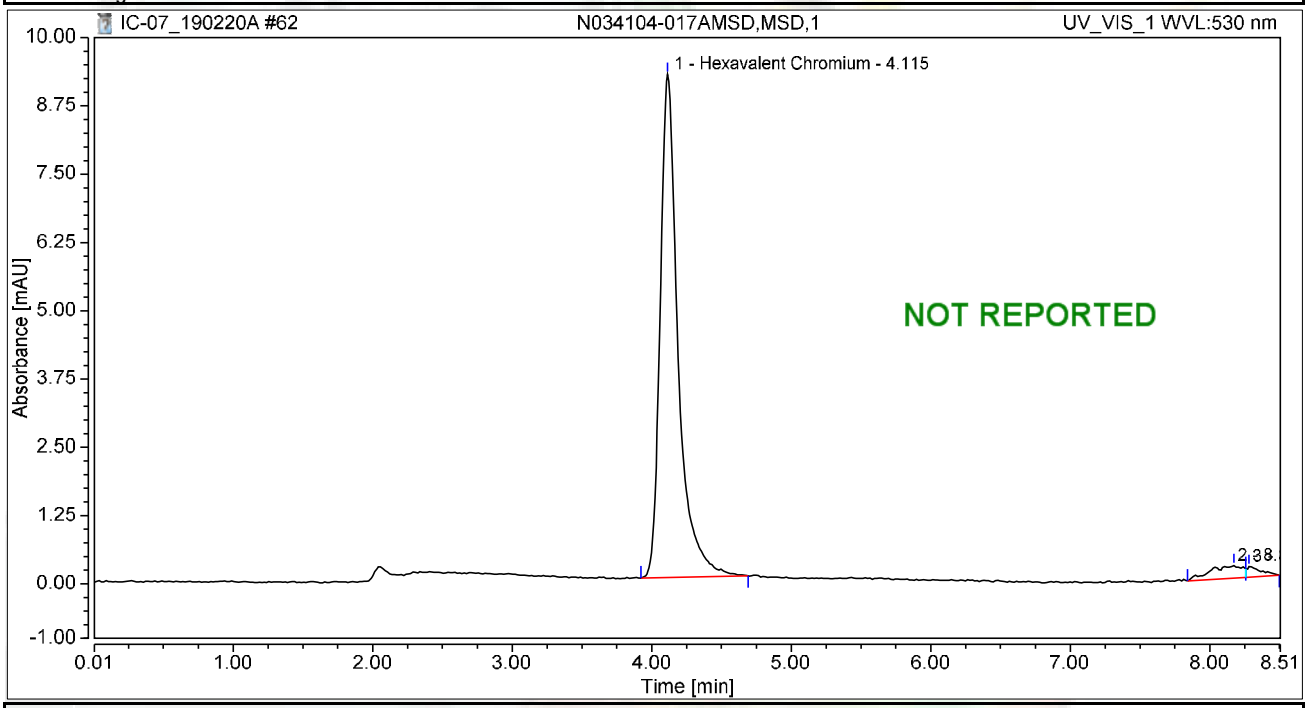
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 1.379 | 9.216 | 100.00 | 100.00 | 4.7975 |
| **Total:** | | | **1.379** | **9.216** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-017AMSD,MSD,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 18:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

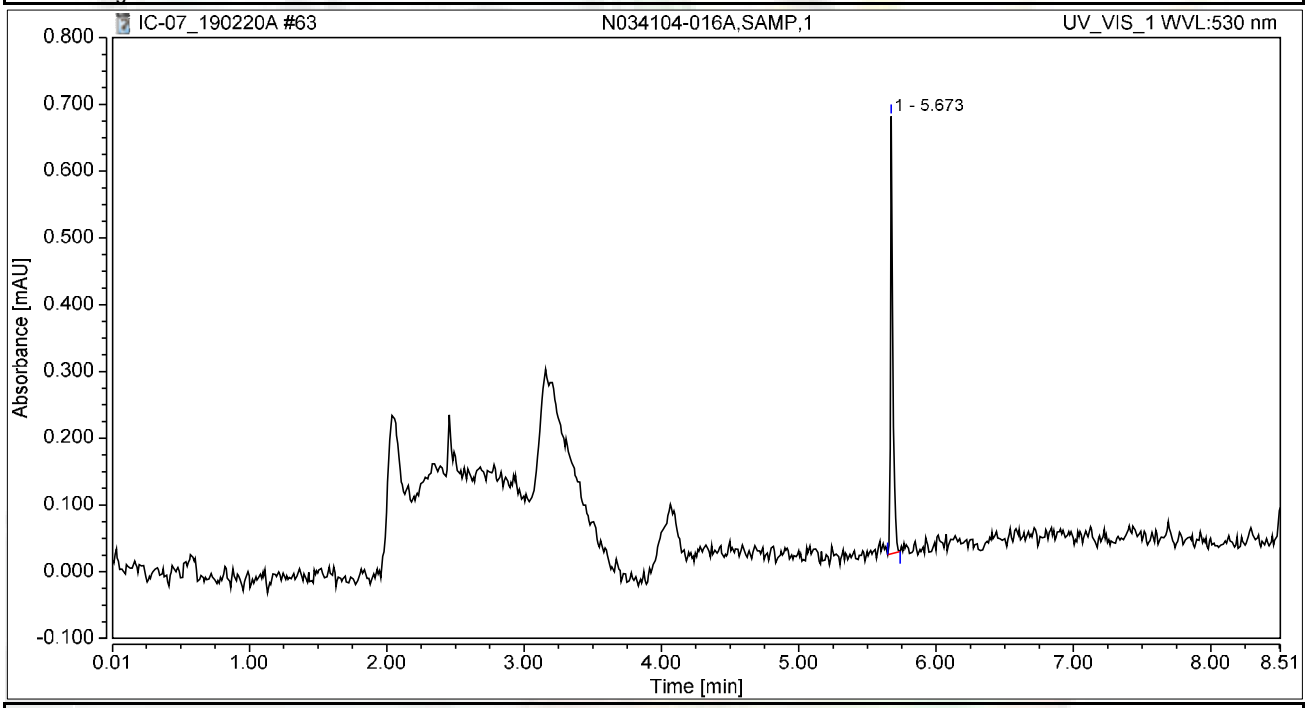
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 1.365 | 9.206 | 94.04 | 95.62 | 4.7508 |
| 2 | | 8.173 | 0.063 | 0.229 | 4.31 | 2.37 | n.a. |
| 3 | | 8.281 | 0.024 | 0.193 | 1.66 | 2.01 | n.a. |
| **Total:** | | | **1.452** | **9.627** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-016A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 18:09** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

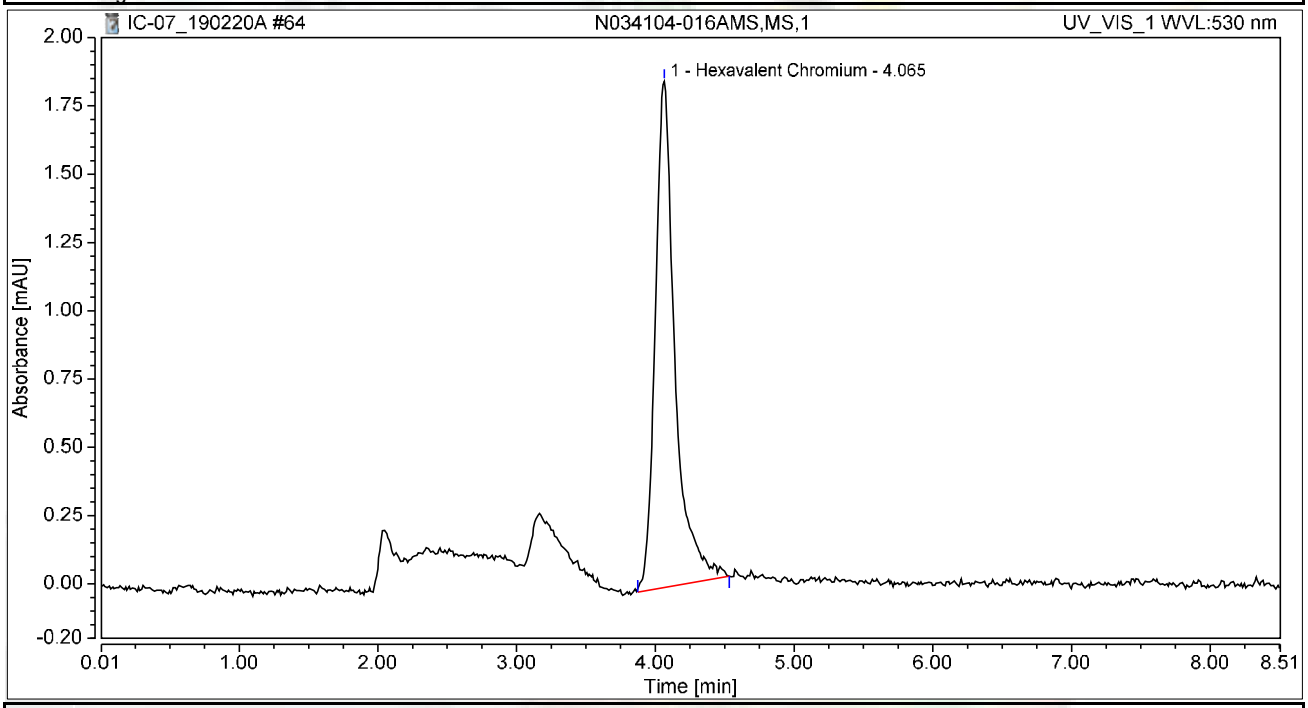
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 1 | | 5.673 | 0.013 | 0.655 | 100.00 | 100.00 | n.a. |
| **Total:** | | | **0.013** | **0.655** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-016AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 18:19** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

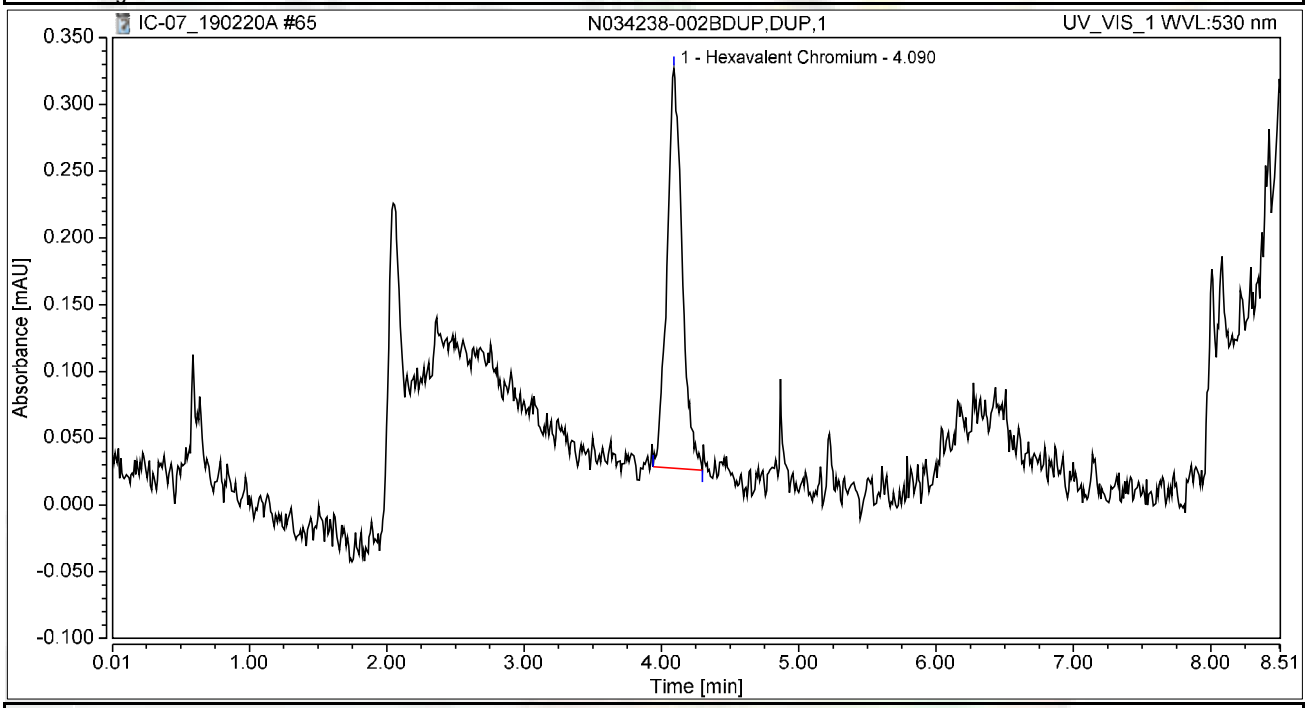
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.065 | 0.305 | 1.853 | 100.00 | 100.00 | 1.0616 |
| **Total:** | | | **0.305** | **1.853** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034238-002BDUP,DUP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 18:28** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

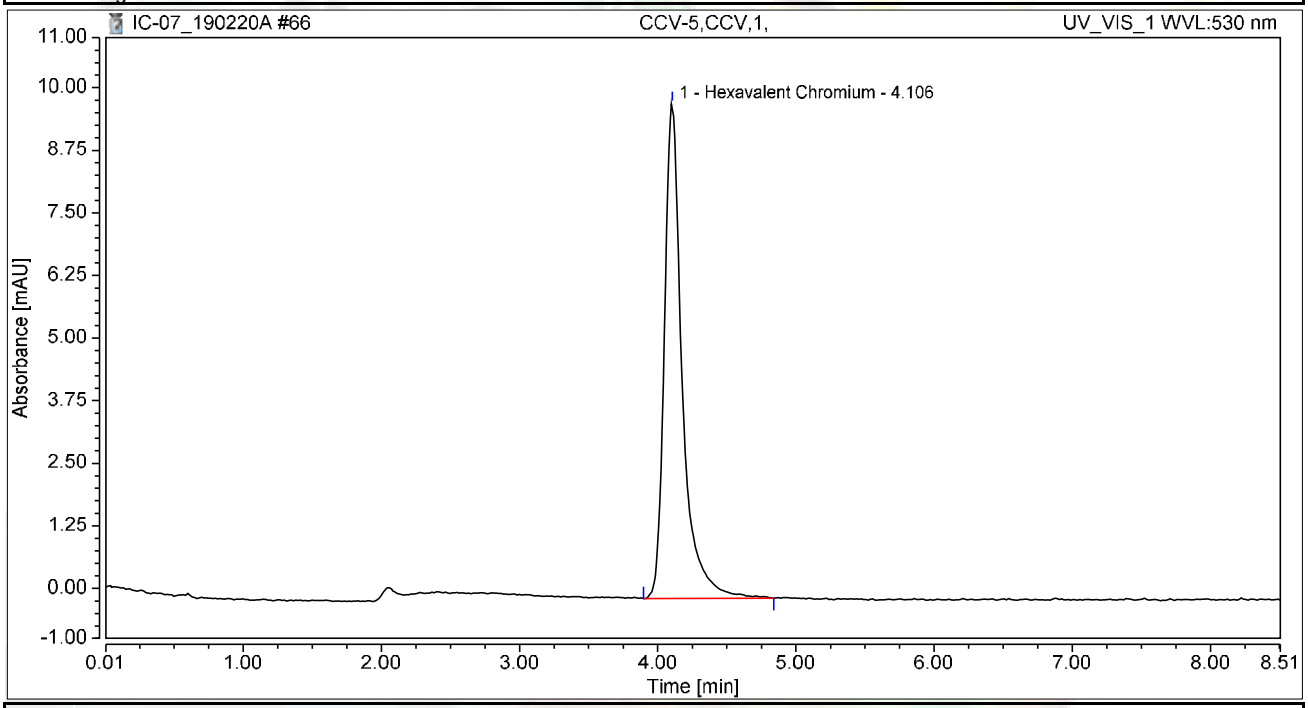
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.038 | 0.299 | 100.00 | 100.00 | 0.1325 |
| **Total:** | | | **0.038** | **0.299** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-5,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 18:38** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

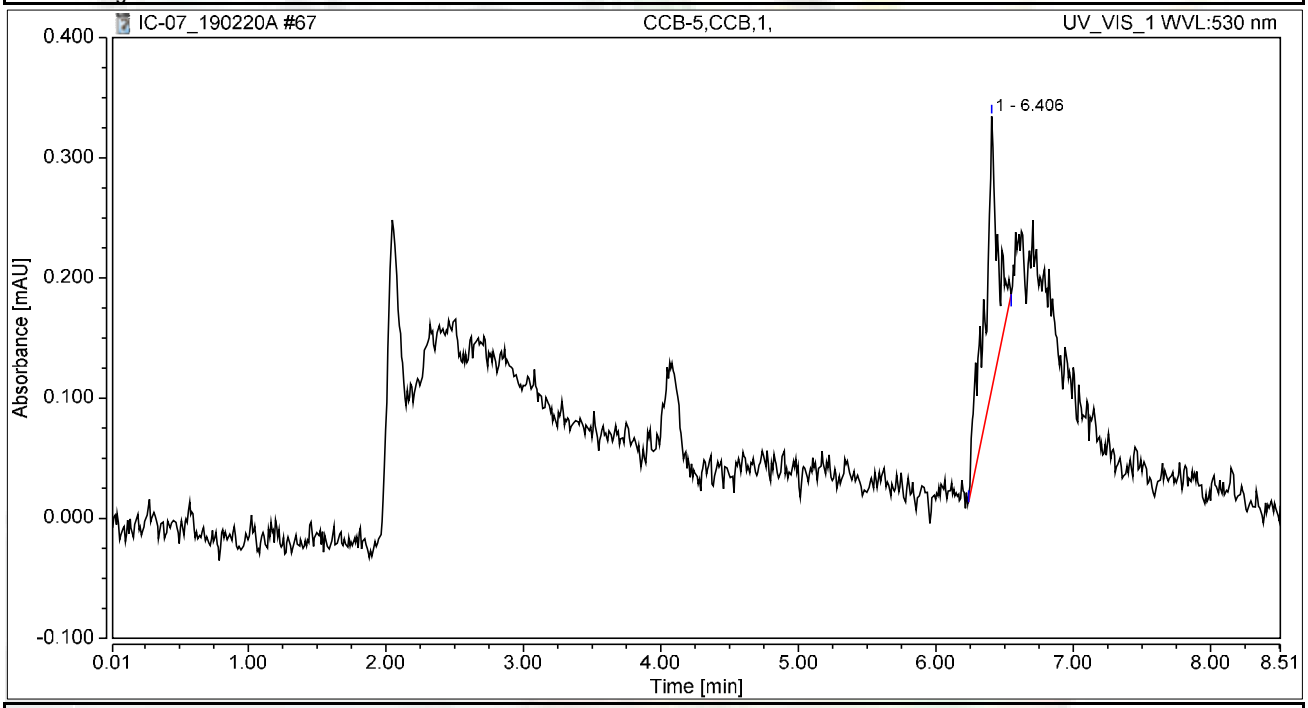
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.485 | 9.889 | 100.00 | 100.00 | 5.1675 |
| **Total:** | | | **1.485** | **9.889** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-5,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 18:47** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

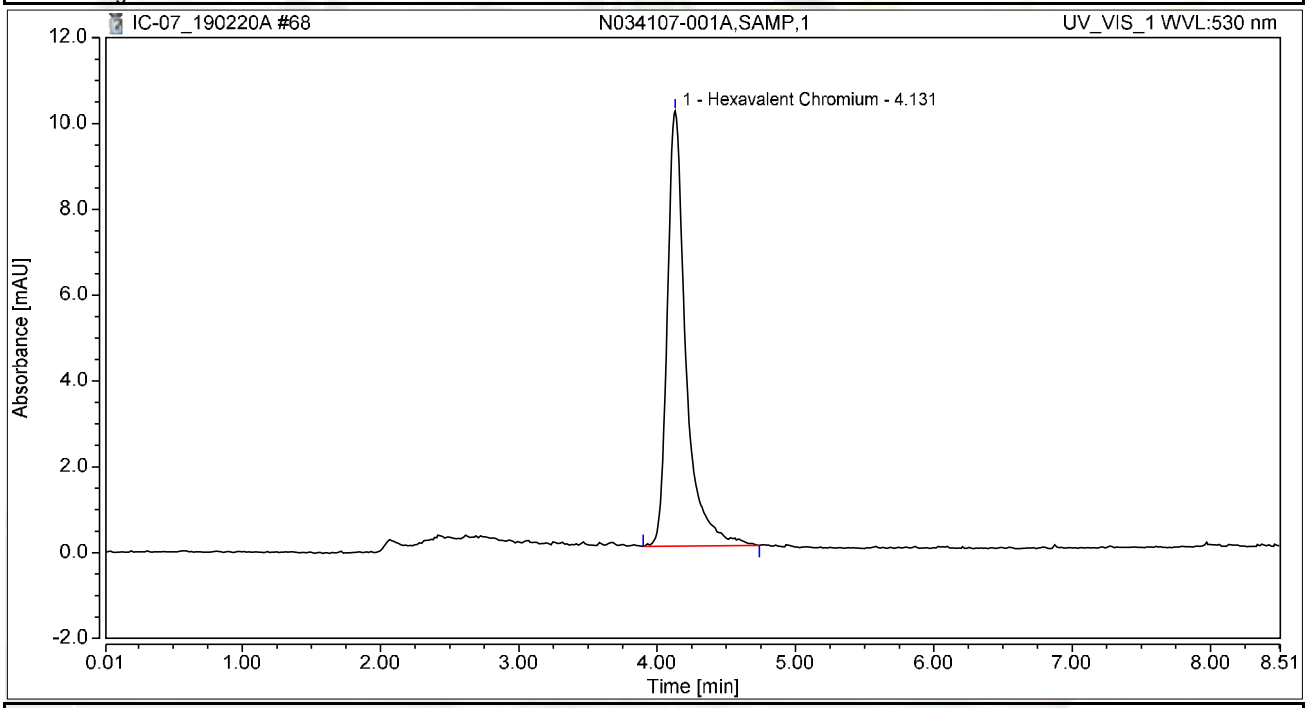
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 1 | | 6.406 | 0.024 | 0.227 | 100.00 | 100.00 | n.a. |
| **Total:** | | | **0.024** | **0.227** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-001A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 19:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

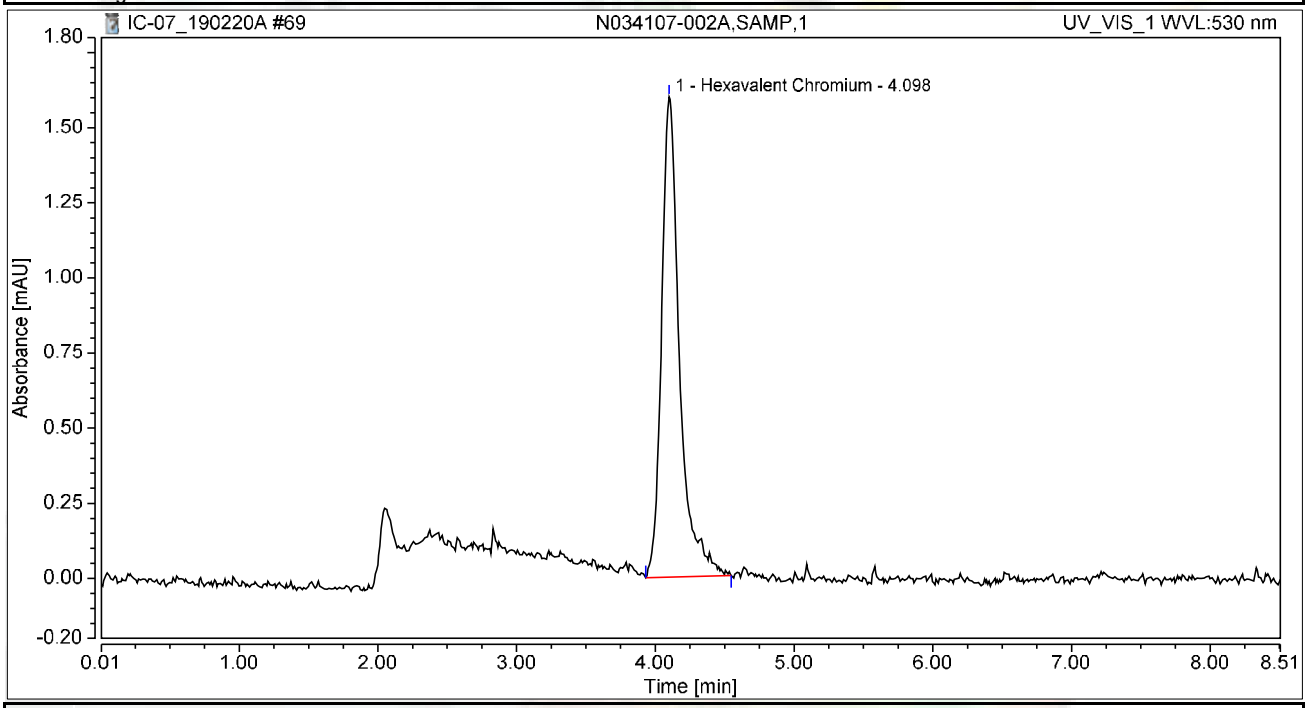
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 1.578 | 10.142 | 100.00 | 100.00 | 5.4919 |
| **Total:** | | | **1.578** | **10.142** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 19:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

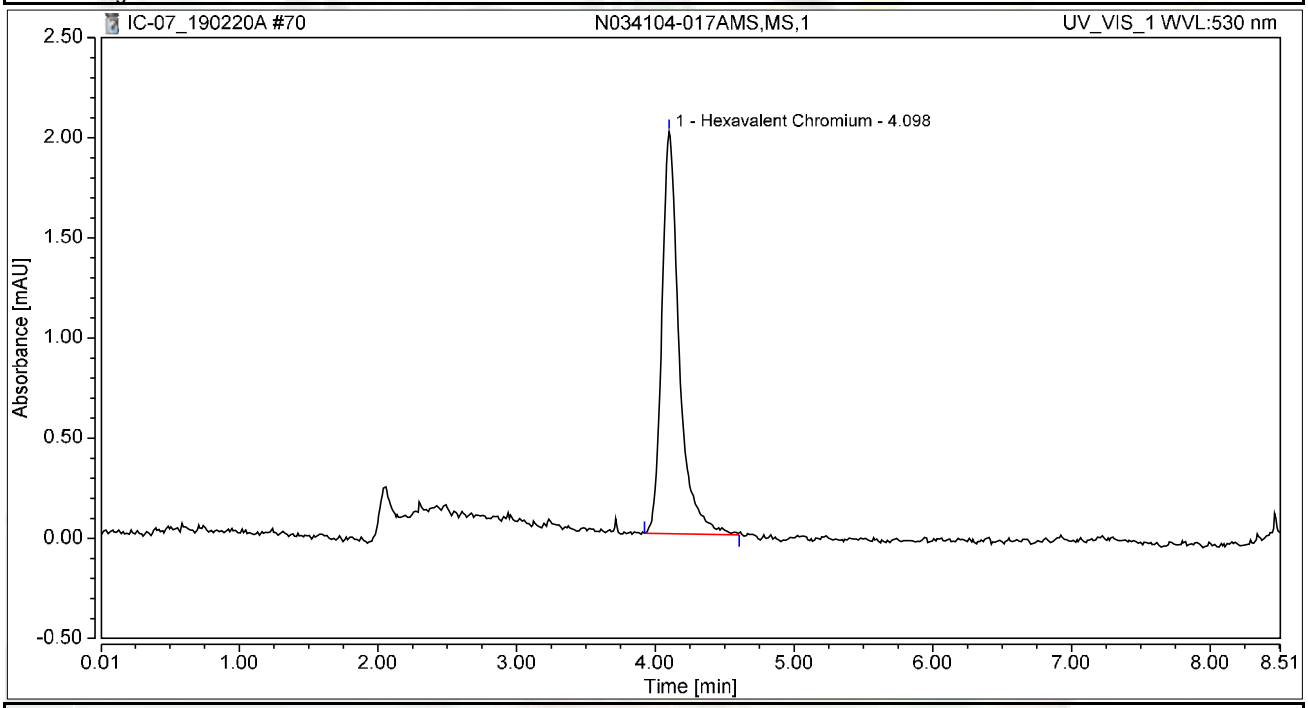
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.240 | 1.599 | 100.00 | 100.00 | 0.8350 |
| **Total:** | | | **0.240** | **1.599** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-017AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 19:20** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

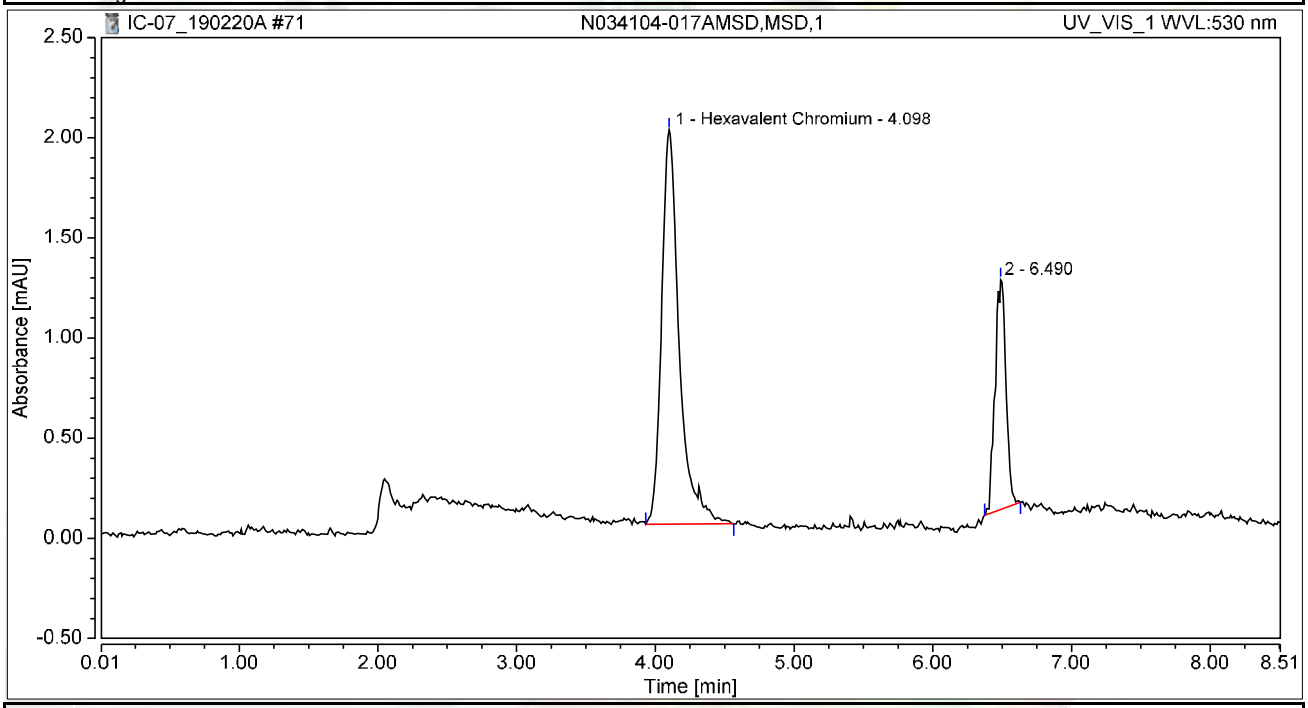
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.291 | 2.007 | 100.00 | 100.00 | 1.0131 |
| **Total:** | | | **0.291** | **2.007** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-017AMSD,MSD,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 19:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

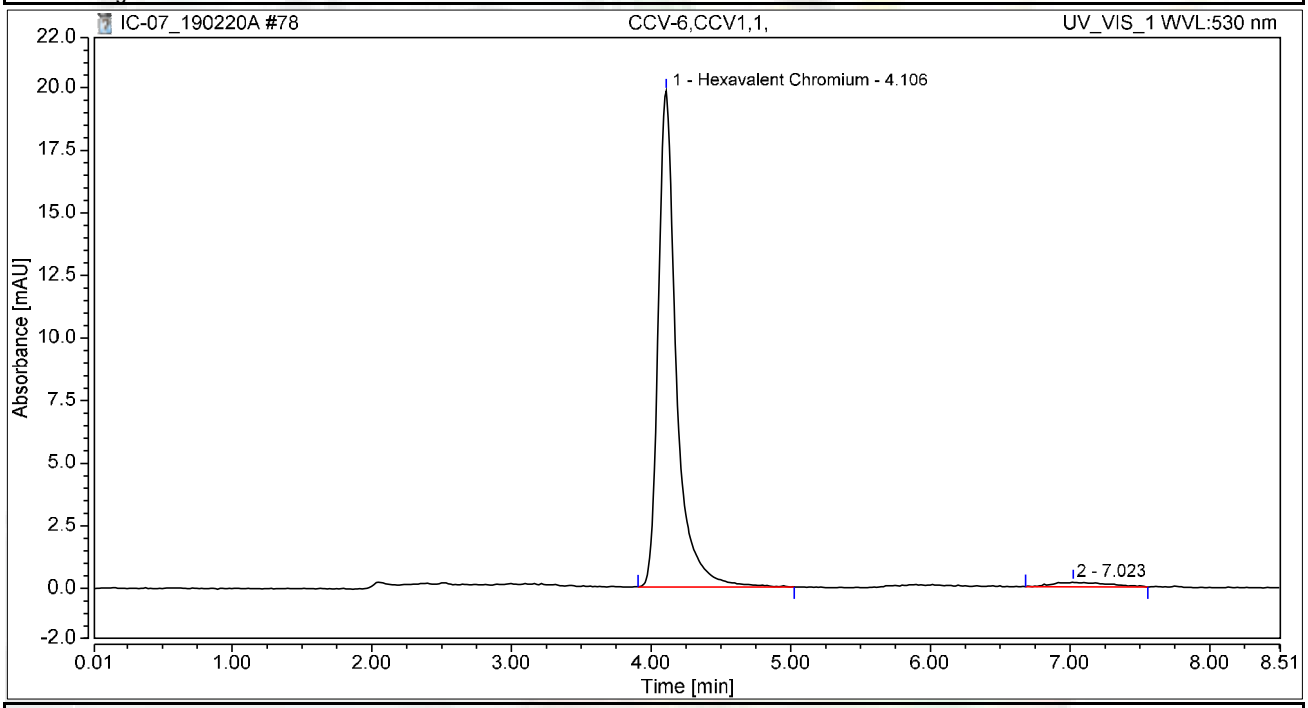
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.291 | 1.969 | 73.77 | 63.18 | 1.0115 |
| 2 | | 6.490 | 0.103 | 1.148 | 26.23 | 36.82 | n.a. |
| **Total:** | | | **0.394** | **3.117** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-6,CCV1,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 20:36** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

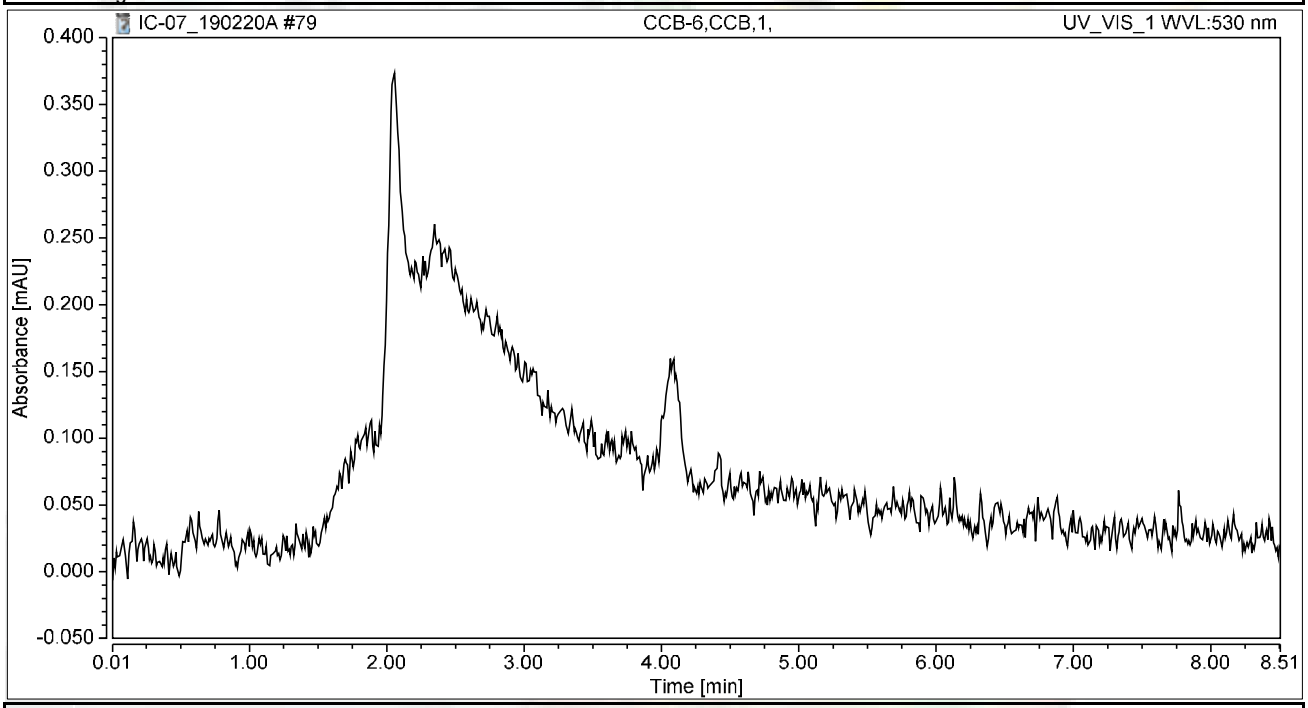
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 2.979 | 19.810 | 97.36 | 99.04 | 10.3669 |
| 2 | | 7.023 | 0.081 | 0.191 | 2.64 | 0.96 | n.a. |
| **Total:** | | | **3.060** | **20.001** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-6,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Feb/19 20:45** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# RAW DATA

# INITIAL CALIBRATION

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 1:17 PM | Not Reported |
| 10 | ICV | ICV | 1 | Hexavalent Chromium | 02/21/19 1:28 PM | Reported |
| 11 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/21/19 1:37 PM | Reported |
| 12 | ICB | ICB | 1 | Hexavalent Chromium | 02/21/19 1:47 PM | Reported |
| 13 | MB-R132043 | MBLK | 1 | Hexavalent Chromium | 02/21/19 1:56 PM | Reported |
| 14 | LCS-R132043 | LCS | 1 | Hexavalent Chromium | 02/21/19 2:06 PM | Reported |
| 15 | N034269-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:18 PM | Not Reported |
| 16 | N034271-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:30 PM | Not Reported |
| 17 | N034271-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:39 PM | Not Reported |
| 18 | N034104-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:49 PM | Reported |
| 19 | N034107-018A | SAMP | 5 | Hexavalent Chromium | 02/21/19 2:58 PM | Reported |
| 20 | N034269-001AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:08 PM | Not Reported |
| 21 | N034271-002AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:17 PM | Not Reported |
| 22 | N034271-001A | SAMP | 100 | Hexavalent Chromium | 02/21/19 3:27 PM | Reported |
| 23 | CCV-1 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 3:36 PM | Reported |
| 24 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/21/19 3:46 PM | Reported |
| 25 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 3:55 PM | Not Reported |
| 26 | N034269-001A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:03 PM | Reported |
| 27 | N034269-001AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:14 PM | Reported |
| 28 | N034271-002A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:24 PM | Not Reported |
| 29 | N034271-002AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:33 PM | Not Reported |
| 30 | N034104-009AMS | MS | 1 | Hexavalent Chromium | 02/21/19 4:43 PM | Reported |
| 31 | N034104-009AMSD | MSD | 1 | Hexavalent Chromium | 02/21/19 4:52 PM | Reported |
| 32 | N034107-018ADUP | DUP | 5 | Hexavalent Chromium | 02/21/19 5:02 PM | Reported |
| 33 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 5:11 PM | Reported |
| 34 | N034271-002A | SAMP | 10 | Hexavalent Chromium | 02/21/19 5:20 PM | Not Reported |
| 35 | CCV-2 | CCV | 1 | Hexavalent Chromium | 02/21/19 5:30 PM | Reported |
| 36 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/21/19 5:39 PM | Reported |
| 37 | N034271-002AMS | MS | 10 | Hexavalent Chromium | 02/21/19 5:52 PM | Not Reported |
| 38 | N034121-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:03 PM | Reported |
| 39 | N034121-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:13 PM | Reported |
| 40 | N034121-003A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:22 PM | Reported |
| 41 | N034121-004A | SAMP | 50 | Hexavalent Chromium | 02/21/19 6:32 PM | Reported |
| 42 | N034121-005A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:41 PM | Reported |

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034121-006A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:50 PM | Reported |
| 44 | N034121-007A | SAMP | 20 | Hexavalent Chromium | 02/21/19 7:00 PM | Reported |
| 45 | N034121-008A | SAMP | 5 | Hexavalent Chromium | 02/21/19 7:09 PM | Not Reported |
| 46 | N034121-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:19 PM | Reported |
| 47 | CCV-3 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 7:28 PM | Reported |
| 48 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/21/19 7:38 PM | Reported |
| 49 | N034121-010A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:47 PM | Not Reported |
| 50 | N034121-011A | SAMP | 10 | Hexavalent Chromium | 02/21/19 7:57 PM | Reported |
| 51 | N034121-008A | SAMP | 10 | Hexavalent Chromium | 02/21/19 8:06 PM | Reported |
| 52 | N034121-011A | SAMP | 20 | Hexavalent Chromium | 02/21/19 8:16 PM | Not Reported |
| 53 | CCV-4 | CCV | 1 | Hexavalent Chromium | 02/21/19 8:25 PM | Reported |
| 54 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/21/19 8:35 PM | Reported |
| 55 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 8:44 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190221B** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **22/Feb/19 08:53:05** |
| *No. of Injections:* | **58** | *Updated By:* | **ics 5000** |

## Injection Details

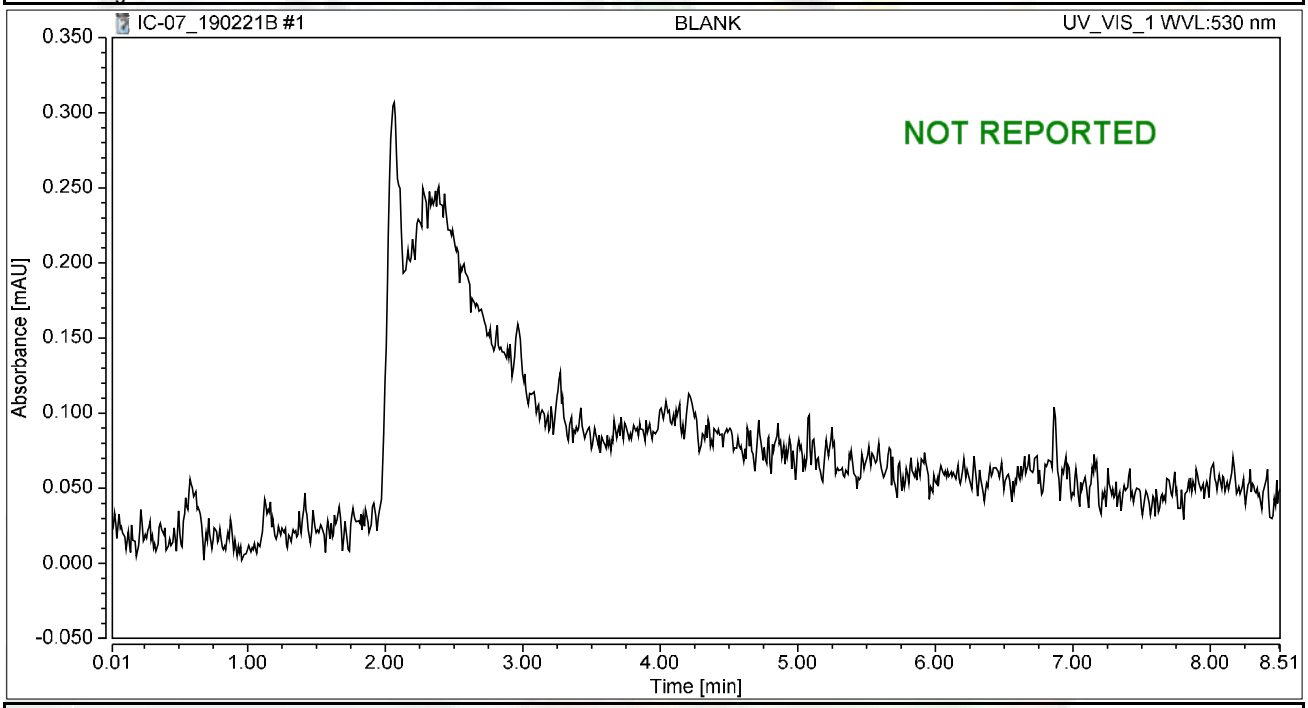
| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 9 | 1000 | Unknown | | 02/21/2019 13:17 | Finished | BLANK |
| 10 | ICV,ICV,1, | 10 | 1000 | Unknown | | 02/21/2019 13:28 | Finished | ICV @5ppb, IWST-190221B |
| 11 | PQL@0.2ppb,CCV2,1 | 11 | 1000 | Unknown | | 02/21/2019 13:37 | Finished | PQL @ 0.2ppb |
| 12 | ICB,ICB,1, | 12 | 1000 | Unknown | | 02/21/2019 13:47 | Finished | ICB R190115A |
| 13 | MB-H2O,MBLK,1, | 13 | 1000 | Unknown | | 02/21/2019 13:56 | Finished | MB R190115A |
| 14 | LCS-H2O,LCS,1, | 14 | 1000 | Unknown | | 02/21/2019 14:06 | Finished | LCS @5ppb, IWST-190221B |
| 15 | N034269-001A,SAMF | 16 | 1000 | Unknown | | 02/21/2019 14:18 | Finished | SAMP,10mL |
| 16 | N034271-001A,SAMF | 17 | 1000 | Unknown | | 02/21/2019 14:30 | Finished | SAMP,10mL |
| 17 | N034271-002A,SAMF | 18 | 1000 | Unknown | | 02/21/2019 14:39 | Finished | SAMP,10mL |
| 18 | N034104-009A,SAMF | 19 | 1000 | Unknown | | 02/21/2019 14:49 | Finished | SAMP,10mL |
| 19 | N034107-018A,SAMF | 20 | 1000 | Unknown | | 02/21/2019 14:58 | Finished | SAMP,2>10mL |
| 20 | N034269-001AMS,MS | 21 | 1000 | Unknown | | 02/21/2019 15:08 | Finished | SAMP,10mL |
| 21 | N034271-002AMS,MS | 22 | 1000 | Unknown | | 02/21/2019 15:17 | Finished | SAMP,10mL |
| 22 | N034271-001A,SAMF | 23 | 1000 | Unknown | | 02/21/2019 15:27 | Finished | SAMP,10mL |
| 23 | CCV-1,CCV1,1, | 24 | 1000 | Unknown | | 02/21/2019 15:36 | Finished | CCV @10ppb, IWST-190221A |
| 24 | CCB-1,CCB,1, | 25 | 1000 | Unknown | | 02/21/2019 15:46 | Finished | CCB R190115A |
| 25 | N034271-001AMS,MS | 26 | 1000 | Unknown | | 02/21/2019 15:55 | Interrupted | SAMP,2>10mL |
| 26 | N034269-001A,SAMF | 27 | 1000 | Unknown | | 02/21/2019 16:03 | Finished | SAMP,2>10mL |
| 27 | N034269-001AMS,MS | 28 | 1000 | Unknown | | 02/21/2019 16:14 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 28 | N034271-002A,SAMF | 29 | 1000 | Unknown | | 02/21/2019 16:24 | Finished | SAMP,2>10mL |
| 29 | N034271-002AMS,MS | 30 | 1000 | Unknown | | 02/21/2019 16:33 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 30 | N034104-009AMS,MS | 31 | 1000 | Unknown | | 02/21/2019 16:43 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034104-009AMSD,M | 32 | 1000 | Unknown | | 02/21/2019 16:52 | Finished | MSD (1ppb), IWST-190221B,10 |
| 32 | N034107-018ADUP,D | 33 | 1000 | Unknown | | 02/21/2019 17:02 | Finished | DUP,10mL |
| 33 | N034271-001AMS,MS | 34 | 1000 | Unknown | | 02/21/2019 17:11 | Finished | SAMP,10mL |
| 34 | N034271-002A,SAMF | 35 | 1000 | Unknown | | 02/21/2019 17:20 | Finished | SAMP,1>10mL |
| 35 | CCV-2,CCV,1, | 36 | 1000 | Unknown | | 02/21/2019 17:30 | Finished | CCV @5ppb, IWST-190221A |
| 36 | CCB-2,CCB,1, | 37 | 1000 | Unknown | | 02/21/2019 17:39 | Finished | CCB R190115A |
| 37 | N034271-002AMS,MS | 1 | 1000 | Unknown | | 02/21/2019 17:52 | Finished | MS (1ppb), IWST-190221B,1>1 |
| 38 | N034121-001A,SAMF | 2 | 1000 | Unknown | | 02/21/2019 18:03 | Finished | SAMP,10mL |
| 39 | N034121-002A,SAMF | 3 | 1000 | Unknown | | 02/21/2019 18:13 | Finished | SAMP,10mL |
| 40 | N034121-003A,SAMF | 4 | 1000 | Unknown | | 02/21/2019 18:22 | Finished | SAMP,10mL |
| 41 | N034121-004A,SAMF | 5 | 1000 | Unknown | | 02/21/2019 18:32 | Finished | SAMP,10mL |
| 42 | N034121-005A,SAMF | 6 | 1000 | Unknown | | 02/21/2019 18:41 | Finished | SAMP,10mL |
| 43 | N034121-006A,SAMF | 7 | 1000 | Unknown | | 02/21/2019 18:50 | Finished | SAMP,10mL |
| 44 | N034121-007A,SAMF | 8 | 1000 | Unknown | | 02/21/2019 19:00 | Finished | SAMP,10mL |
| 45 | N034121-008A,SAMF | 9 | 1000 | Unknown | | 02/21/2019 19:09 | Finished | SAMP,10mL |
| 46 | N034121-009A,SAMF | 10 | 1000 | Unknown | | 02/21/2019 19:19 | Finished | SAMP,10mL |
| 47 | CCV-3,CCV1,1, | 11 | 1000 | Unknown | | 02/21/2019 19:28 | Finished | CCV @10ppb, IWST-190221A |
| 48 | CCB-3,CCB,1, | 12 | 1000 | Unknown | | 02/21/2019 19:38 | Finished | CCB R190115A |
| 49 | N034121-010A,SAMF | 13 | 1000 | Unknown | | 02/21/2019 19:47 | Finished | SAMP,10mL |
| 50 | N034121-011A,SAMF | 14 | 1000 | Unknown | | 02/21/2019 19:57 | Finished | SAMP,10mL |
| 51 | N034121-008A,SAMF | 15 | 1000 | Unknown | | 02/21/2019 20:06 | Finished | SAMP,1>10mL |
| 52 | N034121-011A,SAMF | 16 | 1000 | Unknown | | 02/21/2019 20:16 | Finished | SAMP,1>10mL |
| 53 | CCV-4,CCV,1, | 17 | 1000 | Unknown | | 02/21/2019 20:25 | Finished | CCV @5ppb, IWST-190221A |
| 54 | CCB-4,CCB,1, | 18 | 1000 | Unknown | | 02/21/2019 20:35 | Finished | CCB R190115A |
| 55 | BLANK | 19 | 1000 | Unknown | | 02/21/2019 20:44 | Finished | BLANK |
| 56 | SHUTDOWN | 20 | 1000 | Unknown | | 02/21/2019 20:53 | Finished | |
| 57 | Eluent: R190219B | 21 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 58 | PCR: R190220A | 22 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 11:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

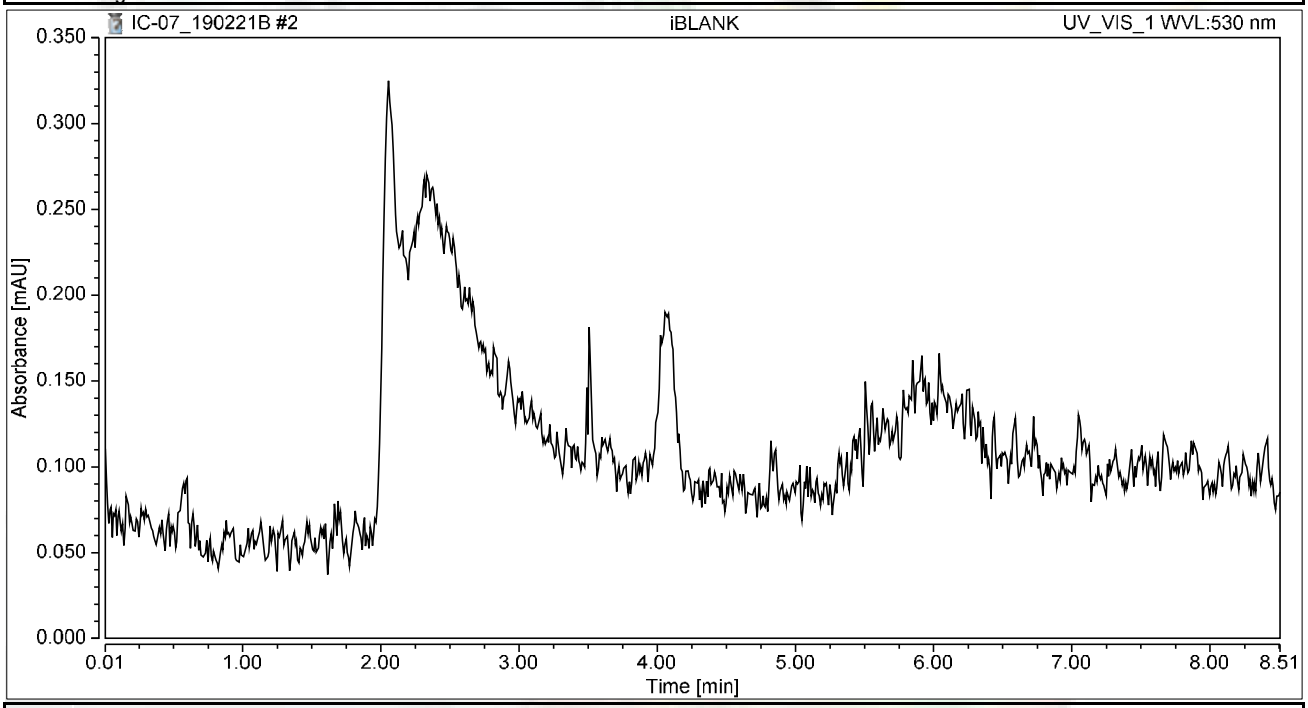
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **iBLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:04** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

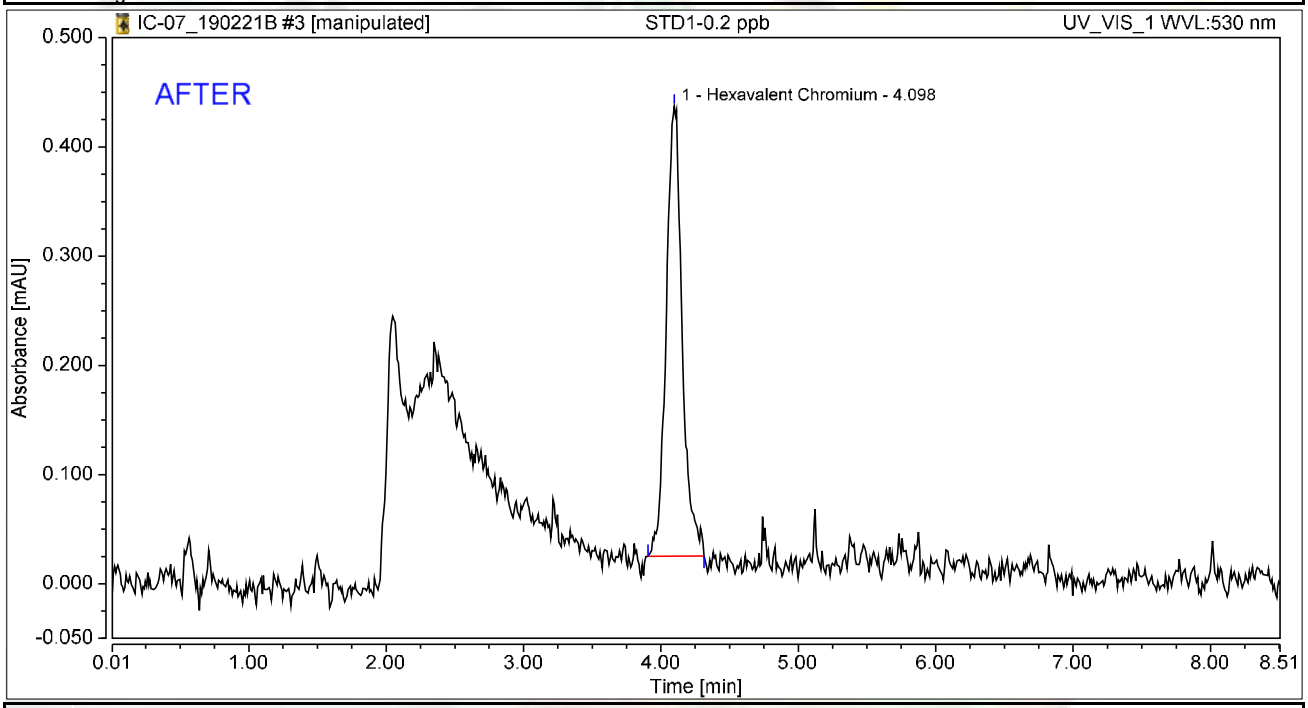
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD1-0.2 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **01** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.056 | 0.412 | 100.00 | 100.00 | 0.2243 |
| **Total:** | | | **0.056** | **0.412** | **100.00** | **100.00** | |

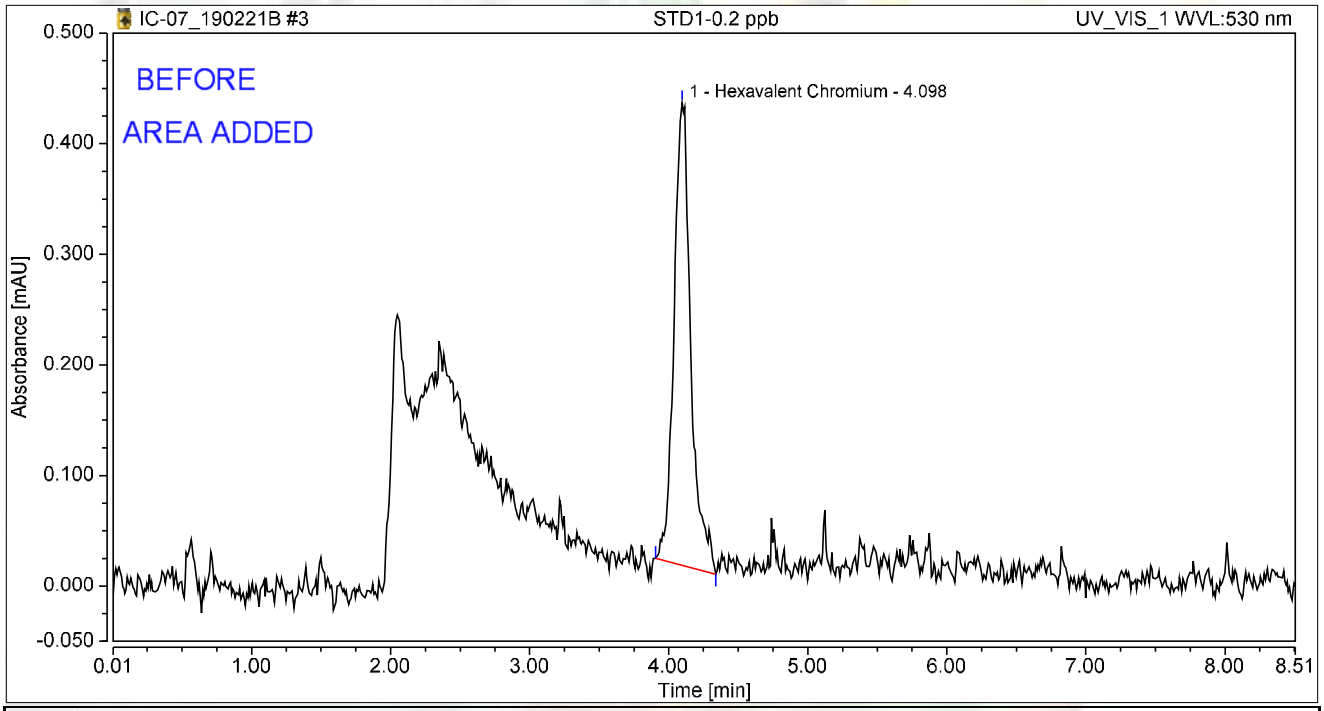
Reviewed by:
Nancy 2/28/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD1-0.2 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **01** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

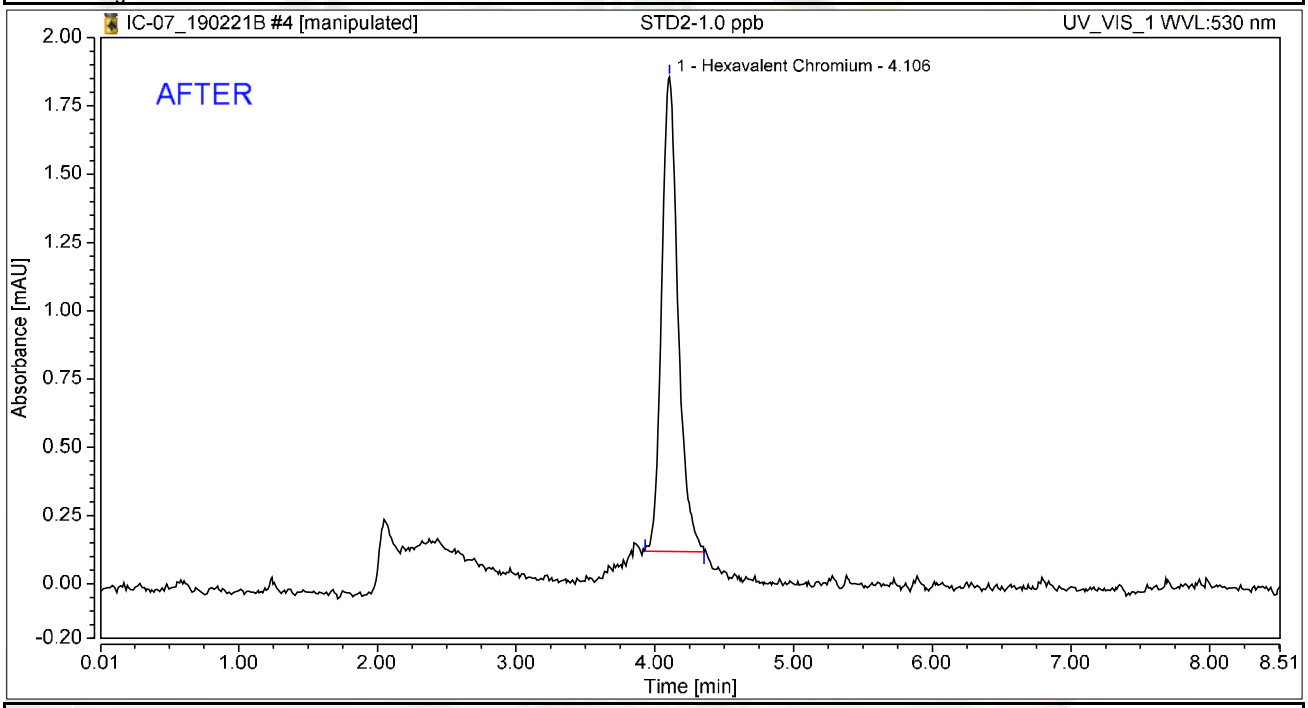
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.059 | 0.418 | 100.00 | 100.00 | 0.2356 |
| **Total:** | | | **0.059** | **0.418** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

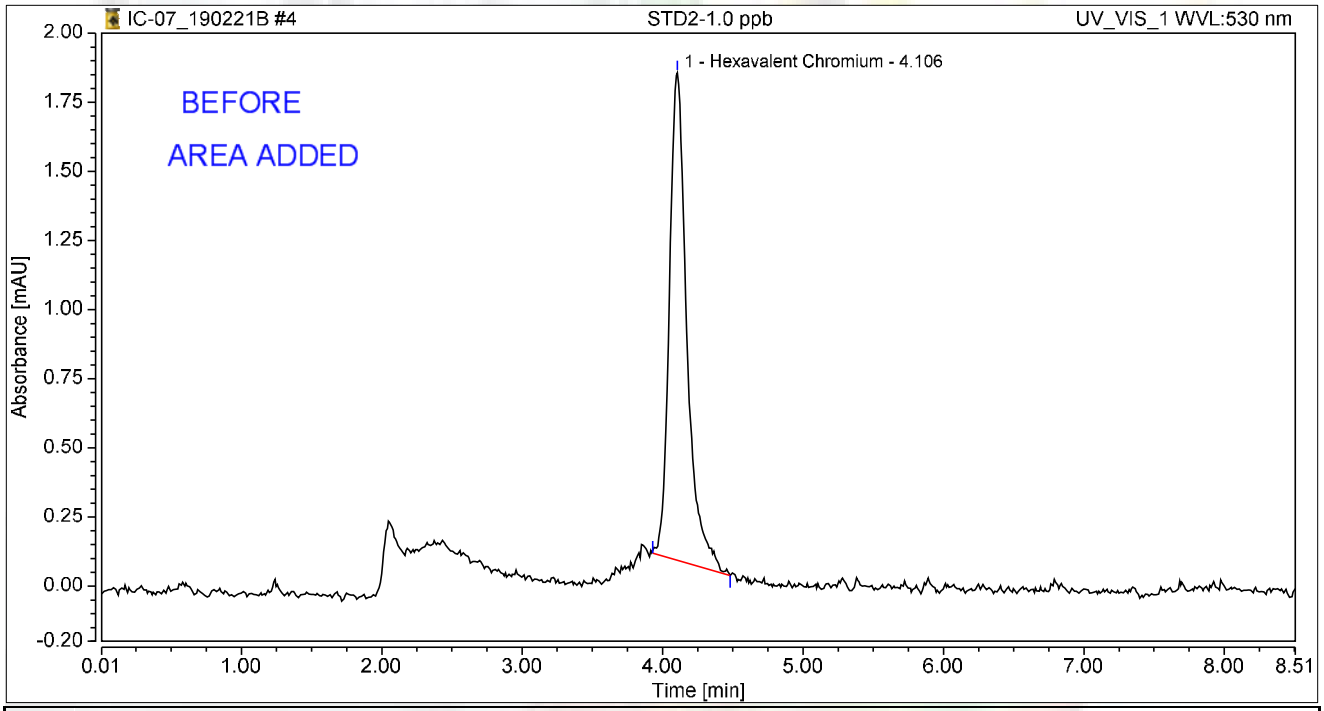
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.239 | 1.738 | 100.00 | 100.00 | 0.9651 |
| **Total:** | | | **0.239** | **1.738** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

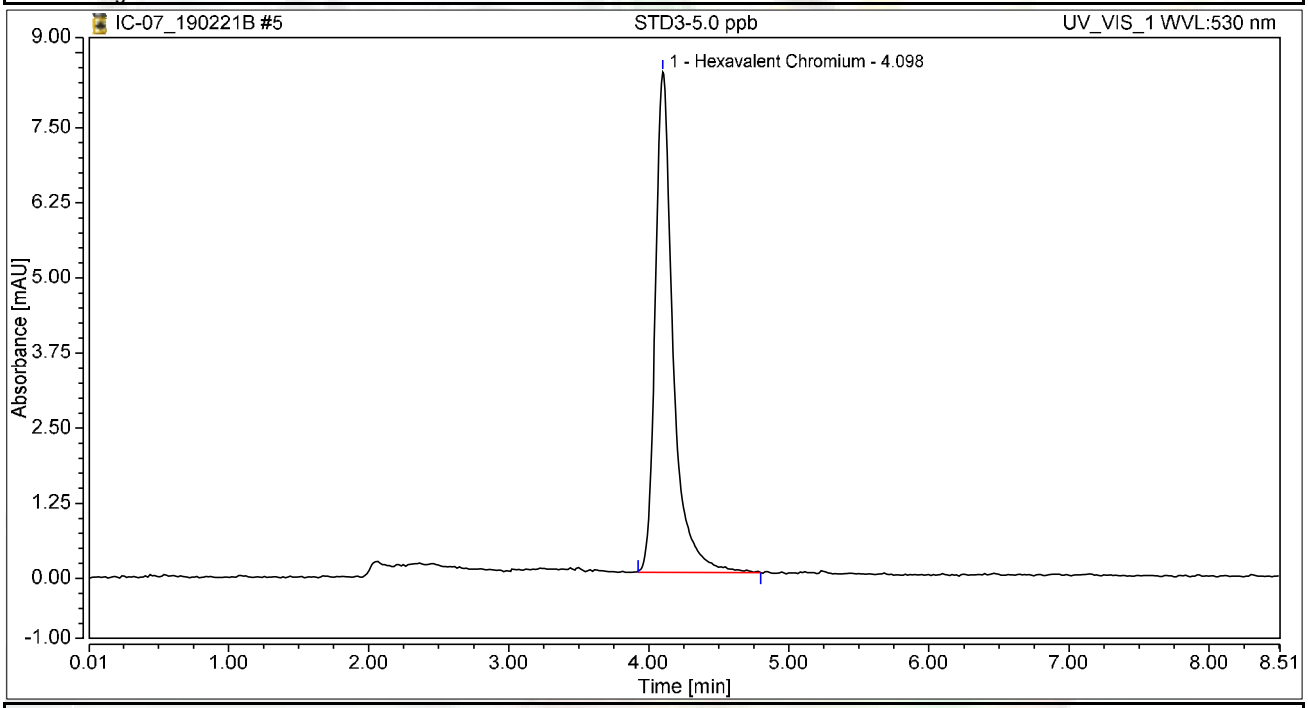
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.255 | 1.763 | 100.00 | 100.00 | 1.0261 |
| **Total:** | | | **0.255** | **1.763** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD3-5.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **03** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

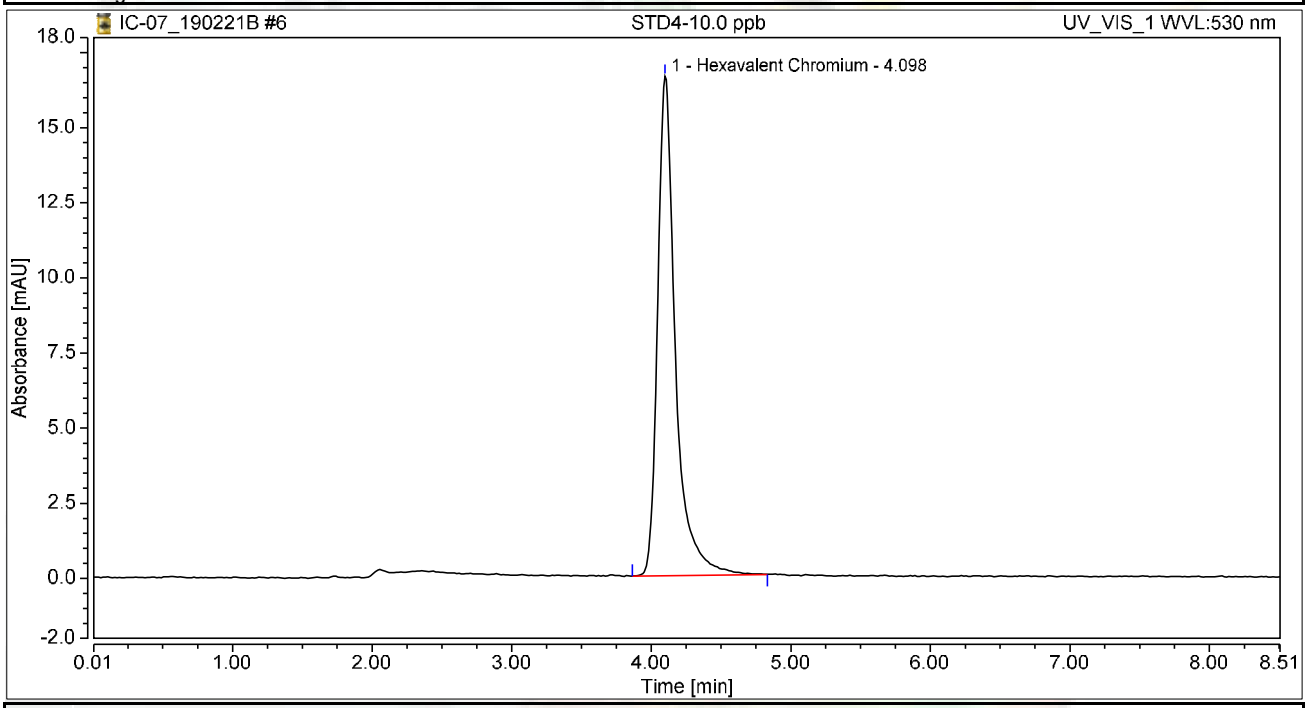
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.231 | 8.323 | 100.00 | 100.00 | 4.9676 |
| **Total:** | | | **1.231** | **8.323** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD4-10.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **04** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

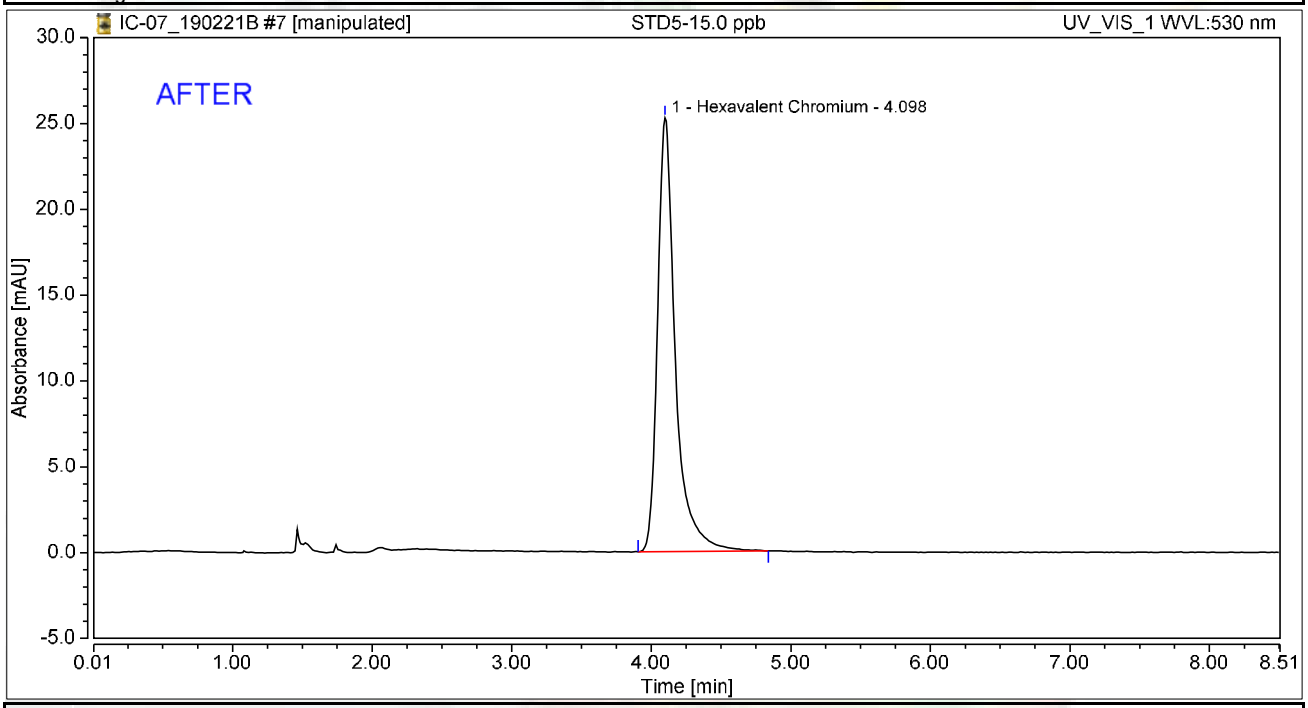
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.466 | 16.618 | 100.00 | 100.00 | 9.9491 |
| **Total:** | | | **2.466** | **16.618** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

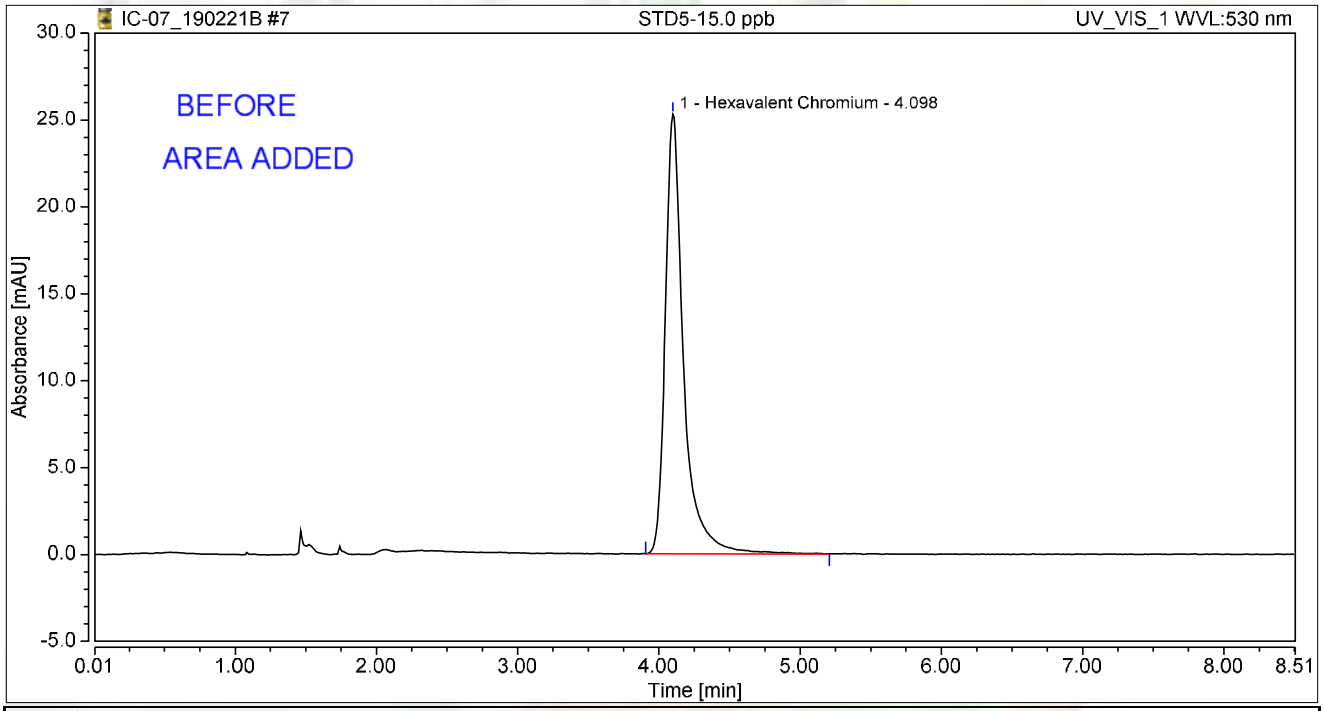
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 3.736 | 25.276 | 100.00 | 100.00 | 15.0777 |
| **Total:** | | | **3.736** | **25.276** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

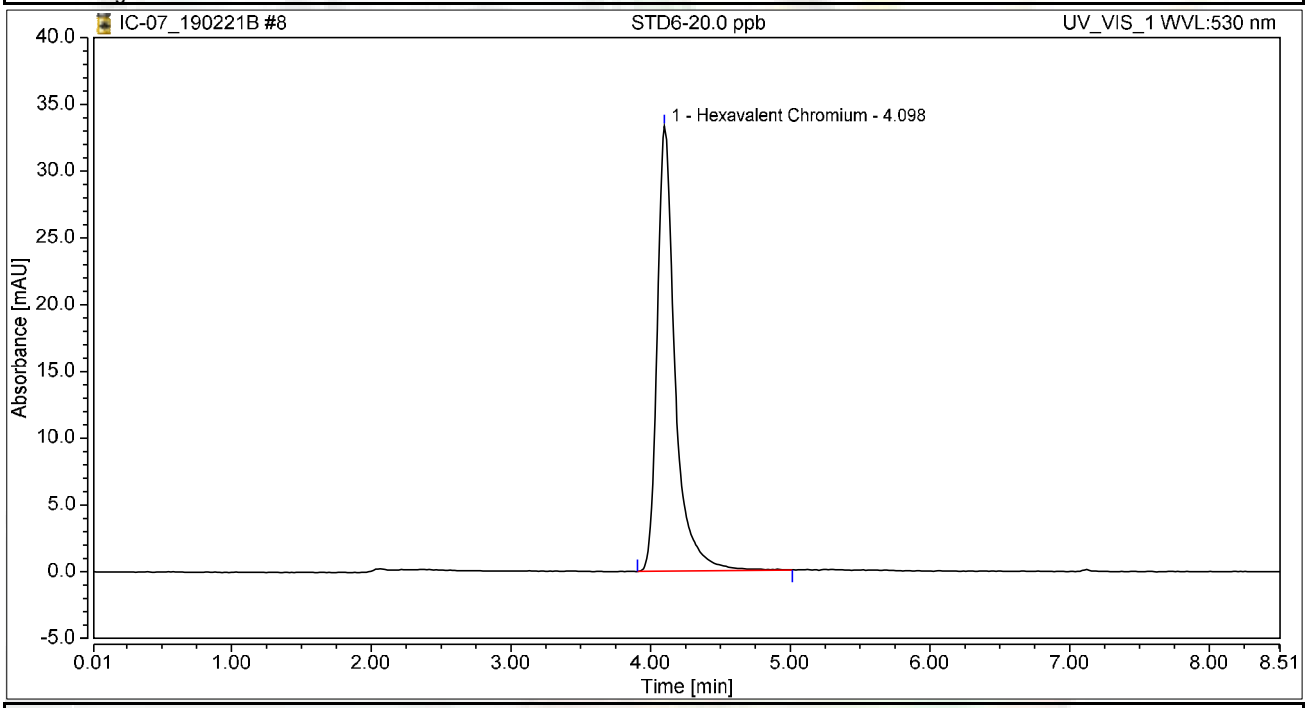
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 3.784 | 25.291 | 100.00 | 100.00 | 15.2098 |
| **Total:** | | | **3.784** | **25.291** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD6-20.0 ppb** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **06** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:03** | *Sample Weight:* | **1.0000** |

## Chromatogram



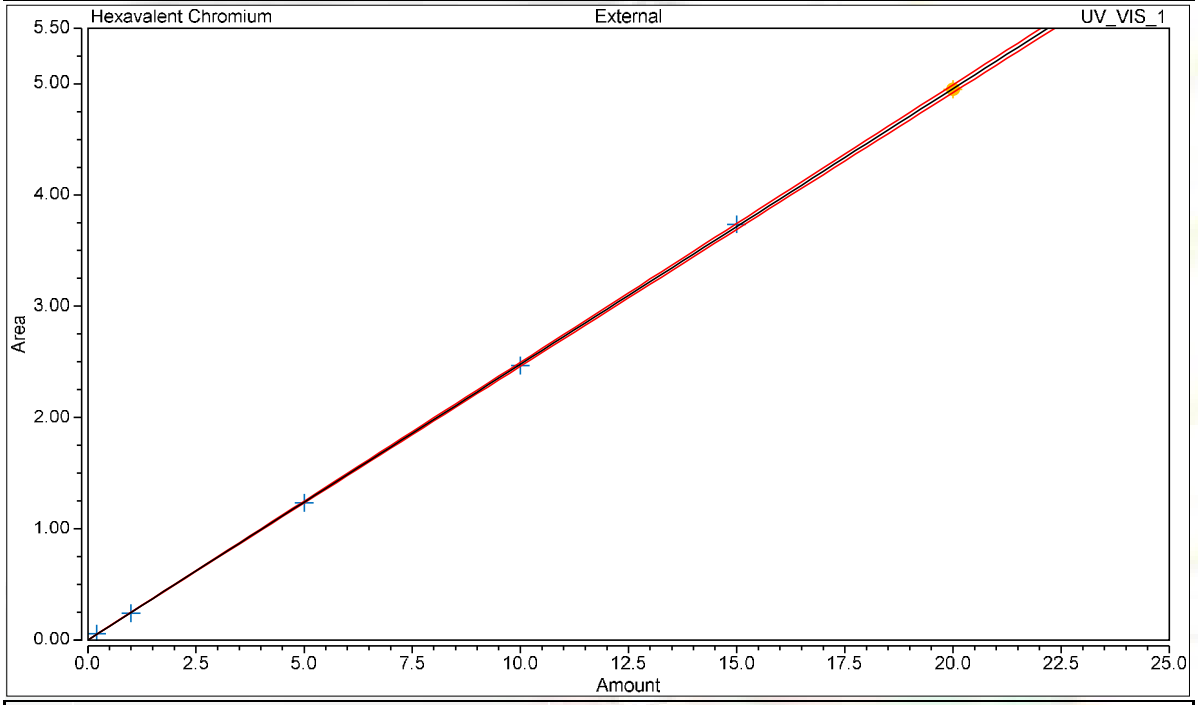

## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 4.951 | 33.317 | 100.00 | 100.00 | 19.9768 |
| **Total:** | | | **4.951** | **33.317** | **100.00** | **100.00** | |

# Initial Calibration Summary

| Calibration Details | Hexavalent Chromium | | |
|---|---|---|---|
| *Calibration Type* | Lin | *Offset (C0)* | 0.0000 |
| *Evaluation Type* | Area | *Slope (C1)* | 0.2478 |
| *Number of Calibration Points* | 6 | *Curve (C2)* | 0.0000 |
| *Number of disabled Calibration Points* | 0 | *R-Square* | 0.99996 |

Calibration Plot Hexavalent Chromium




Calibration Results Hexavalent Chromium

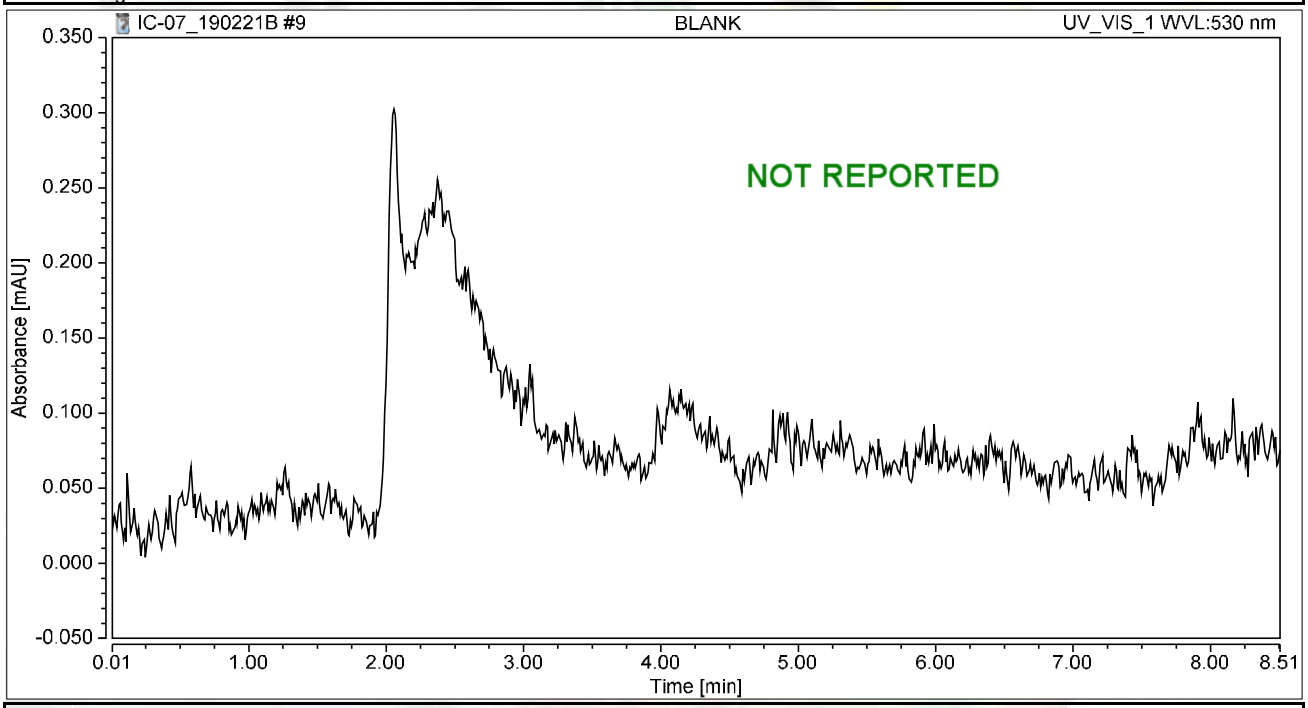
| No. | Injection Name | Calibration Level | X Value | Y Value | Area mAU*min | Height mAU |
|---|---|---|---|---|---|---|
| 3 | STD1-0.2 ppb | 01 | 0.2000 | 0.0556 | 0.056 | 0.412 |
| 4 | STD2-1.0 ppb | 02 | 1.0000 | 0.2392 | 0.239 | 1.738 |
| 5 | STD3-5.0 ppb | 03 | 5.0000 | 1.2310 | 1.231 | 8.323 |
| 6 | STD4-10.0 ppb | 04 | 10.0000 | 2.4655 | 2.466 | 16.618 |
| 7 | STD5-15.0 ppb | 05 | 15.0000 | 3.7365 | 3.736 | 25.276 |
| 8 | STD6-20.0 ppb | 06 | 20.0000 | 4.9505 | 4.951 | 33.317 |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

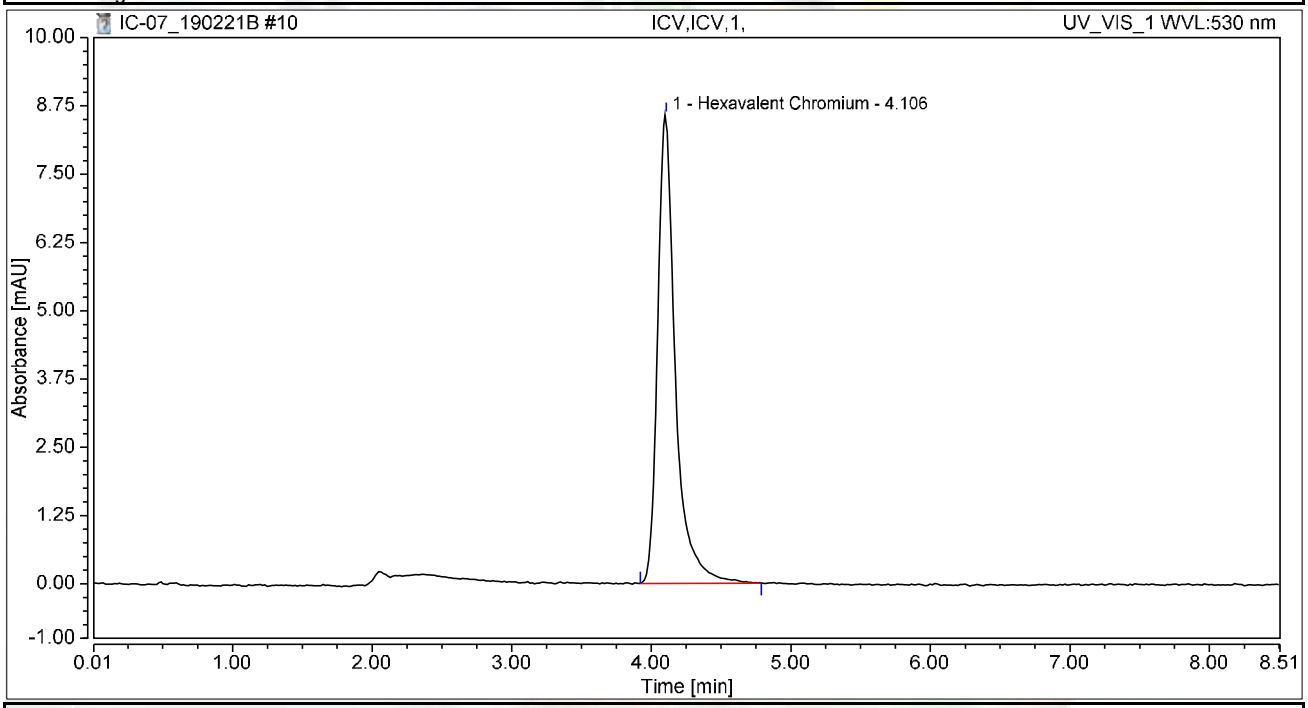
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICV,ICV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:28** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

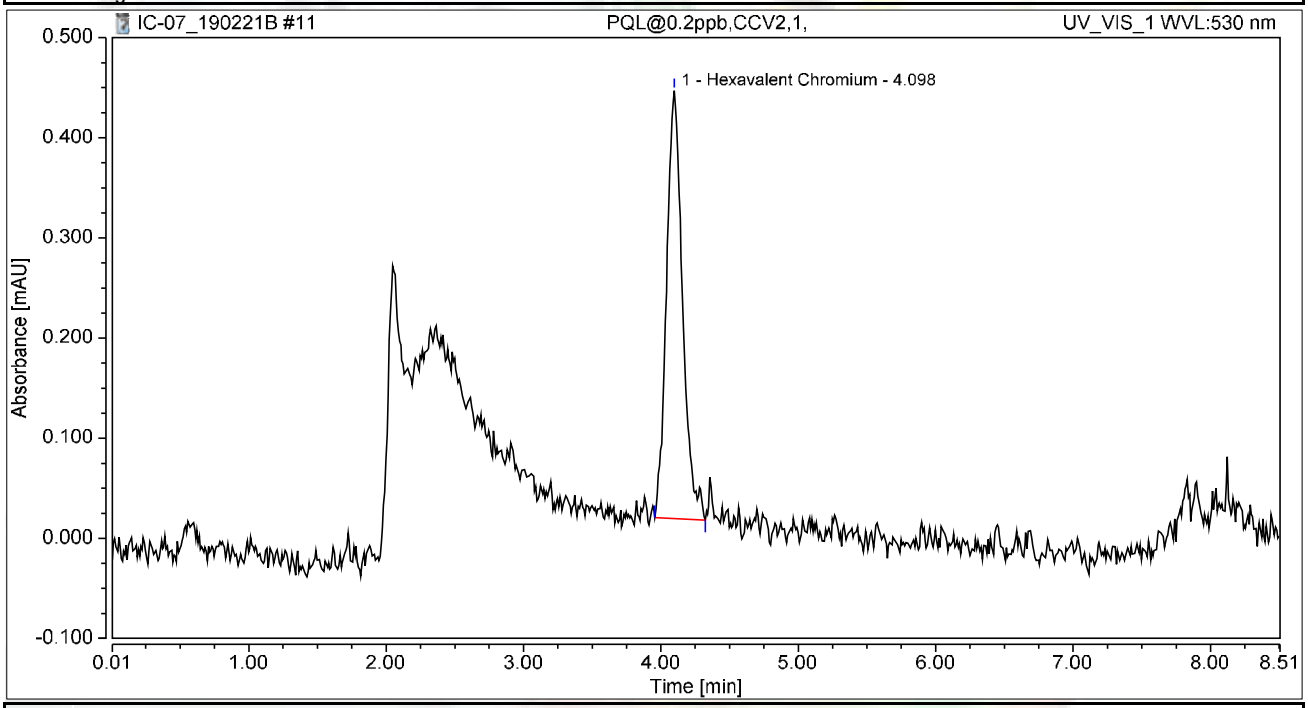
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.270 | 8.585 | 100.00 | 100.00 | 5.1256 |
| **Total:** | | | **1.270** | **8.585** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:37** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

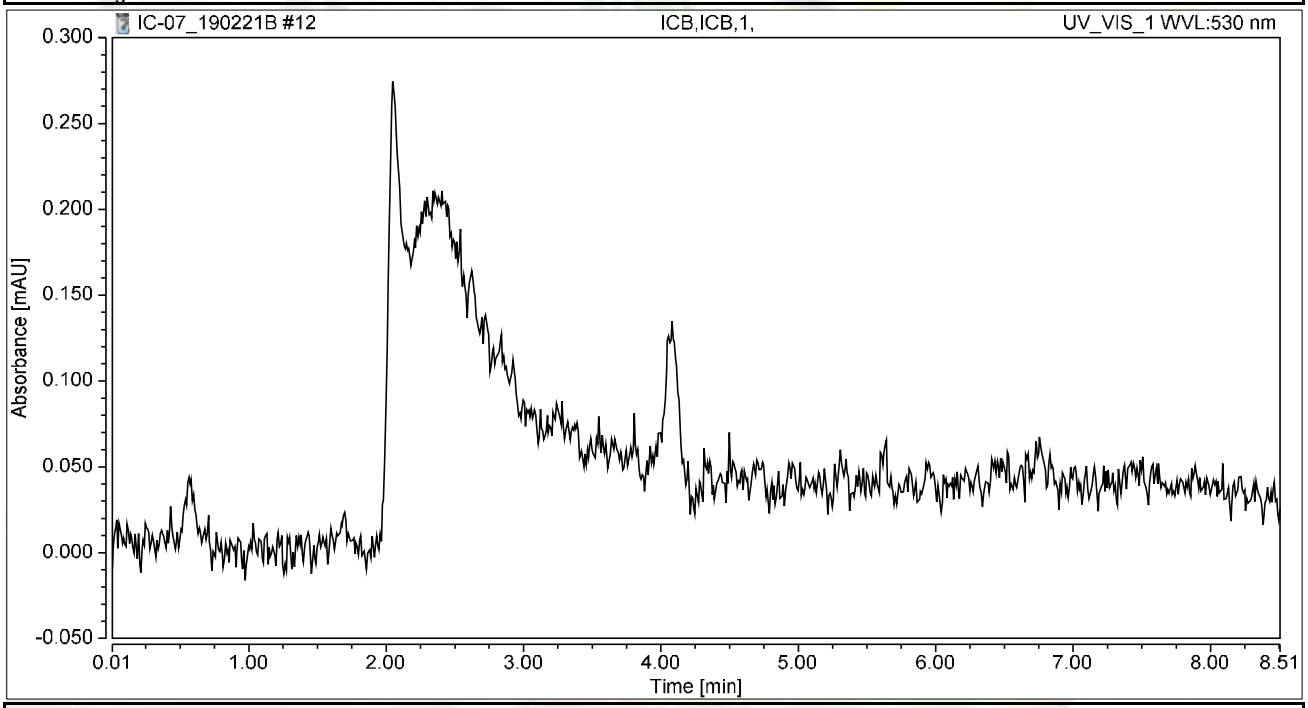
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.058 | 0.427 | 100.00 | 100.00 | 0.2324 |
| **Total:** | | | **0.058** | **0.427** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICB,ICB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:47** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# RAW DATA

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 1:17 PM | Not Reported |
| 10 | ICV | ICV | 1 | Hexavalent Chromium | 02/21/19 1:28 PM | Reported |
| 11 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/21/19 1:37 PM | Reported |
| 12 | ICB | ICB | 1 | Hexavalent Chromium | 02/21/19 1:47 PM | Reported |
| 13 | MB-R132043 | MBLK | 1 | Hexavalent Chromium | 02/21/19 1:56 PM | Reported |
| 14 | LCS-R132043 | LCS | 1 | Hexavalent Chromium | 02/21/19 2:06 PM | Reported |
| 15 | N034269-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:18 PM | Not Reported |
| 16 | N034271-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:30 PM | Not Reported |
| 17 | N034271-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:39 PM | Not Reported |
| 18 | N034104-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:49 PM | Reported |
| 19 | N034107-018A | SAMP | 5 | Hexavalent Chromium | 02/21/19 2:58 PM | Reported |
| 20 | N034269-001AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:08 PM | Not Reported |
| 21 | N034271-002AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:17 PM | Not Reported |
| 22 | N034271-001A | SAMP | 100 | Hexavalent Chromium | 02/21/19 3:27 PM | Reported |
| 23 | CCV-1 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 3:36 PM | Reported |
| 24 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/21/19 3:46 PM | Reported |
| 25 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 3:55 PM | Not Reported |
| 26 | N034269-001A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:03 PM | Reported |
| 27 | N034269-001AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:14 PM | Reported |
| 28 | N034271-002A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:24 PM | Not Reported |
| 29 | N034271-002AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:33 PM | Not Reported |
| 30 | N034104-009AMS | MS | 1 | Hexavalent Chromium | 02/21/19 4:43 PM | Reported |
| 31 | N034104-009AMSD | MSD | 1 | Hexavalent Chromium | 02/21/19 4:52 PM | Reported |
| 32 | N034107-018ADUP | DUP | 5 | Hexavalent Chromium | 02/21/19 5:02 PM | Reported |
| 33 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 5:11 PM | Reported |
| 34 | N034271-002A | SAMP | 10 | Hexavalent Chromium | 02/21/19 5:20 PM | Not Reported |
| 35 | CCV-2 | CCV | 1 | Hexavalent Chromium | 02/21/19 5:30 PM | Reported |
| 36 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/21/19 5:39 PM | Reported |
| 37 | N034271-002AMS | MS | 10 | Hexavalent Chromium | 02/21/19 5:52 PM | Not Reported |
| 38 | N034121-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:03 PM | Reported |
| 39 | N034121-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:13 PM | Reported |
| 40 | N034121-003A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:22 PM | Reported |
| 41 | N034121-004A | SAMP | 50 | Hexavalent Chromium | 02/21/19 6:32 PM | Reported |
| 42 | N034121-005A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:41 PM | Reported |

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034121-006A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:50 PM | Reported |
| 44 | N034121-007A | SAMP | 20 | Hexavalent Chromium | 02/21/19 7:00 PM | Reported |
| 45 | N034121-008A | SAMP | 5 | Hexavalent Chromium | 02/21/19 7:09 PM | Not Reported |
| 46 | N034121-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:19 PM | Reported |
| 47 | CCV-3 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 7:28 PM | Reported |
| 48 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/21/19 7:38 PM | Reported |
| 49 | N034121-010A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:47 PM | Not Reported |
| 50 | N034121-011A | SAMP | 10 | Hexavalent Chromium | 02/21/19 7:57 PM | Reported |
| 51 | N034121-008A | SAMP | 10 | Hexavalent Chromium | 02/21/19 8:06 PM | Reported |
| 52 | N034121-011A | SAMP | 20 | Hexavalent Chromium | 02/21/19 8:16 PM | Not Reported |
| 53 | CCV-4 | CCV | 1 | Hexavalent Chromium | 02/21/19 8:25 PM | Reported |
| 54 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/21/19 8:35 PM | Reported |
| 55 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 8:44 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190221B** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **22/Feb/19 08:53:05** |
| *No. of Injections:* | **58** | *Updated By:* | **ics 5000** |

## Injection Details

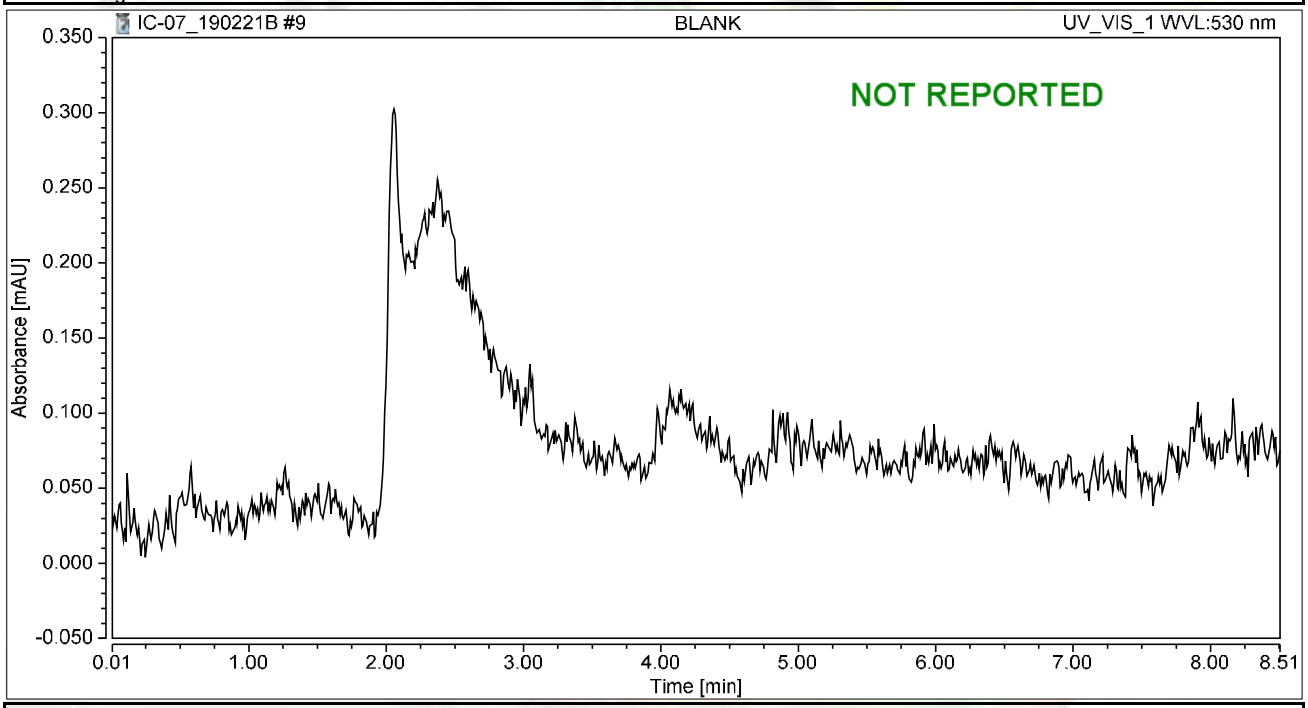
| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 9 | 1000 | Unknown | | 02/21/2019 13:17 | Finished | BLANK |
| 10 | ICV,ICV,1, | 10 | 1000 | Unknown | | 02/21/2019 13:28 | Finished | ICV @5ppb, IWST-190221B |
| 11 | PQL@0.2ppb,CCV2,1 | 11 | 1000 | Unknown | | 02/21/2019 13:37 | Finished | PQL @ 0.2ppb |
| 12 | ICB,ICB,1, | 12 | 1000 | Unknown | | 02/21/2019 13:47 | Finished | ICB R190115A |
| 13 | MB-H2O,MBLK,1, | 13 | 1000 | Unknown | | 02/21/2019 13:56 | Finished | MB R190115A |
| 14 | LCS-H2O,LCS,1, | 14 | 1000 | Unknown | | 02/21/2019 14:06 | Finished | LCS @5ppb, IWST-190221B |
| 15 | N034269-001A,SAMF | 16 | 1000 | Unknown | | 02/21/2019 14:18 | Finished | SAMP,10mL |
| 16 | N034271-001A,SAMF | 17 | 1000 | Unknown | | 02/21/2019 14:30 | Finished | SAMP,10mL |
| 17 | N034271-002A,SAMF | 18 | 1000 | Unknown | | 02/21/2019 14:39 | Finished | SAMP,10mL |
| 18 | N034104-009A,SAMF | 19 | 1000 | Unknown | | 02/21/2019 14:49 | Finished | SAMP,10mL |
| 19 | N034107-018A,SAMF | 20 | 1000 | Unknown | | 02/21/2019 14:58 | Finished | SAMP,2>10mL |
| 20 | N034269-001AMS,MS | 21 | 1000 | Unknown | | 02/21/2019 15:08 | Finished | SAMP,10mL |
| 21 | N034271-002AMS,MS | 22 | 1000 | Unknown | | 02/21/2019 15:17 | Finished | SAMP,10mL |
| 22 | N034271-001A,SAMF | 23 | 1000 | Unknown | | 02/21/2019 15:27 | Finished | SAMP,10mL |
| 23 | CCV-1,CCV1,1, | 24 | 1000 | Unknown | | 02/21/2019 15:36 | Finished | CCV @10ppb, IWST-190221A |
| 24 | CCB-1,CCB,1, | 25 | 1000 | Unknown | | 02/21/2019 15:46 | Finished | CCB R190115A |
| 25 | N034271-001AMS,MS | 26 | 1000 | Unknown | | 02/21/2019 15:55 | Interrupted | SAMP,2>10mL |
| 26 | N034269-001A,SAMF | 27 | 1000 | Unknown | | 02/21/2019 16:03 | Finished | SAMP,2>10mL |
| 27 | N034269-001AMS,MS | 28 | 1000 | Unknown | | 02/21/2019 16:14 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 28 | N034271-002A,SAMF | 29 | 1000 | Unknown | | 02/21/2019 16:24 | Finished | SAMP,2>10mL |
| 29 | N034271-002AMS,MS | 30 | 1000 | Unknown | | 02/21/2019 16:33 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 30 | N034104-009AMS,MS | 31 | 1000 | Unknown | | 02/21/2019 16:43 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034104-009AMSD,M | 32 | 1000 | Unknown | | 02/21/2019 16:52 | Finished | MSD (1ppb), IWST-190221B,10 |
| 32 | N034107-018ADUP,D | 33 | 1000 | Unknown | | 02/21/2019 17:02 | Finished | DUP,10mL |
| 33 | N034271-001AMS,MS | 34 | 1000 | Unknown | | 02/21/2019 17:11 | Finished | SAMP,10mL |
| 34 | N034271-002A,SAMF | 35 | 1000 | Unknown | | 02/21/2019 17:20 | Finished | SAMP,1>10mL |
| 35 | CCV-2,CCV,1, | 36 | 1000 | Unknown | | 02/21/2019 17:30 | Finished | CCV @5ppb, IWST-190221A |
| 36 | CCB-2,CCB,1, | 37 | 1000 | Unknown | | 02/21/2019 17:39 | Finished | CCB R190115A |
| 37 | N034271-002AMS,MS | 1 | 1000 | Unknown | | 02/21/2019 17:52 | Finished | MS (1ppb), IWST-190221B,1>1 |
| 38 | N034121-001A,SAMF | 2 | 1000 | Unknown | | 02/21/2019 18:03 | Finished | SAMP,10mL |
| 39 | N034121-002A,SAMF | 3 | 1000 | Unknown | | 02/21/2019 18:13 | Finished | SAMP,10mL |
| 40 | N034121-003A,SAMF | 4 | 1000 | Unknown | | 02/21/2019 18:22 | Finished | SAMP,10mL |
| 41 | N034121-004A,SAMF | 5 | 1000 | Unknown | | 02/21/2019 18:32 | Finished | SAMP,10mL |
| 42 | N034121-005A,SAMF | 6 | 1000 | Unknown | | 02/21/2019 18:41 | Finished | SAMP,10mL |
| 43 | N034121-006A,SAMF | 7 | 1000 | Unknown | | 02/21/2019 18:50 | Finished | SAMP,10mL |
| 44 | N034121-007A,SAMF | 8 | 1000 | Unknown | | 02/21/2019 19:00 | Finished | SAMP,10mL |
| 45 | N034121-008A,SAMF | 9 | 1000 | Unknown | | 02/21/2019 19:09 | Finished | SAMP,10mL |
| 46 | N034121-009A,SAMF | 10 | 1000 | Unknown | | 02/21/2019 19:19 | Finished | SAMP,10mL |
| 47 | CCV-3,CCV1,1, | 11 | 1000 | Unknown | | 02/21/2019 19:28 | Finished | CCV @10ppb, IWST-190221A |
| 48 | CCB-3,CCB,1, | 12 | 1000 | Unknown | | 02/21/2019 19:38 | Finished | CCB R190115A |
| 49 | N034121-010A,SAMF | 13 | 1000 | Unknown | | 02/21/2019 19:47 | Finished | SAMP,10mL |
| 50 | N034121-011A,SAMF | 14 | 1000 | Unknown | | 02/21/2019 19:57 | Finished | SAMP,10mL |
| 51 | N034121-008A,SAMF | 15 | 1000 | Unknown | | 02/21/2019 20:06 | Finished | SAMP,1>10mL |
| 52 | N034121-011A,SAMF | 16 | 1000 | Unknown | | 02/21/2019 20:16 | Finished | SAMP,1>10mL |
| 53 | CCV-4,CCV,1, | 17 | 1000 | Unknown | | 02/21/2019 20:25 | Finished | CCV @5ppb, IWST-190221A |
| 54 | CCB-4,CCB,1, | 18 | 1000 | Unknown | | 02/21/2019 20:35 | Finished | CCB R190115A |
| 55 | BLANK | 19 | 1000 | Unknown | | 02/21/2019 20:44 | Finished | BLANK |
| 56 | SHUTDOWN | 20 | 1000 | Unknown | | 02/21/2019 20:53 | Finished | |
| 57 | Eluent: R190219B | 21 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 58 | PCR: R190220A | 22 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

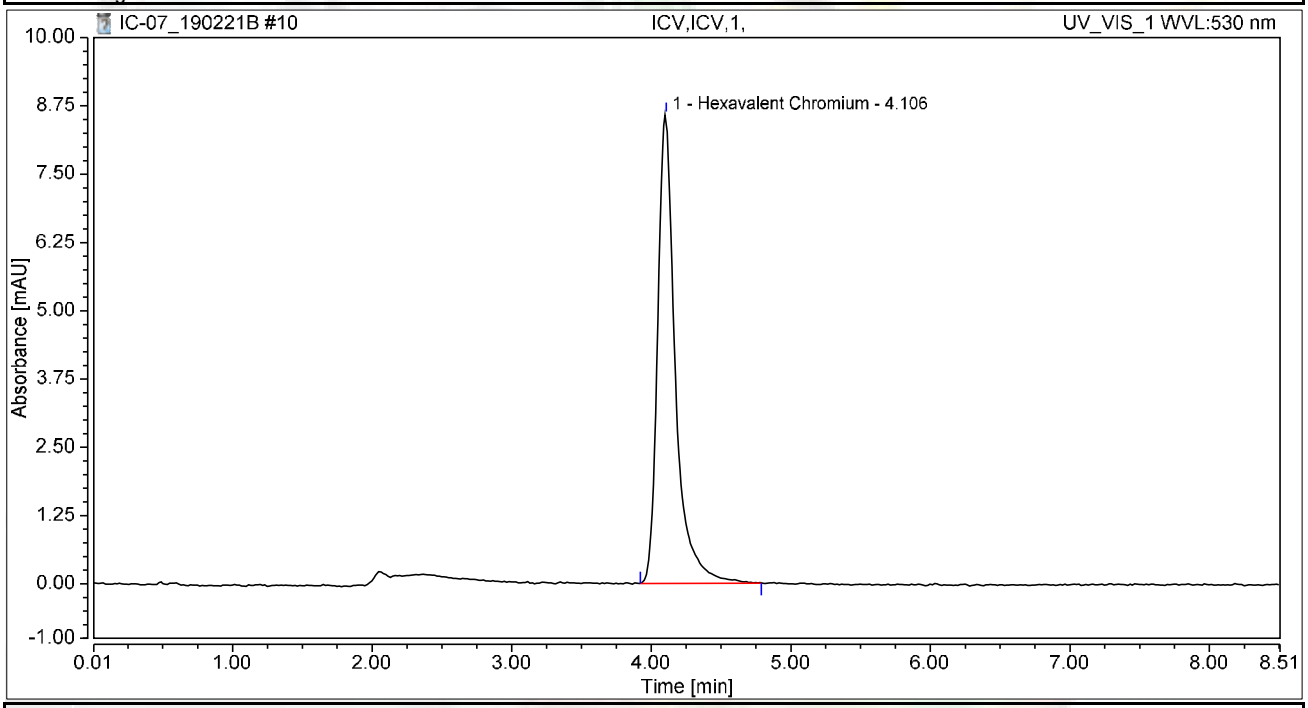
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICV,ICV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:28** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

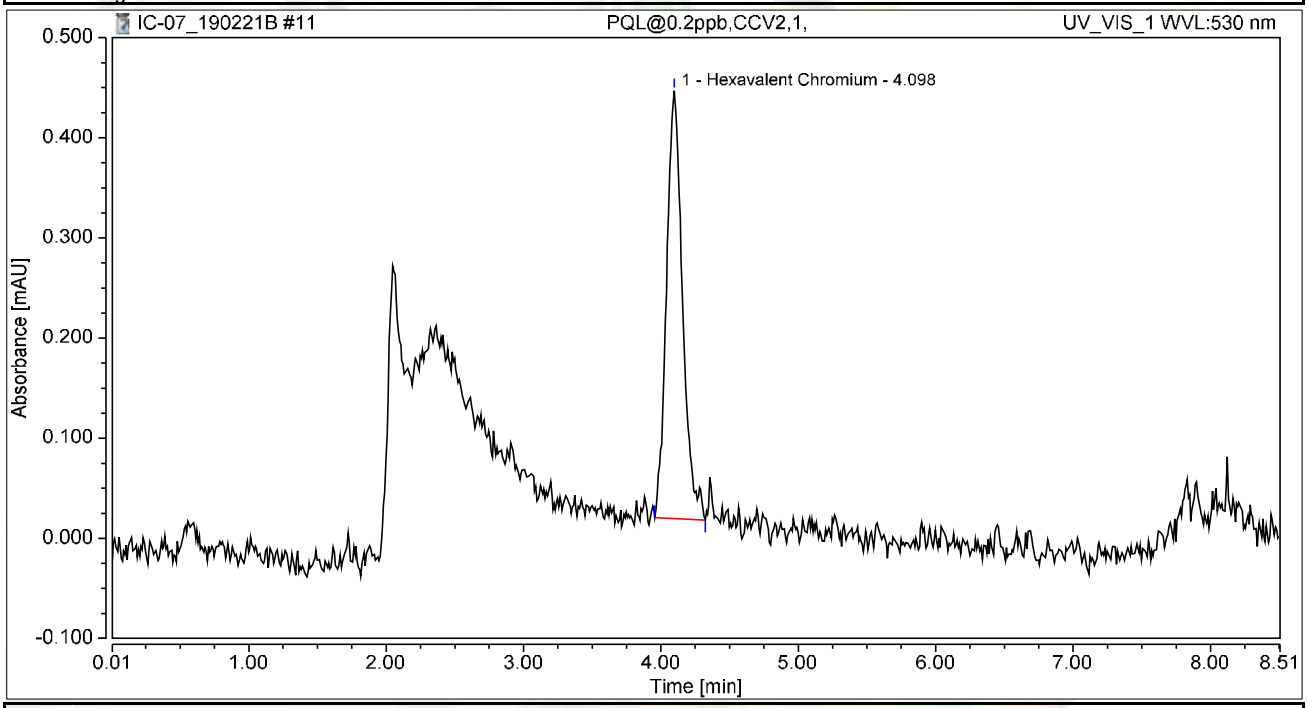
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.270 | 8.585 | 100.00 | 100.00 | 5.1256 |
| **Total:** | | | **1.270** | **8.585** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:37** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

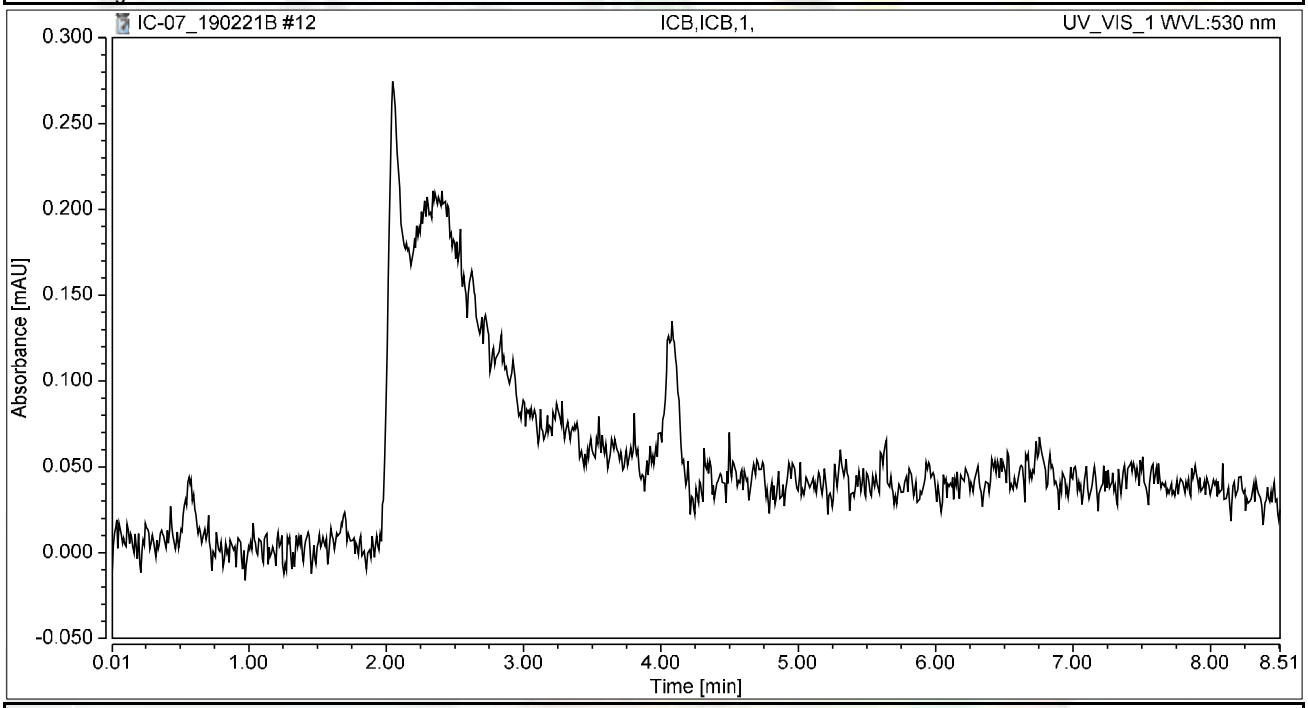
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.058 | 0.427 | 100.00 | 100.00 | 0.2324 |
| **Total:** | | | **0.058** | **0.427** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICB,ICB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:47** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

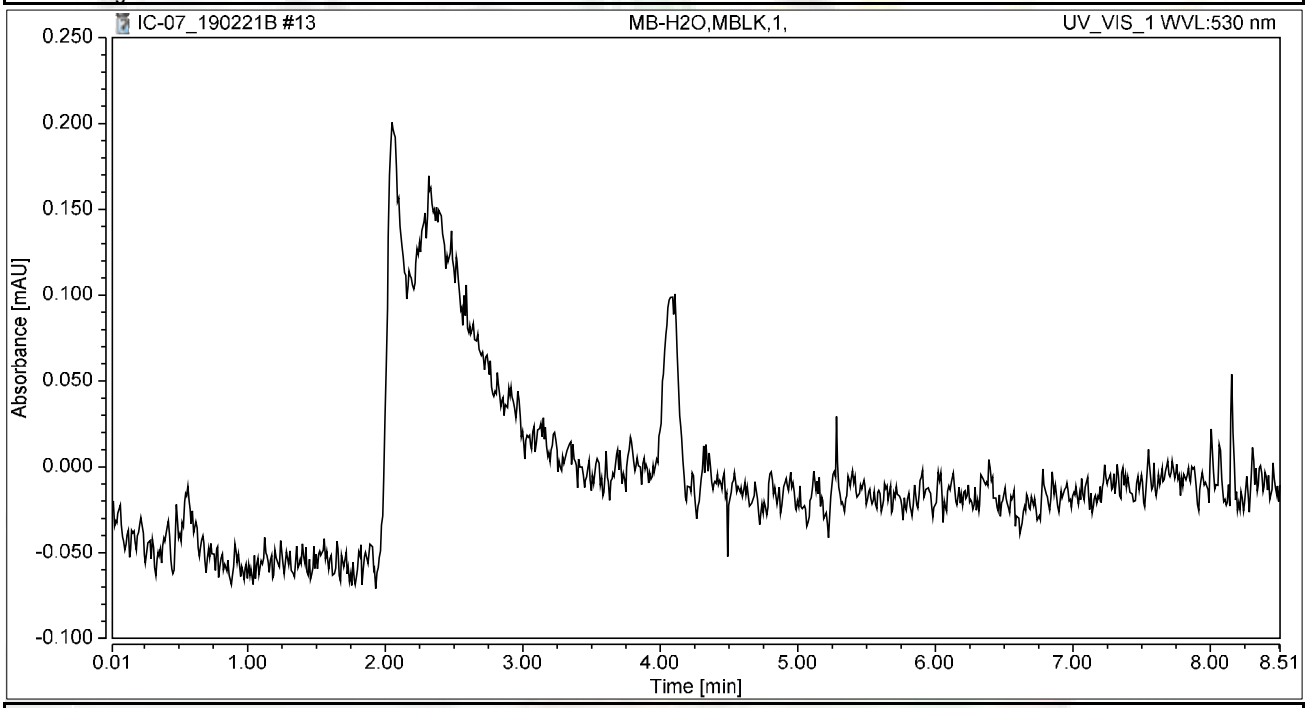
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **MB-H2O,MBLK,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:56** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

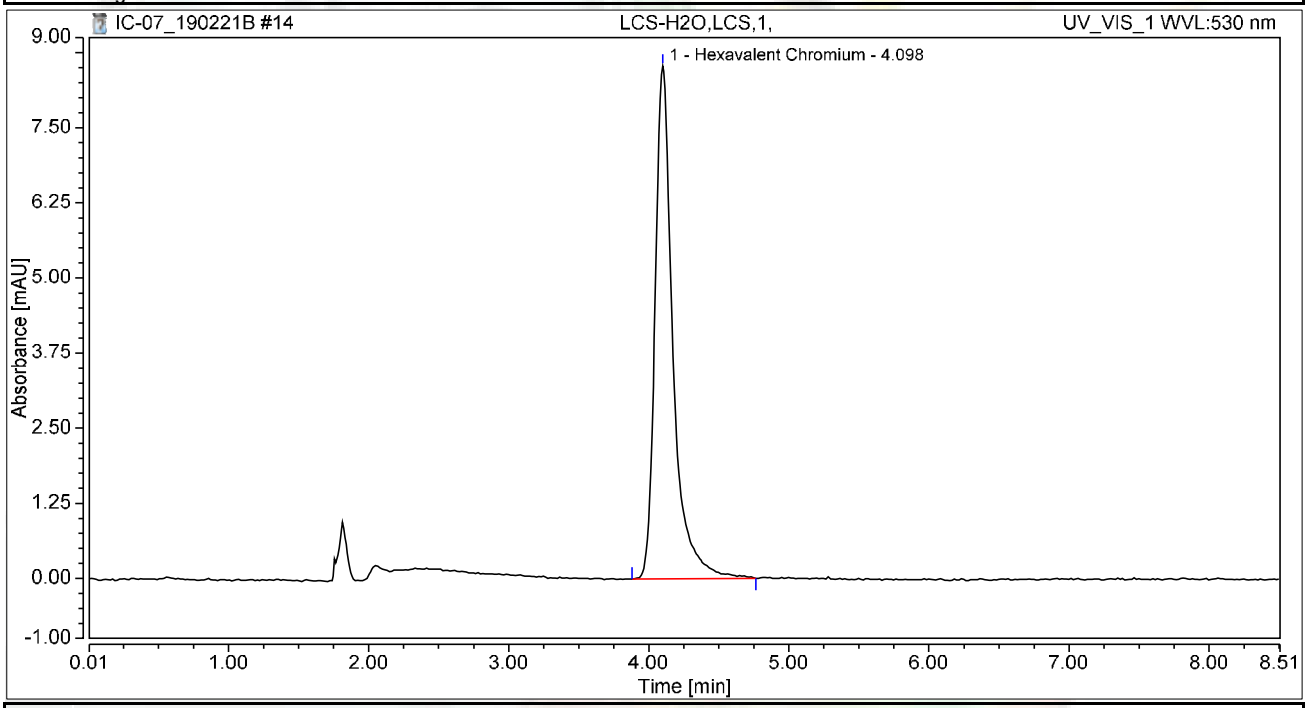
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **LCS-H2O,LCS,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 14:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

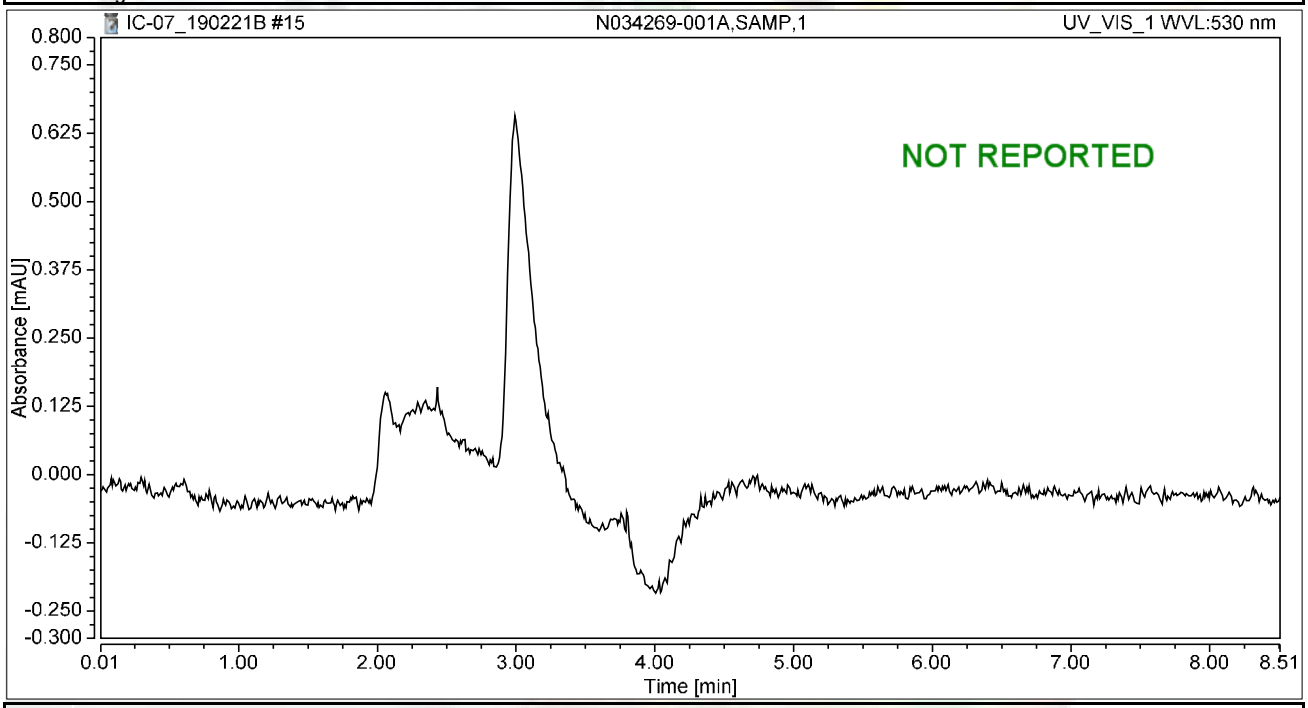
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.265 | 8.537 | 100.00 | 100.00 | 5.1062 |
| **Total:** | | | **1.265** | **8.537** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034269-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 14:18** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

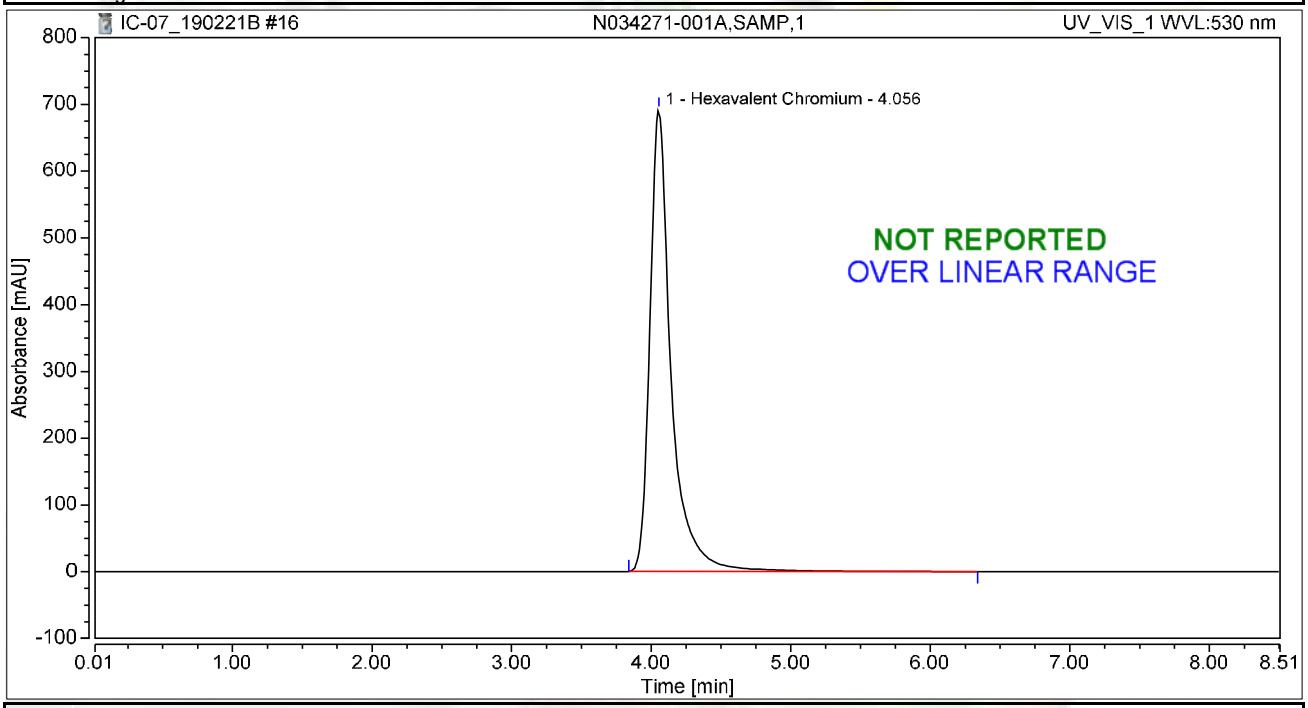
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034271-001A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 14:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

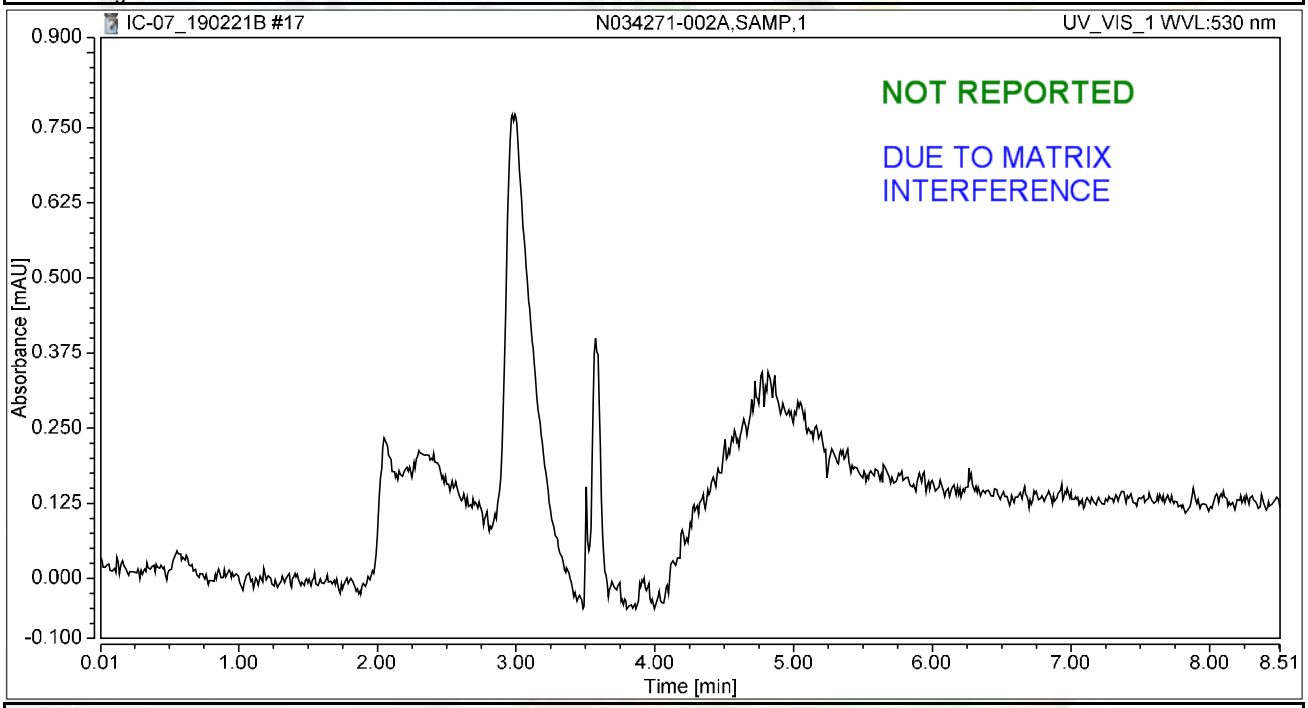
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.056 | 122.116 | 691.868 | 100.00 | 100.00 | 492.7744 |
| **Total:** | | | **122.116** | **691.868** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034271-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 14:39** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

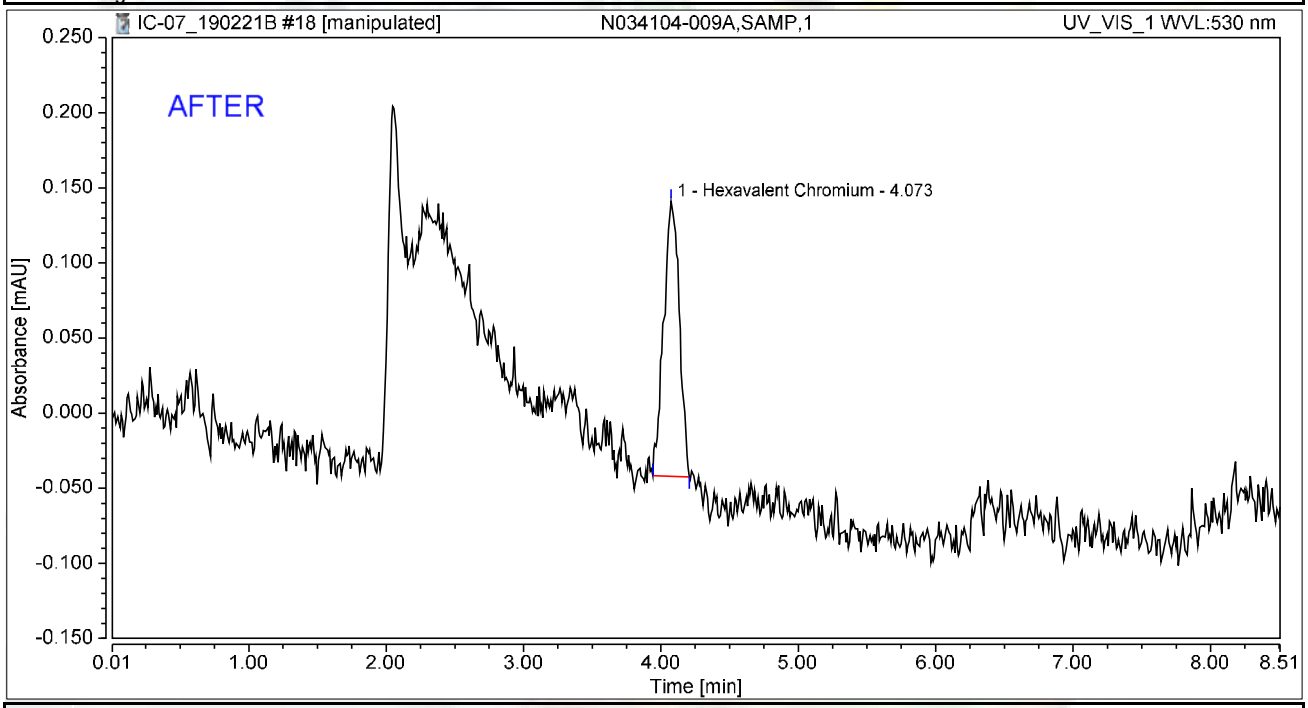
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-009A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 14:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 0.024 | 0.183 | 100.00 | 100.00 | 0.0975 |
| **Total:** | | | **0.024** | **0.183** | **100.00** | **100.00** | |

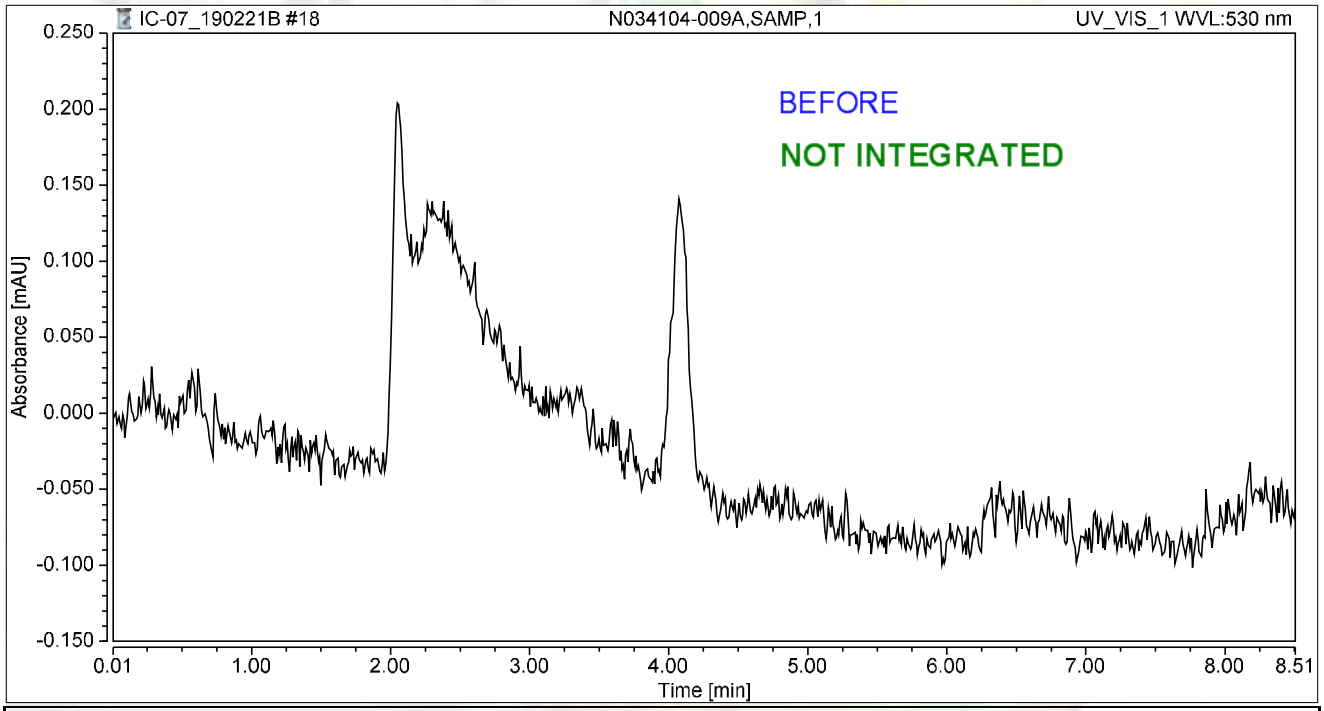
Reviewed by:
Nancy 2/26/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-009A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 14:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

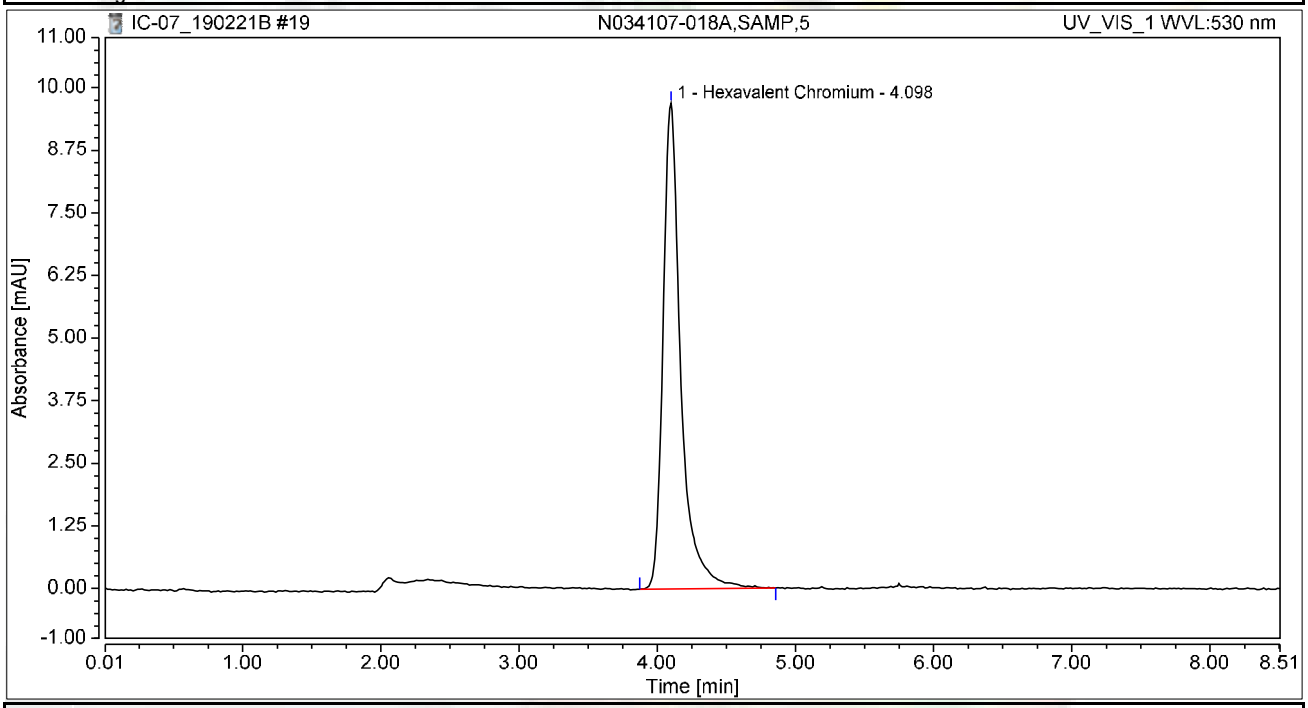
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-018A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **20** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 14:58** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

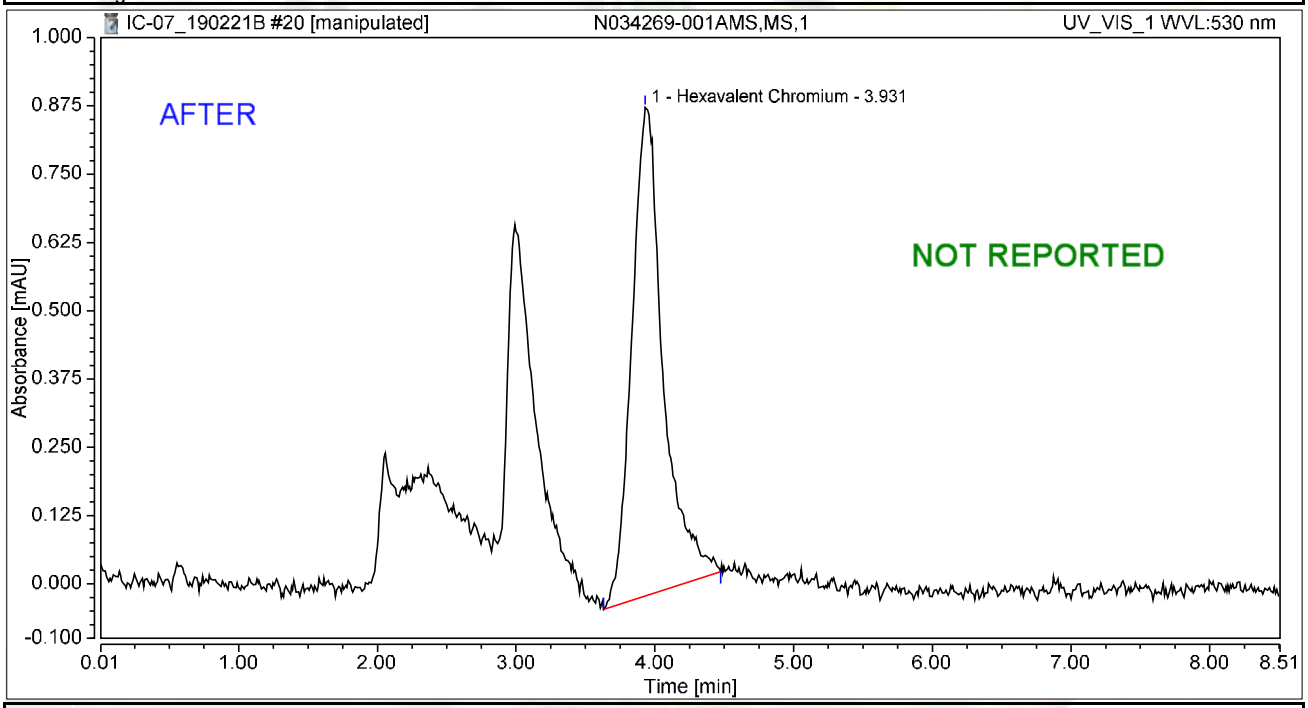
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.451 | 9.703 | 100.00 | 100.00 | 5.8554 |
| **Total:** | | | **1.451** | **9.703** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034269-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 15:08** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

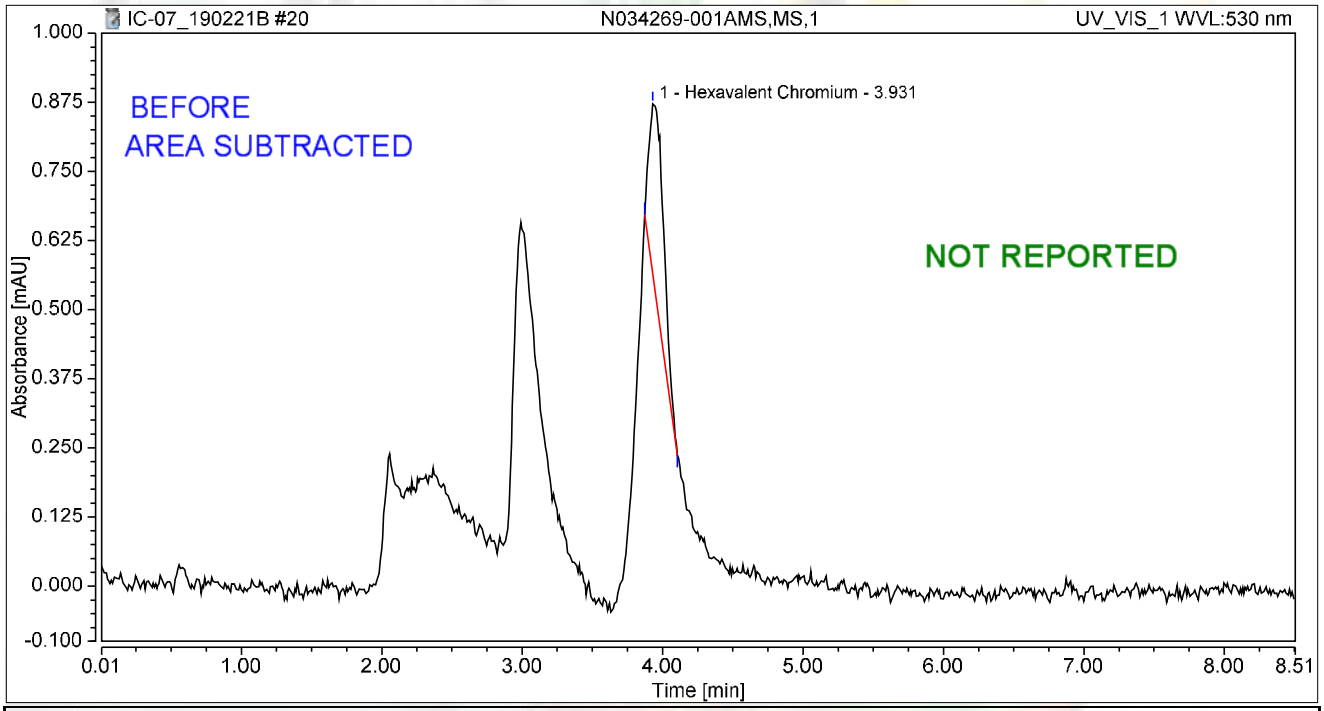
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.931 | 0.235 | 0.894 | 100.00 | 100.00 | 0.9468 |
| **Total:** | | | **0.235** | **0.894** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034269-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 15:08** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

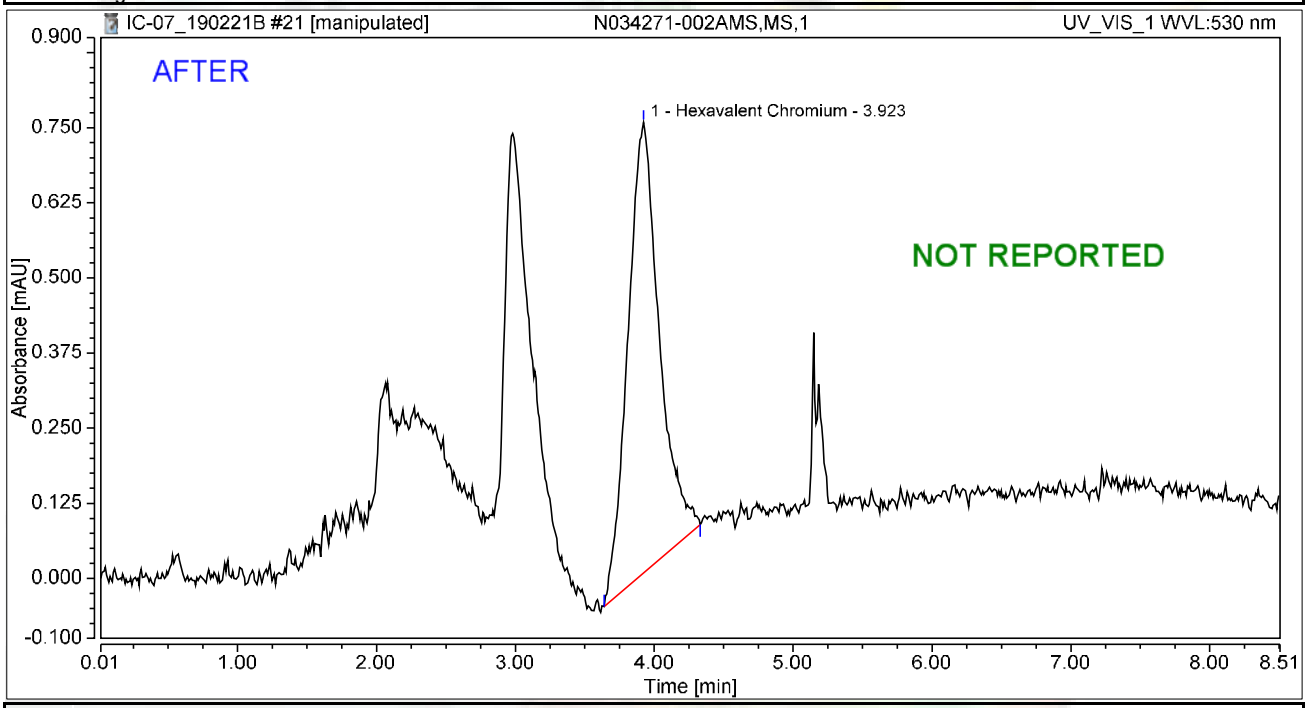
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.931 | 0.041 | 0.309 | 100.00 | 100.00 | 0.1644 |
| **Total:** | | | **0.041** | **0.309** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034271-002AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 15:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

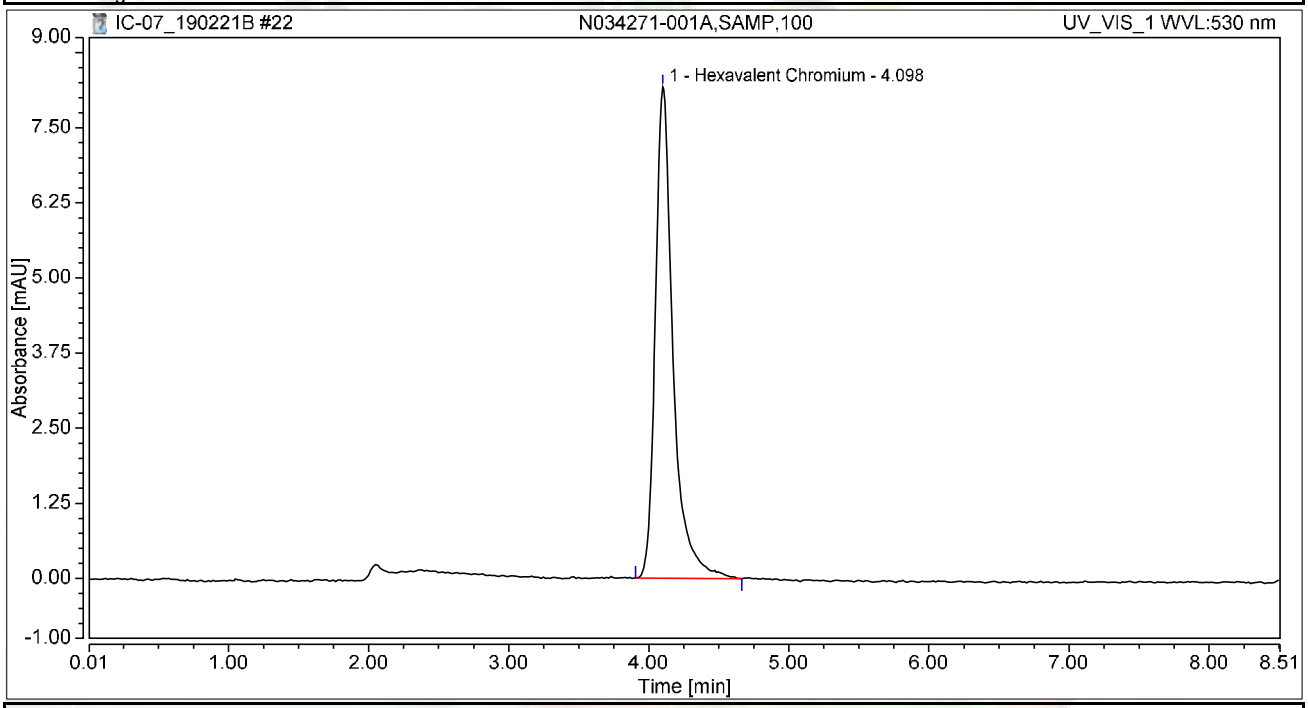
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.923 | 0.197 | 0.750 | 100.00 | 100.00 | 0.7969 |
| **Total:** | | | **0.197** | **0.750** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034271-001A,SAMP,100** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **23** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 15:27** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

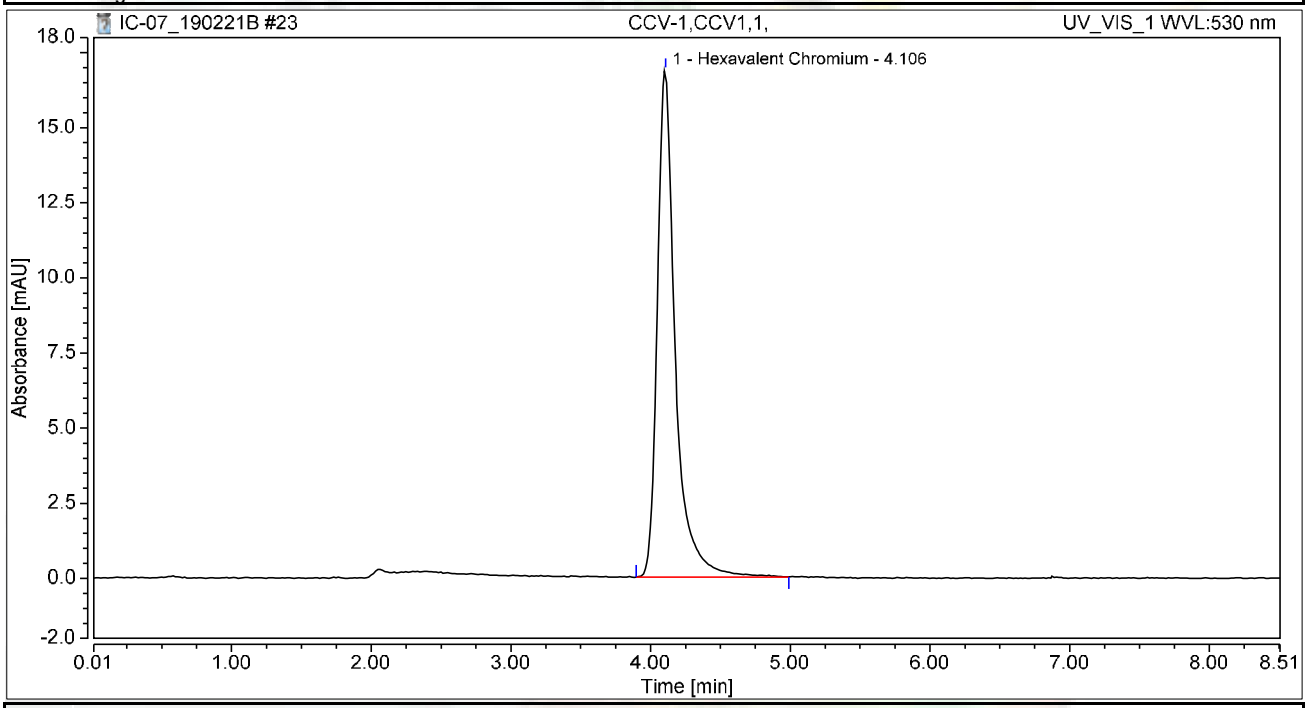
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.199 | 8.180 | 100.00 | 100.00 | 4.8392 |
| **Total:** | | | **1.199** | **8.180** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-1,CCV1,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **24** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 15:36** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

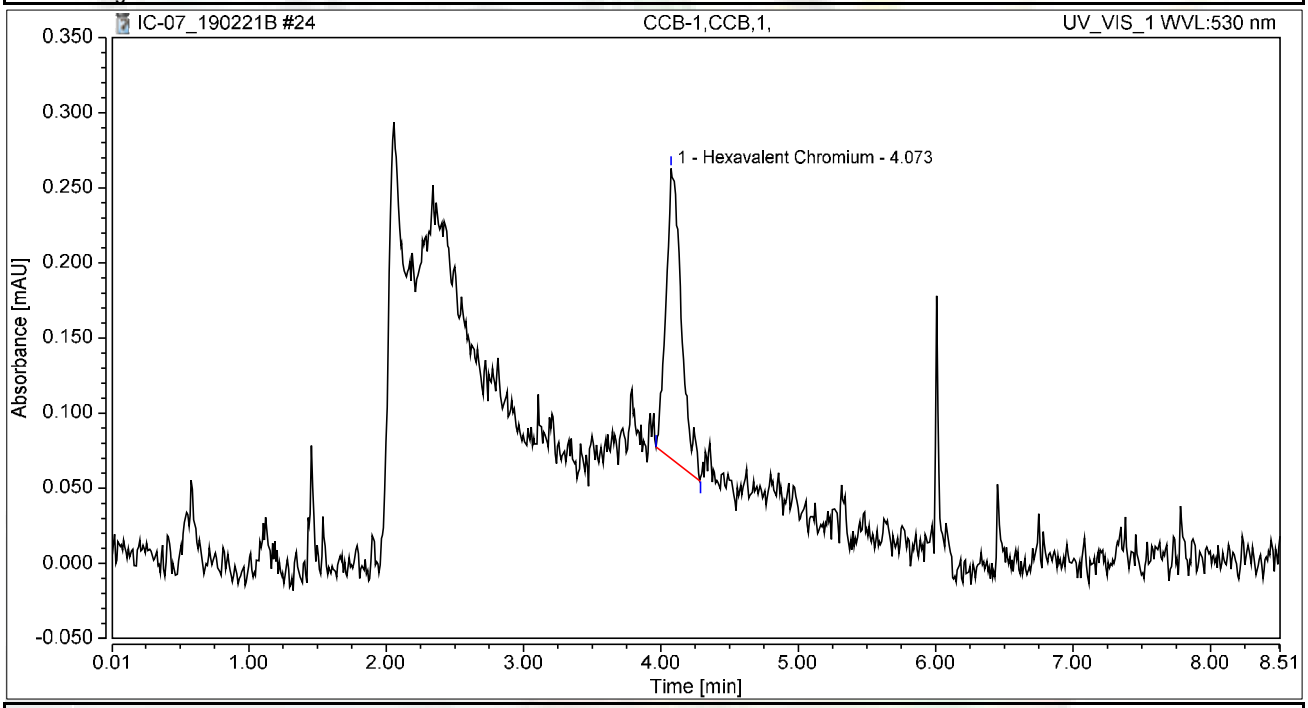
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 2.514 | 16.870 | 100.00 | 100.00 | 10.1454 |
| **Total:** | | | **2.514** | **16.870** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-1,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 15:46** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

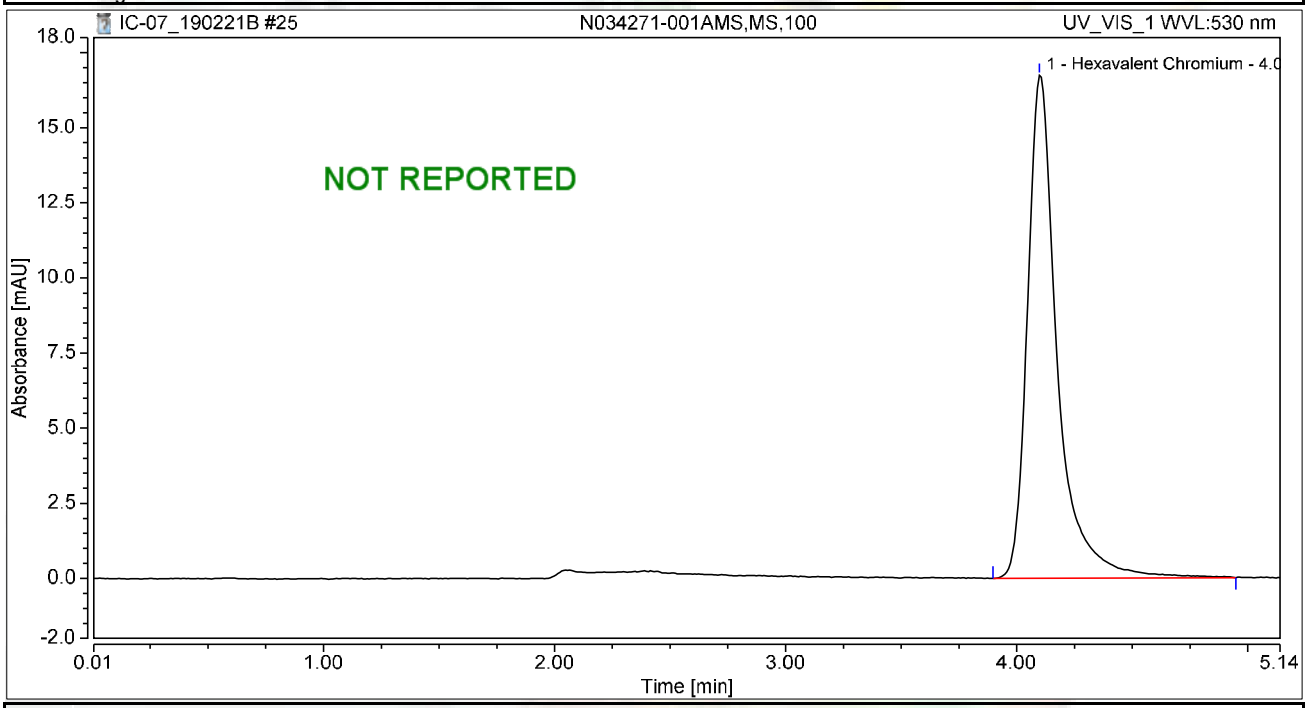
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 0.025 | 0.193 | 100.00 | 100.00 | 0.1017 |
| **Total:** | | | **0.025** | **0.193** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034271-001AMS,MS,100** | *Run Time (min):* | **5.13** |
| *Vial Number:* | **26** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 15:55** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

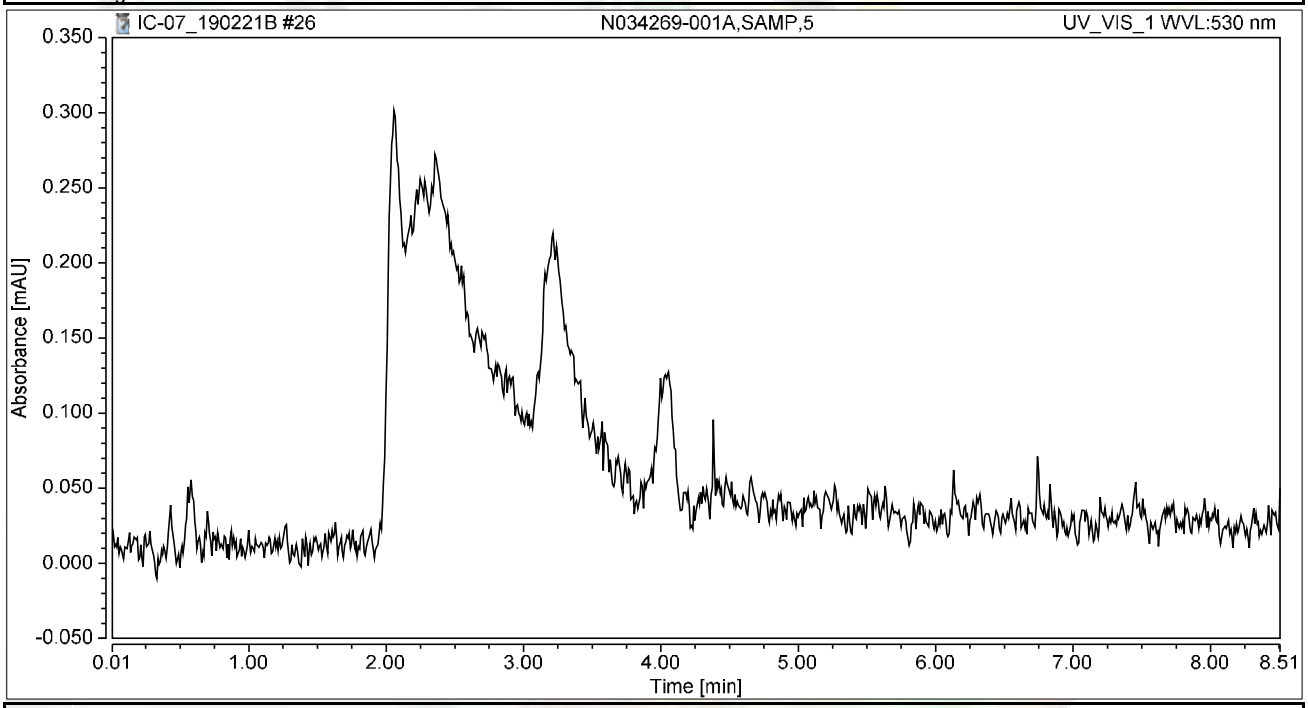
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.502 | 16.736 | 100.00 | 100.00 | 10.0958 |
| **Total:** | | | **2.502** | **16.736** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034269-001A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 16:03** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

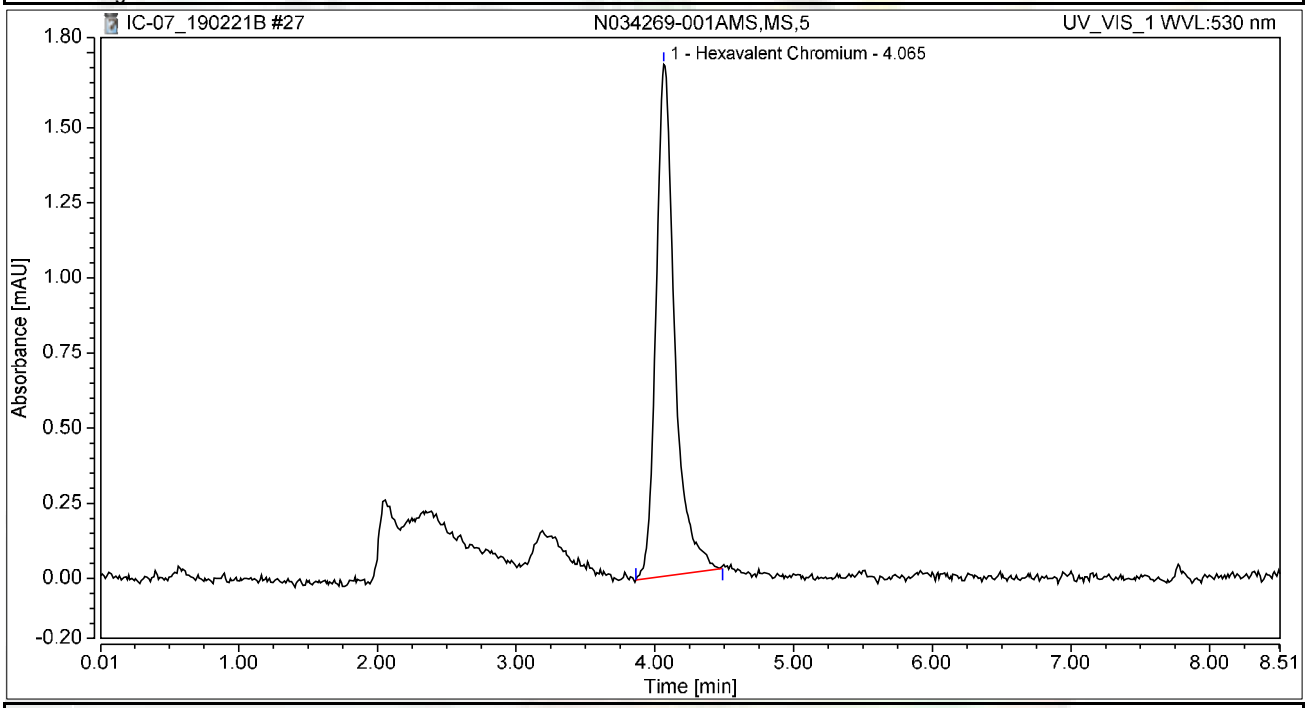
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034269-001AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **28** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 16:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

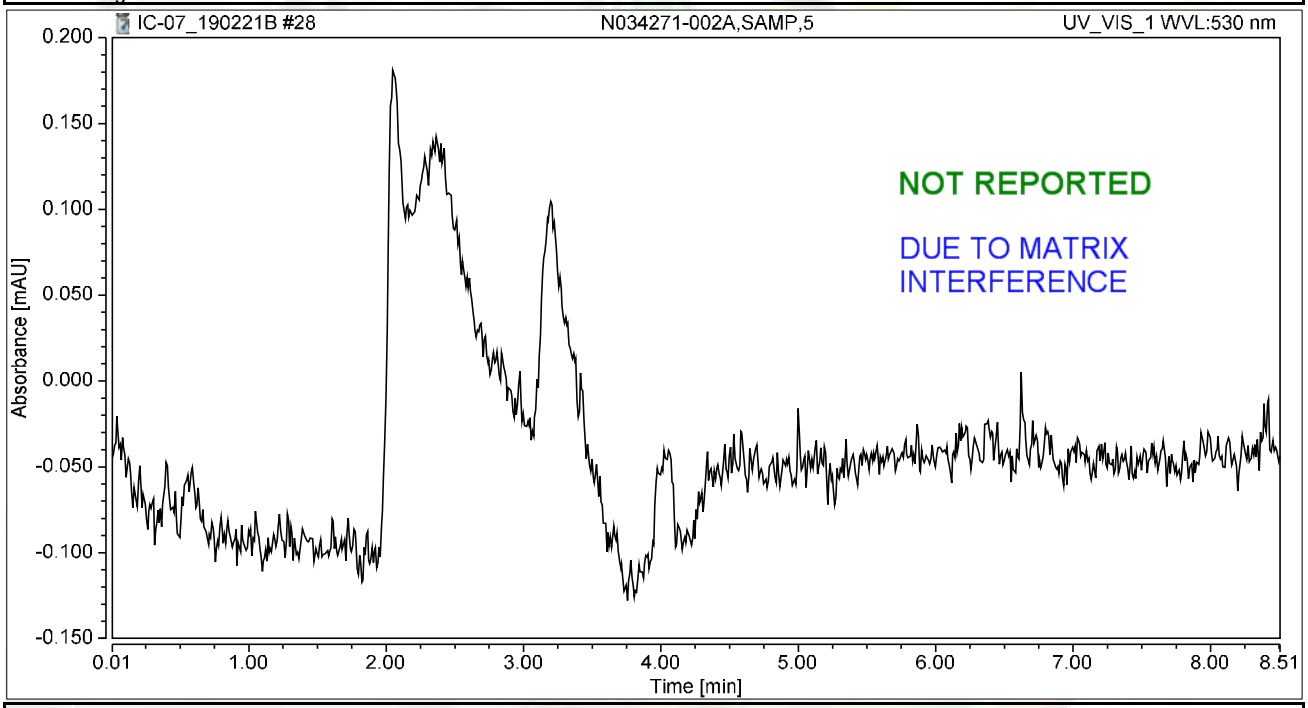
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.065 | 0.267 | 1.704 | 100.00 | 100.00 | 1.0768 |
| **Total:** | | | **0.267** | **1.704** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034271-002A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **29** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 16:24** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

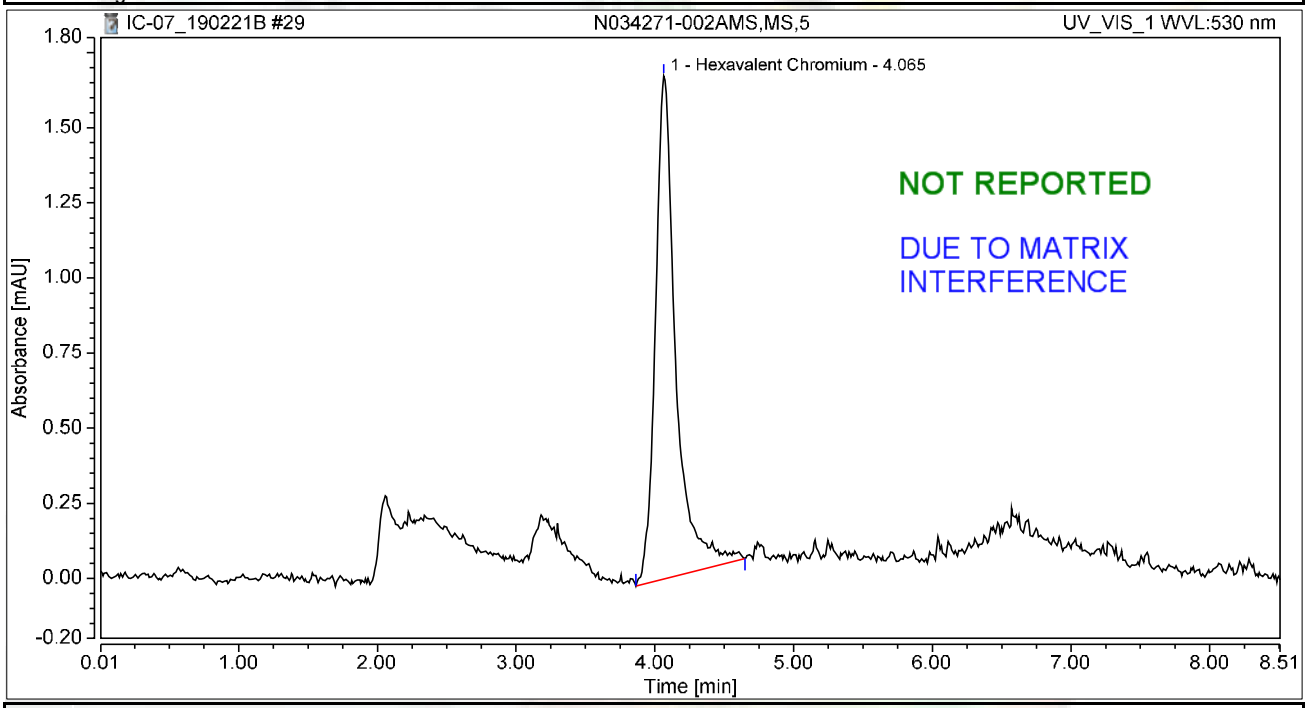
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034271-002AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **30** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 16:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

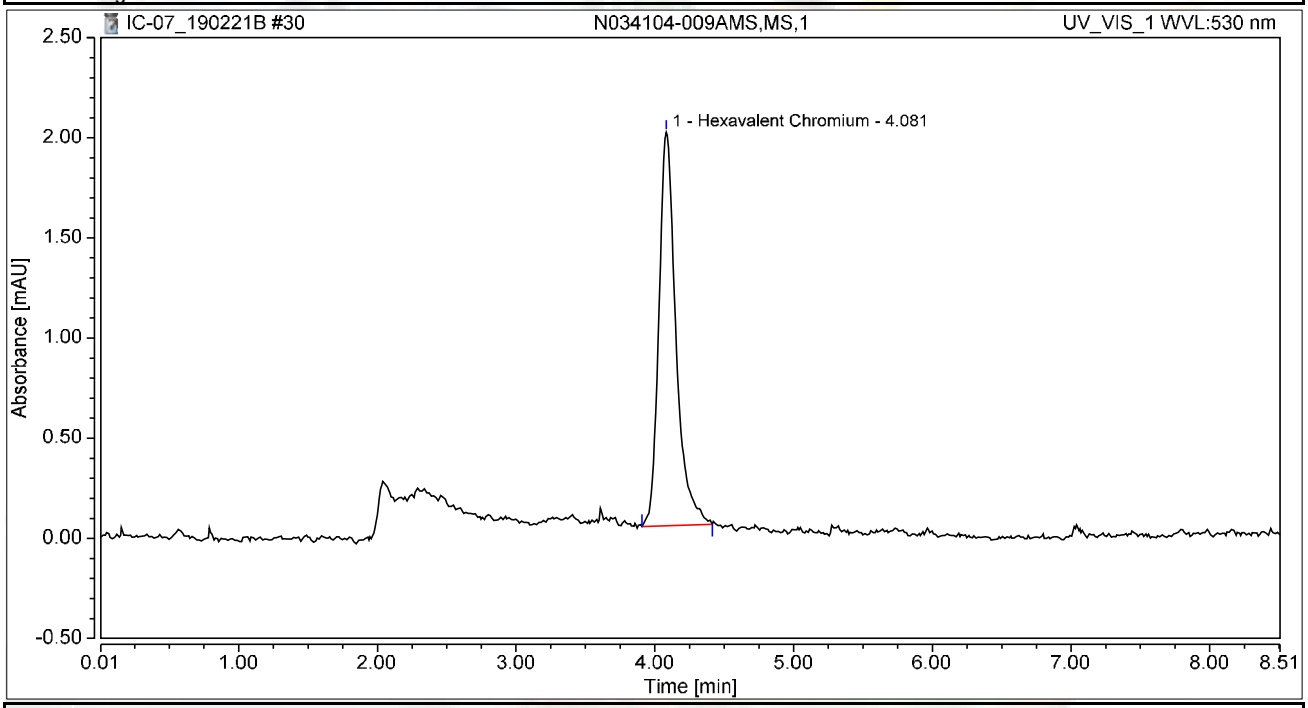
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.065 | 0.286 | 1.674 | 100.00 | 100.00 | 1.1524 |
| **Total:** | | | **0.286** | **1.674** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-009AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **31** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 16:43** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

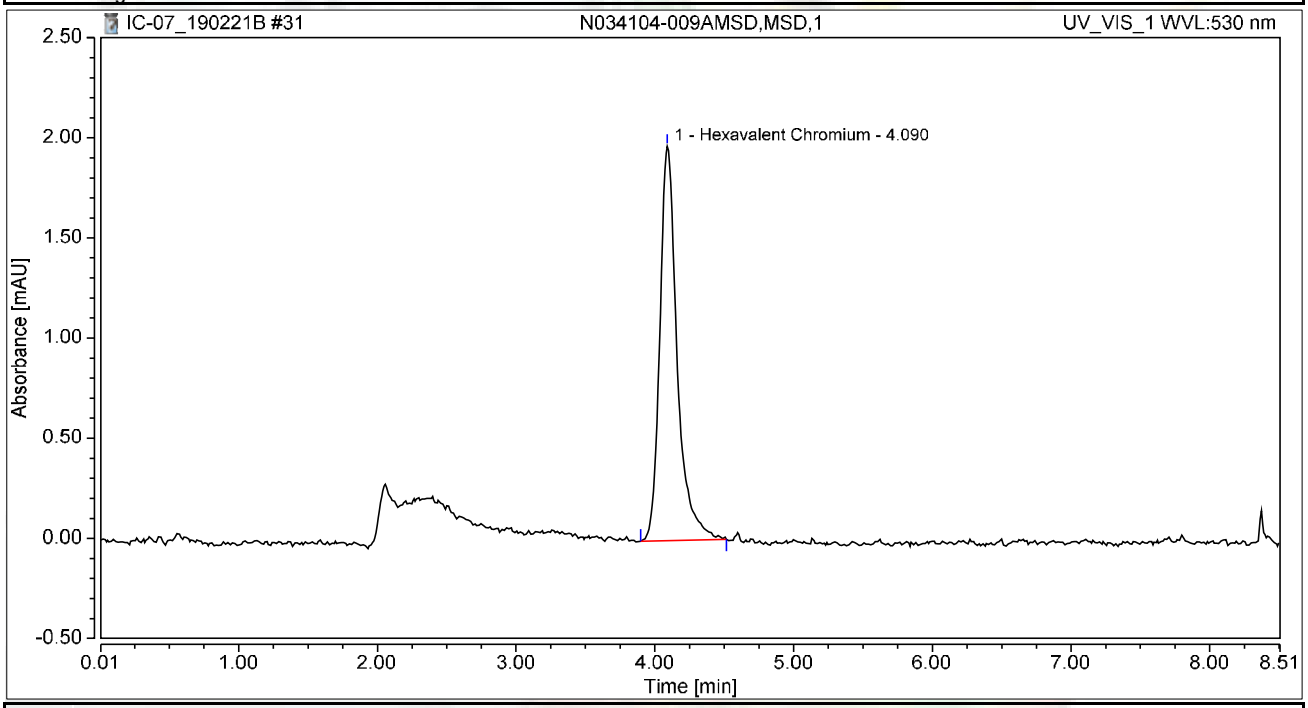
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.281 | 1.965 | 100.00 | 100.00 | 1.1340 |
| **Total:** | | | **0.281** | **1.965** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034104-009AMSD,MSD,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **32** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 16:52** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

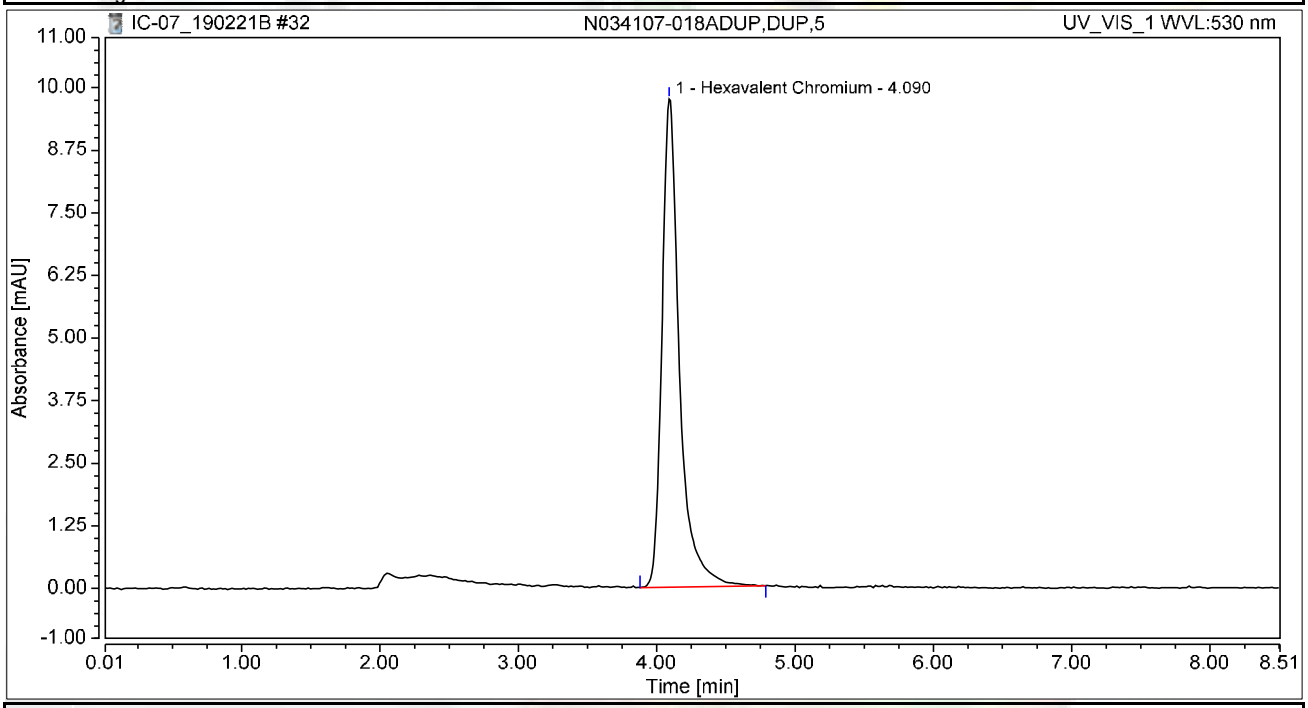
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.286 | 1.969 | 100.00 | 100.00 | 1.1547 |
| **Total:** | | | **0.286** | **1.969** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-018ADUP,DUP,5** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **33** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 17:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

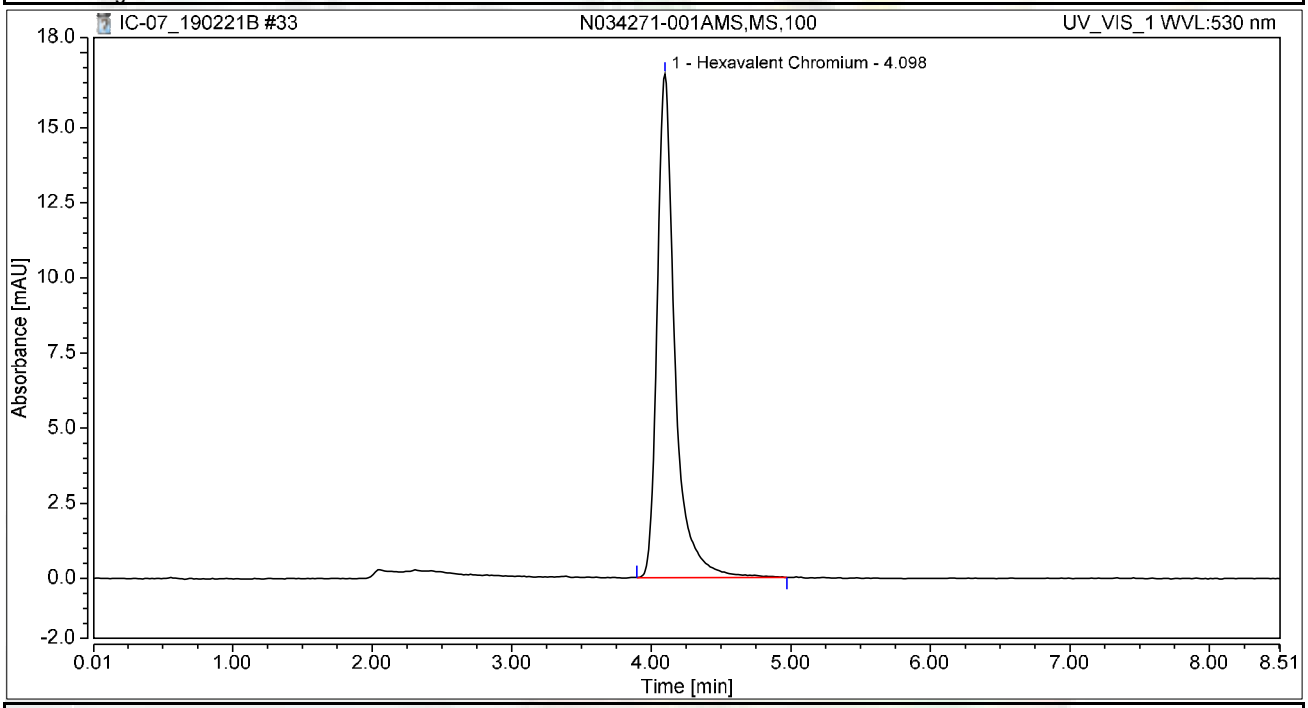
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 1.432 | 9.752 | 100.00 | 100.00 | 5.7793 |
| **Total:** | | | **1.432** | **9.752** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034271-001AMS,MS,100** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **34** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 17:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

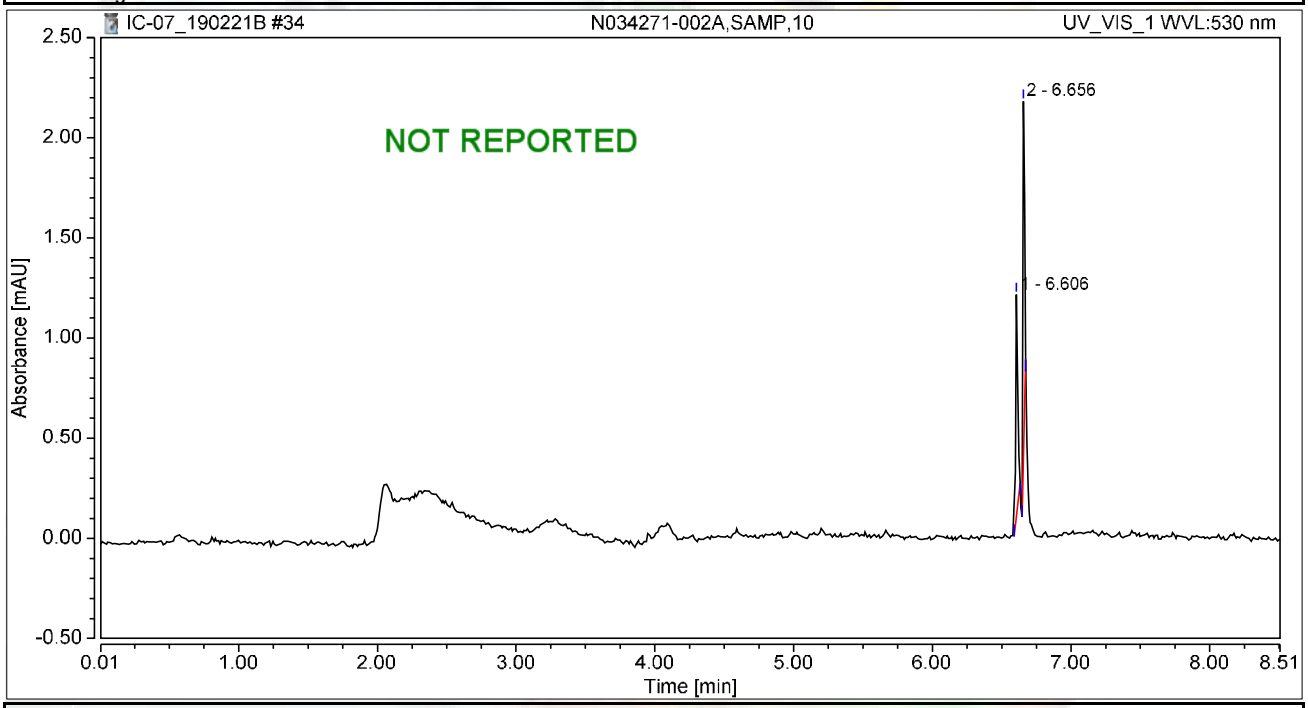
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.466 | 16.755 | 100.00 | 100.00 | 9.9522 |
| **Total:** | | | **2.466** | **16.755** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034271-002A,SAMP,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **35** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 17:20** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

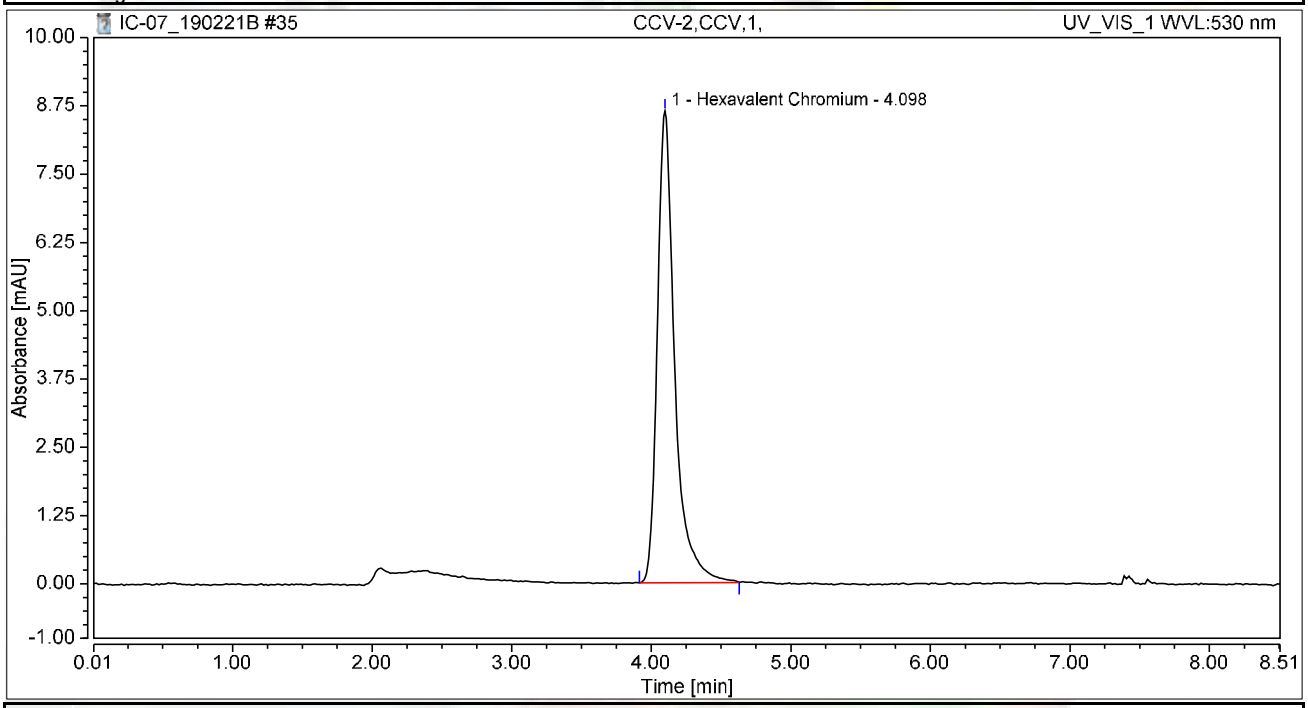
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 1 | | 6.606 | 0.018 | 1.100 | 43.08 | 37.77 | n.a. |
| 2 | | 6.656 | 0.024 | 1.812 | 56.92 | 62.23 | n.a. |
| **Total:** | | | **0.042** | **2.913** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-2,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **36** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 17:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

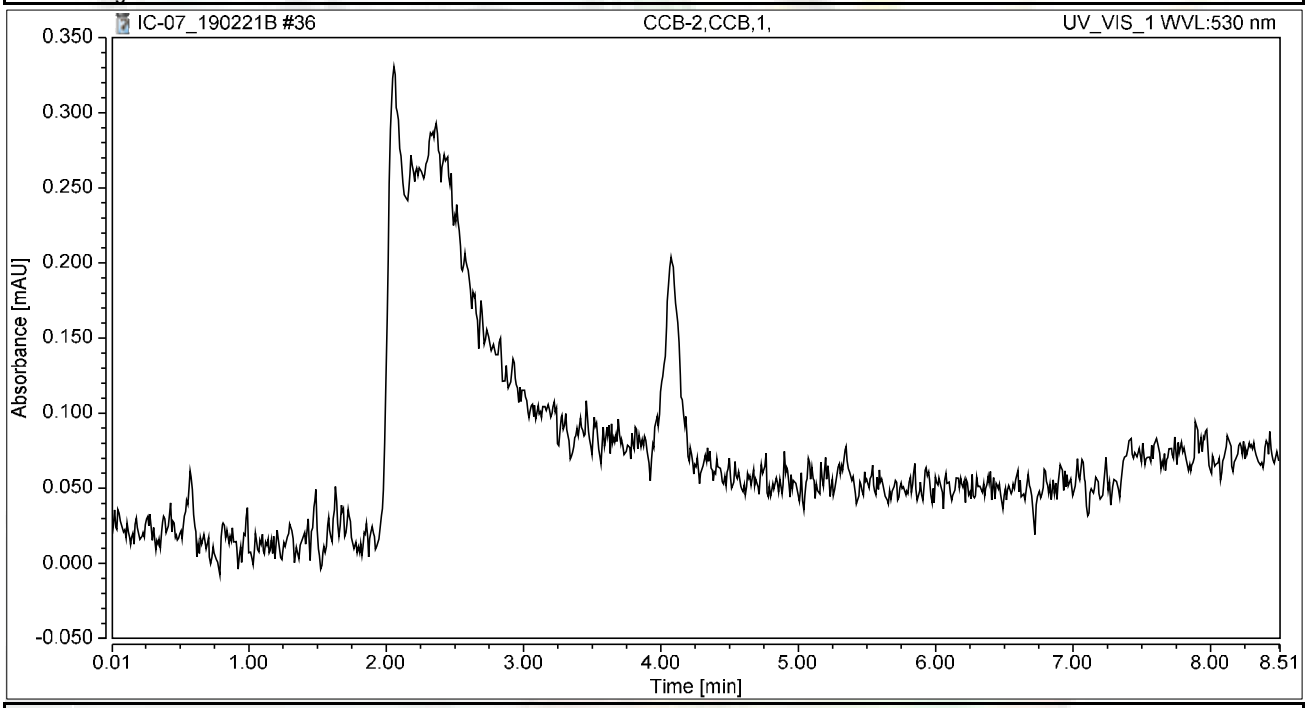
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.248 | 8.636 | 100.00 | 100.00 | 5.0341 |
| **Total:** | | | **1.248** | **8.636** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-2,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **37** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 17:39** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

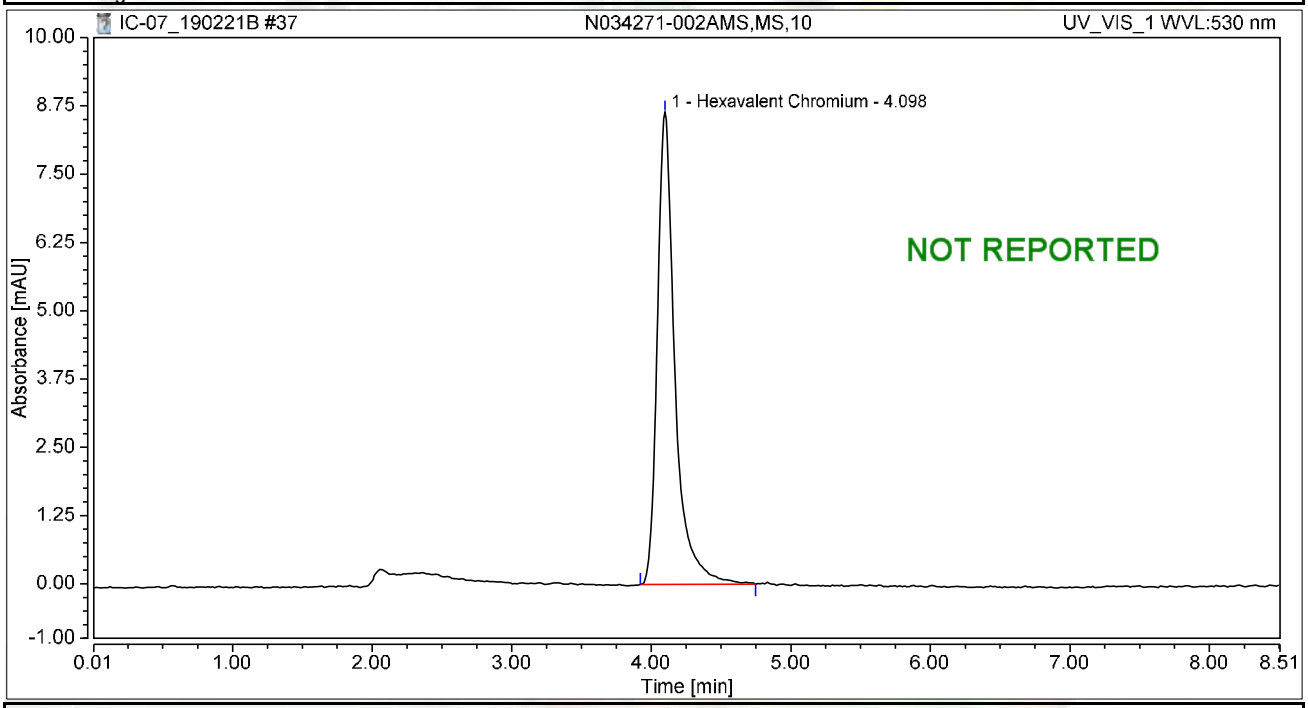
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034271-002AMS,MS,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 17:52** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

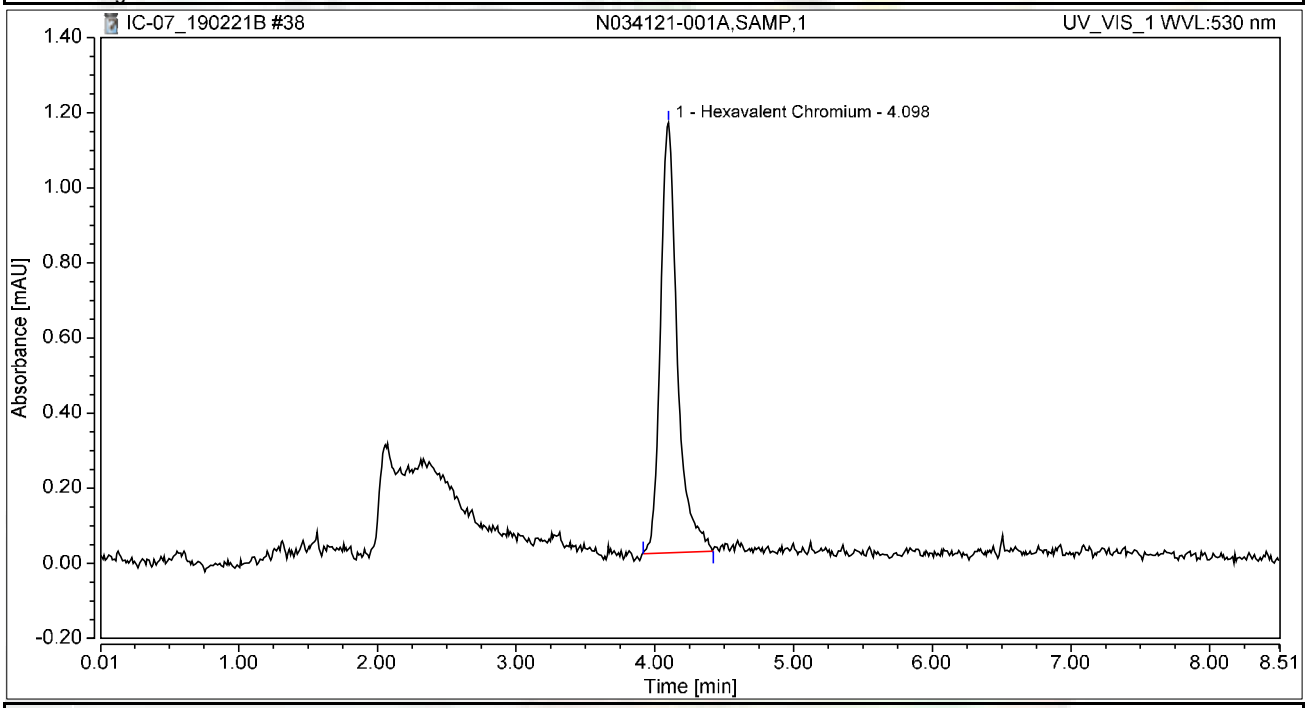
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.271 | 8.646 | 100.00 | 100.00 | 5.1277 |
| **Total:** | | | **1.271** | **8.646** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 18:03** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

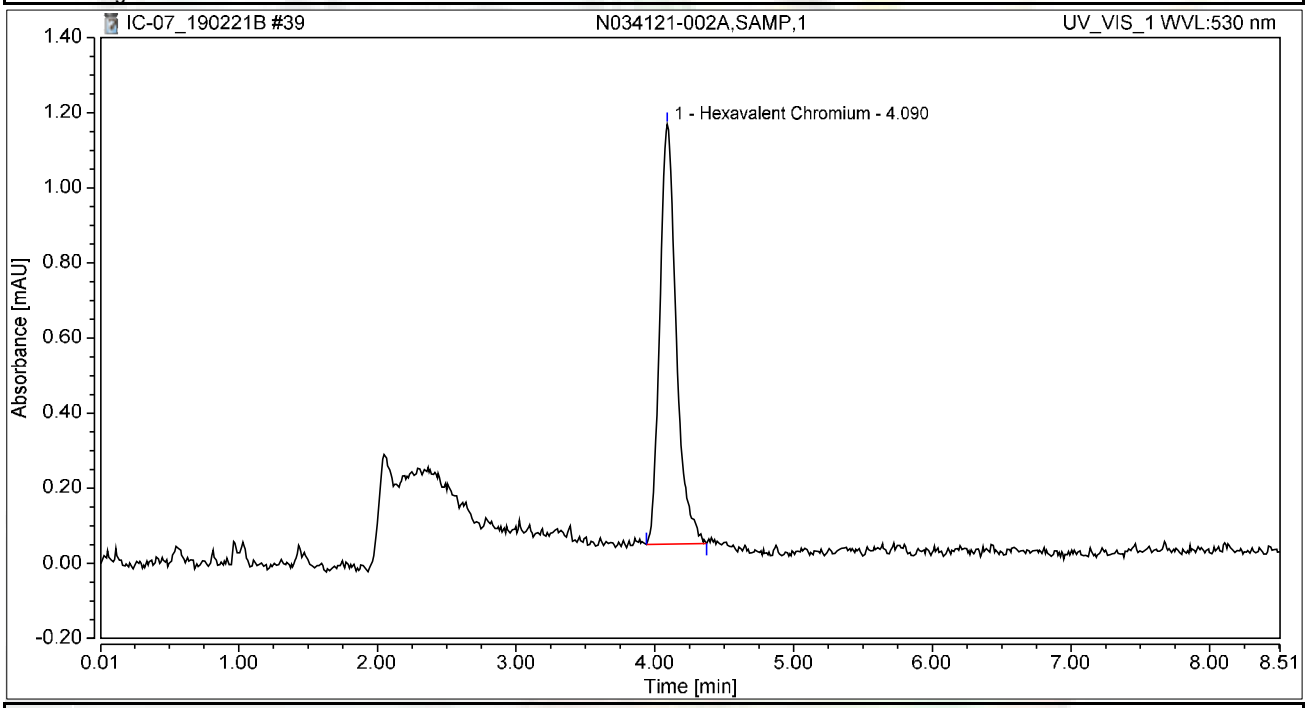
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.162 | 1.145 | 100.00 | 100.00 | 0.6531 |
| **Total:** | | | **0.162** | **1.145** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 18:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

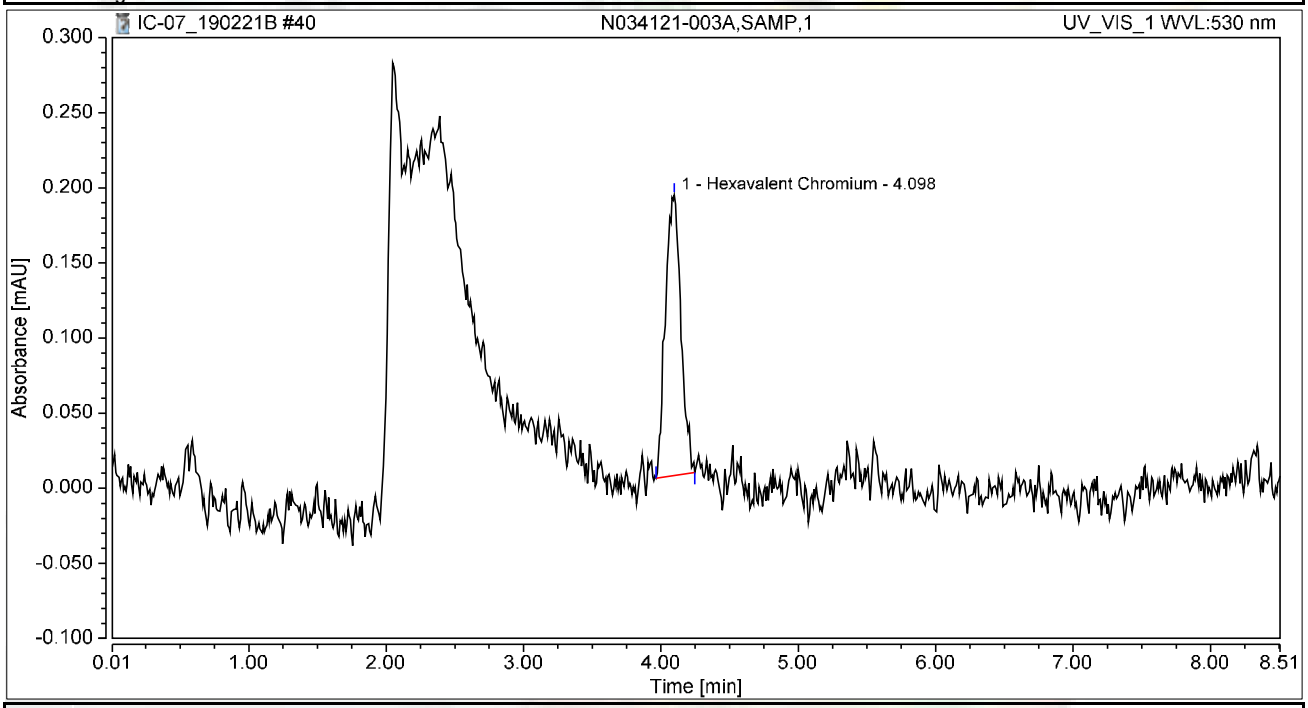
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.154 | 1.118 | 100.00 | 100.00 | 0.6230 |
| **Total:** | | | **0.154** | **1.118** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-003A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 18:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

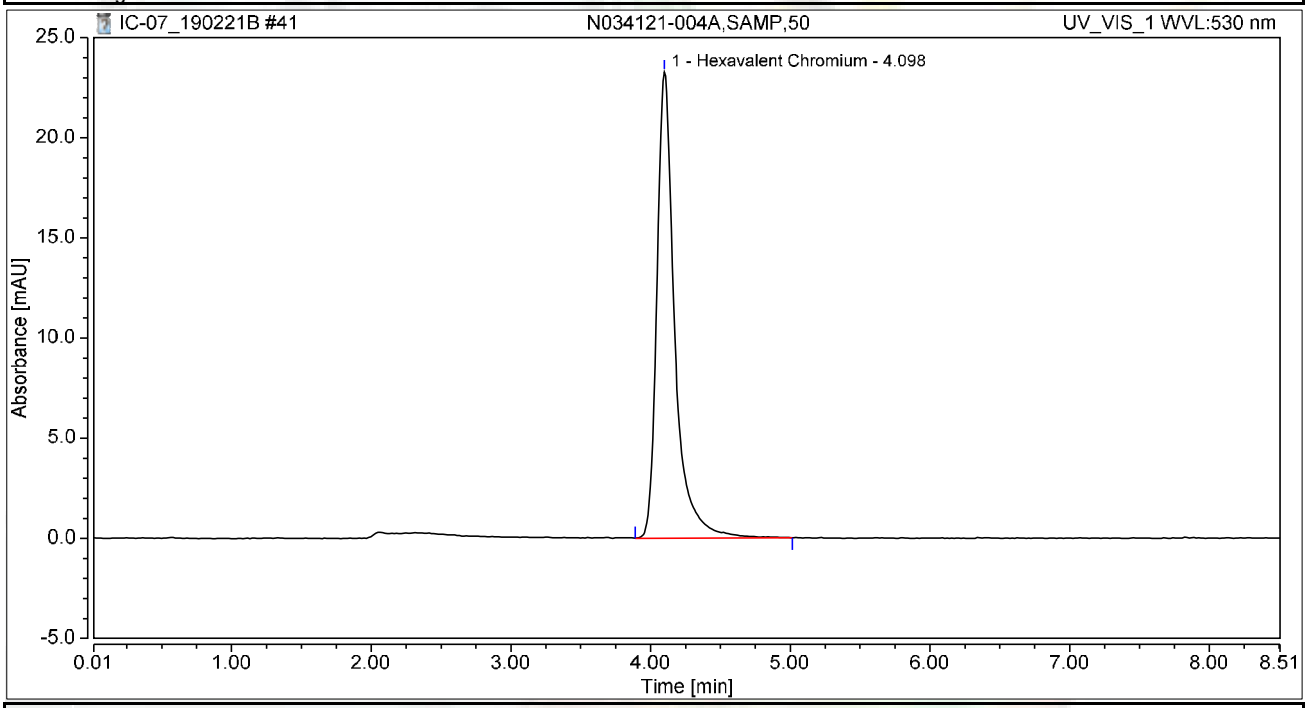
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.024 | 0.187 | 100.00 | 100.00 | 0.0984 |
| **Total:** | | | **0.024** | **0.187** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-004A,SAMP,50** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 18:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

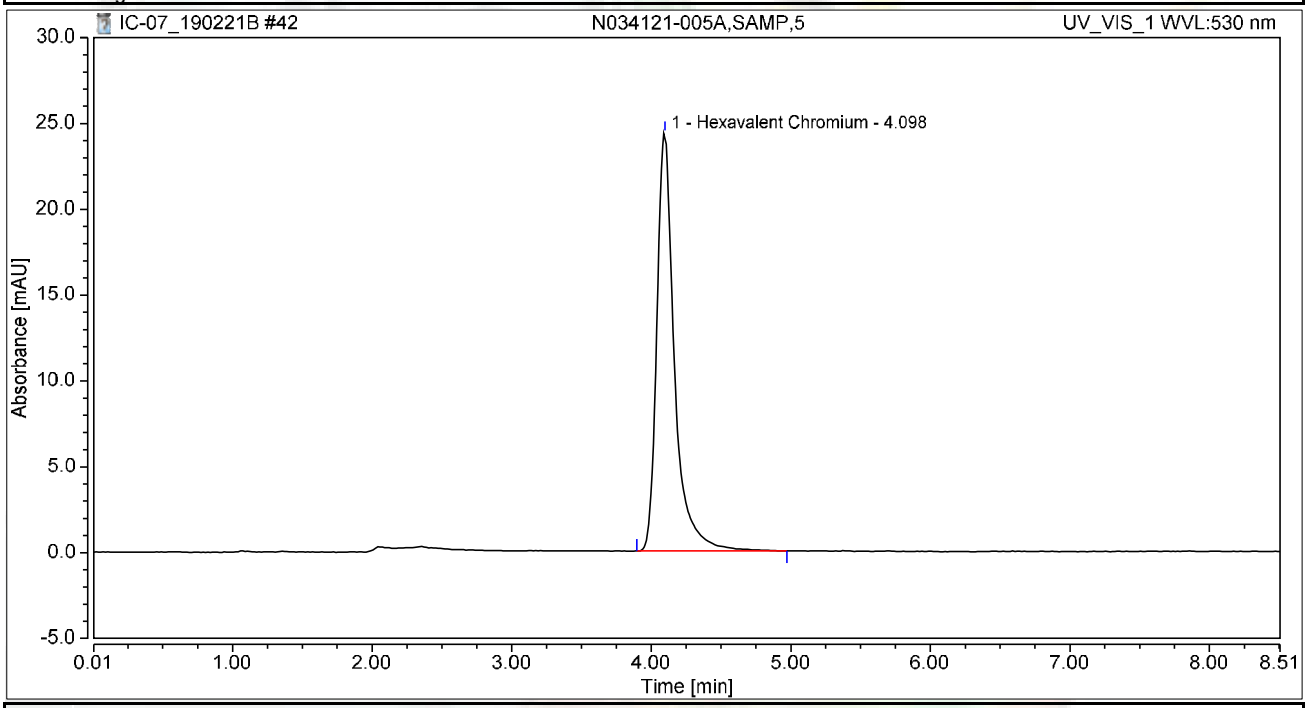
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 3.451 | 23.287 | 100.00 | 100.00 | 13.9252 |
| **Total:** | | | **3.451** | **23.287** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-005A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 18:41** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

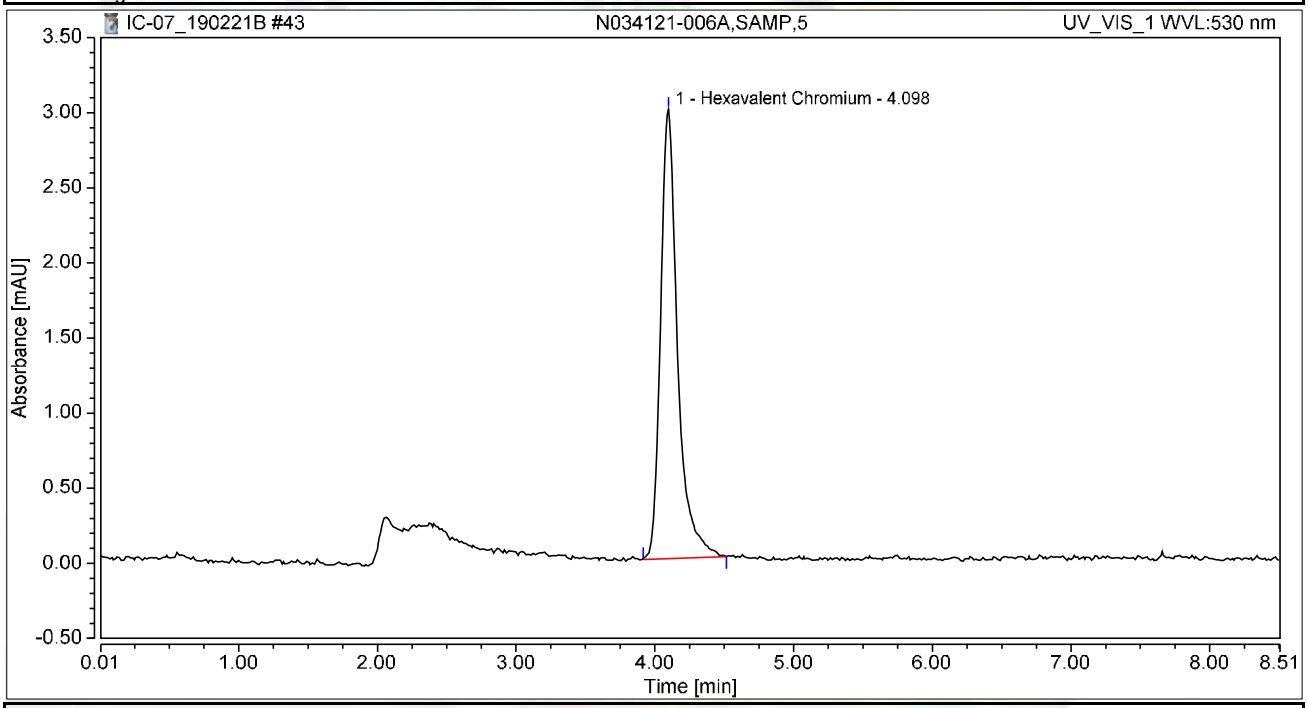
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 3.578 | 24.323 | 100.00 | 100.00 | 14.4391 |
| **Total:** | | | **3.578** | **24.323** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-006A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 18:50** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

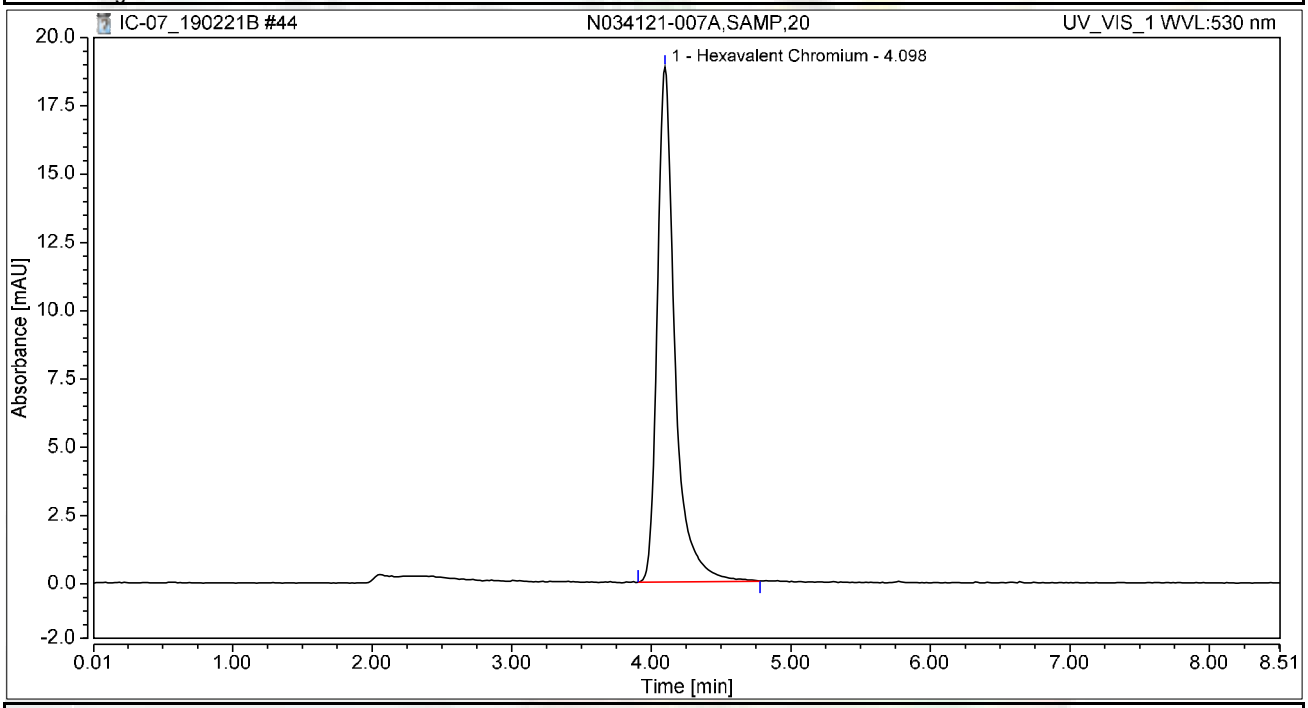
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.425 | 2.991 | 100.00 | 100.00 | 1.7139 |
| **Total:** | | | **0.425** | **2.991** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-007A,SAMP,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 19:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

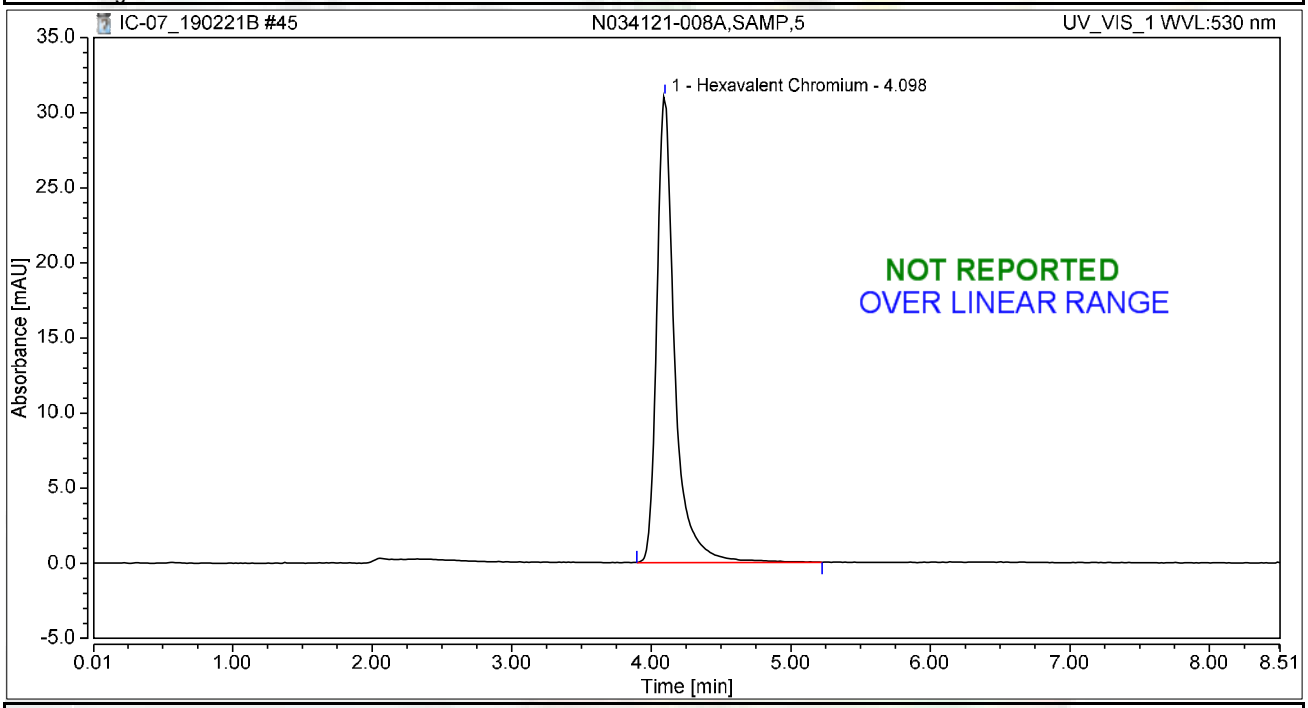
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.752 | 18.852 | 100.00 | 100.00 | 11.1045 |
| **Total:** | | | **2.752** | **18.852** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-008A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 19:09** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

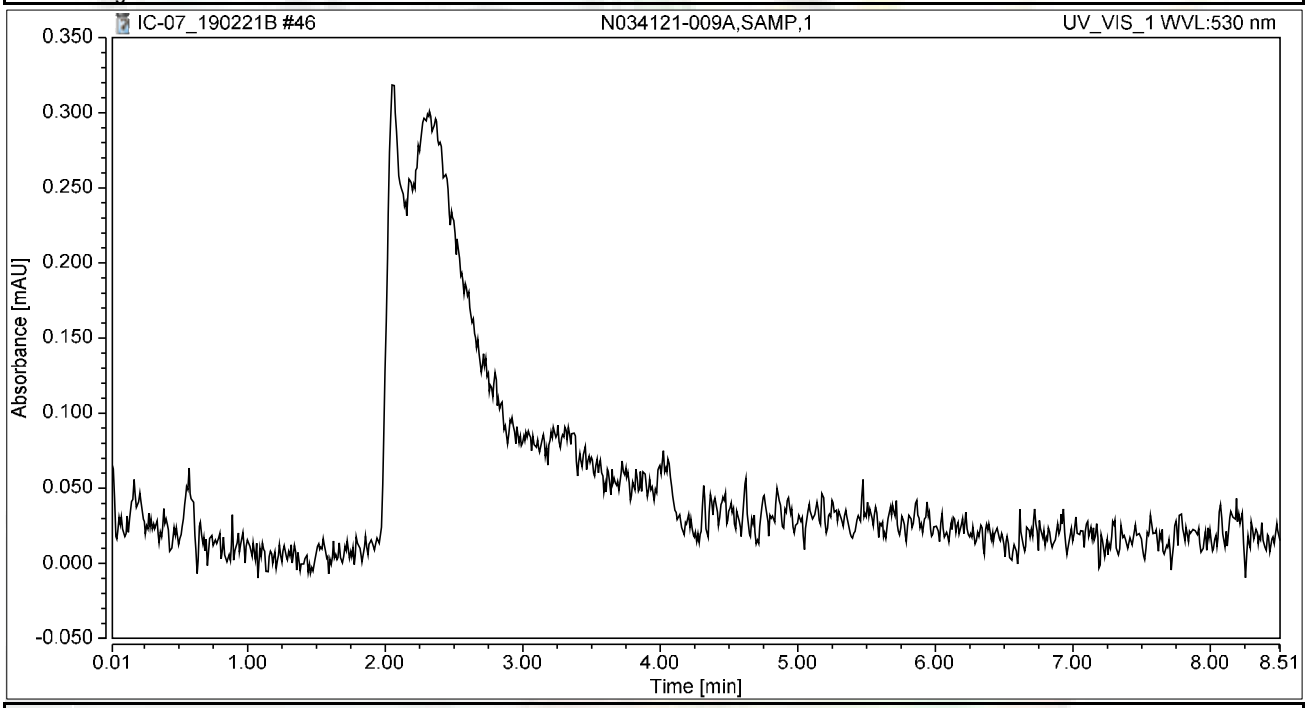
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 4.612 | 31.021 | 100.00 | 100.00 | 18.6098 |
| **Total:** | | | **4.612** | **31.021** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-009A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 19:19** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

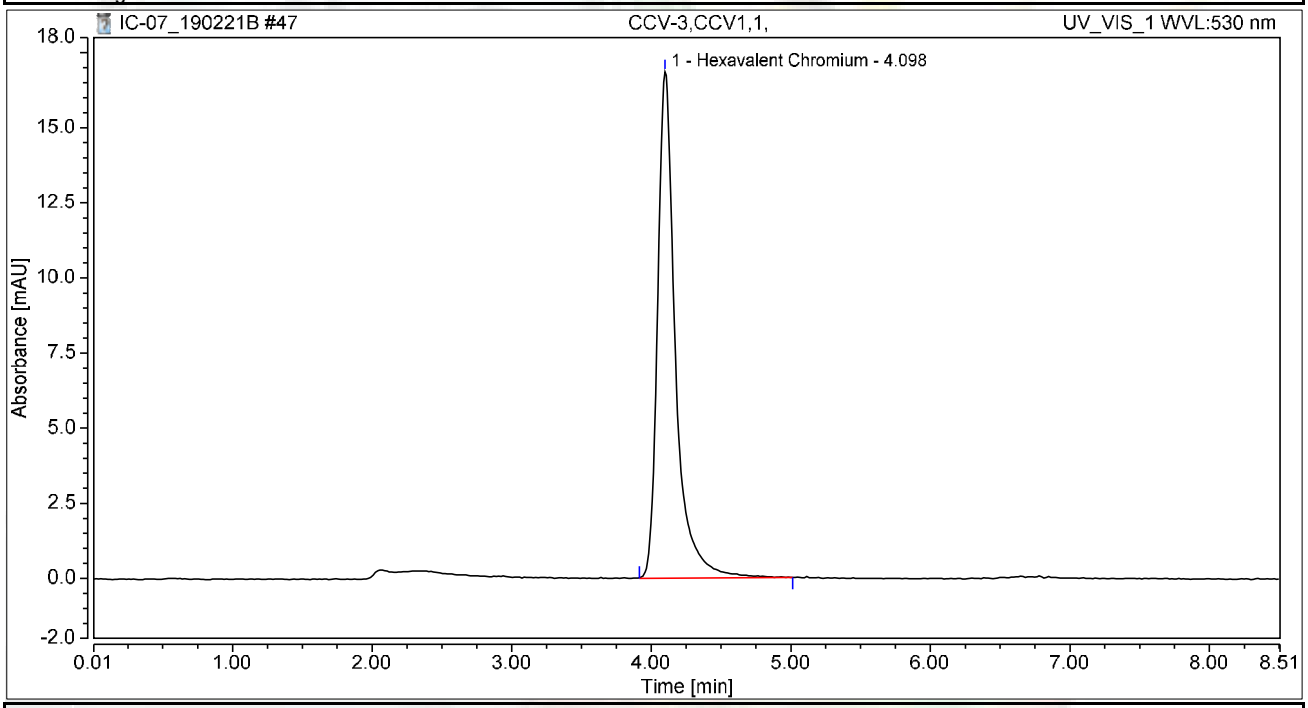
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-3,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 19:28** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

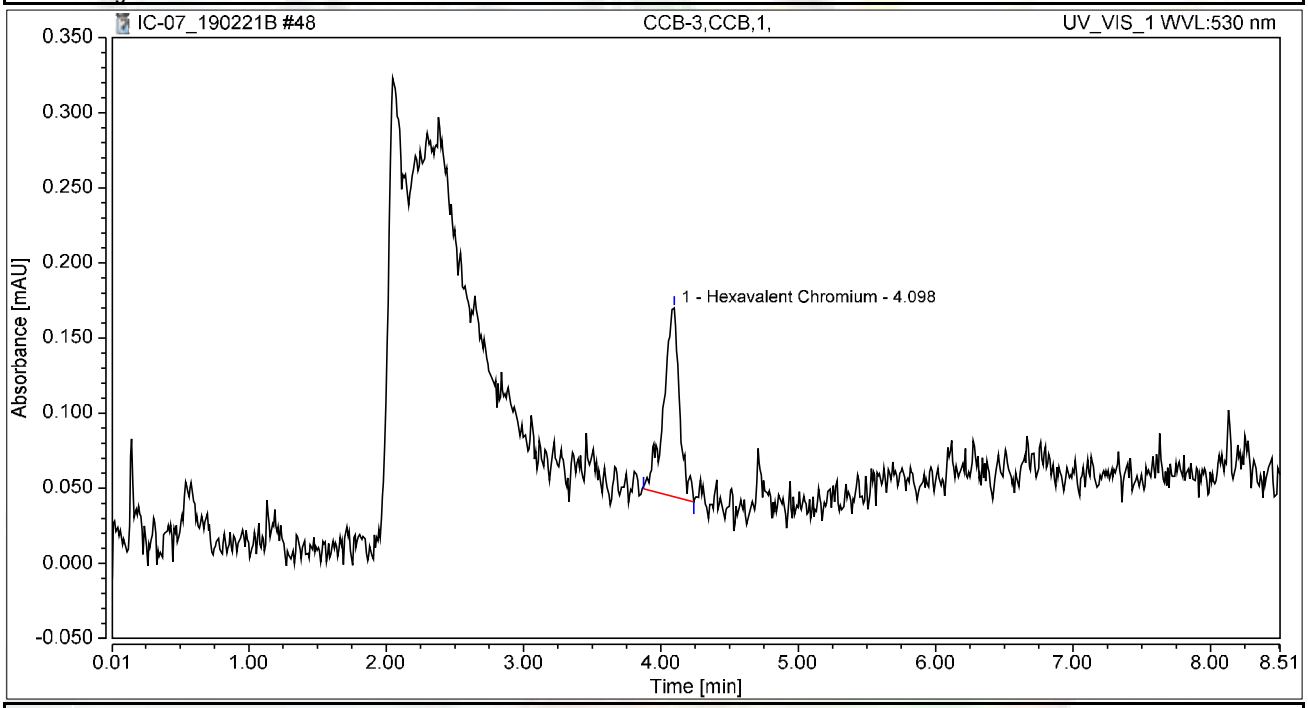
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.499 | 16.855 | 100.00 | 100.00 | 10.0861 |
| **Total:** | | | **2.499** | **16.855** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-3,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 19:38** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

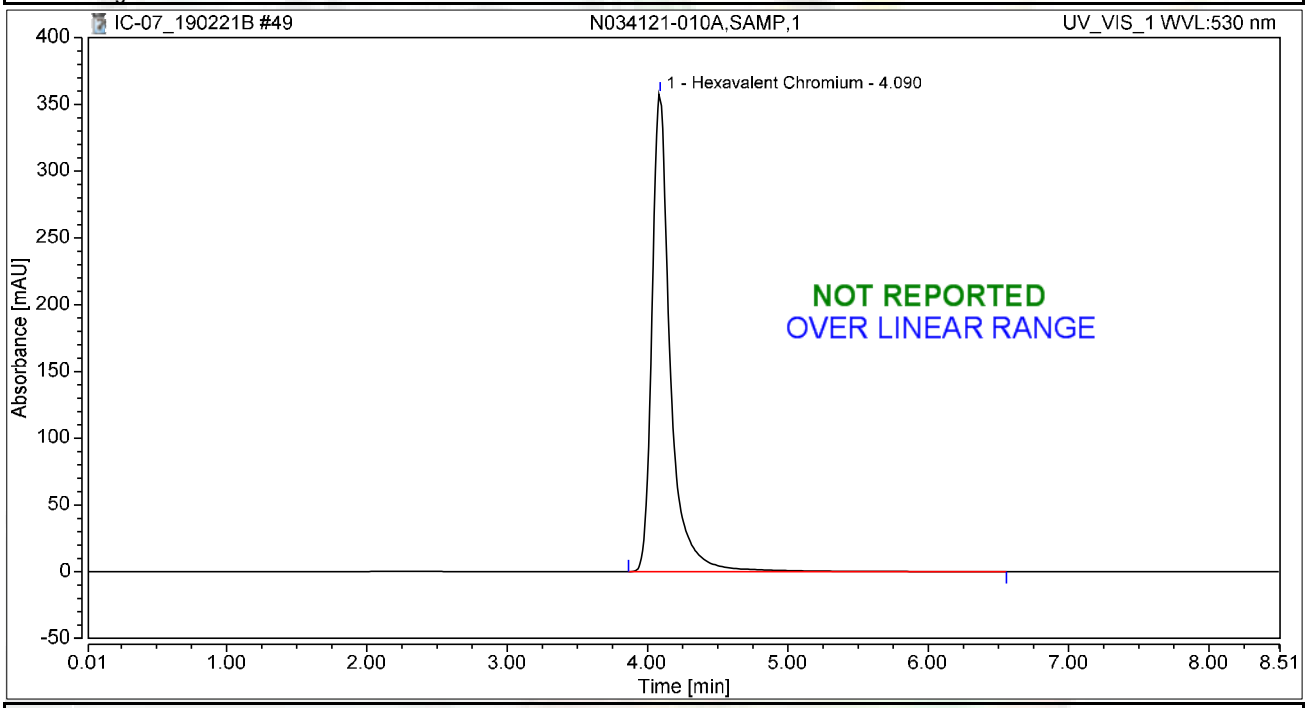
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.017 | 0.126 | 100.00 | 100.00 | 0.0674 |
| **Total:** | | | **0.017** | **0.126** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-010A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 19:47** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

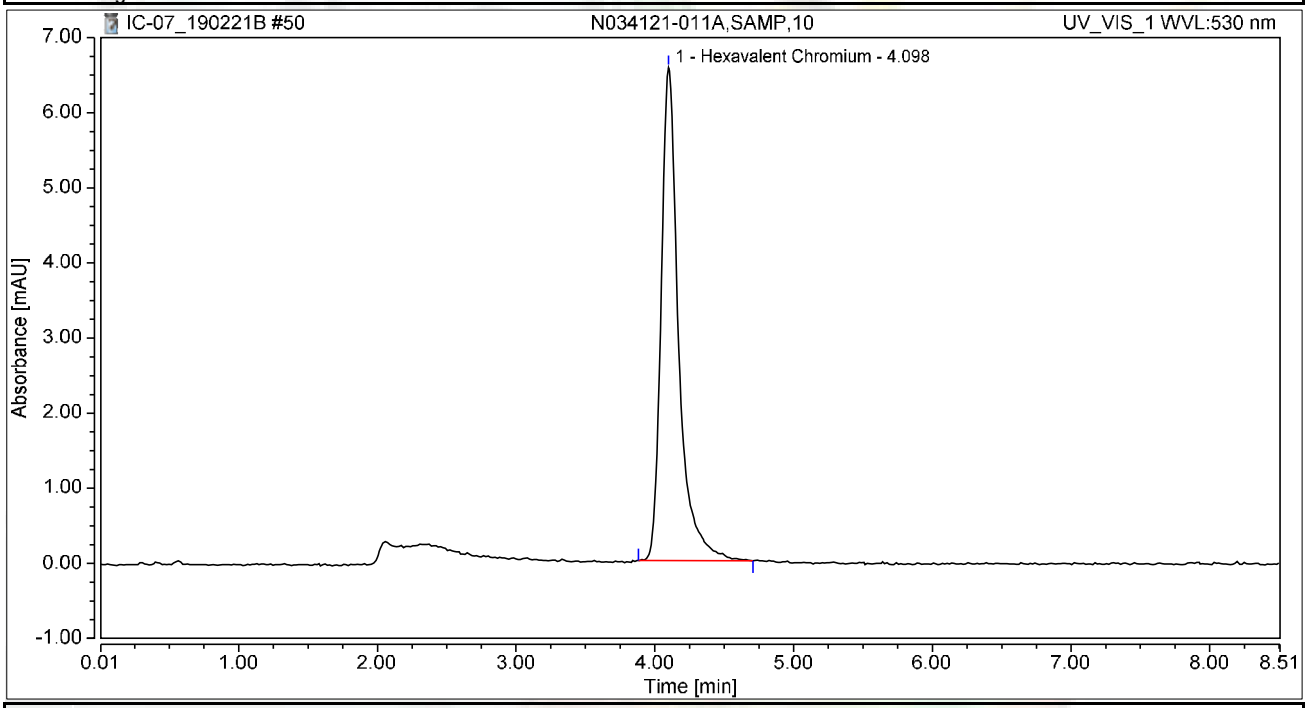
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 54.455 | 357.871 | 100.00 | 100.00 | 219.7399 |
| **Total:** | | | **54.455** | **357.871** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-011A,SAMP,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 19:57** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

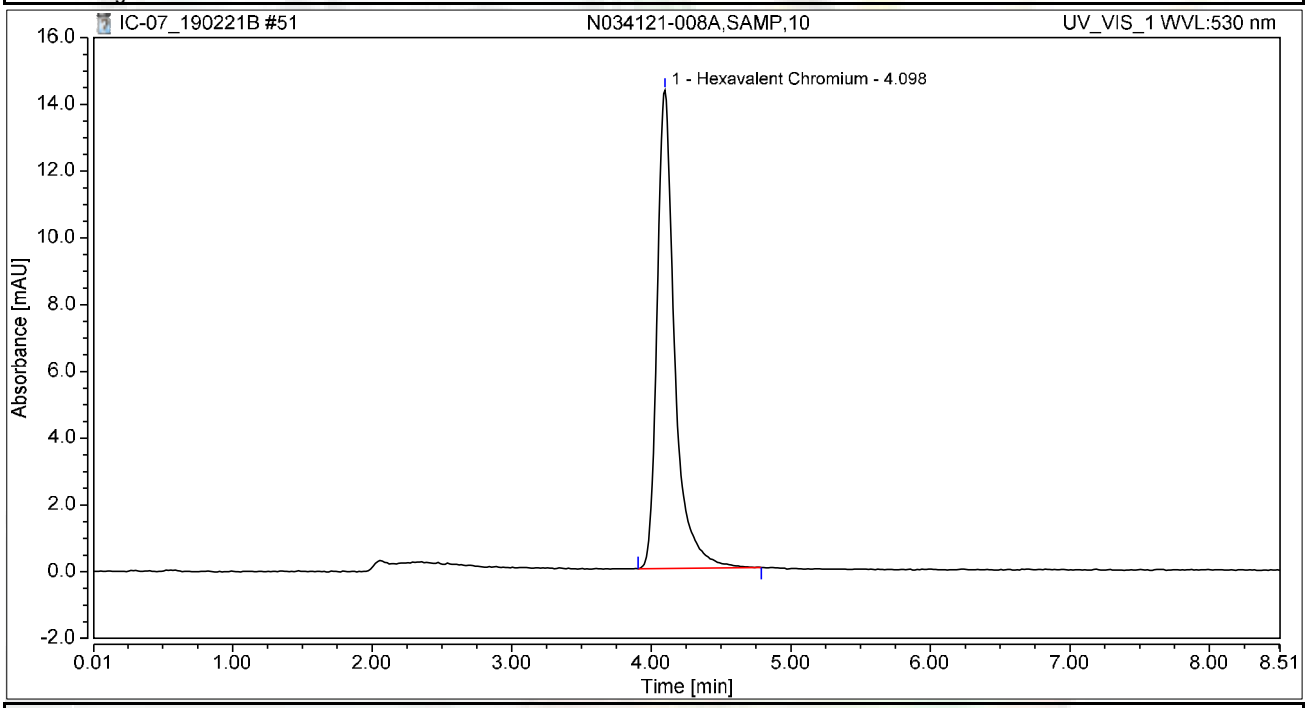
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.963 | 6.565 | 100.00 | 100.00 | 3.8859 |
| **Total:** | | | **0.963** | **6.565** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-008A,SAMP,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 20:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

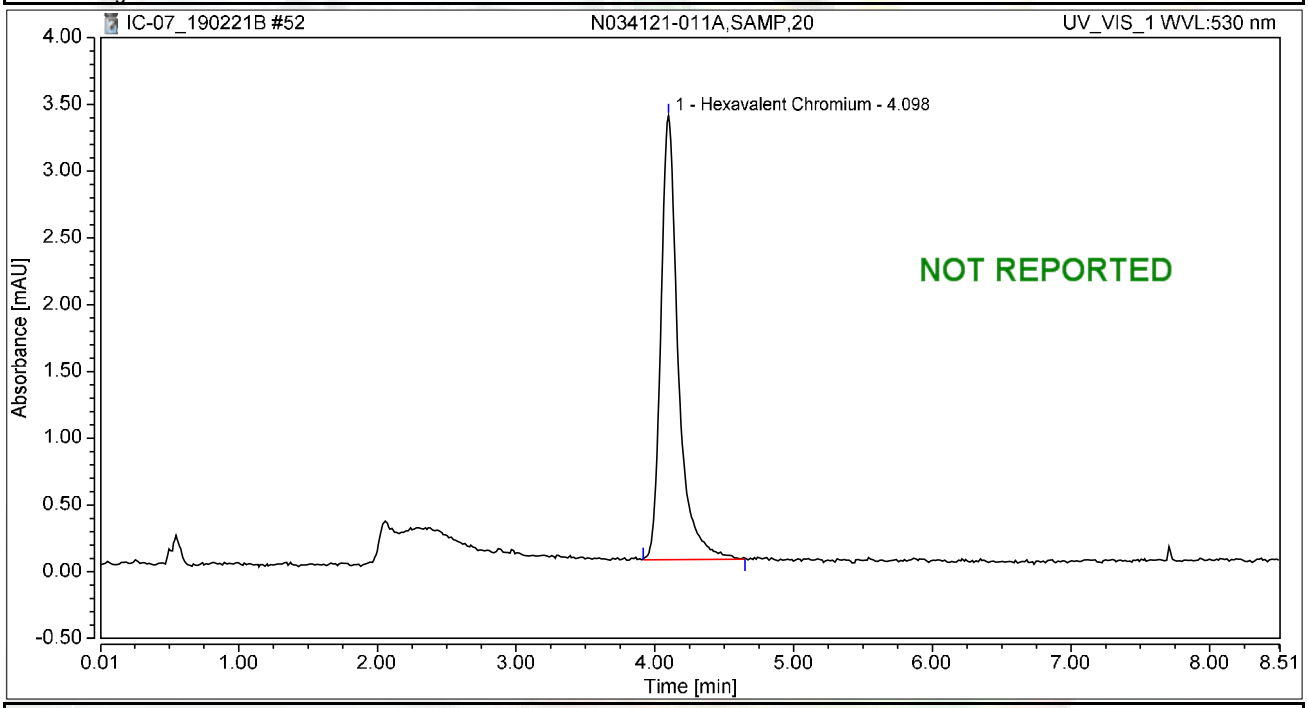
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.098 | 14.322 | 100.00 | 100.00 | 8.4654 |
| **Total:** | | | **2.098** | **14.322** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-011A,SAMP,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 20:16** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

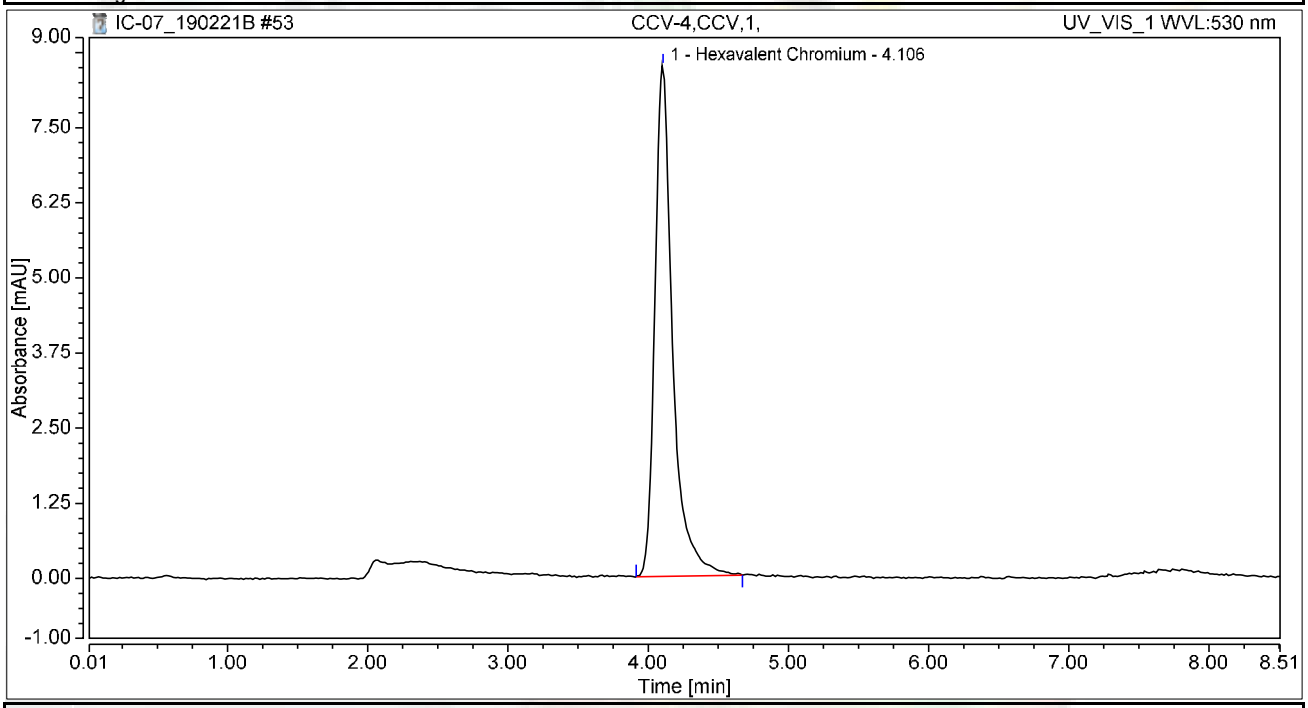
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.484 | 3.324 | 100.00 | 100.00 | 1.9513 |
| **Total:** | | | **0.484** | **3.324** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-4,CCV,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 20:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

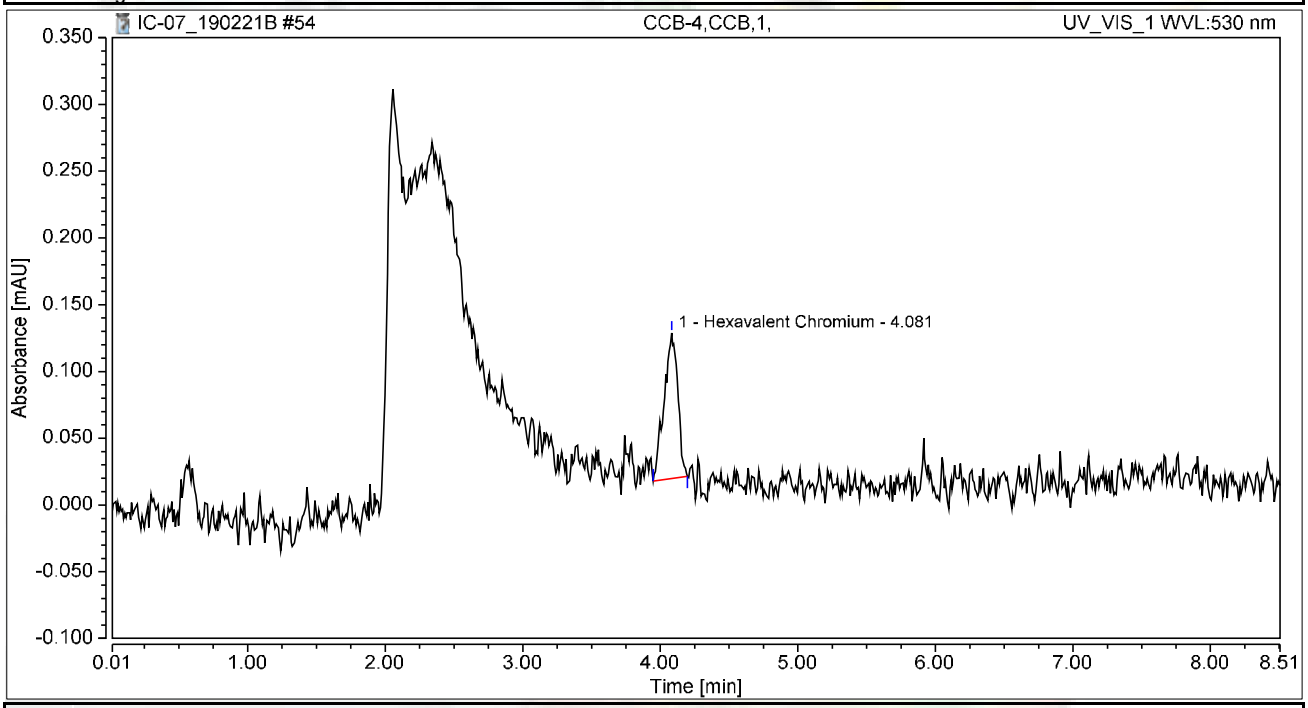
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.248 | 8.497 | 100.00 | 100.00 | 5.0352 |
| **Total:** | | | **1.248** | **8.497** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-4,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 20:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

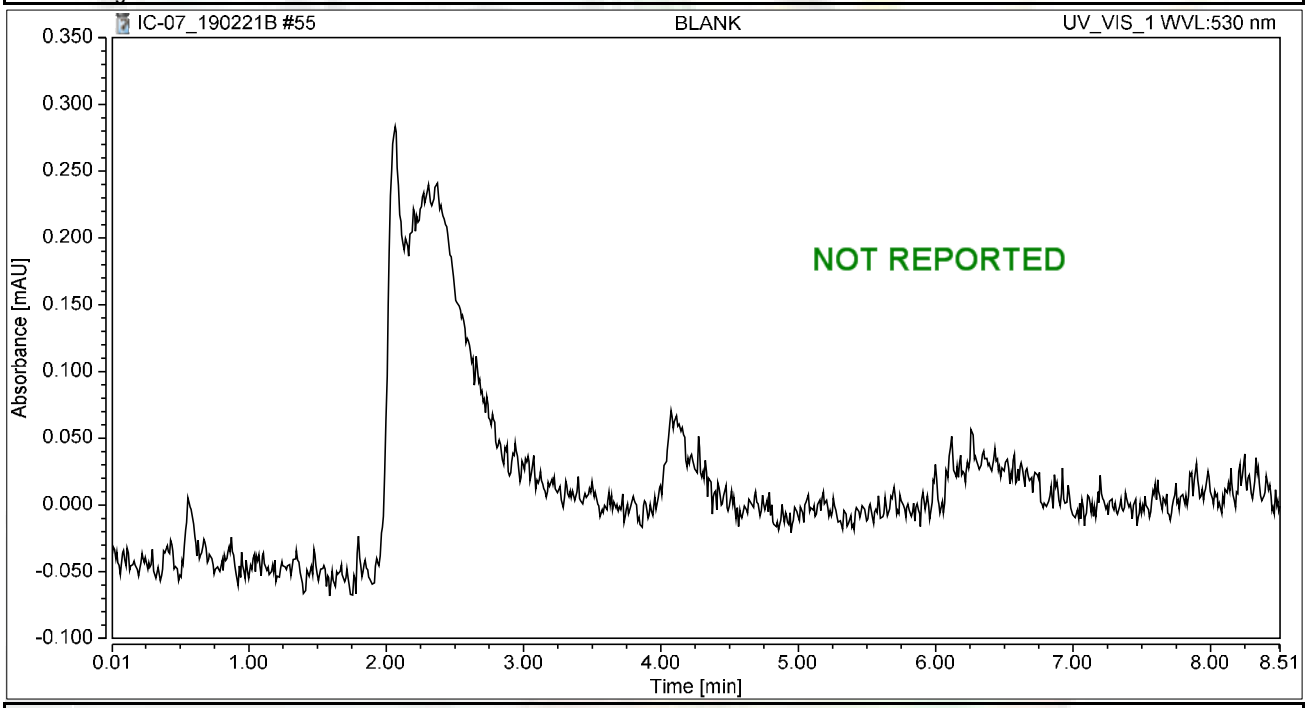
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.013 | 0.109 | 100.00 | 100.00 | 0.0510 |
| **Total:** | | | **0.013** | **0.109** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 20:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# SM 4500-NO3F

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R131879 **Analyst:** QBM

**ASSET #:** N034102, N034104 **Date Analyzed:** 2/15/2019

**Method:** SM 4500_N03

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | X | | | X | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 3. ICV within ± 15% of expected value. | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | X | | | X | | |
| 5. CCV within ± 15% of expected value. | X | | | X | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | X | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< PQL) | X | | | X | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | X | | | X | | |
| 9. Are all samples analyzed within hold time. | X | | | X | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 11. LCS compounds within control limits. | X | | | X | | |
| 12. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | X |
| 14. Runlog complete and included in package. | X | | | X | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | X |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | X |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | X | | |
| 18. Are analytical results correct? | X | | | X | | |
| 19. Is the QC summary report present and complete? | X | | | X | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer QBM Date: 2/22/19

2nd Level Reviewer Mary 2/22/2019 Date: —

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 4500N03F
**TEST NAME:** Nitrate/Nitrite-N by Automated Cadmium Reduction
**MATRIX:** Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

**Nitrate/Nitrite-N, mg/L= A * DF**

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N034104-001D**

The concentration in mg/L is calculated as follows:

**Nitrate/Nitrite-N** = 0.3514 * 1
= 0.3514 mg/L

Reporting result in two significant figures,

**Nitrate/Nitrite-N = 0.35 mg/L**

# INITIAL CALIBRATION DATA SUMMARY

## EPA 353.2 NO3 as N (NO3CD) - Endpoint

### General setup

| | |
|---|---|
| **Measuring unit** | **ppm** |
| **Number of decimals** | 4 |
| **Stabilization time (sec)** | 26 |
| **Measurement time (sec)** | 3 |
| **Sample volume (µl)** | 450 |
| **Filter** | 546 |
| **Reagent prime** | No |
| **CD Reduction** | Yes |

### Limits and dilution

| | |
|---|---|
| **Low level** | **-0.2** |
| **High level** | 4 |
| **Max linearity** | 4 |
| **Blank min** | 0 |
| **Blank max** | 0.049 |
| **Postdilution factor %** | 10 |
| **Factor Calculations** | No |

### Washes

| | |
|---|---|
| **Number of final washes** | 6 |
| **Wash every** | R1, R2 |

### O.D.Corrections

| | |
|---|---|
| **Carry Over** | **No** |
| **Carry Over value** | 0.0000 |
| **Blank** | No |
| **Gain** | No |

### Reagents

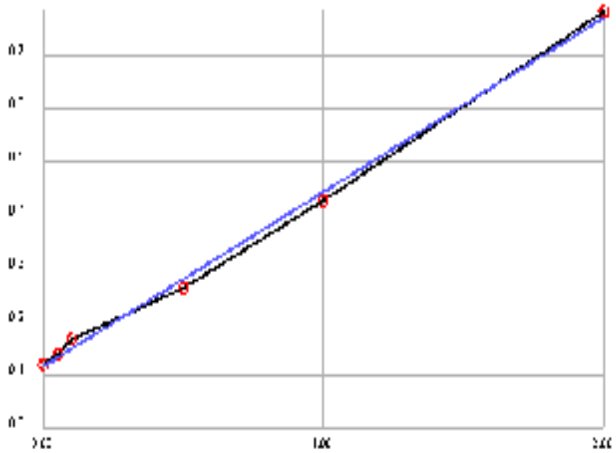
| N. | Volume (µl) | Incubation time (sec) |
|---|---|---|
| **1** | 200 | 102 |
| **2** | 300 | 663 |
| **3** | 0 | 0 |

### QC

| N. | Value | Tolerance |
|---|---|---|
| **1** | 1 | 0.1 |

## Calibration

| | |
|---|---|
| **Curve type** | Linear (Calibrants) |
| **Curve forced to zero** | No |
| **Blank inclusion** | No |



| | |
|---|---|
| **Formula** | y = 0.327x + 0.1174 |
| **Correlation** | .998577 |

| Calibrant | Energy | Set | Conc |
|---|---|---|---|
| **1** | 0.1189 | 0.0000 | 0.0046 |
| **2** | 0.1383 | 0.0500 | 0.0639 |
| **3** | 0.1656 | 0.1000 | 0.1474 |
| **4** | 0.2638 | 0.5000 | 0.4477 |
| **5** | 0.4287 | 1.0000 | 0.9520 |
| **6** | 0.7826 | 2.0000 | 2.0343 |

**Notes:**

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289929** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.484 | 0.050 | 0.5000 | 0 | 96.8 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289940** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.470 | 0.050 | 0.5000 | 0 | 94.0 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289951** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.451 | 0.050 | 0.5000 | 0 | 90.2 | 90 | 110 | | | | |

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289956** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.457 | 0.050 | 0.5000 | 0 | 91.4 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289930** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289941** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289952** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **131879** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131879** | TestNo: **SM4500-NO3** | | Analysis Date: **2/15/2019** | SeqNo: **3289957** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

**Advanced Technology Laboratories, Inc.**

**3151 W. Post Rd.**
**Las Vegas, NV. 89118**
**702-307-2659**
**702-307-2691**
**www.atl-labs.com**

**Time start: 02-15-2019 14:14**
**Time end: 02-15-2019 16:55**

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 1 | <BLANK> | 16:18:20 | 0.0174 | | 0.1231 |
| 2 | <BLANK> | 16:19:19 | 0.0028 | | 0.1183 |
| 3 | <BLANK> | 16:20:15 | 0.0107 | | 0.1209 |
| 4 | <CAL1> | 16:21:10 | 0.0046 | [0] | 0.1189 |
| 5 | <CAL2> | 16:22:06 | 0.0639 | [0.05] | 0.1383 |
| 6 | <CAL3> | 16:23:06 | 0.1474 | [0.1] | 0.1656 |
| 7 | <CAL4> | 16:24:01 | 0.4477 | [0.5] | 0.2638 |
| 8 | <CAL5> | 16:25:03 | 0.9520 | [1] | 0.4287 |
| 9 | <CAL6> | 16:25:57 | 2.0343 | [2] | 0.7826 |
| 10 | ,BLANK,BLANK,1, NOT REPORTED | 16:26:52 | 0.0685 | | 0.1398 |
| 11 | ,ICV,ICV,1, | 16:27:54 | 0.4841 | | 0.2757 |
| 12 | ,ICB,ICB,1, | 16:28:50 | 0.0196 | | 0.1238 |
| 13 | ,MB-H2O,MBLK,1, | 16:29:44 | 0.0052 | | 0.1191 |
| 14 | ,LCS-H2O,LCS,1, | 16:30:45 | 0.4869 | | 0.2766 |
| 15 | ,N034102-002C,SAMP,1, | 16:31:41 | 0.0719 | | 0.1409 |
| 16 | ,N034102-003C,SAMP,1, | 16:32:35 | 0.0382 | | 0.1299 |
| 17 | ,N034102-004C,SAMP,1, | 16:33:37 | 0.1343 | | 0.1613 |
| 18 | ,N034102-004CDUP,DUP,1, | 16:34:32 | 0.1508 | | 0.1667 |
| 19 | ,N034104-001D,SAMP,1, | 16:35:28 | 0.3514 | | 0.2323 |
| 20 | ,N034104-001DMS,MS,1, | 16:36:28 | 0.8291 | | 0.3885 |
| 21 | ,N034104-001DMSD,MSD,1, | 16:37:24 | 0.8484 | | 0.3948 |
| 22 | ,BLANK, NOT REPORTED | 16:38:19 | 0.0220 | | 0.1246 |
| 23 | ,CCV-1,CCV,1, | 16:39:21 | 0.4701 | | 0.2711 |
| 24 | ,CCB-1,CCB,1, | 16:40:03 | 0.0269 | | 0.1262 |
| 25 | ,N034104-002D,SAMP,1, | 16:40:53 | 0.3590 | | 0.2348 |
| 26 | ,N034104-003D,SAMP,1, | 16:41:35 | 0.3483 | | 0.2313 |

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 27 | ,N034104-004D,SAMP,1, | 16:42:24 | 0.3645 | | 0.2366 |
| 28 | ,N034104-005D,SAMP,1, | 16:43:06 | 0.3893 | | 0.2447 |
| 29 | ,N034104-006D,SAMP,1, | 16:43:49 | 0.3538 | | 0.2331 |
| 30 | ,N034104-007D,SAMP,1, | 16:44:39 | 0.3636 | | 0.2363 |
| 31 | ,N034104-008D,SAMP,1, | 16:45:21 | 0.3413 | | 0.2290 |
| 32 | ,N034104-009D,SAMP,1, | 16:46:05 | 0.3343 | | 0.2267 |
| 33 | ,N034104-010D,SAMP,1, | 16:46:53 | 0.3217 | | 0.2226 |
| 34 | ,BLANK, NOT REPORTED | 16:47:36 | 0.0015 | | 0.1179 |
| 35 | ,CCV-2,CCV,1, | 16:48:18 | 0.4511 | | 0.2649 |
| 36 | ,CCB-2,CCB,1, | 16:49:08 | 0.0052 | | 0.1191 |
| 37 | ,N034104-011D,SAMP,1, | 16:49:50 | 0.3303 | | 0.2254 |
| 38 | ,N034104-012D,SAMP,1, | 16:50:33 | 0.3911 | | 0.2453 |
| 39 | ,N034104-015D,SAMP,1, | 16:51:22 | 0.3150 | | 0.2204 |
| 40 | ,BLANK, NOT REPORTED | 16:52:04 | 0.0006 | | 0.1176 |
| 41 | ,CCV-3,CCV,1, | 16:52:48 | 0.4569 | | 0.2668 |
| 42 | ,CCB-3,CCB,1, | 16:53:36 | -0.0018 | | 0.1168 |

**Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog**

## Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 2/15/2019
Time Analyzed: 2:14 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190129B
Color reagent: R190129C
2% Copper Sulfate: R190129A
Ammonium Hydroxide: CINV-190102A

| Sample ID. | Sample Wt./Vol. | Sample pH | Std Code | Spike Amt Added (mL) | Spike Conc.(PPM) | Final Volume (mL) | Dilution (F/I) | Reading & Calculations (mg/L) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| N034102-002C | | 8.84 | | | | | | | |
| N034102-003C | | 8.22 | | | | | | | |
| N034102-004C | | 8.16 | | | | | | | |
| N034104-001D | | 7.26 | | | | | | | |
| N034104-002D | | 8.68 | | | | | | | |
| N034104-003D | | 8.44 | | | | | | | |
| N034104-004D | | 8.50 | | | | | | | |
| N034104-005D | | 8.43 | | | | | | | |
| N034104-006D | | 7.83 | | | | | | | |
| N034104-007D | | 8.71 | | | | | | | |
| N034104-008D | | 8.55 | | | | | | | |
| N034104-009D | | 7.72 | | | | | | | |
| N034104-010D | | 8.00 | | | | | | | |
| N034104-011D | | 7.61 | | | | | | | |
| N034104-012D | | 7.98 | | | | | | | |
| N034104-015D | | 8.76 | | | | | | | |
| | | | | | | | | | |
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Advanced Technology Laboratories, Inc.
Book # 1

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

| Analyte | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Ave | SD | $t_{(n-1)}$ value | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.0573 | 0.0562 | 0.0500 | 0.0730 | 0.0698 | 0.0637 | 0.0564 | 0.0609 | 0.0082 | 3.143 | 0.0259 | 0.05 |
| **Method Blank** | | | | | | | | | | | | |
| Nitrate/Nitrite as N | 0.0160 | 0.0067 | 0.0064 | 0.0204 | 0.0173 | 0.0036 | 0.0083 | 0.0112 | 0.0065 | 3.143 | 0.0317 | 0.05 |

**MDL:** **0.0317** **mg/L**

# EPA 6010B
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72468
**ASSET #:** N034104
**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 2/14/2019

**Method:**

[X] EPA 6010B / 200.7 DISS
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: _____

2nd Level Reviewer 2/20/2019 Date: —

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72664
**ASSET #:** N034104
**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 2/27/2019

**Method:**

[X] EPA 6010B / 200.7 DISS
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: _____

2nd Level Reviewer 2/20/2019 Date: -

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA 6010B
**TEST NAME:** Heavy Metals by ICP
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N034104-006C** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = ~~0.08098~~ (0.00227) * 1 * (25/25) * 1000

Iron , ug/L = ~~80.98~~ (0.00227)

Reporting results in two significant figures,

**Iron , ug/L = ~~81~~** ND

NS 2/20/2019

# % RSD SUMMARY

**RSD SUMMARY: 190214B**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Fe | 0 | 11.44 | 15 | PASS |
| Standard1 | ICAL | 1 | Fe | 0.02 | 4.81 | 15 | PASS |
| Standard2 | ICAL | 1 | Fe | 0.05 | 0.59 | 15 | PASS |
| Standard3 | ICAL | 1 | Fe | 2 | 0.034 | 15 | PASS |
| Standard4 | ICAL | 1 | Fe | 5 | 0.46 | 15 | PASS |
| Standard5 | ICAL | 1 | Fe | 7.5 | 0.054 | 15 | PASS |
| Standard6 | ICAL | 1 | Fe | 10 | 0.38 | 15 | PASS |
| Standard7 | ICAL | 1 | Fe | 20 | 0.12 | 15 | PASS |
| ICV | ICV | 1 | Fe | 10.02 | 0.47 | 15 | PASS |
| ICB | ICB | 1 | Fe | 0.00072 | 166.48 | 15 | <PQL |
| LLICV1 | CCV1 | 1 | Fe | 0.021 | 3.015 | 20 | PASS |
| ICSA1 | ICSA | 1 | Fe | 191.05 | 0.2 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Fe | 178.15 | 0.16 | 15 | PASS |
| CCV1 | CCV | 1 | Fe | 9.96 | 0.45 | 15 | PASS |
| CCB1 | CCB | 1 | Fe | 0.0052 | 37.6 | 15 | <PQL |
| MB-72468 | MBLK | 1 | Fe | 0.00035 | 140.26 | 15 | <PQL |
| LCS-72468 | LCS | 1 | Fe | 0.11 | 0.39 | 15 | PASS |
| N034104-001C | SAMP | 1 | Fe | 0.021 | 2.31 | 15 | PASS |
| N034104-001C | SAMP | 5 | Fe | 0.0044 | 5.46 | 15 | PASS |
| CCV2 | CCV | 1 | Fe | 9.95 | 0.52 | 15 | PASS |
| CCB2 | CCB | 1 | Fe | 0.0037 | 27.34 | 15 | <PQL |
| N034104-001C-PS | PS | 1 | Fe | 0.13 | 1.99 | 15 | PASS |
| N034104-001C-MS | MS | 1 | Fe | 0.14 | 0.45 | 15 | PASS |
| N034104-001C-MSD | MSD | 1 | Fe | 0.14 | 1.076 | 15 | PASS |
| N034104-002C | SAMP | 1 | Fe | 0.011 | 4.069 | 15 | PASS |
| N034104-003C | SAMP | 1 | Fe | 0.011 | 4.28 | 15 | PASS |
| N034104-004C | SAMP | 1 | Fe | 0.017 | 0.58 | 15 | PASS |
| N034104-005C | SAMP | 1 | Fe | 0.015 | 4.95 | 15 | PASS |
| NR N034104-006C | SAMP | 1 | Fe | 0.081 | 0.51 | 15 | PASS |
| N034104-007C | SAMP | 1 | Fe | 0.022 | 3.086 | 15 | PASS |
| N034104-008C | SAMP | 1 | Fe | 0.026 | 3.68 | 15 | PASS |
| CCV3 | CCV | 1 | Fe | 10.029 | 0.36 | 15 | PASS |
| CCB3 | CCB | 1 | Fe | 0.004 | 18.18 | 15 | <PQL |
| N034104-009C | SAMP | 1 | Fe | 0.026 | 1 | 15 | PASS |
| N034104-010C | SAMP | 1 | Fe | 0.0056 | 7.14 | 15 | PASS |
| N034104-011C | SAMP | 1 | Fe | 0.0095 | 7.6 | 15 | PASS |
| N034104-012C | SAMP | 1 | Fe | 0.0076 | 9.55 | 15 | PASS |
| N034104-015C | SAMP | 1 | Fe | 0.019 | 2.41 | 15 | PASS |
| N034106-001B | SAMP | 1 | Fe | 0.024 | 2.059 | 15 | PASS |
| CCV4 | CCV | 1 | Fe | 10 | 0.16 | 15 | PASS |
| CCB4 | CCB | 1 | Fe | 0.0047 | 25.059 | 15 | <PQL |
| ICSA2 | ICSA | 1 | Fe | 191.87 | 0.11 | 15 | PASS |

**RSD SUMMARY: 190214B**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| ICSAB2 | ICSAB | 1 | Fe | 178.46 | 0.15 | 15 | PASS |
| CCV5 | CCV | 1 | Fe | 9.97 | 0.4 | 15 | PASS |
| CCB5 | CCB | 1 | Fe | 0.0054 | 17.18 | 15 | <PQL |
| CCV6 | CCV | 1 | Fe | 9.94 | 0.034 | 15 | PASS |
| CCB6 | CCB | 1 | Fe | 0.0045 | 33.99 | 15 | <PQL |
| CCV7 | CCV | 1 | Fe | 9.97 | 0.18 | 15 | PASS |
| CCB7 | CCB | 1 | Fe | 0.004 | 9.71 | 15 | PASS |
| CCV8 | CCV | 1 | Fe | 10.019 | 0.51 | 15 | PASS |
| CCB8 | CCB | 1 | Fe | 0.0039 | 32.74 | 15 | <PQL |
| ICSA3 | ICSA | 1 | Fe | 191.43 | 0.097 | 15 | PASS |
| ICSAB3 | ICSAB | 1 | Fe | 178.21 | 0.055 | 15 | PASS |
| CCV9 | CCV | 1 | Fe | 10.011 | 0.23 | 15 | PASS |
| CCB9 | CCB | 1 | Fe | 0.0059 | 17.16 | 15 | <PQL |
| ICSA4 | ICSA | 1 | Fe | 190.91 | 0.029 | 15 | PASS |
| ICSAB4 | ICSAB | 1 | Fe | 166.79 | 11.67 | 15 | PASS |

**RSD SUMMARY: 190227A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Fe | 0 | 10.058 | 15 | PASS |
| Standard1 | ICAL | 1 | Fe | 0.02 | 4.58 | 15 | PASS |
| Standard2 | ICAL | 1 | Fe | 0.05 | 0.72 | 15 | PASS |
| Standard3 | ICAL | 1 | Fe | 2 | 0.38 | 15 | PASS |
| Standard4 | ICAL | 1 | Fe | 5 | 0.17 | 15 | PASS |
| Standard5 | ICAL | 1 | Fe | 7.5 | 0.27 | 15 | PASS |
| Standard6 | ICAL | 1 | Fe | 10 | 0.58 | 15 | PASS |
| Standard7 | ICAL | 1 | Fe | 20 | 0.45 | 15 | PASS |
| ICV | ICV | 1 | Fe | 10.001 | 0.27 | 15 | PASS |
| ICB | ICB | 1 | Fe | 0.002 | 33.37 | 15 | <PQL |
| LLICV1 | CCV1 | 1 | Fe | 0.023 | 4.037 | 20 | PASS |
| ICSA1 | ICSA | 1 | Fe | 170.99 | 0.17 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Fe | 178.75 | 0.19 | 15 | PASS |
| MB-72664 | MBLK | 1 | Fe | 0.0061 | 8.69 | 15 | PASS |
| LCS-72664 | LCS | 1 | Fe | 0.11 | 0.39 | 15 | PASS |
| N034104-006C | SAMP | 1 | Fe | 0.0023 | 9.3 | 15 | PASS |
| N034104-006C | SAMP | 5 | Fe | 0.0013 | 30.26 | 15 | <PQL |
| N034104-006C-PS | PS | 1 | Fe | 0.098 | 0.58 | 15 | PASS |
| N034104-006C-MS | MS | 1 | Fe | 0.097 | 1.6 | 15 | PASS |
| N034104-006C-MSD | MSD | 1 | Fe | 0.1 | 1.34 | 15 | PASS |
| N034129-003D | SAMP | 1 | Fe | 0.003 | 29.43 | 15 | <PQL |
| N034129-007D | SAMP | 1 | Fe | 0.0019 | 72.38 | 15 | <PQL |
| CCV1 | CCV | 1 | Fe | 9.84 | 0.37 | 15 | PASS |
| CCB1 | CCB | 1 | Fe | 0.0016 | 45.15 | 15 | <PQL |
| ICSA2 | ICSA | 1 | Fe | 169.34 | 0.16 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Fe | 176.33 | 0.21 | 15 | PASS |

NR

# ANALYSIS RUN LOG

**INJECTION LOG: 190214B**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-181001A,0.5<50mL |
| Standard2 | MWST-181001E |
| Standard3 | MWST-181001J,5<50mL |
| Standard4 | MWST-181001J,12.5<50mL |
| Standard5 | MWST-181001J,15<40mL |
| Standard6 | MWST-181001J,25<50mL |
| Standard7 | MWST-181001J |
| ICV | MWST-181001O |
| CCV | MWST-181001J,25<50mL |
| ICSA/ICSAB | MWST-181001R/MWST-180730A |
| Int. Std. (Y) | MSST-180926A/B |
| PS Spike | MWST-180930D/E/F |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CalBlk | IBLK | 1 | 02/14/2019 | 01:30:07 PM |
| 2 | Standard1 | ICAL | 1 | 02/14/2019 | 01:33:53 PM |
| 3 | Standard2 | ICAL | 1 | 02/14/2019 | 01:37:39 PM |
| 4 | Standard3 | ICAL | 1 | 02/14/2019 | 01:41:55 PM |
| 5 | Standard4 | ICAL | 1 | 02/14/2019 | 01:46:12 PM |
| 6 | Standard5 | ICAL | 1 | 02/14/2019 | 01:50:31 PM |
| 7 | Standard6 | ICAL | 1 | 02/14/2019 | 01:54:49 PM |
| 8 | Standard7 | ICAL | 1 | 02/14/2019 | 01:59:31 PM |
| 250 | ICV | ICV | 1 | 02/14/2019 | 02:04:50 PM |
| 1 | ICB | ICB | 1 | 02/14/2019 | 02:10:13 PM |
| 2 | LLICV1 | CCV1 | 1 | 02/14/2019 | 02:13:59 PM |
| 9 | ICSA1 | ICSA | 1 | 02/14/2019 | 02:18:16 PM |
| 10 | ICSAB1 | ICSAB | 1 | 02/14/2019 | 02:23:41 PM |
| 11 | MB-72438 | MBLK | 1 | 02/14/2019 | 02:34:28 PM |
| 11 | MB-72438 | MBLK | 1 | 02/14/2019 | 02:38:14 PM |
| 12 | LCS-72438 | LCS | 1 | 02/14/2019 | 02:46:31 PM |
| 13 | N034089-001B | SAMP | 1 | 02/14/2019 | 02:50:46 PM |
| 14 | N034089-001B | SAMP | 5 | 02/14/2019 | 02:56:01 PM |
| 15 | N034089-001B-PS | PS | 1 | 02/14/2019 | 03:00:17 PM |
| 16 | N034089-001B-MS | MS | 1 | 02/14/2019 | 03:05:34 PM |
| 17 | N034089-001B-MSD | MSD | 1 | 02/14/2019 | 03:10:51 PM |
| 18 | N034089-002B | SAMP | 1 | 02/14/2019 | 03:16:08 PM |
| 19 | N034089-003B | SAMP | 1 | 02/14/2019 | 03:21:26 PM |
| 7 | CCV1 | CCV | 1 | 02/14/2019 | 03:25:44 PM |
| 1 | CCB1 | CCB | 1 | 02/14/2019 | 03:30:05 PM |
| 20 | N034089-004B | SAMP | 1 | 02/14/2019 | 03:33:49 PM |
| 21 | N034089-005B | SAMP | 1 | 02/14/2019 | 03:38:07 PM |
| 22 | N034089-006B | SAMP | 1 | 02/14/2019 | 03:42:26 PM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 23 | N034090-006B | SAMP | 1 | 02/14/2019 | 03:46:45 PM |
| 24 | N034090-007B | SAMP | 1 | 02/14/2019 | 03:50:59 PM |
| 25 | N034090-008B | SAMP | 1 | 02/14/2019 | 03:55:15 PM |
| 26 | MB-72468 | MBLK | 1 | 02/14/2019 | 03:59:31 PM |
| 27 | LCS-72468 | LCS | 1 | 02/14/2019 | 04:03:17 PM |
| 28 | N034104-001C | SAMP | 1 | 02/14/2019 | 04:07:32 PM |
| 29 | N034104-001C | SAMP | 5 | 02/14/2019 | 04:11:48 PM |
| 7 | CCV2 | CCV | 1 | 02/14/2019 | 04:16:04 PM |
| 1 | CCB2 | CCB | 1 | 02/14/2019 | 04:21:25 PM |
| 30 | N034104-001C-PS | PS | 1 | 02/14/2019 | 04:25:12 PM |
| 31 | N034104-001C-MS | MS | 1 | 02/14/2019 | 04:29:29 PM |
| 32 | N034104-001C-MSD | MSD | 1 | 02/14/2019 | 04:33:46 PM |
| 33 | N034104-002C | SAMP | 1 | 02/14/2019 | 04:38:03 PM |
| 34 | N034104-003C | SAMP | 1 | 02/14/2019 | 04:42:21 PM |
| 35 | N034104-004C | SAMP | 1 | 02/14/2019 | 04:46:39 PM |
| 36 | N034104-005C | SAMP | 1 | 02/14/2019 | 04:50:54 PM |
| 37 | N034104-006C | SAMP | 1 | 02/14/2019 | 04:55:10 PM |
| 38 | N034104-007C | SAMP | 1 | 02/14/2019 | 04:59:27 PM |
| 39 | N034104-008C | SAMP | 1 | 02/14/2019 | 05:03:43 PM |
| 7 | CCV3 | CCV | 1 | 02/14/2019 | 05:08:01 PM |
| 1 | CCB3 | CCB | 1 | 02/14/2019 | 05:12:21 PM |
| 40 | N034104-009C | SAMP | 1 | 02/14/2019 | 05:16:05 PM |
| 41 | N034104-010C | SAMP | 1 | 02/14/2019 | 05:20:22 PM |
| 42 | N034104-011C | SAMP | 1 | 02/14/2019 | 05:24:40 PM |
| 43 | N034104-012C | SAMP | 1 | 02/14/2019 | 05:28:56 PM |
| 44 | N034104-015C | SAMP | 1 | 02/14/2019 | 05:33:15 PM |
| 45 | N034106-001B | SAMP | 1 | 02/14/2019 | 05:37:31 PM |
| 46 | MB-72469 | MBLK | 1 | 02/14/2019 | 05:42:50 PM |
| 47 | LCS-72469 | LCS | 1 | 02/14/2019 | 05:46:39 PM |
| 48 | N034107-001B | SAMP | 1 | 02/14/2019 | 05:50:54 PM |
| 49 | N034107-001B | SAMP | 5 | 02/14/2019 | 05:55:10 PM |
| 7 | CCV4 | CCV | 1 | 02/14/2019 | 05:59:25 PM |
| 1 | CCB4 | CCB | 1 | 02/14/2019 | 06:03:47 PM |
| 9 | ICSA2 | ICSA | 1 | 02/14/2019 | 06:07:32 PM |
| 10 | ICSAB2 | ICSAB | 1 | 02/14/2019 | 06:12:57 PM |
| 50 | N034107-001B-PS | PS | 1 | 02/14/2019 | 06:18:23 PM |
| 51 | N034107-001B-MS | MS | 1 | 02/14/2019 | 06:23:39 PM |
| 52 | N034107-001B-MSD | MSD | 1 | 02/14/2019 | 06:27:56 PM |
| 53 | N034107-002B | SAMP | 1 | 02/14/2019 | 06:32:12 PM |
| 54 | N034107-003B | SAMP | 1 | 02/14/2019 | 06:36:29 PM |
| 55 | N034107-004B | SAMP | 1 | 02/14/2019 | 06:41:47 PM |
| 56 | N034107-005B | SAMP | 1 | 02/14/2019 | 06:47:03 PM |
| 57 | N034107-006B | SAMP | 1 | 02/14/2019 | 06:52:33 PM |
| 58 | N034107-007B | SAMP | 1 | 02/14/2019 | 06:57:51 PM |
| 59 | N034107-010B | SAMP | 1 | 02/14/2019 | 07:03:10 PM |
| 7 | CCV5 | CCV | 1 | 02/14/2019 | 07:08:26 PM |

NR

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CCB5 | CCB | 1 | 02/14/2019 | 07:12:46 PM |
| 60 | N034107-011B | SAMP | 1 | 02/14/2019 | 07:16:33 PM |
| 61 | N034107-012B | SAMP | 1 | 02/14/2019 | 07:21:50 PM |
| 62 | N034107-013B | SAMP | 1 | 02/14/2019 | 07:27:06 PM |
| 63 | N034107-014B | SAMP | 1 | 02/14/2019 | 07:32:22 PM |
| 64 | N034107-015B | SAMP | 1 | 02/14/2019 | 07:37:38 PM |
| 65 | N034107-016B | SAMP | 1 | 02/14/2019 | 07:42:55 PM |
| 66 | N034107-017B | SAMP | 1 | 02/14/2019 | 07:48:11 PM |
| 67 | N034107-018B | SAMP | 1 | 02/14/2019 | 07:53:36 PM |
| 68 | N034107-019B | SAMP | 1 | 02/14/2019 | 07:58:54 PM |
| 69 | N034107-020B | SAMP | 1 | 02/14/2019 | 08:03:12 PM |
| 7 | CCV6 | CCV | 1 | 02/14/2019 | 08:07:30 PM |
| 1 | CCB6 | CCB | 1 | 02/14/2019 | 08:11:49 PM |
| 70 | N034107-021B | SAMP | 1 | 02/14/2019 | 08:15:35 PM |
| 71 | N034107-022B | SAMP | 1 | 02/14/2019 | 08:19:54 PM |
| 72 | MB-72464 | MBLK | 1 | 02/14/2019 | 08:24:11 PM |
| 73 | LCS-72464 | LCS | 1 | 02/14/2019 | 08:27:57 PM |
| 74 | N034104-001E | SAMP | 1 | 02/14/2019 | 08:32:14 PM |
| 75 | N034104-001E | SAMP | 5 | 02/14/2019 | 08:36:32 PM |
| 76 | N034104-001E-PS | PS | 1 | 02/14/2019 | 08:40:48 PM |
| 77 | N034104-001E-MS | MS | 1 | 02/14/2019 | 08:45:05 PM |
| 78 | N034104-001E-MSD | MSD | 1 | 02/14/2019 | 08:49:22 PM |
| 79 | N034104-002E | SAMP | 1 | 02/14/2019 | 08:53:40 PM |
| 7 | CCV7 | CCV | 1 | 02/14/2019 | 08:57:58 PM |
| 1 | CCB7 | CCB | 1 | 02/14/2019 | 09:02:19 PM |
| 80 | N034104-003E | SAMP | 1 | 02/14/2019 | 09:06:03 PM |
| 81 | N034104-004E | SAMP | 1 | 02/14/2019 | 09:10:20 PM |
| 82 | N034104-005E | SAMP | 1 | 02/14/2019 | 09:14:39 PM |
| 83 | N034104-006E | SAMP | 1 | 02/14/2019 | 09:18:57 PM |
| 84 | N034104-007E | SAMP | 1 | 02/14/2019 | 09:23:24 PM |
| 85 | N034104-008E | SAMP | 1 | 02/14/2019 | 09:27:41 PM |
| 86 | N034104-009E | SAMP | 1 | 02/14/2019 | 09:31:57 PM |
| 87 | N034104-010E | SAMP | 1 | 02/14/2019 | 09:36:14 PM |
| 88 | N034104-011E | SAMP | 1 | 02/14/2019 | 09:40:32 PM |
| 89 | N034104-012E | SAMP | 1 | 02/14/2019 | 09:44:49 PM |
| 7 | CCV8 | CCV | 1 | 02/14/2019 | 09:49:07 PM |
| 1 | CCB8 | CCB | 1 | 02/14/2019 | 09:53:51 PM |
| 9 | ICSA3 | ICSA | 1 | 02/14/2019 | 09:57:38 PM |
| 10 | ICSAB3 | ICSAB | 1 | 02/14/2019 | 10:03:04 PM |
| 90 | N034104-015E | SAMP | 1 | 02/14/2019 | 10:08:30 PM |
| 7 | CCV9 | CCV | 1 | 02/14/2019 | 10:12:47 PM |
| 1 | CCB9 | CCB | 1 | 02/14/2019 | 10:17:07 PM |
| 9 | ICSA4 | ICSA | 1 | 02/14/2019 | 10:20:53 PM |
| 10 | ICSAB4 | ICSAB | 1 | 02/14/2019 | 10:26:19 PM |

**INJECTION LOG: 190227A**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-181001A,0.5<50mL |
| Standard2 | MWST-181001E |
| Standard3 | MWST-181001J,5<50mL |
| Standard4 | MWST-181001J,12.5<50mL |
| Standard5 | MWST-181001J,15<40mL |
| Standard6 | MWST-181001J,25<50mL |
| Standard7 | MWST-181001J |
| ICV | MWST-181001O |
| CCV | MWST-181001J,25<50mL |
| ICSA/ICSAB | MWST-181001R/MWST-180730A |
| Int. Std. (Y) | MSST-180926A/B |
| PS Spike | MWST-180930D/E/F |

| | A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|---|
| | 1 | CalBlk | IBLK | 1 | 02/27/2019 | 09:26:41 AM |
| | 2 | Standard1 | ICAL | 1 | 02/27/2019 | 09:30:29 AM |
| | 3 | Standard2 | ICAL | 1 | 02/27/2019 | 09:34:14 AM |
| | 4 | Standard3 | ICAL | 1 | 02/27/2019 | 09:38:29 AM |
| | 5 | Standard4 | ICAL | 1 | 02/27/2019 | 09:42:45 AM |
| | 6 | Standard5 | ICAL | 1 | 02/27/2019 | 09:47:04 AM |
| | 7 | Standard6 | ICAL | 1 | 02/27/2019 | 09:51:23 AM |
| | 8 | Standard7 | ICAL | 1 | 02/27/2019 | 09:55:43 AM |
| | 250 | ICV | ICV | 1 | 02/27/2019 | 10:03:05 AM |
| | 1 | ICB | ICB | 1 | 02/27/2019 | 10:08:27 AM |
| | 2 | LLICV1 | CCV1 | 1 | 02/27/2019 | 10:12:11 AM |
| | 9 | ICSA1 | ICSA | 1 | 02/27/2019 | 10:15:58 AM |
| | 10 | ICSAB1 | ICSAB | 1 | 02/27/2019 | 10:21:24 AM |
| | 11 | MB-72664 | MBLK | 1 | 02/27/2019 | 10:29:21 AM |
| | 12 | LCS-72664 | LCS | 1 | 02/27/2019 | 10:33:06 AM |
| | 13 | N034104-006C | SAMP | 1 | 02/27/2019 | 10:37:21 AM |
| NR | 14 | N034104-006C | SAMP | 5 | 02/27/2019 | 10:41:38 AM |
| | 15 | N034104-006C-PS | PS | 1 | 02/27/2019 | 10:45:54 AM |
| | 16 | N034104-006C-MS | MS | 1 | 02/27/2019 | 10:50:11 AM |
| | 17 | N034104-006C-MSD | MSD | 1 | 02/27/2019 | 10:54:28 AM |
| | 18 | N034129-003D | SAMP | 1 | 02/27/2019 | 10:58:46 AM |
| | 19 | N034129-007D | SAMP | 1 | 02/27/2019 | 11:03:02 AM |
| | 7 | CCV1 | CCV | 1 | 02/27/2019 | 11:07:21 AM |
| | 1 | CCB1 | CCB | 1 | 02/27/2019 | 11:12:40 AM |
| | 9 | ICSA2 | ICSA | 1 | 02/27/2019 | 11:16:29 AM |
| | 10 | ICSAB2 | ICSAB | 1 | 02/27/2019 | 11:24:48 AM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/13/2019 8:46:59**
Prep End Date: **2/13/2019 1:00:00**
Reviewed/ Date: NS 2/20/2019
Initials/ Date: for

Prep Batch **72468** Prep Code: **3010_W_DISS** Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **Db-2-3** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72468 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-72468 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-001C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-001C-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-001C-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-002C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-003C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-004C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-005C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-006C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-007C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-008C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-009C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-010C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10560 | HYDROCHLORIC ACID |
| 10570 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/13/2019 8:46:59**
Prep End Date: **2/13/2019 1:00:00**
Reviewed/ Date: NS 2/20/2019
Initials/ Date: for
Prep Batch **72468** Prep Code: **3010_W_DISS** Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **Db-2-3** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-011C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-012C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-015C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034106-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10560 | HYDROCHLORIC ACID |
| 10570 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/26/2019 4:32:16**
Prep End Date: **2/26/2019 9:00:00**
Reviewed/ Date: NS 2/28/2019
Initials/ Date: for
Prep Batch **72664** Prep Code: **3010_W_DISS** Technician **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.6** | **02-17** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72664 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-72664 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-006C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-006C-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-006C-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-003D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-007D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10560 | HYDROCHLORIC ACID |
| 10570 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190214B**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Iron** | | | | | | | | |
| CalBlk | 02/14/2019 | 01:30:07 PM | Fe | 273.953 | -131 | 0.00 | mg/L | |
| Standard1 | 02/14/2019 | 01:33:53 PM | Fe | 273.953 | 313 | 0.0200 | mg/L | |
| Standard2 | 02/14/2019 | 01:37:39 PM | Fe | 273.953 | 1097 | 0.050 | mg/L | |
| Standard3 | 02/14/2019 | 01:41:55 PM | Fe | 273.953 | 30649 | 2.000 | mg/L | |
| Standard4 | 02/14/2019 | 01:46:12 PM | Fe | 273.953 | 77526 | 5.000 | mg/L | |
| Standard5 | 02/14/2019 | 01:50:31 PM | Fe | 273.953 | 113514 | 7.500 | mg/L | |
| Standard6 | 02/14/2019 | 01:54:49 PM | Fe | 273.953 | 151626 | 10.000 | mg/L | |
| Standard7 | 02/14/2019 | 01:59:31 PM | Fe | 273.953 | 302194 | 20.000 | mg/L | 1.0000 |

**INITIAL CALIBRATION SUMMARY: 190227A**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Iron** | | | | | | | | |
| CalBlk | 02/27/2019 | 09:26:41 AM | Fe | 273.953 | -122 | 0.00 | mg/L | |
| Standard1 | 02/27/2019 | 09:30:29 AM | Fe | 273.953 | 338 | 0.0200 | mg/L | |
| Standard2 | 02/27/2019 | 09:34:14 AM | Fe | 273.953 | 1079 | 0.050 | mg/L | |
| Standard3 | 02/27/2019 | 09:38:29 AM | Fe | 273.953 | 29146 | 2.000 | mg/L | |
| Standard4 | 02/27/2019 | 09:42:45 AM | Fe | 273.953 | 72974 | 5.000 | mg/L | |
| Standard5 | 02/27/2019 | 09:47:04 AM | Fe | 273.953 | 109502 | 7.500 | mg/L | |
| Standard6 | 02/27/2019 | 09:51:23 AM | Fe | 273.953 | 144282 | 10.000 | mg/L | |
| Standard7 | 02/27/2019 | 09:55:43 AM | Fe | 273.953 | 287489 | 20.000 | mg/L | 1.0000 |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289154** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10019.721 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **LLICV1** | SampType: **CCV1** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289156** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 21.379 | 20 | 20.00 | 0 | 107 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289169** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9957.035 | 20 | 10000 | 0 | 99.6 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289181** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9951.341 | 20 | 10000 | 0 | 99.5 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289193** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10029.270 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289205** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9999.481 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289219** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9968.986 | 20 | 10000 | 0 | 99.7 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289231** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9936.425 | 20 | 10000 | 0 | 99.4 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289243** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9970.588 | 20 | 10000 | 0 | 99.7 | 90 | 110 | | | | |

| Sample ID **CCV8** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289255** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10018.711 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132152** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132152** | TestNo: **EPA 6010B** | | Analysis Date: **2/27/2019** | SeqNo: **3303584** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10000.926 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **LLICV1** | SampType: **CCV1** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132152** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132152** | TestNo: **EPA 6010B** | | Analysis Date: **2/27/2019** | SeqNo: **3303586** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 23.223 | 20 | 20.00 | 0 | 116 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132152** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132152** | TestNo: **EPA 6010B** | | Analysis Date: **2/27/2019** | SeqNo: **3303598** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9838.209 | 20 | 10000 | 0 | 98.4 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID | **ICB** | SampType: | **ICB** | TestCode: | **6010_WDPG** | Units: | **ug/L** | Prep Date: | | RunNo: | **131849** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ICB** | Batch ID: | **R131849** | TestNo: | **EPA 6010B** | | | Analysis Date: | **2/14/2019** | SeqNo: | **3289155** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 0.720 | 20 | | | | | | | | | |

| Sample ID | **CCB1** | SampType: | **CCB** | TestCode: | **6010_WDPG** | Units: | **ug/L** | Prep Date: | | RunNo: | **131849** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **CCB** | Batch ID: | **R131849** | TestNo: | **EPA 6010B** | | | Analysis Date: | **2/14/2019** | SeqNo: | **3289170** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 5.245 | 20 | | | | | | | | | |

| Sample ID | **CCB2** | SampType: | **CCB** | TestCode: | **6010_WDPG** | Units: | **ug/L** | Prep Date: | | RunNo: | **131849** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **CCB** | Batch ID: | **R131849** | TestNo: | **EPA 6010B** | | | Analysis Date: | **2/14/2019** | SeqNo: | **3289182** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 3.731 | 20 | | | | | | | | | |

| Sample ID | **CCB3** | SampType: | **CCB** | TestCode: | **6010_WDPG** | Units: | **ug/L** | Prep Date: | | RunNo: | **131849** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **CCB** | Batch ID: | **R131849** | TestNo: | **EPA 6010B** | | | Analysis Date: | **2/14/2019** | SeqNo: | **3289194** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 4.041 | 20 | | | | | | | | | |

| Sample ID | **CCB4** | SampType: | **CCB** | TestCode: | **6010_WDPG** | Units: | **ug/L** | Prep Date: | | RunNo: | **131849** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **CCB** | Batch ID: | **R131849** | TestNo: | **EPA 6010B** | | | Analysis Date: | **2/14/2019** | SeqNo: | **3289206** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 4.723 | 20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289220** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 5.403 | 20 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289232** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 4.539 | 20 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289244** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 4.005 | 20 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289256** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 3.933 | 20 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132152** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132152** | TestNo: **EPA 6010B** | | Analysis Date: **2/27/2019** | SeqNo: **3303585** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 2.017 | 20 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132152** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132152** | TestNo: **EPA 6010B** | | Analysis Date: **2/27/2019** | SeqNo: **3303599** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 1.624 | 20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289157** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 448418.225 | 50 | 500000 | 0 | 89.7 | 80 | 120 | | | | |
| Calcium | 463591.986 | 500 | 500000 | 0 | 92.7 | 80 | 120 | | | | |
| Iron | 191048.060 | 20 | 200000 | 0 | 95.5 | 80 | 120 | | | | |
| Magnesium | 428033.899 | 100 | 500000 | 0 | 85.6 | 80 | 120 | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289158** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 522866.125 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |
| Calcium | 534767.237 | 500 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Iron | 178145.752 | 20 | 200000 | 0 | 89.1 | 80 | 120 | | | | |
| Magnesium | 498618.133 | 100 | 500000 | 0 | 99.7 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289207** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 451127.938 | 50 | 500000 | 0 | 90.2 | 80 | 120 | | | | |
| Calcium | 465817.642 | 500 | 500000 | 0 | 93.2 | 80 | 120 | | | | |
| Iron | 191865.337 | 20 | 200000 | 0 | 95.9 | 80 | 120 | | | | |
| Magnesium | 437041.454 | 100 | 500000 | 0 | 87.4 | 80 | 120 | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289208** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 525477.255 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289208** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 532208.135 | 500 | 500000 | 0 | 106 | 80 | 120 | | | | |
| Iron | 178464.514 | 20 | 200000 | 0 | 89.2 | 80 | 120 | | | | |
| Magnesium | 506938.941 | 100 | 500000 | 0 | 101 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289257** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 451038.514 | 50 | 500000 | 0 | 90.2 | 80 | 120 | | | | |
| Calcium | 466495.706 | 500 | 500000 | 0 | 93.3 | 80 | 120 | | | | |
| Iron | 191427.597 | 20 | 200000 | 0 | 95.7 | 80 | 120 | | | | |
| Magnesium | 432528.241 | 100 | 500000 | 0 | 86.5 | 80 | 120 | | | | |

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289258** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 525919.147 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |
| Calcium | 534830.283 | 500 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Iron | 178211.939 | 20 | 200000 | 0 | 89.1 | 80 | 120 | | | | |
| Magnesium | 501506.176 | 100 | 500000 | 0 | 100 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132152** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132152** | TestNo: **EPA 6010B** | | Analysis Date: **2/27/2019** | SeqNo: **3303587** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 476671.204 | 50 | 500000 | 0 | 95.3 | 80 | 120 | | | | |
| Calcium | 488572.589 | 500 | 500000 | 0 | 97.7 | 80 | 120 | | | | |
| Iron | 170985.637 | 20 | 200000 | 0 | 85.5 | 80 | 120 | | | | |
| Magnesium | 444853.042 | 100 | 500000 | 0 | 89.0 | 80 | 120 | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132152** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132152** | TestNo: **EPA 6010B** | | Analysis Date: **2/27/2019** | SeqNo: **3303588** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 525117.108 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |
| Calcium | 538920.267 | 500 | 500000 | 0 | 108 | 80 | 120 | | | | |
| Iron | 178748.802 | 20 | 200000 | 0 | 89.4 | 80 | 120 | | | | |
| Magnesium | 489132.706 | 100 | 500000 | 0 | 97.8 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132152** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132152** | TestNo: **EPA 6010B** | | Analysis Date: **2/27/2019** | SeqNo: **3303600** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 476976.468 | 50 | 500000 | 0 | 95.4 | 80 | 120 | | | | |
| Calcium | 491720.050 | 500 | 500000 | 0 | 98.3 | 80 | 120 | | | | |
| Iron | 169335.592 | 20 | 200000 | 0 | 84.7 | 80 | 120 | | | | |
| Magnesium | 431945.777 | 100 | 500000 | 0 | 86.4 | 80 | 120 | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132152** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132152** | TestNo: **EPA 6010B** | | Analysis Date: **2/27/2019** | SeqNo: **3303601** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 522205.252 | 50 | 500000 | 0 | 104 | 80 | 120 | | | | |
| Calcium | 539079.409 | 500 | 500000 | 0 | 108 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132152** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132152** | TestNo: **EPA 6010B** | | Analysis Date: **2/27/2019** | SeqNo: **3303601** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 176329.878 | 20 | 200000 | 0 | 88.2 | 80 | 120 | | | | |
| Magnesium | 468104.504 | 100 | 500000 | 0 | 93.6 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190214B**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 1 | 99.64 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1.047 | 104.66 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 1.066 | 106.59 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 1.0095 | 100.95 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 1.033 | 103.33 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 1.022 | 102.15 | 65-125 | PASS |
| Standard7 | ICAL | 1 | 1.0038 | 100.38 | 65-125 | PASS |
| ICV | ICV | 1 | 1.018 | 101.79 | 65-125 | PASS |
| ICB | ICB | 1 | 1 | 99.81 | 65-125 | PASS |
| LLICV1 | CCV1 | 1 | 1.0012 | 100.12 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 1.052 | 105.16 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 0.91 | 90.75 | 65-125 | PASS |
| CCV1 | CCV | 1 | 1.028 | 102.84 | 65-125 | PASS |
| CCB1 | CCB | 1 | 1.009 | 100.9 | 65-125 | PASS |
| MB-72468 | MBLK | 1 | 1.023 | 102.27 | 65-125 | PASS |
| LCS-72468 | LCS | 1 | 0.96 | 96.23 | 65-125 | PASS |
| N034104-001C | SAMP | 1 | 1.048 | 104.79 | 65-125 | PASS |
| N034104-001C | SAMP | 5 | 1.024 | 102.35 | 65-125 | PASS |
| CCV2 | CCV | 1 | 1.031 | 103.1 | 65-125 | PASS |
| CCB2 | CCB | 1 | 1.011 | 101.12 | 65-125 | PASS |
| N034104-001C-PS | PS | 1 | 1.046 | 104.61 | 65-125 | PASS |
| N034104-001C-MS | MS | 1 | 1.019 | 101.9 | 65-125 | PASS |
| N034104-001C-MSD | MSD | 1 | 1.017 | 101.72 | 65-125 | PASS |
| N034104-002C | SAMP | 1 | 1.061 | 106.09 | 65-125 | PASS |
| N034104-003C | SAMP | 1 | 1.037 | 103.69 | 65-125 | PASS |
| N034104-004C | SAMP | 1 | 1.053 | 105.29 | 65-125 | PASS |
| N034104-005C | SAMP | 1 | 1.046 | 104.59 | 65-125 | PASS |
| N034104-006C | SAMP | 1 | 1.064 | 106.36 | 65-125 | PASS |
| N034104-007C | SAMP | 1 | 1.059 | 105.91 | 65-125 | PASS |
| N034104-008C | SAMP | 1 | 1.015 | 101.46 | 65-125 | PASS |
| CCV3 | CCV | 1 | 1.035 | 103.54 | 65-125 | PASS |
| CCB3 | CCB | 1 | 1.02 | 101.99 | 65-125 | PASS |
| N034104-009C | SAMP | 1 | 1.064 | 106.42 | 65-125 | PASS |
| N034104-010C | SAMP | 1 | 1.053 | 105.3 | 65-125 | PASS |
| N034104-011C | SAMP | 1 | 1.062 | 106.2 | 65-125 | PASS |
| N034104-012C | SAMP | 1 | 1.054 | 105.43 | 65-125 | PASS |
| N034104-015C | SAMP | 1 | 1.051 | 105.11 | 65-125 | PASS |
| N034106-001B | SAMP | 1 | 0.98 | 97.98 | 65-125 | PASS |
| CCV4 | CCV | 1 | 1.032 | 103.16 | 65-125 | PASS |
| CCB4 | CCB | 1 | 1.018 | 101.76 | 65-125 | PASS |

**INTERNAL STANDARD: 190214B**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| ICSA2 | ICSA | 1 | 1.064 | 106.43 | 65-125 | PASS |
| ICSAB2 | ICSAB | 1 | 0.92 | 92.052 | 65-125 | PASS |
| CCV5 | CCV | 1 | 1.042 | 104.22 | 65-125 | PASS |
| CCB5 | CCB | 1 | 1.028 | 102.77 | 65-125 | PASS |
| CCV6 | CCV | 1 | 1.047 | 104.68 | 65-125 | PASS |
| CCB6 | CCB | 1 | 1.029 | 102.86 | 65-125 | PASS |
| CCV7 | CCV | 1 | 1.044 | 104.41 | 65-125 | PASS |
| CCB7 | CCB | 1 | 1.028 | 102.84 | 65-125 | PASS |
| CCV8 | CCV | 1 | 1.048 | 104.78 | 65-125 | PASS |
| CCB8 | CCB | 1 | 1.032 | 103.19 | 65-125 | PASS |
| ICSA3 | ICSA | 1 | 1.076 | 107.58 | 65-125 | PASS |
| ICSAB3 | ICSAB | 1 | 0.93 | 92.91 | 65-125 | PASS |
| CCV9 | CCV | 1 | 1.048 | 104.8 | 65-125 | PASS |
| CCB9 | CCB | 1 | 1.032 | 103.2 | 65-125 | PASS |
| ICSA4 | ICSA | 1 | 1.079 | 107.95 | 65-125 | PASS |
| ICSAB4 | ICSAB | 1 | 0.55 | 55.33 | 65-125 | NR! |

**INTERNAL STANDARD: 190227A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 1.066 | 106.57 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1.071 | 107.13 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 1.077 | 107.66 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 1.097 | 109.75 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 1.077 | 107.65 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 1.051 | 105.11 | 65-125 | PASS |
| Standard7 | ICAL | 1 | 1.037 | 103.67 | 65-125 | PASS |
| ICV | ICV | 1 | 1.045 | 104.48 | 65-125 | PASS |
| ICB | ICB | 1 | 1.026 | 102.64 | 65-125 | PASS |
| LLICV1 | CCV1 | 1 | 1.094 | 109.44 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 1.069 | 106.87 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 0.96 | 96.47 | 65-125 | PASS |
| MB-72664 | MBLK | 1 | 1.039 | 103.94 | 65-125 | PASS |
| LCS-72664 | LCS | 1 | 0.99 | 99.33 | 65-125 | PASS |
| N034104-006C | SAMP | 1 | 1.13 | 113.07 | 65-125 | PASS |
| N034104-006C | SAMP | 5 | 1.054 | 105.38 | 65-125 | PASS |
| N034104-006C-PS | PS | 1 | 1.084 | 108.38 | 65-125 | PASS |
| N034104-006C-MS | MS | 1 | 1.11 | 110.87 | 65-125 | PASS |
| N034104-006C-MSD | MSD | 1 | 1.11 | 111.07 | 65-125 | PASS |
| N034129-003D | SAMP | 1 | 1.026 | 102.57 | 65-125 | PASS |
| N034129-007D | SAMP | 1 | 1.01 | 101.04 | 65-125 | PASS |
| CCV1 | CCV | 1 | 1.084 | 108.4 | 65-125 | PASS |
| CCB1 | CCB | 1 | 1.058 | 105.79 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 1.097 | 109.67 | 65-125 | PASS |
| ICSAB2 | ICSAB | 1 | 0.91 | 91.18 | 65-125 | PASS |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034104
Test Method: EPA 6010
Analysis Date: 2/14/2019

Matrix: Groundwater
Batch No.: 72468

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

| Sample ID | Analyte | Units | Calc Val | OQual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|
| N034104-001C DT 5X | Iron | ug/L | 0 | NA | 20.68434 | 100.00% | 10 |

Note: NA - Not applicable

**ASSET Laboratories**

**ICP-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034104
Test Method: EPA 6010
Analysis Date: 2/27/2019

Matrix: Groundwater
Batch No.: 72664

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

| Sample ID | Analyte | Units | Calc Val | OQual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|
| N034104-006C DT 5X | Iron | ug/L | 0 | NA | 0 | | 10 |

Note: NA - Not applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID **N034104-001C-PS** | SampType: **PS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | | | | RunNo: **131849** | | | | |
| Client ID: **ZZZZZZ** | Batch ID: **72468** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **2/14/2019** | | | | SeqNo: **3289183** | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Iron | 125.972 | 20 | 100.0 | 20.68 | 105 | 80 | 120 | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID | N034104-006C-PS | SampType: | PS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | | RunNo: | 132152 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72664 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/27/2019 | SeqNo: | 3303593 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 97.711 | 20 | 100.0 | 0 | 97.7 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

**Acceptance Criteria:** MDL < spike < 10XMDL

| Analyte | Wavelength | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Spike Conc., mg/L | SD | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ag | 328.069 | 0.0033 | 0.0031 | 0.0033 | 0.0033 | 0.0031 | 0.0030 | 0.0047 | 0.003 | 0.00061604 | **0.001936** | 0.003 |
| Al | 237.312 | 0.0664 | 0.0603 | 0.0656 | 0.0650 | 0.0658 | 0.0660 | 0.0946 | 0.050 | 0.01254823 | **0.039439** | 0.050 |
| As | 188.983 | 0.0131 | 0.0089 | 0.0120 | 0.0089 | 0.0060 | 0.0102 | 0.0080 | 0.010 | 0.00223806 | **0.007034** | 0.010 |
| B | 249.679 | 0.1491 | 0.1267 | 0.1281 | 0.1467 | 0.1261 | 0.1195 | 0.1015 | 0.100 | 0.01801843 | **0.056632** | 0.100 |
| Ba | 233.529 | 0.0033 | 0.0031 | 0.0033 | 0.0031 | 0.0032 | 0.0030 | 0.0024 | 0.003 | 0.00033070 | **0.001039** | 0.003 |
| Be | 313.104 | 0.0012 | 0.0011 | 0.0012 | 0.0012 | 0.0011 | 0.0011 | 0.0011 | 0.001 | 0.00006873 | **0.000216** | 0.001 |
| Ca | 227.546 | 0.2381 | 0.2231 | 0.2559 | 0.2299 | 0.2194 | 0.2473 | 0.2691 | 0.200 | 0.02202408 | **0.069222** | 0.200 |
| Cd | 214.437 | 0.0031 | 0.0029 | 0.0031 | 0.0032 | 0.0031 | 0.0031 | 0.0025 | 0.003 | 0.00027049 | **0.000850** | 0.003 |
| Co | 228.614 | 0.0030 | 0.0028 | 0.0030 | 0.0031 | 0.0031 | 0.0031 | 0.0027 | 0.003 | 0.00014491 | **0.000455** | 0.003 |
| Cr | 267.719 | 0.0009 | 0.0008 | 0.0009 | 0.0012 | 0.0012 | 0.0013 | 0.0009 | 0.001 | 0.00017120 | **0.000538** | 0.001 |
| Fe | 273.953 | 0.0255 | 0.0226 | 0.0242 | 0.0255 | 0.0252 | 0.0248 | 0.0387 | 0.020 | 0.00552308 | **0.017359** | 0.020 |
| Mg | 279.079 | 0.1124 | 0.1052 | 0.1129 | 0.1315 | 0.1305 | 0.1314 | 0.1435 | 0.100 | 0.01532024 | **0.048152** | 0.100 |
| Mn | 257.607 | 0.0119 | 0.0111 | 0.0120 | 0.0122 | 0.0121 | 0.0122 | 0.0099 | 0.010 | 0.00098403 | **0.003093** | 0.010 |
| Mo | 202.03 | 0.0079 | 0.0068 | 0.0067 | 0.0065 | 0.0065 | 0.0062 | 0.0057 | 0.005 | 0.00083918 | **0.002638** | 0.005 |
| Ni | 231.604 | 0.0061 | 0.0056 | 0.0062 | 0.0060 | 0.0060 | 0.0062 | 0.0045 | 0.005 | 0.00062690 | **0.001970** | 0.005 |
| Pb | 220.351 | 0.0124 | 0.0117 | 0.0127 | 0.0115 | 0.0120 | 0.0118 | 0.0090 | 0.010 | 0.00126325 | **0.003970** | 0.010 |
| Sb | 206.836 | 0.0102 | 0.0095 | 0.0104 | 0.0112 | 0.0117 | 0.0111 | 0.0080 | 0.010 | 0.00117407 | **0.003690** | 0.010 |
| Se | 196.025 | 0.0102 | 0.0087 | 0.0114 | 0.0136 | 0.0144 | 0.0136 | 0.0075 | 0.010 | 0.00251341 | **0.007900** | 0.010 |
| Sn | 189.927 | 0.0095 | 0.0084 | 0.0090 | 0.0124 | 0.0126 | 0.0129 | 0.0099 | 0.010 | 0.00175765 | **0.005524** | 0.010 |
| Ti | 334.943 | 0.0114 | 0.0106 | 0.0115 | 0.0115 | 0.0115 | 0.0115 | 0.0098 | 0.010 | 0.00074093 | **0.002329** | 0.010 |
| Tl | 190.794 | 0.0170 | 0.0150 | 0.0165 | 0.0171 | 0.0180 | 0.0168 | 0.0151 | 0.015 | 0.00116288 | **0.003655** | 0.015 |
| V | 292.404 | 0.0025 | 0.0024 | 0.0025 | 0.0032 | 0.0032 | 0.0032 | 0.0027 | 0.003 | 0.00038496 | **0.001210** | 0.003 |
| Zn | 206.201 | 0.0109 | 0.0100 | 0.0107 | 0.0125 | 0.0124 | 0.0124 | 0.0095 | 0.010 | 0.00123731 | **0.003889** | 0.010 |

## METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

| Analyte | ICP-02 MDL | MDL Blank | Higher MDL | LOD | PQL |
|---|---|---|---|---|---|
| Ag | 0.001936 | 0.002362 | 0.002362 | 0.002 | 0.003 |
| Al | 0.039439 | 0.039859 | 0.039859 | 0.04 | 0.5 |
| As | 0.007034 | 0.007672 | 0.007672 | 0.0075 | 0.01 |
| B | 0.056632 | 0.074419 | 0.074419 | 0.075 | 0.1 |
| Ba | 0.001039 | 0.000433 | 0.001039 | 0.001 | 0.003 |
| Be | 0.000216 | 0.000311 | 0.000311 | 0.0005 | 0.003 |
| Ca | 0.069222 | 0.084832 | 0.084832 | 0.1 | 0.5 |
| Cd | 0.000850 | 0.000592 | 0.000850 | 0.001 | 0.003 |
| Co | 0.000455 | 0.001902 | 0.001902 | 0.001 | 0.003 |
| Cr | 0.000538 | 0.000527 | 0.000538 | 0.001 | 0.003 |
| Fe | 0.017359 | 0.017751 | 0.017751 | 0.018 | 0.1 |
| Mg | 0.048152 | 0.043017 | 0.048152 | 0.05 | 0.1 |
| Mn | 0.003093 | 0.000782 | 0.003093 | 0.005 | 0.5 |
| Mo | 0.002638 | 0.002482 | 0.002638 | 0.0025 | 0.005 |
| Ni | 0.001970 | 0.000822 | 0.001970 | 0.0025 | 0.005 |
| Pb | 0.003970 | 0.002762 | 0.003970 | 0.005 | 0.005 |
| Sb | 0.003690 | 0.004504 | 0.004504 | 0.005 | 0.01 |
| Se | 0.007900 | 0.008549 | 0.008549 | 0.008 | 0.01 |
| Sn | 0.005524 | 0.003415 | 0.005524 | 0.0075 | 0.05 |
| Ti | 0.002329 | 0.001493 | 0.002329 | 0.005 | 0.05 |
| Tl | 0.003655 | 0.005987 | 0.005987 | 0.005 | 0.015 |
| V | 0.001210 | 0.000749 | 0.001210 | 0.002 | 0.003 |
| Zn | 0.003889 | 0.007683 | 0.007683 | 0.008 | 0.01 |

# EPA 6010B

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72464
**ASSET #:** N034104
**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 2/14/2019

**Method:**

[X] EPA 6010B / 200.7 Total
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: _____

2nd Level Reviewer 2/21/2019 Date: _____

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72464
**ASSET #:** N034104
**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 2/19/2019

**Method:**

[X] EPA 6010B / 200.7 Total
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | ~~X~~ | | X |
| 24. LCS compounds within control limits. | X | | | ~~X~~ | | X |
| 25. MS/MSD, RPD's are within control limits | X | | | ~~X~~ | | X |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

Fe rerun ~~of sample N034104-015~~

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: -

2nd Level Reviewer 2/21/2019 Date: —

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA 6010B
**TEST NAME:** Heavy Metals by ICP
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N034104-011E** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.06288 * 1 *(25/25) * 1000

Iron , ug/L = 62.88

Reporting results in two significant figures,

**Iron , ug/L = 63**

*NS* 2/24/2019

# % RSD SUMMARY

**RSD SUMMARY: 190214B**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Fe | 0 | 11.44 | 15 | PASS |
| Standard1 | ICAL | 1 | Fe | 0.02 | 4.81 | 15 | PASS |
| Standard2 | ICAL | 1 | Fe | 0.05 | 0.59 | 15 | PASS |
| Standard3 | ICAL | 1 | Fe | 2 | 0.034 | 15 | PASS |
| Standard4 | ICAL | 1 | Fe | 5 | 0.46 | 15 | PASS |
| Standard5 | ICAL | 1 | Fe | 7.5 | 0.054 | 15 | PASS |
| Standard6 | ICAL | 1 | Fe | 10 | 0.38 | 15 | PASS |
| Standard7 | ICAL | 1 | Fe | 20 | 0.12 | 15 | PASS |
| ICV | ICV | 1 | Fe | 10.02 | 0.47 | 15 | PASS |
| ICB | ICB | 1 | Fe | 0.00072 | 166.48 | 15 | <PQL |
| LLICV1 | CCV1 | 1 | Fe | 0.021 | 3.015 | 20 | PASS |
| ICSA1 | ICSA | 1 | Fe | 191.05 | 0.2 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Fe | 178.15 | 0.16 | 15 | PASS |
| CCV1 | CCV | 1 | Fe | 9.96 | 0.45 | 15 | PASS |
| CCB1 | CCB | 1 | Fe | 0.0052 | 37.6 | 15 | <PQL |
| CCV2 | CCV | 1 | Fe | 9.95 | 0.52 | 15 | PASS |
| CCB2 | CCB | 1 | Fe | 0.0037 | 27.34 | 15 | <PQL |
| CCV3 | CCV | 1 | Fe | 10.029 | 0.36 | 15 | PASS |
| CCB3 | CCB | 1 | Fe | 0.004 | 18.18 | 15 | <PQL |
| CCV4 | CCV | 1 | Fe | 10 | 0.16 | 15 | PASS |
| CCB4 | CCB | 1 | Fe | 0.0047 | 25.059 | 15 | <PQL |
| ICSA2 | ICSA | 1 | Fe | 191.87 | 0.11 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Fe | 178.46 | 0.15 | 15 | PASS |
| CCV5 | CCV | 1 | Fe | 9.97 | 0.4 | 15 | PASS |
| CCB5 | CCB | 1 | Fe | 0.0054 | 17.18 | 15 | <PQL |
| CCV6 | CCV | 1 | Fe | 9.94 | 0.034 | 15 | PASS |
| CCB6 | CCB | 1 | Fe | 0.0045 | 33.99 | 15 | <PQL |
| MB-72464 | MBLK | 1 | Fe | -0.00014 | 654.0032 | 15 | <PQL |
| LCS-72464 | LCS | 1 | Fe | 0.11 | 0.35 | 15 | PASS |
| N034104-001E | SAMP | 1 | Fe | 0.022 | 5.49 | 15 | PASS |
| N034104-001E | SAMP | 5 | Fe | 0.0051 | 10.94 | 15 | PASS |
| N034104-001E-PS | PS | 1 | Fe | 0.12 | 1.46 | 15 | PASS |
| N034104-001E-MS | MS | 1 | Fe | 0.13 | 0.66 | 15 | PASS |
| N034104-001E-MSD | MSD | 1 | Fe | 0.13 | 0.3 | 15 | PASS |
| N034104-002E | SAMP | 1 | Fe | 0.015 | 6.12 | 15 | PASS |
| CCV7 | CCV | 1 | Fe | 9.97 | 0.18 | 15 | PASS |
| CCB7 | CCB | 1 | Fe | 0.004 | 9.71 | 15 | PASS |
| N034104-003E | SAMP | 1 | Fe | 0.023 | 2.38 | 15 | PASS |
| N034104-004E | SAMP | 1 | Fe | 0.015 | 4.29 | 15 | PASS |
| N034104-005E | SAMP | 1 | Fe | 0.02 | 4.74 | 15 | PASS |
| N034104-006E | SAMP | 1 | Fe | 0.025 | 0.42 | 15 | PASS |
| N034104-007E | SAMP | 1 | Fe | 0.046 | 1.52 | 15 | PASS |

**RSD SUMMARY: 190214B**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| N034104-008E | SAMP | 1 | Fe | 0.042 | 0.43 | 15 | PASS |
| N034104-009E | SAMP | 1 | Fe | 0.024 | 3.31 | 15 | PASS |
| N034104-010E | SAMP | 1 | Fe | 0.029 | 1.88 | 15 | PASS |
| N034104-011E | SAMP | 1 | Fe | 0.063 | 1.76 | 15 | PASS |
| N034104-012E | SAMP | 1 | Fe | 0.037 | 2.63 | 15 | PASS |
| CCV8 | CCV | 1 | Fe | 10.019 | 0.51 | 15 | PASS |
| CCB8 | CCB | 1 | Fe | 0.0039 | 32.74 | 15 | <PQL |
| ICSA3 | ICSA | 1 | Fe | 191.43 | 0.097 | 15 | PASS |
| ICSAB3 | ICSAB | 1 | Fe | 178.21 | 0.055 | 15 | PASS |
| N034104-015E | SAMP | 1 | Fe | 0.15 | 0.48 | 15 | PASS |
| CCV9 | CCV | 1 | Fe | 10.011 | 0.23 | 15 | PASS |
| CCB9 | CCB | 1 | Fe | 0.0059 | 17.16 | 15 | <PQL |
| ICSA4 | ICSA | 1 | Fe | 190.91 | 0.029 | 15 | PASS |
| ICSAB4 | ICSAB | 1 | Fe | 166.79 | 11.67 | 15 | PASS |

**RSD SUMMARY: 190219E**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Fe | 0 | 6.48 | 15 | PASS |
| Standard1 | ICAL | 1 | Fe | 0.02 | 4.94 | 15 | PASS |
| Standard2 | ICAL | 1 | Fe | 0.05 | 0.42 | 15 | PASS |
| Standard3 | ICAL | 1 | Fe | 2 | 0.26 | 15 | PASS |
| Standard4 | ICAL | 1 | Fe | 5 | 0.21 | 15 | PASS |
| Standard5 | ICAL | 1 | Fe | 7.5 | 0.16 | 15 | PASS |
| Standard6 | ICAL | 1 | Fe | 10 | 0.38 | 15 | PASS |
| Standard7 | ICAL | 1 | Fe | 20 | 0.098 | 15 | PASS |
| ICV | ICV | 1 | Fe | 10.051 | 0.84 | 15 | PASS |
| ICB | ICB | 1 | Fe | 0.0018 | 35.0098 | 15 | <PQL |
| LLICV1 | CCV1 | 1 | Fe | 0.021 | 2.66 | 20 | PASS |
| ICSA1 | ICSA | 1 | Fe | 177.76 | 0.058 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Fe | 177.51 | 0.1 | 15 | PASS |
| N034104-015E | SAMP | 1 | Fe | 0.16 | 2.47 | 15 | PASS |
| CCV1 | CCV | 1 | Fe | 9.99 | 0.19 | 15 | PASS |
| CCB1 | CCB | 1 | Fe | 0.0025 | 3.25 | 15 | PASS |
| CCV2 | CCV | 1 | Fe | 9.94 | 0.45 | 15 | PASS |
| CCB2 | CCB | 1 | Fe | 0.0028 | 36.39 | 15 | <PQL |
| CCV3 | CCV | 1 | Fe | 9.99 | 0.72 | 15 | PASS |
| CCB3 | CCB | 1 | Fe | 0.0039 | 19.27 | 15 | <PQL |
| CCV4 | CCV | 1 | Fe | 10.061 | 0.33 | 15 | PASS |
| CCB4 | CCB | 1 | Fe | 0.0053 | 9.19 | 15 | PASS |
| ICSA2 | ICSA | 1 | Fe | 177.25 | 0.18 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Fe | 177.14 | 0.12 | 15 | PASS |
| CCV5 | CCV | 1 | Fe | 10.008 | 0.66 | 15 | PASS |
| CCB5 | CCB | 1 | Fe | 0.005 | 10.96 | 15 | PASS |
| CCV6 | CCV | 1 | Fe | 10.007 | 0.64 | 15 | PASS |
| CCB6 | CCB | 1 | Fe | 0.005 | 4.46 | 15 | PASS |
| CCV7 | CCV | 1 | Fe | 10.007 | 0.086 | 15 | PASS |
| CCB7 | CCB | 1 | Fe | 0.0063 | 15.33 | 15 | <PQL |
| CCV8 | CCV | 1 | Fe | 10.011 | 0.49 | 15 | PASS |
| CCB8 | CCB | 1 | Fe | 0.0062 | 13.7 | 15 | PASS |
| ICSA3 | ICSA | 1 | Fe | 177.07 | 0.1 | 15 | PASS |
| ICSAB3 | ICSAB | 1 | Fe | 176.36 | 0.059 | 15 | PASS |
| CCV9 | CCV | 1 | Fe | 9.89 | 0.056 | 15 | PASS |
| CCB9 | CCB | 1 | Fe | 0.003 | 14.12 | 15 | PASS |
| CCV10 | CCV | 1 | Fe | 9.82 | 0.32 | 15 | PASS |
| CCB10 | CCB | 1 | Fe | 0.0035 | 51.17 | 15 | <PQL |
| ICSA4 | ICSA | 1 | Fe | 174.22 | 0.28 | 15 | PASS |
| ICSAB4 | ICSAB | 1 | Fe | 173.66 | 0.24 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190214B**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-181001A,0.5<50mL |
| Standard2 | MWST-181001E |
| Standard3 | MWST-181001J,5<50mL |
| Standard4 | MWST-181001J,12.5<50mL |
| Standard5 | MWST-181001J,15<40mL |
| Standard6 | MWST-181001J,25<50mL |
| Standard7 | MWST-181001J |
| ICV | MWST-181001O |
| CCV | MWST-181001J,25<50mL |
| ICSA/ICSAB | MWST-181001R/MWST-180730A |
| Int. Std. (Y) | MSST-180926A/B |
| PS Spike | MWST-180930D/E/F |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CalBlk | IBLK | 1 | 02/14/2019 | 01:30:07 PM |
| 2 | Standard1 | ICAL | 1 | 02/14/2019 | 01:33:53 PM |
| 3 | Standard2 | ICAL | 1 | 02/14/2019 | 01:37:39 PM |
| 4 | Standard3 | ICAL | 1 | 02/14/2019 | 01:41:55 PM |
| 5 | Standard4 | ICAL | 1 | 02/14/2019 | 01:46:12 PM |
| 6 | Standard5 | ICAL | 1 | 02/14/2019 | 01:50:31 PM |
| 7 | Standard6 | ICAL | 1 | 02/14/2019 | 01:54:49 PM |
| 8 | Standard7 | ICAL | 1 | 02/14/2019 | 01:59:31 PM |
| 250 | ICV | ICV | 1 | 02/14/2019 | 02:04:50 PM |
| 1 | ICB | ICB | 1 | 02/14/2019 | 02:10:13 PM |
| 2 | LLICV1 | CCV1 | 1 | 02/14/2019 | 02:13:59 PM |
| 9 | ICSA1 | ICSA | 1 | 02/14/2019 | 02:18:16 PM |
| 10 | ICSAB1 | ICSAB | 1 | 02/14/2019 | 02:23:41 PM |
| 11 | MB-72438 | MBLK | 1 | 02/14/2019 | 02:34:28 PM |
| 11 | MB-72438 | MBLK | 1 | 02/14/2019 | 02:38:14 PM |
| 12 | LCS-72438 | LCS | 1 | 02/14/2019 | 02:46:31 PM |
| 13 | N034089-001B | SAMP | 1 | 02/14/2019 | 02:50:46 PM |
| 14 | N034089-001B | SAMP | 5 | 02/14/2019 | 02:56:01 PM |
| 15 | N034089-001B-PS | PS | 1 | 02/14/2019 | 03:00:17 PM |
| 16 | N034089-001B-MS | MS | 1 | 02/14/2019 | 03:05:34 PM |
| 17 | N034089-001B-MSD | MSD | 1 | 02/14/2019 | 03:10:51 PM |
| 18 | N034089-002B | SAMP | 1 | 02/14/2019 | 03:16:08 PM |
| 19 | N034089-003B | SAMP | 1 | 02/14/2019 | 03:21:26 PM |
| 7 | CCV1 | CCV | 1 | 02/14/2019 | 03:25:44 PM |
| 1 | CCB1 | CCB | 1 | 02/14/2019 | 03:30:05 PM |
| 20 | N034089-004B | SAMP | 1 | 02/14/2019 | 03:33:49 PM |
| 21 | N034089-005B | SAMP | 1 | 02/14/2019 | 03:38:07 PM |
| 22 | N034089-006B | SAMP | 1 | 02/14/2019 | 03:42:26 PM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 23 | N034090-006B | SAMP | 1 | 02/14/2019 | 03:46:45 PM |
| 24 | N034090-007B | SAMP | 1 | 02/14/2019 | 03:50:59 PM |
| 25 | N034090-008B | SAMP | 1 | 02/14/2019 | 03:55:15 PM |
| 26 | MB-72468 | MBLK | 1 | 02/14/2019 | 03:59:31 PM |
| 27 | LCS-72468 | LCS | 1 | 02/14/2019 | 04:03:17 PM |
| 28 | N034104-001C | SAMP | 1 | 02/14/2019 | 04:07:32 PM |
| 29 | N034104-001C | SAMP | 5 | 02/14/2019 | 04:11:48 PM |
| 7 | CCV2 | CCV | 1 | 02/14/2019 | 04:16:04 PM |
| 1 | CCB2 | CCB | 1 | 02/14/2019 | 04:21:25 PM |
| 30 | N034104-001C-PS | PS | 1 | 02/14/2019 | 04:25:12 PM |
| 31 | N034104-001C-MS | MS | 1 | 02/14/2019 | 04:29:29 PM |
| 32 | N034104-001C-MSD | MSD | 1 | 02/14/2019 | 04:33:46 PM |
| 33 | N034104-002C | SAMP | 1 | 02/14/2019 | 04:38:03 PM |
| 34 | N034104-003C | SAMP | 1 | 02/14/2019 | 04:42:21 PM |
| 35 | N034104-004C | SAMP | 1 | 02/14/2019 | 04:46:39 PM |
| 36 | N034104-005C | SAMP | 1 | 02/14/2019 | 04:50:54 PM |
| 37 | N034104-006C | SAMP | 1 | 02/14/2019 | 04:55:10 PM |
| 38 | N034104-007C | SAMP | 1 | 02/14/2019 | 04:59:27 PM |
| 39 | N034104-008C | SAMP | 1 | 02/14/2019 | 05:03:43 PM |
| 7 | CCV3 | CCV | 1 | 02/14/2019 | 05:08:01 PM |
| 1 | CCB3 | CCB | 1 | 02/14/2019 | 05:12:21 PM |
| 40 | N034104-009C | SAMP | 1 | 02/14/2019 | 05:16:05 PM |
| 41 | N034104-010C | SAMP | 1 | 02/14/2019 | 05:20:22 PM |
| 42 | N034104-011C | SAMP | 1 | 02/14/2019 | 05:24:40 PM |
| 43 | N034104-012C | SAMP | 1 | 02/14/2019 | 05:28:56 PM |
| 44 | N034104-015C | SAMP | 1 | 02/14/2019 | 05:33:15 PM |
| 45 | N034106-001B | SAMP | 1 | 02/14/2019 | 05:37:31 PM |
| 46 | MB-72469 | MBLK | 1 | 02/14/2019 | 05:42:50 PM |
| 47 | LCS-72469 | LCS | 1 | 02/14/2019 | 05:46:39 PM |
| 48 | N034107-001B | SAMP | 1 | 02/14/2019 | 05:50:54 PM |
| 49 | N034107-001B | SAMP | 5 | 02/14/2019 | 05:55:10 PM |
| 7 | CCV4 | CCV | 1 | 02/14/2019 | 05:59:25 PM |
| 1 | CCB4 | CCB | 1 | 02/14/2019 | 06:03:47 PM |
| 9 | ICSA2 | ICSA | 1 | 02/14/2019 | 06:07:32 PM |
| 10 | ICSAB2 | ICSAB | 1 | 02/14/2019 | 06:12:57 PM |
| 50 | N034107-001B-PS | PS | 1 | 02/14/2019 | 06:18:23 PM |
| 51 | N034107-001B-MS | MS | 1 | 02/14/2019 | 06:23:39 PM |
| 52 | N034107-001B-MSD | MSD | 1 | 02/14/2019 | 06:27:56 PM |
| 53 | N034107-002B | SAMP | 1 | 02/14/2019 | 06:32:12 PM |
| 54 | N034107-003B | SAMP | 1 | 02/14/2019 | 06:36:29 PM |
| 55 | N034107-004B | SAMP | 1 | 02/14/2019 | 06:41:47 PM |
| 56 | N034107-005B | SAMP | 1 | 02/14/2019 | 06:47:03 PM |
| 57 | N034107-006B | SAMP | 1 | 02/14/2019 | 06:52:33 PM |
| 58 | N034107-007B | SAMP | 1 | 02/14/2019 | 06:57:51 PM |
| 59 | N034107-010B | SAMP | 1 | 02/14/2019 | 07:03:10 PM |
| 7 | CCV5 | CCV | 1 | 02/14/2019 | 07:08:26 PM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CCB5 | CCB | 1 | 02/14/2019 | 07:12:46 PM |
| 60 | N034107-011B | SAMP | 1 | 02/14/2019 | 07:16:33 PM |
| 61 | N034107-012B | SAMP | 1 | 02/14/2019 | 07:21:50 PM |
| 62 | N034107-013B | SAMP | 1 | 02/14/2019 | 07:27:06 PM |
| 63 | N034107-014B | SAMP | 1 | 02/14/2019 | 07:32:22 PM |
| 64 | N034107-015B | SAMP | 1 | 02/14/2019 | 07:37:38 PM |
| 65 | N034107-016B | SAMP | 1 | 02/14/2019 | 07:42:55 PM |
| 66 | N034107-017B | SAMP | 1 | 02/14/2019 | 07:48:11 PM |
| 67 | N034107-018B | SAMP | 1 | 02/14/2019 | 07:53:36 PM |
| 68 | N034107-019B | SAMP | 1 | 02/14/2019 | 07:58:54 PM |
| 69 | N034107-020B | SAMP | 1 | 02/14/2019 | 08:03:12 PM |
| 7 | CCV6 | CCV | 1 | 02/14/2019 | 08:07:30 PM |
| 1 | CCB6 | CCB | 1 | 02/14/2019 | 08:11:49 PM |
| 70 | N034107-021B | SAMP | 1 | 02/14/2019 | 08:15:35 PM |
| 71 | N034107-022B | SAMP | 1 | 02/14/2019 | 08:19:54 PM |
| 72 | MB-72464 | MBLK | 1 | 02/14/2019 | 08:24:11 PM |
| 73 | LCS-72464 | LCS | 1 | 02/14/2019 | 08:27:57 PM |
| 74 | N034104-001E | SAMP | 1 | 02/14/2019 | 08:32:14 PM |
| 75 | N034104-001E | SAMP | 5 | 02/14/2019 | 08:36:32 PM |
| 76 | N034104-001E-PS | PS | 1 | 02/14/2019 | 08:40:48 PM |
| 77 | N034104-001E-MS | MS | 1 | 02/14/2019 | 08:45:05 PM |
| 78 | N034104-001E-MSD | MSD | 1 | 02/14/2019 | 08:49:22 PM |
| 79 | N034104-002E | SAMP | 1 | 02/14/2019 | 08:53:40 PM |
| 7 | CCV7 | CCV | 1 | 02/14/2019 | 08:57:58 PM |
| 1 | CCB7 | CCB | 1 | 02/14/2019 | 09:02:19 PM |
| 80 | N034104-003E | SAMP | 1 | 02/14/2019 | 09:06:03 PM |
| 81 | N034104-004E | SAMP | 1 | 02/14/2019 | 09:10:20 PM |
| 82 | N034104-005E | SAMP | 1 | 02/14/2019 | 09:14:39 PM |
| 83 | N034104-006E | SAMP | 1 | 02/14/2019 | 09:18:57 PM |
| 84 | N034104-007E | SAMP | 1 | 02/14/2019 | 09:23:24 PM |
| 85 | N034104-008E | SAMP | 1 | 02/14/2019 | 09:27:41 PM |
| 86 | N034104-009E | SAMP | 1 | 02/14/2019 | 09:31:57 PM |
| 87 | N034104-010E | SAMP | 1 | 02/14/2019 | 09:36:14 PM |
| 88 | N034104-011E | SAMP | 1 | 02/14/2019 | 09:40:32 PM |
| 89 | N034104-012E | SAMP | 1 | 02/14/2019 | 09:44:49 PM |
| 7 | CCV8 | CCV | 1 | 02/14/2019 | 09:49:07 PM |
| 1 | CCB8 | CCB | 1 | 02/14/2019 | 09:53:51 PM |
| 9 | ICSA3 | ICSA | 1 | 02/14/2019 | 09:57:38 PM |
| 10 | ICSAB3 | ICSAB | 1 | 02/14/2019 | 10:03:04 PM |
| 90 | N034104-015E | SAMP | 1 | 02/14/2019 | 10:08:30 PM |
| 7 | CCV9 | CCV | 1 | 02/14/2019 | 10:12:47 PM |
| 1 | CCB9 | CCB | 1 | 02/14/2019 | 10:17:07 PM |
| 9 | ICSA4 | ICSA | 1 | 02/14/2019 | 10:20:53 PM |
| 10 | ICSAB4 | ICSAB | 1 | 02/14/2019 | 10:26:19 PM |

**INJECTION LOG: 190219E**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-181001A,0.5<50mL |
| Standard2 | MWST-181001E |
| Standard3 | MWST-181001J,5<50mL |
| Standard4 | MWST-181001J,12.5<50mL |
| Standard5 | MWST-181001J,15<40mL |
| Standard6 | MWST-181001J,25<50mL |
| Standard7 | MWST-181001J |
| ICV | MWST-181001O |
| CCV | MWST-181001J,25<50mL |
| ICSA/ICSAB | MWST-181001R/MWST-180730A |
| Int. Std. (Y) | MSST-180926A/B |
| PS Spike | MWST-180930D/E/F |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CalBlk | IBLK | 1 | 02/19/2019 | 07:01:38 PM |
| 2 | Standard1 | ICAL | 1 | 02/19/2019 | 07:05:24 PM |
| 3 | Standard2 | ICAL | 1 | 02/19/2019 | 07:09:39 PM |
| 4 | Standard3 | ICAL | 1 | 02/19/2019 | 07:13:56 PM |
| 5 | Standard4 | ICAL | 1 | 02/19/2019 | 07:18:12 PM |
| 6 | Standard5 | ICAL | 1 | 02/19/2019 | 07:22:31 PM |
| 7 | Standard6 | ICAL | 1 | 02/19/2019 | 07:26:49 PM |
| 8 | Standard7 | ICAL | 1 | 02/19/2019 | 07:31:09 PM |
| 250 | ICV | ICV | 1 | 02/19/2019 | 07:36:31 PM |
| 1 | ICB | ICB | 1 | 02/19/2019 | 07:41:52 PM |
| 2 | LLICV1 | CCV1 | 1 | 02/19/2019 | 07:45:36 PM |
| 9 | ICSA1 | ICSA | 1 | 02/19/2019 | 07:49:54 PM |
| 10 | ICSAB1 | ICSAB | 1 | 02/19/2019 | 07:55:19 PM |
| 70 | N034104-015E | SAMP | 1 | 02/19/2019 | 08:00:47 PM |
| 11 | MB-72481 | MBLK | 1 | 02/19/2019 | 08:05:40 PM |
| 12 | LCS-72481 | LCS | 1 | 02/19/2019 | 08:09:25 PM |
| 13 | N034120-001B | SAMP | 1 | 02/19/2019 | 08:13:40 PM |
| 14 | N034120-001B | SAMP | 5 | 02/19/2019 | 08:17:56 PM |
| 15 | N034120-001B-PS | PS | 1 | 02/19/2019 | 08:22:11 PM |
| 16 | N034120-001B-MS | MS | 1 | 02/19/2019 | 08:26:29 PM |
| 17 | N034120-001B-MSD | MSD | 1 | 02/19/2019 | 08:30:45 PM |
| 18 | N034121-004B | SAMP | 1 | 02/19/2019 | 08:35:03 PM |
| 19 | N034121-006B | SAMP | 1 | 02/19/2019 | 08:39:21 PM |
| 7 | CCV1 | CCV | 1 | 02/19/2019 | 08:44:38 PM |
| 1 | CCB1 | CCB | 1 | 02/19/2019 | 08:50:26 PM |
| 20 | N034121-007B | SAMP | 1 | 02/19/2019 | 08:54:12 PM |
| 21 | N034121-008B | SAMP | 1 | 02/19/2019 | 08:59:30 PM |
| 22 | N034121-009B | SAMP | 1 | 02/19/2019 | 09:04:49 PM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 23 | N034121-010B | SAMP | 1 | 02/19/2019 | 09:10:10 PM |
| 24 | N034121-011B | SAMP | 1 | 02/19/2019 | 09:15:26 PM |
| 25 | N034123-001B | SAMP | 1 | 02/19/2019 | 09:19:40 PM |
| 26 | N034123-002B | SAMP | 1 | 02/19/2019 | 09:24:57 PM |
| 27 | N034123-003B | SAMP | 1 | 02/19/2019 | 09:29:14 PM |
| 28 | N034123-004B | SAMP | 1 | 02/19/2019 | 09:34:30 PM |
| 29 | N034123-005B | SAMP | 1 | 02/19/2019 | 09:38:47 PM |
| 7 | CCV2 | CCV | 1 | 02/19/2019 | 09:44:05 PM |
| 1 | CCB2 | CCB | 1 | 02/19/2019 | 09:49:25 PM |
| 30 | N034123-006B | SAMP | 1 | 02/19/2019 | 09:53:10 PM |
| 31 | N034123-007B | SAMP | 1 | 02/19/2019 | 09:58:28 PM |
| 32 | N034123-008B | SAMP | 1 | 02/19/2019 | 10:03:45 PM |
| 33 | N034123-009B | SAMP | 1 | 02/19/2019 | 10:09:01 PM |
| 34 | N034123-010B | SAMP | 1 | 02/19/2019 | 10:14:20 PM |
| 35 | N034123-011B | SAMP | 1 | 02/19/2019 | 10:18:37 PM |
| 36 | N034123-012B | SAMP | 1 | 02/19/2019 | 10:22:52 PM |
| 37 | MB-72482 | MBLK | 1 | 02/19/2019 | 10:28:08 PM |
| 38 | LCS-72482 | LCS | 1 | 02/19/2019 | 10:31:54 PM |
| 39 | N034123-013B | SAMP | 1 | 02/19/2019 | 10:36:10 PM |
| 7 | CCV3 | CCV | 1 | 02/19/2019 | 10:41:27 PM |
| 1 | CCB3 | CCB | 1 | 02/19/2019 | 10:46:46 PM |
| 40 | N034123-013B | SAMP | 5 | 02/19/2019 | 10:50:31 PM |
| 41 | N034123-013B-PS | PS | 1 | 02/19/2019 | 10:54:48 PM |
| 42 | N034123-013B-MS | MS | 1 | 02/19/2019 | 11:00:06 PM |
| 43 | N034123-013B-MSD | MSD | 1 | 02/19/2019 | 11:05:23 PM |
| 44 | N034123-014B | SAMP | 1 | 02/19/2019 | 11:10:41 PM |
| 45 | N034123-015B | SAMP | 1 | 02/19/2019 | 11:15:59 PM |
| 46 | N034123-016B | SAMP | 1 | 02/19/2019 | 11:21:17 PM |
| 47 | N034123-017B | SAMP | 1 | 02/19/2019 | 11:25:35 PM |
| 48 | N034123-019B | SAMP | 1 | 02/19/2019 | 11:29:53 PM |
| 49 | N034129-002D | SAMP | 1 | 02/19/2019 | 11:35:11 PM |
| 7 | CCV4 | CCV | 1 | 02/19/2019 | 11:39:27 PM |
| 1 | CCB4 | CCB | 1 | 02/19/2019 | 11:44:47 PM |
| 9 | ICSA2 | ICSA | 1 | 02/19/2019 | 11:48:34 PM |
| 10 | ICSAB2 | ICSAB | 1 | 02/19/2019 | 11:54:00 PM |
| 50 | N034129-003D | SAMP | 1 | 02/19/2019 | 11:59:27 PM |
| 51 | N034129-004D | SAMP | 1 | 02/20/2019 | 12:03:43 AM |
| 52 | N034129-005D | SAMP | 1 | 02/20/2019 | 12:07:59 AM |
| 53 | N034129-006D | SAMP | 1 | 02/20/2019 | 12:12:15 AM |
| 54 | N034129-007D | SAMP | 1 | 02/20/2019 | 12:16:32 AM |
| 55 | N034129-008D | SAMP | 1 | 02/20/2019 | 12:20:19 AM |
| 56 | N034129-009D | SAMP | 1 | 02/20/2019 | 12:24:07 AM |
| 57 | N034129-010D | SAMP | 1 | 02/20/2019 | 12:27:55 AM |
| 58 | N034129-011D | SAMP | 1 | 02/20/2019 | 12:31:43 AM |
| 59 | N034129-012D | SAMP | 1 | 02/20/2019 | 12:36:03 AM |
| 7 | CCV5 | CCV | 1 | 02/20/2019 | 12:39:50 AM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CCB5 | CCB | 1 | 02/20/2019 | 12:45:11 AM |
| 60 | N034129-013D | SAMP | 1 | 02/20/2019 | 12:48:56 AM |
| 61 | N034129-014D | SAMP | 1 | 02/20/2019 | 12:53:12 AM |
| 71 | MB-72518 | MBLK | 1 | 02/20/2019 | 12:57:29 AM |
| 72 | LCS-72518 | LCS | 1 | 02/20/2019 | 01:01:15 AM |
| 73 | N034182-001B | SAMP | 1 | 02/20/2019 | 01:05:31 AM |
| 74 | N034182-001B | SAMP | 5 | 02/20/2019 | 01:10:49 AM |
| 75 | N034182-001B-PS | PS | 1 | 02/20/2019 | 01:15:05 AM |
| 76 | N034182-001B-MS | MS | 1 | 02/20/2019 | 01:20:23 AM |
| 77 | N034182-001B-MSD | MSD | 1 | 02/20/2019 | 01:25:40 AM |
| 78 | N034182-002B | SAMP | 1 | 02/20/2019 | 01:30:57 AM |
| 7 | CCV6 | CCV | 1 | 02/20/2019 | 01:36:14 AM |
| 1 | CCB6 | CCB | 1 | 02/20/2019 | 01:41:35 AM |
| 79 | N034182-004B | SAMP | 1 | 02/20/2019 | 01:45:21 AM |
| 80 | N034182-005B | SAMP | 1 | 02/20/2019 | 01:50:38 AM |
| 81 | N034182-007B | SAMP | 1 | 02/20/2019 | 01:55:55 AM |
| 82 | N034182-009B | SAMP | 1 | 02/20/2019 | 02:01:16 AM |
| 83 | N034182-010B | SAMP | 1 | 02/20/2019 | 02:05:34 AM |
| 84 | N034182-011B | SAMP | 1 | 02/20/2019 | 02:10:50 AM |
| 85 | N034182-012B | SAMP | 1 | 02/20/2019 | 02:15:07 AM |
| 86 | N034182-013B | SAMP | 1 | 02/20/2019 | 02:20:25 AM |
| 87 | N034183-001B | SAMP | 1 | 02/20/2019 | 02:24:42 AM |
| 88 | N034183-003B | SAMP | 1 | 02/20/2019 | 02:30:00 AM |
| 7 | CCV7 | CCV | 1 | 02/20/2019 | 02:35:17 AM |
| 1 | CCB7 | CCB | 1 | 02/20/2019 | 02:40:38 AM |
| 89 | N034183-004B | SAMP | 1 | 02/20/2019 | 02:44:23 AM |
| 90 | N034183-005B | SAMP | 1 | 02/20/2019 | 02:49:40 AM |
| 91 | N034183-006B | SAMP | 1 | 02/20/2019 | 02:53:57 AM |
| 92 | N034183-007B | SAMP | 1 | 02/20/2019 | 02:58:15 AM |
| 93 | N034183-009B | SAMP | 1 | 02/20/2019 | 03:03:32 AM |
| 94 | N034183-010B | SAMP | 1 | 02/20/2019 | 03:08:52 AM |
| 95 | N034183-011B | SAMP | 1 | 02/20/2019 | 03:14:11 AM |
| 96 | N034183-012B | SAMP | 1 | 02/20/2019 | 03:18:28 AM |
| 97 | MB-72479 | MBLK | 1 | 02/20/2019 | 03:22:46 AM |
| 98 | LCS-72479 | LCS | 1 | 02/20/2019 | 03:26:32 AM |
| 7 | CCV8 | CCV | 1 | 02/20/2019 | 03:30:49 AM |
| 1 | CCB8 | CCB | 1 | 02/20/2019 | 03:36:10 AM |
| 9 | ICSA3 | ICSA | 1 | 02/20/2019 | 03:39:56 AM |
| 10 | ICSAB3 | ICSAB | 1 | 02/20/2019 | 03:45:49 AM |
| 99 | N034129-002E | SAMP | 1 | 02/20/2019 | 03:51:15 AM |
| 100 | N034129-002E | SAMP | 5 | 02/20/2019 | 03:55:31 AM |
| 101 | N034129-002E-PS | PS | 1 | 02/20/2019 | 03:59:47 AM |
| 102 | N034129-002E-MS | MS | 1 | 02/20/2019 | 04:04:04 AM |
| 103 | N034129-002E-MSD | MSD | 1 | 02/20/2019 | 04:08:22 AM |
| 104 | N034129-003E | SAMP | 1 | 02/20/2019 | 04:12:39 AM |
| 105 | N034129-004E | SAMP | 1 | 02/20/2019 | 04:16:26 AM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 106 | N034129-005E | SAMP | 1 | 02/20/2019 | 04:20:44 AM |
| 107 | N034129-006E | SAMP | 1 | 02/20/2019 | 04:25:03 AM |
| 108 | N034129-007E | SAMP | 1 | 02/20/2019 | 04:28:49 AM |
| 3 | CCV9 | CCV | 1 | 02/20/2019 | 04:33:05 AM |
| 2 | CCB9 | CCB | 1 | 02/20/2019 | 04:37:23 AM |
| 109 | N034129-008E | SAMP | 1 | 02/20/2019 | 04:41:08 AM |
| 110 | N034129-009E | SAMP | 1 | 02/20/2019 | 04:44:54 AM |
| 111 | N034129-010E | SAMP | 1 | 02/20/2019 | 04:49:10 AM |
| 112 | N034129-011E | SAMP | 1 | 02/20/2019 | 04:52:58 AM |
| 113 | N034129-012E | SAMP | 1 | 02/20/2019 | 04:57:14 AM |
| 114 | N034129-013E | SAMP | 1 | 02/20/2019 | 05:01:31 AM |
| 115 | N034129-014E | SAMP | 1 | 02/20/2019 | 05:05:48 AM |
| 3 | CCV10 | CCV | 1 | 02/20/2019 | 05:09:34 AM |
| 2 | CCB10 | CCB | 1 | 02/20/2019 | 05:13:52 AM |
| 9 | ICSA4 | ICSA | 1 | 02/20/2019 | 05:17:37 AM |
| 10 | ICSAB4 | ICSAB | 1 | 02/20/2019 | 05:23:02 AM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/13/2019 7:58:14**
Prep End Date: **2/13/2019 1:00:00**
Prep Batch **72464** Prep Code: **3010_W**

Reviewed/ Date: NS 2/24/2019
Initials/ Date: for
Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **DB-2-2** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72464 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-72464 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-001E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-001E-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-001E-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-002E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-003E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-004E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-005E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-006E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-007E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-008E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-009E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-010E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10560 | HYDROCHLORIC ACID |
| 10570 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/13/2019 7:58:14**
Prep End Date: **2/13/2019 1:00:00**
Prep Batch **72464** Prep Code: **3010_W**

Reviewed/ Date: NS 2/24/2019
Initials/ Date: for
Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **DB-2-2** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-011E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-012E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-015E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10560 | HYDROCHLORIC ACID |
| 10570 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190214B**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Iron** | | | | | | | | |
| CalBlk | 02/14/2019 | 01:30:07 PM | Fe | 273.953 | -131 | 0.00 | mg/L | |
| Standard1 | 02/14/2019 | 01:33:53 PM | Fe | 273.953 | 313 | 0.0200 | mg/L | |
| Standard2 | 02/14/2019 | 01:37:39 PM | Fe | 273.953 | 1097 | 0.050 | mg/L | |
| Standard3 | 02/14/2019 | 01:41:55 PM | Fe | 273.953 | 30649 | 2.000 | mg/L | |
| Standard4 | 02/14/2019 | 01:46:12 PM | Fe | 273.953 | 77526 | 5.000 | mg/L | |
| Standard5 | 02/14/2019 | 01:50:31 PM | Fe | 273.953 | 113514 | 7.500 | mg/L | |
| Standard6 | 02/14/2019 | 01:54:49 PM | Fe | 273.953 | 151626 | 10.000 | mg/L | |
| Standard7 | 02/14/2019 | 01:59:31 PM | Fe | 273.953 | 302194 | 20.000 | mg/L | 1.0000 |

**INITIAL CALIBRATION SUMMARY: 190219E**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Iron** | | | | | | | | |
| CalBlk | 02/19/2019 | 07:01:38 PM | Fe | 273.953 | -135 | 0.00 | mg/L | |
| Standard1 | 02/19/2019 | 07:05:24 PM | Fe | 273.953 | 324 | 0.0200 | mg/L | |
| Standard2 | 02/19/2019 | 07:09:39 PM | Fe | 273.953 | 1276 | 0.050 | mg/L | |
| Standard3 | 02/19/2019 | 07:13:56 PM | Fe | 273.953 | 33283 | 2.000 | mg/L | |
| Standard4 | 02/19/2019 | 07:18:12 PM | Fe | 273.953 | 83668 | 5.000 | mg/L | |
| Standard5 | 02/19/2019 | 07:22:31 PM | Fe | 273.953 | 125709 | 7.500 | mg/L | |
| Standard6 | 02/19/2019 | 07:26:49 PM | Fe | 273.953 | 163326 | 10.000 | mg/L | |
| Standard7 | 02/19/2019 | 07:31:09 PM | Fe | 273.953 | 324222 | 20.000 | mg/L | 0.9999 |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289044** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10019.721 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **LLICV1** | SampType: **CCV1** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289046** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 21.379 | 20 | 20.00 | 0 | 107 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289059** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9957.035 | 20 | 10000 | 0 | 99.6 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289071** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9951.341 | 20 | 10000 | 0 | 99.5 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289083** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10029.270 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289095** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9999.481 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289109** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9968.986 | 20 | 10000 | 0 | 99.7 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289121** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9936.425 | 20 | 10000 | 0 | 99.4 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289133** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9970.588 | 20 | 10000 | 0 | 99.7 | 90 | 110 | | | | |

| Sample ID **CCV8** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289145** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10018.711 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **CCV9** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289150** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10010.808 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296866** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10051.362 | 20 | 10000 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **LLICV1** | SampType: **CCV1** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296868** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 21.279 | 20 | 20.00 | 0 | 106 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296881** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9989.214 | 20 | 10000 | 0 | 99.9 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296893** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9944.200 | 20 | 10000 | 0 | 99.4 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296905** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9989.542 | 20 | 10000 | 0 | 99.9 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296917** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10060.512 | 20 | 10000 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296930** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10008.134 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296942** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10006.673 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296954** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10007.198 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV8** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296966** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10010.736 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **CCV9** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296980** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9890.568 | 20 | 10000 | 0 | 98.9 | 90 | 110 | | | | |

| Sample ID **CCV10** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296989** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9819.989 | 20 | 10000 | 0 | 98.2 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID | **ICB** | SampType: | **ICB** | TestCode: | **6010_WPGE** | Units: | **ug/L** | Prep Date: | | RunNo: | **131849** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ICB** | Batch ID: | **R131849** | TestNo: | **EPA 6010B** | | | Analysis Date: | **2/14/2019** | SeqNo: | **3289045** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 0.720 | 20 | | | | | | | | | |

| Sample ID | **CCB1** | SampType: | **CCB** | TestCode: | **6010_WPGE** | Units: | **ug/L** | Prep Date: | | RunNo: | **131849** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **CCB** | Batch ID: | **R131849** | TestNo: | **EPA 6010B** | | | Analysis Date: | **2/14/2019** | SeqNo: | **3289060** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 5.245 | 20 | | | | | | | | | |

| Sample ID | **CCB2** | SampType: | **CCB** | TestCode: | **6010_WPGE** | Units: | **ug/L** | Prep Date: | | RunNo: | **131849** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **CCB** | Batch ID: | **R131849** | TestNo: | **EPA 6010B** | | | Analysis Date: | **2/14/2019** | SeqNo: | **3289072** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 3.731 | 20 | | | | | | | | | |

| Sample ID | **CCB3** | SampType: | **CCB** | TestCode: | **6010_WPGE** | Units: | **ug/L** | Prep Date: | | RunNo: | **131849** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **CCB** | Batch ID: | **R131849** | TestNo: | **EPA 6010B** | | | Analysis Date: | **2/14/2019** | SeqNo: | **3289084** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 4.041 | 20 | | | | | | | | | |

| Sample ID | **CCB4** | SampType: | **CCB** | TestCode: | **6010_WPGE** | Units: | **ug/L** | Prep Date: | | RunNo: | **131849** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **CCB** | Batch ID: | **R131849** | TestNo: | **EPA 6010B** | | | Analysis Date: | **2/14/2019** | SeqNo: | **3289096** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 4.723 | 20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289110** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 5.403 | 20 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289122** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 4.539 | 20 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289134** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 4.005 | 20 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289146** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 3.933 | 20 | | | | | | | | | |

| Sample ID **CCB9** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289151** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 5.944 | 20 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296867** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 1.747 | 20 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296882** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 2.520 | 20 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296894** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 2.787 | 20 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296906** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 3.904 | 20 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296918** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 5.299 | 20 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296931** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 4.971 | 20 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296943** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 4.953 | 20 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296955** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 6.332 | 20 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296967** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 6.164 | 20 | | | | | | | | | |

| Sample ID **CCB9** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296981** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 2.979 | 20 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **CCB10** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296990** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 3.499 | 20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **131849**
Client ID: **ICSA** Batch ID: **R131849** TestNo: **EPA 6010B** Analysis Date: **2/14/2019** SeqNo: **3289047**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 448418.225 | 50 | 500000 | 0 | 89.7 | 80 | 120 | | | | |
| Calcium | 463591.986 | 500 | 500000 | 0 | 92.7 | 80 | 120 | | | | |
| Iron | 191048.060 | 20 | 200000 | 0 | 95.5 | 80 | 120 | | | | |
| Magnesium | 428033.899 | 100 | 500000 | 0 | 85.6 | 80 | 120 | | | | |

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **131849**
Client ID: **ICSAB** Batch ID: **R131849** TestNo: **EPA 6010B** Analysis Date: **2/14/2019** SeqNo: **3289048**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 522866.125 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |
| Calcium | 534767.237 | 500 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Iron | 178145.752 | 20 | 200000 | 0 | 89.1 | 80 | 120 | | | | |
| Magnesium | 498618.133 | 100 | 500000 | 0 | 99.7 | 80 | 120 | | | | |

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **131849**
Client ID: **ICSA** Batch ID: **R131849** TestNo: **EPA 6010B** Analysis Date: **2/14/2019** SeqNo: **3289097**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 451127.938 | 50 | 500000 | 0 | 90.2 | 80 | 120 | | | | |
| Calcium | 465817.642 | 500 | 500000 | 0 | 93.2 | 80 | 120 | | | | |
| Iron | 191865.337 | 20 | 200000 | 0 | 95.9 | 80 | 120 | | | | |
| Magnesium | 437041.454 | 100 | 500000 | 0 | 87.4 | 80 | 120 | | | | |

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **131849**
Client ID: **ICSAB** Batch ID: **R131849** TestNo: **EPA 6010B** Analysis Date: **2/14/2019** SeqNo: **3289098**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 525477.255 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **131849**
Client ID: **ICSAB** Batch ID: **R131849** TestNo: **EPA 6010B** Analysis Date: **2/14/2019** SeqNo: **3289098**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 532208.135 | 500 | 500000 | 0 | 106 | 80 | 120 | | | | |
| Iron | 178464.514 | 20 | 200000 | 0 | 89.2 | 80 | 120 | | | | |
| Magnesium | 506938.941 | 100 | 500000 | 0 | 101 | 80 | 120 | | | | |

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **131849**
Client ID: **ICSA** Batch ID: **R131849** TestNo: **EPA 6010B** Analysis Date: **2/14/2019** SeqNo: **3289147**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 451038.514 | 50 | 500000 | 0 | 90.2 | 80 | 120 | | | | |
| Calcium | 466495.706 | 500 | 500000 | 0 | 93.3 | 80 | 120 | | | | |
| Iron | 191427.597 | 20 | 200000 | 0 | 95.7 | 80 | 120 | | | | |
| Magnesium | 432528.241 | 100 | 500000 | 0 | 86.5 | 80 | 120 | | | | |

Sample ID **ICSAB3** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **131849**
Client ID: **ICSAB** Batch ID: **R131849** TestNo: **EPA 6010B** Analysis Date: **2/14/2019** SeqNo: **3289148**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 525919.147 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |
| Calcium | 534830.283 | 500 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Iron | 178211.939 | 20 | 200000 | 0 | 89.1 | 80 | 120 | | | | |
| Magnesium | 501506.176 | 100 | 500000 | 0 | 100 | 80 | 120 | | | | |

Sample ID **ICSA4** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **131849**
Client ID: **ICSA** Batch ID: **R131849** TestNo: **EPA 6010B** Analysis Date: **2/14/2019** SeqNo: **3289152**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 450775.007 | 50 | 500000 | 0 | 90.2 | 80 | 120 | | | | |
| Calcium | 462113.054 | 500 | 500000 | 0 | 92.4 | 80 | 120 | | | | |
| Iron | 190909.644 | 20 | 200000 | 0 | 95.5 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289152** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Magnesium | 429802.121 | 100 | 500000 | 0 | 86.0 | 80 | 120 | | | | |

| Sample ID **ICSAB4** | SampType: **ICSAB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **131849** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131849** | TestNo: **EPA 6010B** | | Analysis Date: **2/14/2019** | SeqNo: **3289153** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 490093.055 | 50 | 500000 | 0 | 98.0 | 80 | 120 | | | | |
| Calcium | 486070.077 | 500 | 500000 | 0 | 97.2 | 80 | 120 | | | | |
| Iron | 166793.820 | 20 | 200000 | 0 | 83.4 | 80 | 120 | | | | |
| Magnesium | 435373.811 | 100 | 500000 | 0 | 87.1 | 80 | 120 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132001**
Client ID: **ICSA** Batch ID: **R132001** TestNo: **EPA 6010B** Analysis Date: **2/19/2019** SeqNo: **3296869**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 483111.104 | 50 | 500000 | 0 | 96.6 | 80 | 120 | | | | |
| Calcium | 492506.541 | 500 | 500000 | 0 | 98.5 | 80 | 120 | | | | |
| Iron | 177757.679 | 20 | 200000 | 0 | 88.9 | 80 | 120 | | | | |
| Magnesium | 461217.797 | 100 | 500000 | 0 | 92.2 | 80 | 120 | | | | |

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132001**
Client ID: **ICSAB** Batch ID: **R132001** TestNo: **EPA 6010B** Analysis Date: **2/19/2019** SeqNo: **3296870**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 522568.507 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |
| Calcium | 528428.358 | 500 | 500000 | 0 | 106 | 80 | 120 | | | | |
| Iron | 177508.438 | 20 | 200000 | 0 | 88.8 | 80 | 120 | | | | |
| Magnesium | 498096.448 | 100 | 500000 | 0 | 99.6 | 80 | 120 | | | | |

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132001**
Client ID: **ICSA** Batch ID: **R132001** TestNo: **EPA 6010B** Analysis Date: **2/19/2019** SeqNo: **3296919**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 487725.963 | 50 | 500000 | 0 | 97.5 | 80 | 120 | | | | |
| Calcium | 498905.967 | 500 | 500000 | 0 | 99.8 | 80 | 120 | | | | |
| Iron | 177247.994 | 20 | 200000 | 0 | 88.6 | 80 | 120 | | | | |
| Magnesium | 463124.141 | 100 | 500000 | 0 | 92.6 | 80 | 120 | | | | |

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132001**
Client ID: **ICSAB** Batch ID: **R132001** TestNo: **EPA 6010B** Analysis Date: **2/19/2019** SeqNo: **3296920**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 528269.912 | 50 | 500000 | 0 | 106 | 80 | 120 | | | | |
| Calcium | 536284.742 | 500 | 500000 | 0 | 107 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296920** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 177139.490 | 20 | 200000 | 0 | 88.6 | 80 | 120 | | | | |
| Magnesium | 500999.113 | 100 | 500000 | 0 | 100 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296968** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 177072.078 | 20 | 200000 | 0 | 88.5 | 80 | 120 | | | | |

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296969** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 176360.723 | 20 | 200000 | 0 | 88.2 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296991** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 482716.687 | 50 | 500000 | 0 | 96.5 | 80 | 120 | | | | |
| Calcium | 495080.495 | 500 | 500000 | 0 | 99.0 | 80 | 120 | | | | |
| Iron | 174218.103 | 20 | 200000 | 0 | 87.1 | 80 | 120 | | | | |
| Magnesium | 464025.085 | 100 | 500000 | 0 | 92.8 | 80 | 120 | | | | |

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296992** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 521999.775 | 50 | 500000 | 0 | 104 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296992** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 532032.004 | 500 | 500000 | 0 | 106 | 80 | 120 | | | | |
| Iron | 173659.179 | 20 | 200000 | 0 | 86.8 | 80 | 120 | | | | |
| Magnesium | 500888.413 | 100 | 500000 | 0 | 100 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190214B**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 1 | 99.64 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1.047 | 104.66 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 1.066 | 106.59 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 1.0095 | 100.95 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 1.033 | 103.33 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 1.022 | 102.15 | 65-125 | PASS |
| Standard7 | ICAL | 1 | 1.0038 | 100.38 | 65-125 | PASS |
| ICV | ICV | 1 | 1.018 | 101.79 | 65-125 | PASS |
| ICB | ICB | 1 | 1 | 99.81 | 65-125 | PASS |
| LLICV1 | CCV1 | 1 | 1.0012 | 100.12 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 1.052 | 105.16 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 0.91 | 90.75 | 65-125 | PASS |
| CCV1 | CCV | 1 | 1.028 | 102.84 | 65-125 | PASS |
| CCB1 | CCB | 1 | 1.009 | 100.9 | 65-125 | PASS |
| CCV2 | CCV | 1 | 1.031 | 103.1 | 65-125 | PASS |
| CCB2 | CCB | 1 | 1.011 | 101.12 | 65-125 | PASS |
| CCV3 | CCV | 1 | 1.035 | 103.54 | 65-125 | PASS |
| CCB3 | CCB | 1 | 1.02 | 101.99 | 65-125 | PASS |
| CCV4 | CCV | 1 | 1.032 | 103.16 | 65-125 | PASS |
| CCB4 | CCB | 1 | 1.018 | 101.76 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 1.064 | 106.43 | 65-125 | PASS |
| ICSAB2 | ICSAB | 1 | 0.92 | 92.052 | 65-125 | PASS |
| CCV5 | CCV | 1 | 1.042 | 104.22 | 65-125 | PASS |
| CCB5 | CCB | 1 | 1.028 | 102.77 | 65-125 | PASS |
| CCV6 | CCV | 1 | 1.047 | 104.68 | 65-125 | PASS |
| CCB6 | CCB | 1 | 1.029 | 102.86 | 65-125 | PASS |
| MB-72464 | MBLK | 1 | 1.041 | 104.08 | 65-125 | PASS |
| LCS-72464 | LCS | 1 | 0.97 | 96.73 | 65-125 | PASS |
| N034104-001E | SAMP | 1 | 1.042 | 104.2 | 65-125 | PASS |
| N034104-001E | SAMP | 5 | 1.029 | 102.92 | 65-125 | PASS |
| N034104-001E-PS | PS | 1 | 1.041 | 104.13 | 65-125 | PASS |
| N034104-001E-MS | MS | 1 | 1.077 | 107.68 | 65-125 | PASS |
| N034104-001E-MSD | MSD | 1 | 1.073 | 107.32 | 65-125 | PASS |
| N034104-002E | SAMP | 1 | 1.063 | 106.31 | 65-125 | PASS |
| CCV7 | CCV | 1 | 1.044 | 104.41 | 65-125 | PASS |
| CCB7 | CCB | 1 | 1.028 | 102.84 | 65-125 | PASS |
| N034104-003E | SAMP | 1 | 1.068 | 106.76 | 65-125 | PASS |
| N034104-004E | SAMP | 1 | 1.078 | 107.83 | 65-125 | PASS |
| N034104-005E | SAMP | 1 | 1.044 | 104.35 | 65-125 | PASS |
| N034104-006E | SAMP | 1 | 1.061 | 106.14 | 65-125 | PASS |

**INTERNAL STANDARD: 190214B**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| N034104-007E | SAMP | 1 | 1.056 | 105.62 | 65-125 | PASS |
| N034104-008E | SAMP | 1 | 1.069 | 106.87 | 65-125 | PASS |
| N034104-009E | SAMP | 1 | 1.07 | 107 | 65-125 | PASS |
| N034104-010E | SAMP | 1 | 1.063 | 106.28 | 65-125 | PASS |
| N034104-011E | SAMP | 1 | 1.077 | 107.68 | 65-125 | PASS |
| N034104-012E | SAMP | 1 | 1.058 | 105.8 | 65-125 | PASS |
| CCV8 | CCV | 1 | 1.048 | 104.78 | 65-125 | PASS |
| CCB8 | CCB | 1 | 1.032 | 103.19 | 65-125 | PASS |
| ICSA3 | ICSA | 1 | 1.076 | 107.58 | 65-125 | PASS |
| ICSAB3 | ICSAB | 1 | 0.93 | 92.91 | 65-125 | PASS |
| N034104-015E | SAMP | 1 | 1.042 | 104.25 | 65-125 | PASS |
| CCV9 | CCV | 1 | 1.048 | 104.8 | 65-125 | PASS |
| CCB9 | CCB | 1 | 1.032 | 103.2 | 65-125 | PASS |
| ICSA4 | ICSA | 1 | 1.079 | 107.95 | 65-125 | PASS |
| ICSAB4 | ICSAB | 1 | 0.55 | 55.33 | 65-125 | NR! |

**INTERNAL STANDARD: 190219E**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 1.0012 | 100.12 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1.058 | 105.85 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 1.0012 | 100.12 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 1 | 99.75 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 0.99 | 99.33 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 0.99 | 99.44 | 65-125 | PASS |
| Standard7 | ICAL | 1 | 0.98 | 98.27 | 65-125 | PASS |
| ICV | ICV | 1 | 0.99 | 98.88 | 65-125 | PASS |
| ICB | ICB | 1 | 1 | 99.54 | 65-125 | PASS |
| LLICV1 | CCV1 | 1 | 1 | 99.87 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 0.96 | 96.033 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 0.87 | 86.71 | 65-125 | PASS |
| N034104-015E | SAMP | 1 | 1 | 99.65 | 65-125 | PASS |
| CCV1 | CCV | 1 | 1.0073 | 100.73 | 65-125 | PASS |
| CCB1 | CCB | 1 | 1.007 | 100.7 | 65-125 | PASS |
| CCV2 | CCV | 1 | 1.0093 | 100.93 | 65-125 | PASS |
| CCB2 | CCB | 1 | 1.0093 | 100.93 | 65-125 | PASS |
| CCV3 | CCV | 1 | 1.0059 | 100.59 | 65-125 | PASS |
| CCB3 | CCB | 1 | 1.011 | 101.1 | 65-125 | PASS |
| CCV4 | CCV | 1 | 1.054 | 105.4 | 65-125 | PASS |
| CCB4 | CCB | 1 | 1.058 | 105.8 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 1.0064 | 100.64 | 65-125 | PASS |
| ICSAB2 | ICSAB | 1 | 0.91 | 91.23 | 65-125 | PASS |
| CCV5 | CCV | 1 | 1.066 | 106.58 | 65-125 | PASS |
| CCB5 | CCB | 1 | 1.073 | 107.34 | 65-125 | PASS |
| CCV6 | CCV | 1 | 1.07 | 106.96 | 65-125 | PASS |
| CCB6 | CCB | 1 | 1.074 | 107.43 | 65-125 | PASS |
| CCV7 | CCV | 1 | 1.071 | 107.06 | 65-125 | PASS |
| CCB7 | CCB | 1 | 1.079 | 107.88 | 65-125 | PASS |
| CCV8 | CCV | 1 | 1.052 | 105.25 | 65-125 | PASS |
| CCB8 | CCB | 1 | 1.065 | 106.55 | 65-125 | PASS |
| ICSA3 | ICSA | 1 | 1.0076 | 100.76 | 65-125 | PASS |
| ICSAB3 | ICSAB | 1 | 0.91 | 91.26 | 65-125 | PASS |
| CCV9 | CCV | 1 | 1.087 | 108.7 | 65-125 | PASS |
| CCB9 | CCB | 1 | 1.11 | 110.84 | 65-125 | PASS |
| CCV10 | CCV | 1 | 1.091 | 109.12 | 65-125 | PASS |
| CCB10 | CCB | 1 | 1.11 | 111.24 | 65-125 | PASS |
| ICSA4 | ICSA | 1 | 1.033 | 103.34 | 65-125 | PASS |
| ICSAB4 | ICSAB | 1 | 0.94 | 94.22 | 65-125 | PASS |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034104
Test Method: EPA 6010
Analysis Date: 02 / 14 & 19 / 2019

Matrix: Groundwater
Batch No.: 72464

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

| Sample ID | Analyte | Units | Calc Val | OQual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|
| N034104-001E DT 5X | Iron | ug/L | 0 | NA | 22.41567 | 100.00% | 10 |

Note: NA - Not applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | **N034104-001E-PS** | SampType: **PS** | TestCode: **6010_WPGE** | Units: **ug/L** | | Prep Date: | | | RunNo: **131849** | | | |
| Client ID: | **ZZZZZZ** | Batch ID: **72464** | TestNo: **EPA 6010B** | **EPA 3010A** | | Analysis Date: **2/14/2019** | | | SeqNo: **3289129** | | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Iron | | 120.223 | 20 | 100.0 | 22.42 | 97.8 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

**Acceptance Criteria:** MDL < spike < 10XMDL

| Analyte | Wavelength | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Spike Conc., mg/L | SD | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ag | 328.069 | 0.0033 | 0.0031 | 0.0033 | 0.0033 | 0.0031 | 0.0030 | 0.0047 | 0.003 | 0.00061604 | **0.001936** | 0.003 |
| Al | 237.312 | 0.0664 | 0.0603 | 0.0656 | 0.0650 | 0.0658 | 0.0660 | 0.0946 | 0.050 | 0.01254823 | **0.039439** | 0.050 |
| As | 188.983 | 0.0131 | 0.0089 | 0.0120 | 0.0089 | 0.0060 | 0.0102 | 0.0080 | 0.010 | 0.00223806 | **0.007034** | 0.010 |
| B | 249.679 | 0.1491 | 0.1267 | 0.1281 | 0.1467 | 0.1261 | 0.1195 | 0.1015 | 0.100 | 0.01801843 | **0.056632** | 0.100 |
| Ba | 233.529 | 0.0033 | 0.0031 | 0.0033 | 0.0031 | 0.0032 | 0.0030 | 0.0024 | 0.003 | 0.00033070 | **0.001039** | 0.003 |
| Be | 313.104 | 0.0012 | 0.0011 | 0.0012 | 0.0012 | 0.0011 | 0.0011 | 0.0011 | 0.001 | 0.00006873 | **0.000216** | 0.001 |
| Ca | 227.546 | 0.2381 | 0.2231 | 0.2559 | 0.2299 | 0.2194 | 0.2473 | 0.2691 | 0.200 | 0.02202408 | **0.069222** | 0.200 |
| Cd | 214.437 | 0.0031 | 0.0029 | 0.0031 | 0.0032 | 0.0031 | 0.0031 | 0.0025 | 0.003 | 0.00027049 | **0.000850** | 0.003 |
| Co | 228.614 | 0.0030 | 0.0028 | 0.0030 | 0.0031 | 0.0031 | 0.0031 | 0.0027 | 0.003 | 0.00014491 | **0.000455** | 0.003 |
| Cr | 267.719 | 0.0009 | 0.0008 | 0.0009 | 0.0012 | 0.0012 | 0.0013 | 0.0009 | 0.001 | 0.00017120 | **0.000538** | 0.001 |
| Fe | 273.953 | 0.0255 | 0.0226 | 0.0242 | 0.0255 | 0.0252 | 0.0248 | 0.0387 | 0.020 | 0.00552308 | **0.017359** | 0.020 |
| Mg | 279.079 | 0.1124 | 0.1052 | 0.1129 | 0.1315 | 0.1305 | 0.1314 | 0.1435 | 0.100 | 0.01532024 | **0.048152** | 0.100 |
| Mn | 257.607 | 0.0119 | 0.0111 | 0.0120 | 0.0122 | 0.0121 | 0.0122 | 0.0099 | 0.010 | 0.00098403 | **0.003093** | 0.010 |
| Mo | 202.03 | 0.0079 | 0.0068 | 0.0067 | 0.0065 | 0.0065 | 0.0062 | 0.0057 | 0.005 | 0.00083918 | **0.002638** | 0.005 |
| Ni | 231.604 | 0.0061 | 0.0056 | 0.0062 | 0.0060 | 0.0060 | 0.0062 | 0.0045 | 0.005 | 0.00062690 | **0.001970** | 0.005 |
| Pb | 220.351 | 0.0124 | 0.0117 | 0.0127 | 0.0115 | 0.0120 | 0.0118 | 0.0090 | 0.010 | 0.00126325 | **0.003970** | 0.010 |
| Sb | 206.836 | 0.0102 | 0.0095 | 0.0104 | 0.0112 | 0.0117 | 0.0111 | 0.0080 | 0.010 | 0.00117407 | **0.003690** | 0.010 |
| Se | 196.025 | 0.0102 | 0.0087 | 0.0114 | 0.0136 | 0.0144 | 0.0136 | 0.0075 | 0.010 | 0.00251341 | **0.007900** | 0.010 |
| Sn | 189.927 | 0.0095 | 0.0084 | 0.0090 | 0.0124 | 0.0126 | 0.0129 | 0.0099 | 0.010 | 0.00175765 | **0.005524** | 0.010 |
| Ti | 334.943 | 0.0114 | 0.0106 | 0.0115 | 0.0115 | 0.0115 | 0.0115 | 0.0098 | 0.010 | 0.00074093 | **0.002329** | 0.010 |
| Tl | 190.794 | 0.0170 | 0.0150 | 0.0165 | 0.0171 | 0.0180 | 0.0168 | 0.0151 | 0.015 | 0.00116288 | **0.003655** | 0.015 |
| V | 292.404 | 0.0025 | 0.0024 | 0.0025 | 0.0032 | 0.0032 | 0.0032 | 0.0027 | 0.003 | 0.00038496 | **0.001210** | 0.003 |
| Zn | 206.201 | 0.0109 | 0.0100 | 0.0107 | 0.0125 | 0.0124 | 0.0124 | 0.0095 | 0.010 | 0.00123731 | **0.003889** | 0.010 |

## METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

| Analyte | ICP-02 MDL | MDL Blank | Higher MDL | LOD | PQL |
|---|---|---|---|---|---|
| Ag | 0.001936 | 0.002362 | 0.002362 | 0.002 | 0.003 |
| Al | 0.039439 | 0.039859 | 0.039859 | 0.04 | 0.5 |
| As | 0.007034 | 0.007672 | 0.007672 | 0.0075 | 0.01 |
| B | 0.056632 | 0.074419 | 0.074419 | 0.075 | 0.1 |
| Ba | 0.001039 | 0.000433 | 0.001039 | 0.001 | 0.003 |
| Be | 0.000216 | 0.000311 | 0.000311 | 0.0005 | 0.003 |
| Ca | 0.069222 | 0.084832 | 0.084832 | 0.1 | 0.5 |
| Cd | 0.000850 | 0.000592 | 0.000850 | 0.001 | 0.003 |
| Co | 0.000455 | 0.001902 | 0.001902 | 0.001 | 0.003 |
| Cr | 0.000538 | 0.000527 | 0.000538 | 0.001 | 0.003 |
| Fe | 0.017359 | 0.017751 | 0.017751 | 0.018 | 0.1 |
| Mg | 0.048152 | 0.043017 | 0.048152 | 0.05 | 0.1 |
| Mn | 0.003093 | 0.000782 | 0.003093 | 0.005 | 0.5 |
| Mo | 0.002638 | 0.002482 | 0.002638 | 0.0025 | 0.005 |
| Ni | 0.001970 | 0.000822 | 0.001970 | 0.0025 | 0.005 |
| Pb | 0.003970 | 0.002762 | 0.003970 | 0.005 | 0.005 |
| Sb | 0.003690 | 0.004504 | 0.004504 | 0.005 | 0.01 |
| Se | 0.007900 | 0.008549 | 0.008549 | 0.008 | 0.01 |
| Sn | 0.005524 | 0.003415 | 0.005524 | 0.0075 | 0.05 |
| Ti | 0.002329 | 0.001493 | 0.002329 | 0.005 | 0.05 |
| Tl | 0.003655 | 0.005987 | 0.005987 | 0.005 | 0.015 |
| V | 0.001210 | 0.000749 | 0.001210 | 0.002 | 0.003 |
| Zn | 0.003889 | 0.007683 | 0.007683 | 0.008 | 0.01 |

# EPA 6020
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72458
**ASSET #:** N034104
**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 2/14/2019

**Method:**

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | | X | | | X | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | X | | | X | | |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | X | | | X | | |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | X | | | X | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

% Rec of Ba in N034104-001C PS/MS/MSD failed, low bias. However, LCS passed criteria.
% RSD of Se in N034104-004C/005C/006C/008C/012C/015C failed. For rerun.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: 2/27/2019

2nd Level Reviewer 2/27/2019 2/27/2019 Date: 2/27/2019

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72458
**ASSET #:** N034104
**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 2/22/2019

**Method:**

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | X |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | X |
| 24. LCS compounds within control limits. | X | | | X | | X |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | X |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

Se rerun.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: —

2nd Level Reviewer 2/27/2019 Date: —

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA 6020
**TEST NAME:** Heavy Metals by ICP-MS
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Barium concentration, in ug/L , in the original sample as follows:

Barium , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N034104-001C** , the concentration in ug/L is calculated as follows:

Barium , ug/L = 122.036 * 1 *(25/25)

Barium , ug/L = 122.036

Reporting results in two significant figures,

**Barium , ug/L = 120**

NS 2/27/2019

# % RSD SUMMARY

**PERCENT RSD SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 137 Ba [3] | | | | 52 Cr [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.09 | 3.75 | 15 | PASS | 0.082 | 8.17 | 15 | PASS |
| Std2-0.5/5 ppb | ICAL | 1 | 0.51 | 5.12 | 15 | PASS | 0.5 | 0.8 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 5.052 | 2.85 | 15 | PASS | 5.063 | 2.05 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.00039 | 2.62 | 15 | PASS | 10.15 | 1.086 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.13 | 0.56 | 15 | PASS | 20.31 | 1.82 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.35 | 0.32 | 15 | PASS | 40.43 | 1.29 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.67 | 1.017 | 15 | PASS | 100.86 | 0.7 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.58 | 0.79 | 15 | PASS | 199.44 | 1.81 | 15 | PASS |
| ICV | ICV | 1 | 10.13 | 0.43 | 15 | PASS | 10.4 | 0.08 | 15 | PASS |
| ICB | ICB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LLICV | CCV1 | 1 | 1.24 | 1.12 | 20 | PASS | 1.068 | 6.95 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 20.48 | 3.61 | 15 | PASS | 18.051 | 1.19 | 15 | PASS |
| LLICV | CCV1 | 1 | 1.17 | 2.12 | 20 | PASS | 1.051 | 4.44 | 20 | PASS |
| CCV1 | CCV | 1 | 20.94 | 0.29 | 15 | PASS | 20.062 | 0.49 | 15 | PASS |
| CCB1 | CCB | 1 | 0.012 | 44.27 | 15 | <PQL | 0.0028 | 290.38 | 15 | <PQL |
| CCV2 | CCV | 1 | 21.5 | 1.79 | 15 | PASS | 20.038 | 2.65 | 15 | PASS |
| CCB2 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.013 | 89.46 | 15 | <PQL |
| CCV3 | CCV | 1 | 21.6 | 0.74 | 15 | PASS | 19.47 | 1.11 | 15 | PASS |
| CCB3 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.0079 | 103.63 | 15 | <PQL |
| CCV4 | CCV | 1 | 21.96 | 0.49 | 15 | PASS | 20.089 | 0.59 | 15 | PASS |
| CCB4 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.015 | 93.85 | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 22.48 | 2.5 | 15 | PASS | 17.9 | 1.81 | 15 | PASS |
| CCV5 | CCV | 1 | 21.68 | 1.04 | 15 | PASS | 19.97 | 0.72 | 15 | PASS |
| CCB5 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.018 | 40.54 | 15 | <PQL |
| MB-72458 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | 0.00026 | 2329.2 | 15 | <PQL |
| LCS-72458 | LCS | 1 | 11.22 | 0.96 | 15 | PASS | 10.18 | 1.76 | 15 | PASS |
| N034104-001C | SAMP | 1 | 122.036 | 0.61 | 15 | PASS | 0.0085 | 192.26 | 15 | <PQL |
| N034104-001C | SAMP | 5 | 24.96 | 1.49 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034104-001C-PS | PS | 1 | 123.086 | 0.55 | 15 | PASS | 9.89 | 0.86 | 15 | PASS |
| N034104-001C-MS | MS | 1 | 125.26 | 0.65 | 15 | PASS | 9.54 | 2.76 | 15 | PASS |
| N034104-001C-MSD | MSD | 1 | 125.35 | 0.098 | 15 | PASS | 9.59 | 0.81 | 15 | PASS |
| N034104-002C | SAMP | 1 | 113.88 | 0.3 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034104-003C | SAMP | 1 | 113.37 | 0.68 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV6 | CCV | 1 | 21.45 | 0.83 | 15 | PASS | 19.88 | 0.82 | 15 | PASS |
| CCB6 | CCB | 1 | 0.024 | 37.088 | 15 | <PQL | 0.0089 | 52.87 | 15 | <PQL |
| N034104-004C | SAMP | 1 | 117.13 | 0.67 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034104-005C | SAMP | 1 | 114.49 | 0.4 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034104-006C | SAMP | 1 | 118.51 | 0.35 | 15 | PASS | <0.000 | N/A | 15 | <PQL |

**PERCENT RSD SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 137 Ba [3] | | | | 52 Cr [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034104-007C | SAMP | 1 | 115.3 | 0.79 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034104-008C | SAMP | 1 | 116.4 | 0.62 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034104-009C | SAMP | 1 | 118.6 | 0.25 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034104-010C | SAMP | 1 | 120.089 | 0.71 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034104-011C | SAMP | 1 | 116.73 | 1.021 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034104-012C | SAMP | 1 | 121.23 | 0.63 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034104-013C | SAMP | 1 | 105.23 | 1.16 | 15 | PASS | 0.13 | 12.88 | 15 | PASS |
| CCV7 | CCV | 1 | 21.3 | 1.37 | 15 | PASS | 20.083 | 2.54 | 15 | PASS |
| CCB7 | CCB | 1 | 0.012 | 10.63 | 15 | PASS | 0.0034 | 106.92 | 15 | <PQL |
| N034104-014C | SAMP | 1 | 104.56 | 1.36 | 15 | PASS | 0.029 | 85.49 | 15 | <PQL |
| N034104-015C | SAMP | 1 | 119.013 | 0.68 | 15 | PASS | 0.0022 | 449.89 | 15 | <PQL |
| N034109-001B | SAMP | 1 | 36.59 | 0.33 | 15 | PASS | 0.038 | 70.14 | 15 | <PQL |
| CCV8 | CCV | 1 | 21.44 | 0.81 | 15 | PASS | 20.024 | 0.71 | 15 | PASS |
| CCB8 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.0074 | 67.28 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 23.64 | 0.39 | 15 | PASS | 18.23 | 1.17 | 15 | PASS |
| CCV9 | CCV | 1 | 21.28 | 0.61 | 15 | PASS | 19.61 | 2.26 | 15 | PASS |
| CCB9 | CCB | 1 | 0.018 | 103.8 | 15 | <PQL | 0.019 | 40.53 | 15 | <PQL |
| CCV10 | CCV | 1 | 22.58 | 1.023 | 15 | PASS | 20.058 | 2.41 | 15 | PASS |
| CCB10 | CCB | 1 | 0.0077 | 143.34 | 15 | <PQL | 0.0085 | 98.12 | 15 | <PQL |
| ICSA4 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 24.25 | 0.44 | 15 | PASS | 17.61 | 0.17 | 15 | PASS |

**PERCENT RSD SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 55 Mn [2] | | | | 75 As [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.1 | 13.6 | 15 | PASS | 0.069 | 37.2 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.49 | 11.13 | 15 | PASS | 0.55 | 10.25 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 4.98 | 0.89 | 15 | PASS | 4.99 | 2.7 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.17 | 3.017 | 15 | PASS | 9.98 | 1.51 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.59 | 2.23 | 15 | PASS | 19.65 | 1.6 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.65 | 0.5 | 15 | PASS | 39.77 | 1.27 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.22 | 1.54 | 15 | PASS | 101.19 | 1.25 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.7 | 1.31 | 15 | PASS | 199.49 | 0.78 | 15 | PASS |
| ICV | ICV | 1 | 106.21 | 1.025 | 15 | PASS | 9.96 | 1.14 | 15 | PASS |
| ICB | ICB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.67 | 13.52 | 20 | PASS | 0.082 | 59.15 | 20 | <PQL |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 18.046 | 0.4 | 15 | PASS | 19.13 | 2.12 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.55 | 15.28 | 20 | PASS | 0.062 | 26.78 | 20 | <PQL |
| CCV1 | CCV | 1 | 20.34 | 1.19 | 15 | PASS | 19.66 | 2.35 | 15 | PASS |
| CCB1 | CCB | 1 | 0.0058 | 144.058 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV2 | CCV | 1 | 20.18 | 2.45 | 15 | PASS | 19.35 | 0.64 | 15 | PASS |
| CCB2 | CCB | 1 | 0.013 | 57.64 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV3 | CCV | 1 | 19.87 | 2.57 | 15 | PASS | 18.85 | 3.12 | 15 | PASS |
| CCB3 | CCB | 1 | 0.027 | 13.11 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV4 | CCV | 1 | 19.63 | 1.85 | 15 | PASS | 18.7 | 2.13 | 15 | PASS |
| CCB4 | CCB | 1 | 0.0087 | 71.95 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 17.7 | 3.36 | 15 | PASS | 19.054 | 2.15 | 15 | PASS |
| CCV5 | CCV | 1 | 19.79 | 0.39 | 15 | PASS | 19.0076 | 1.11 | 15 | PASS |
| CCB5 | CCB | 1 | 0.011 | 38.33 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| MB-72458 | MBLK | 1 | 0.00069 | 603.94 | 15 | <PQL | 0.0084 | 253.58 | 15 | <PQL |
| LCS-72458 | LCS | 1 | 105.13 | 1.52 | 15 | PASS | 9.77 | 1.046 | 15 | PASS |
| N034104-001C | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.29 | 2.3 | 15 | PASS |
| N034104-001C | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.51 | 3.63 | 15 | PASS |
| N034104-001C-PS | PS | 1 | 100.51 | 0.68 | 15 | PASS | 12.63 | 1.76 | 15 | PASS |
| N034104-001C-MS | MS | 1 | 98.45 | 1.97 | 15 | PASS | 12.16 | 3.54 | 15 | PASS |
| N034104-001C-MSD | MSD | 1 | 98.62 | 0.88 | 15 | PASS | 12.048 | 1.61 | 15 | PASS |
| N034104-002C | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.22 | 2.52 | 15 | PASS |
| N034104-003C | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.11 | 7.59 | 15 | PASS |
| CCV6 | CCV | 1 | 19.87 | 2.41 | 15 | PASS | 19.054 | 5.18 | 15 | PASS |
| CCB6 | CCB | 1 | 0.0062 | 63.094 | 15 | <PQL | 0.038 | 71.16 | 15 | <PQL |
| N034104-004C | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.027 | 6.71 | 15 | PASS |
| N034104-005C | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.2 | 1.057 | 15 | PASS |
| N034104-006C | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.1 | 4.74 | 15 | PASS |

**PERCENT RSD SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 55 Mn [2] | | | | 75 As [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034104-007C | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 1.94 | 7.62 | 15 | PASS |
| N034104-008C | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.12 | 6.51 | 15 | PASS |
| N034104-009C | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.14 | 8.52 | 15 | PASS |
| N034104-010C | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.25 | 6.072 | 15 | PASS |
| N034104-011C | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.12 | 4.43 | 15 | PASS |
| N034104-012C | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.12 | 3.65 | 15 | PASS |
| N034104-013C | SAMP | 1 | 20.028 | 1.32 | 15 | PASS | 1.52 | 6.26 | 15 | PASS |
| CCV7 | CCV | 1 | 19.77 | 1.61 | 15 | PASS | 19.36 | 1.91 | 15 | PASS |
| CCB7 | CCB | 1 | 0.0065 | 115.38 | 15 | <PQL | 0.032 | 251.13 | 15 | <PQL |
| N034104-014C | SAMP | 1 | 3.79 | 6.21 | 15 | PASS | 1.54 | 2.29 | 15 | PASS |
| N034104-015C | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.12 | 8.64 | 15 | PASS |
| N034109-001B | SAMP | 1 | 85.57 | 0.77 | 15 | PASS | 12.28 | 1.073 | 15 | PASS |
| CCV8 | CCV | 1 | 20.014 | 1.9 | 15 | PASS | 19.31 | 1.59 | 15 | PASS |
| CCB8 | CCB | 1 | 0.0078 | 86.52 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.012 | 451.013 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 17.76 | 2.19 | 15 | PASS | 19.031 | 1.16 | 15 | PASS |
| CCV9 | CCV | 1 | 19.52 | 1.58 | 15 | PASS | 18.84 | 0.93 | 15 | PASS |
| CCB9 | CCB | 1 | 0.043 | 8.32 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV10 | CCV | 1 | 20.13 | 2.13 | 15 | PASS | 19.95 | 2.045 | 15 | PASS |
| CCB10 | CCB | 1 | 0.02 | 52.16 | 15 | <PQL | 0.022 | 130.014 | 15 | <PQL |
| ICSA4 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 17.73 | 2.31 | 15 | PASS | 19.047 | 2.24 | 15 | PASS |

**PERCENT RSD SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.17 | 95.13 | 15 | <PQL | 0.056 | 24.43 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.56 | 30.9 | 15 | NR! | 0.37 | 6.4 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 4.59 | 18.045 | 15 | NR! | 4.64 | 2.71 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 9.56 | 3.62 | 15 | PASS | 9.39 | 1.8 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 21.48 | 7.7 | 15 | PASS | 19.8 | 0.14 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 39.71 | 4.47 | 15 | PASS | 40.3 | 0.84 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 99.89 | 1.93 | 15 | PASS | 105.13 | 1.014 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 204.5 | 2.083 | 15 | PASS | 215.37 | 0.13 | 15 | PASS |
| ICV | ICV | 1 | 10.3 | 8.74 | 15 | PASS | 10.14 | 1.93 | 15 | PASS |
| ICB | ICB | 1 | 0.02 | 173.21 | 15 | <PQL | 0.056 | 72.9 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.5 | 5.79 | 20 | PASS | 0.47 | 9.57 | 20 | PASS |
| ICSA1 | ICSA | 1 | 0.059 | 173.21 | 15 | <PQL | 0.14 | 30.33 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 17.74 | 2.67 | 15 | PASS | 19.57 | 1.57 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.46 | 29.32 | 20 | <PQL | 0.32 | 8.77 | 20 | PASS |
| CCV1 | CCV | 1 | 19.69 | 5.14 | 15 | PASS | 19.33 | 1.98 | 15 | PASS |
| CCB1 | CCB | 1 | 0.053 | 99.92 | 15 | <PQL | 0.33 | 23.92 | 15 | <PQL |
| CCV2 | CCV | 1 | 18.87 | 5.91 | 15 | PASS | 18.69 | 1.58 | 15 | PASS |
| CCB2 | CCB | 1 | 0.1 | 91.76 | 15 | <PQL | 0.21 | 17.27 | 15 | <PQL |
| CCV3 | CCV | 1 | 19.35 | 2.19 | 15 | PASS | 19.81 | 1.93 | 15 | PASS |
| CCB3 | CCB | 1 | 0 | N/A | 15 | <PQL | 0.13 | 15.26 | 15 | <PQL |
| CCV4 | CCV | 1 | 18.19 | 5.74 | 15 | PASS | 19.28 | 1.42 | 15 | PASS |
| CCB4 | CCB | 1 | 0 | N/A | 15 | <PQL | 0.14 | 25.53 | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0.09 | 91.1 | 15 | <PQL | 0.16 | 28.54 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 17.077 | 4.94 | 15 | PASS | 19.75 | 0.98 | 15 | PASS |
| CCV5 | CCV | 1 | 18.45 | 8.22 | 15 | PASS | 18.71 | 3.68 | 15 | PASS |
| CCB5 | CCB | 1 | 0 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| MB-72458 | MBLK | 1 | 0 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LCS-72458 | LCS | 1 | 9.58 | 8.75 | 15 | PASS | 10.05 | 1.77 | 15 | PASS |
| N034104-001C | SAMP | 1 | 2.094 | 11.039 | 15 | PASS | 5.38 | 3.65 | 15 | PASS |
| N034104-001C | SAMP | 5 | 0.24 | 56.84 | 15 | <PQL | 0.98 | 9.72 | 15 | PASS |
| N034104-001C-PS | PS | 1 | 12.54 | 2.62 | 15 | PASS | 16.66 | 1.87 | 15 | PASS |
| N034104-001C-MS | MS | 1 | 12.0019 | 5.27 | 15 | PASS | 17.01 | 1.77 | 15 | PASS |
| N034104-001C-MSD | MSD | 1 | 12.64 | 5.034 | 15 | PASS | 17.06 | 2.23 | 15 | PASS |
| N034104-002C | SAMP | 1 | 1.93 | 7.54 | 15 | PASS | 5.18 | 2.8 | 15 | PASS |
| N034104-003C | SAMP | 1 | 2.063 | 14.048 | 15 | PASS | 4.84 | 2.79 | 15 | PASS |
| CCV6 | CCV | 1 | 18.87 | 6.75 | 15 | PASS | 18.32 | 0.21 | 15 | PASS |
| CCB6 | CCB | 1 | 0.037 | 173.21 | 15 | <PQL | 0.21 | 35.82 | 15 | <PQL |
| N034104-004C | SAMP | 1 | 1.55 | 24.14 | 15 | NR! | 5.026 | 3.76 | 15 | PASS |
| N034104-005C | SAMP | 1 | 1.49 | 20.24 | 15 | NR! | 4.79 | 3.59 | 15 | PASS |
| N034104-006C | SAMP | 1 | 1.61 | 27.92 | 15 | NR! | 5.0057 | 4.32 | 15 | PASS |

**PERCENT RSD SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034104-007C | SAMP | 1 | 1.54 | 13.65 | 15 | PASS | 4.85 | 3.1 | 15 | PASS |
| N034104-008C | SAMP | 1 | 1.73 | 20.18 | 15 | NR! | 4.82 | 1.63 | 15 | PASS |
| N034104-009C | SAMP | 1 | 1.98 | 11.18 | 15 | PASS | 5.097 | 3.042 | 15 | PASS |
| N034104-010C | SAMP | 1 | 1.86 | 11.78 | 15 | PASS | 4.97 | 1.63 | 15 | PASS |
| N034104-011C | SAMP | 1 | 1.56 | 1.36 | 15 | PASS | 5 | 0.89 | 15 | PASS |
| N034104-012C | SAMP | 1 | 1.65 | 24.36 | 15 | NR! | 5.039 | 3.95 | 15 | PASS |
| N034104-013C | SAMP | 1 | 1.83 | 13.17 | 15 | PASS | 5.5 | 1.89 | 15 | PASS |
| CCV7 | CCV | 1 | 19.39 | 8.11 | 15 | PASS | 19.32 | 1.48 | 15 | PASS |
| CCB7 | CCB | 1 | 0.036 | 86.63 | 15 | <PQL | 0.22 | 36.16 | 15 | <PQL |
| N034104-014C | SAMP | 1 | 1.75 | 24.97 | 15 | NR! | 5.21 | 4.13 | 15 | PASS |
| N034104-015C | SAMP | 1 | 1.45 | 21.4 | 15 | NR! | 5.13 | 0.75 | 15 | PASS |
| N034109-001B | SAMP | 1 | 0.11 | 1.67 | 15 | PASS | 16.96 | 1.34 | 15 | PASS |
| CCV8 | CCV | 1 | 19.11 | 0.76 | 15 | PASS | 19.17 | 0.49 | 15 | PASS |
| CCB8 | CCB | 1 | 0.028 | 173.21 | 15 | <PQL | 0.12 | 9.15 | 15 | PASS |
| ICSA3 | ICSA | 1 | 0.13 | 2.057 | 15 | PASS | 0.11 | 31.84 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 18.087 | 5.76 | 15 | PASS | 19.72 | 2.78 | 15 | PASS |
| CCV9 | CCV | 1 | 18.098 | 3.44 | 15 | PASS | 18.35 | 1.37 | 15 | PASS |
| CCB9 | CCB | 1 | 0.076 | 112.13 | 15 | <PQL | 0.24 | 19.91 | 15 | <PQL |
| CCV10 | CCV | 1 | 20.084 | 4.56 | 15 | PASS | 19.3 | 1.58 | 15 | PASS |
| CCB10 | CCB | 1 | 0.039 | 86.6 | 15 | <PQL | 0.27 | 19.79 | 15 | <PQL |
| ICSA4 | ICSA | 1 | 0.062 | 173.21 | 15 | <PQL | 0.07 | 18.96 | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 18.083 | 5.54 | 15 | PASS | 19.62 | 0.92 | 15 | PASS |

**PERCENT RSD SUMMARY: 190222B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.045 | 83.13 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.57 | 20.65 | 15 | NR! |
| Std3-5/50 ppb | ICAL | 1 | 4.82 | 7.98 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.32 | 4.6 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.22 | 8.13 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.42 | 5.11 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.77 | 7.57 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.5 | 2.71 | 15 | PASS |
| ICV | ICV | 1 | 9.99 | 5.52 | 15 | PASS |
| ICB | ICB | 1 | 0.16 | 72.39 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.82 | 19.018 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 18.59 | 4.29 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.47 | 24.07 | 20 | <PQL |
| CCV1 | CCV | 1 | 19.17 | 5 | 15 | PASS |
| CCB1 | CCB | 1 | 0.056 | 75.55 | 15 | <PQL |
| N034104-004C | SAMP | 1 | 1.71 | 12.98 | 15 | PASS |
| N034104-005C | SAMP | 1 | 1.39 | 13.68 | 15 | PASS |
| N034104-006C | SAMP | 1 | 1.12 | 12.76 | 15 | PASS |
| N034104-008C | SAMP | 1 | 1.49 | 14.28 | 15 | PASS |
| N034104-012C | SAMP | 1 | 1.84 | 6.4 | 15 | PASS |
| N034104-014C | SAMP | 1 | 1.66 | 19.011 | 15 | NR! |
| N034104-015C | SAMP | 1 | 1.96 | 6.34 | 15 | PASS |
| CCV2 | CCV | 1 | 18.95 | 8.51 | 15 | PASS |
| CCB2 | CCB | 1 | <0.000 | N/A | 15 | <PQL |
| N034104-004C | SAMP | 1 | 1.69 | 11.66 | 15 | PASS |
| N034104-005C | SAMP | 1 | 1.71 | 7.72 | 15 | PASS |
| N034104-006C | SAMP | 1 | 1.67 | 35.31 | 15 | NR! |
| N034104-008C | SAMP | 1 | 1.93 | 20.4 | 15 | NR! |
| N034104-012C | SAMP | 1 | 1.63 | 23.85 | 15 | NR! |
| N034104-014C | SAMP | 1 | 1.033 | 44.076 | 15 | NR! |
| N034104-015C | SAMP | 1 | 1.51 | 23.26 | 15 | NR! |
| CCV3 | CCV | 1 | 19.3 | 2.35 | 15 | PASS |
| CCB3 | CCB | 1 | 0.039 | 94.81 | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 18.66 | 9.34 | 15 | PASS |
| CCV4 | CCV | 1 | 19.085 | 6.82 | 15 | PASS |
| CCB4 | CCB | 1 | <0.000 | N/A | 15 | <PQL |
| CCV5 | CCV | 1 | 21.13 | 2.39 | 15 | PASS |
| CCB5 | CCB | 1 | 0.11 | 123.87 | 15 | <PQL |

**PERCENT RSD SUMMARY: 190222B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| CCV6 | CCV | 1 | 19.53 | 3.99 | 15 | PASS |
| CCB6 | CCB | 1 | 0.066 | 56.64 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 18.52 | 5.93 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190214A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0214001.D | RINSE | RINSE | 1 | 02/14/19 12:44 PM |
| A0214002.D | Cal Blank | IBLK | 1 | 02/14/19 12:50 PM |
| A0214003.D | Std1-0.1/1 ppb | ICAL | 1 | 02/14/19 12:55 PM |
| A0214004.D | Std2-0.5/5 ppb | ICAL | 1 | 02/14/19 1:01 PM |
| A0214005.D | Std3-5/50 ppb | ICAL | 1 | 02/14/19 1:06 PM |
| A0214006.D | Std4-10/100 ppb | ICAL | 1 | 02/14/19 1:12 PM |
| A0214007.D | Std5-20/200 ppb | ICAL | 1 | 02/14/19 1:18 PM |
| A0214008.D | Std6-40/400 ppb | ICAL | 1 | 02/14/19 1:23 PM |
| A0214009.D | Std7-100/1000 ppb | ICAL | 1 | 02/14/19 1:29 PM |
| A0214010.D | Std8-200/2000 ppb | ICAL | 1 | 02/14/19 1:34 PM |
| A0214011.D | ICV | ICV | 1 | 02/14/19 1:41 PM |
| A0214012.D | ICB | ICB | 1 | 02/14/19 1:47 PM |
| A0214013.D | LLICV | CCV1 | 1 | 02/14/19 1:53 PM |
| A0214014.D | ICSA1 | ICSA | 1 | 02/14/19 1:58 PM |
| A0214015.D | ICSAB1 | ICSAB | 1 | 02/14/19 2:03 PM |
| A0214016.D | LLICV | CCV1 | 1 | 02/14/19 2:10 PM |
| A0214017.D | MB-72455 | MBLK | 1 | 02/14/19 2:14 PM |
| A0214018.D | LCS-72455 | LCS | 1 | 02/14/19 2:20 PM |
| A0214019.D | N034089-001B | SAMP | 1 | 02/14/19 2:26 PM |
| A0214020.D | N034089-001B | SAMP | 5 | 02/14/19 2:31 PM |
| A0214021.D | N034089-001B-PS | PS | 1 | 02/14/19 2:37 PM |
| A0214022.D | N034089-001B-MS | MS | 1 | 02/14/19 2:42 PM |
| A0214023.D | N034089-001B-MSD | MSD | 1 | 02/14/19 2:48 PM |
| A0214024.D | N034089-002B | SAMP | 1 | 02/14/19 2:53 PM |
| A0214025.D | N034089-003B | SAMP | 1 | 02/14/19 2:59 PM |
| A0214026.D | N034089-004B | SAMP | 1 | 02/14/19 3:05 PM |
| A0214027.D | CCV1 | CCV | 1 | 02/14/19 3:10 PM |
| A0214028.D | CCB1 | CCB | 1 | 02/14/19 3:16 PM |
| A0214029.D | N034089-005B | SAMP | 1 | 02/14/19 3:21 PM |
| A0214030.D | N034089-006B | SAMP | 1 | 02/14/19 3:27 PM |
| A0214031.D | N034090-001B | SAMP | 1 | 02/14/19 3:32 PM |
| A0214032.D | N034090-002B | SAMP | 1 | 02/14/19 3:38 PM |
| A0214033.D | N034090-003B | SAMP | 1 | 02/14/19 3:44 PM |
| A0214034.D | N034090-004B | SAMP | 1 | 02/14/19 3:49 PM |
| A0214035.D | N034090-005B | SAMP | 1 | 02/14/19 3:55 PM |
| A0214036.D | N034090-006B | SAMP | 1 | 02/14/19 4:00 PM |
| A0214037.D | N034090-007B | SAMP | 1 | 02/14/19 4:06 PM |
| A0214038.D | N034090-008B | SAMP | 1 | 02/14/19 4:11 PM |
| A0214039.D | CCV2 | CCV | 1 | 02/14/19 4:17 PM |
| A0214040.D | CCB2 | CCB | 1 | 02/14/19 4:23 PM |
| A0214041.D | N034090-009B | SAMP | 1 | 02/14/19 4:28 PM |
| A0214042.D | N034090-010B | SAMP | 1 | 02/14/19 4:34 PM |

**INJECTION LOG: 190214A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0214043.D | N034090-011B | SAMP | 1 | 02/14/19 4:39 PM |
| A0214044.D | N034090-012B | SAMP | 1 | 02/14/19 4:45 PM |
| A0214045.D | N034090-013B | SAMP | 1 | 02/14/19 4:50 PM |
| A0214046.D | N034090-014B | SAMP | 1 | 02/14/19 4:56 PM |
| A0214047.D | MB-72457 | MBLK | 1 | 02/14/19 5:02 PM |
| A0214048.D | LCS-72457 | LCS | 1 | 02/14/19 5:07 PM |
| A0214049.D | N034091-002B | SAMP | 1 | 02/14/19 5:13 PM |
| A0214050.D | N034091-002B | SAMP | 5 | 02/14/19 5:18 PM |
| A0214051.D | CCV3 | CCV | 1 | 02/14/19 5:24 PM |
| A0214052.D | CCB3 | CCB | 1 | 02/14/19 5:30 PM |
| A0214053.D | N034091-002B-PS | PS | 1 | 02/14/19 5:35 PM |
| A0214054.D | N034091-002B-MS | MS | 1 | 02/14/19 5:40 PM |
| A0214055.D | N034091-002B-MSD | MSD | 1 | 02/14/19 5:46 PM |
| A0214056.D | N034091-003B | SAMP | 1 | 02/14/19 5:51 PM |
| A0214057.D | N034091-004B | SAMP | 1 | 02/14/19 5:57 PM |
| A0214058.D | N034102-002B | SAMP | 1 | 02/14/19 6:03 PM |
| A0214059.D | N034102-003B | SAMP | 1 | 02/14/19 6:08 PM |
| A0214060.D | N034102-004B | SAMP | 1 | 02/14/19 6:14 PM |
| A0214061.D | N034105-001B | SAMP | 1 | 02/14/19 6:19 PM |
| A0214062.D | N034105-002B | SAMP | 1 | 02/14/19 6:25 PM |
| A0214063.D | CCV4 | CCV | 1 | 02/14/19 6:32 PM |
| A0214064.D | CCB4 | CCB | 1 | 02/14/19 6:37 PM |
| A0214065.D | ICSA2 | ICSA | 1 | 02/14/19 6:42 PM |
| A0214066.D | ICSAB2 | ICSAB | 1 | 02/14/19 6:47 PM |
| A0214067.D | N034105-003B | SAMP | 1 | 02/14/19 6:53 PM |
| A0214068.D | N034105-004B | SAMP | 1 | 02/14/19 6:58 PM |
| A0214069.D | N034106-001B | SAMP | 1 | 02/14/19 7:04 PM |
| A0214070.D | N034106-002B | SAMP | 1 | 02/14/19 7:10 PM |
| A0214071.D | N034106-003B | SAMP | 1 | 02/14/19 7:15 PM |
| A0214072.D | N034106-004B | SAMP | 1 | 02/14/19 7:21 PM |
| A0214073.D | N034106-005B | SAMP | 1 | 02/14/19 7:26 PM |
| A0214074.D | N034106-006B | SAMP | 1 | 02/14/19 7:32 PM |
| A0214075.D | N034106-007B | SAMP | 1 | 02/14/19 7:38 PM |
| A0214076.D | N034106-008B | SAMP | 1 | 02/14/19 7:43 PM |
| A0214077.D | CCV5 | CCV | 1 | 02/14/19 7:49 PM |
| A0214078.D | CCB5 | CCB | 1 | 02/14/19 7:54 PM |
| A0214079.D | N034106-009B | SAMP | 1 | 02/14/19 8:00 PM |
| A0214080.D | MB-72458 | MBLK | 1 | 02/14/19 8:05 PM |
| A0214081.D | LCS-72458 | LCS | 1 | 02/14/19 8:11 PM |
| A0214082.D | N034104-001C | SAMP | 1 | 02/14/19 8:17 PM |
| A0214083.D | N034104-001C | SAMP | 5 | 02/14/19 8:22 PM |
| A0214084.D | N034104-001C-PS | PS | 1 | 02/14/19 8:28 PM |

**INJECTION LOG: 190214A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0214085.D | N034104-001C-MS | MS | 1 | 02/14/19 8:33 PM |
| A0214086.D | N034104-001C-MSD | MSD | 1 | 02/14/19 8:39 PM |
| A0214087.D | N034104-002C | SAMP | 1 | 02/14/19 8:44 PM |
| A0214088.D | N034104-003C | SAMP | 1 | 02/14/19 8:50 PM |
| A0214089.D | CCV6 | CCV | 1 | 02/14/19 8:54 PM |
| A0214090.D | CCB6 | CCB | 1 | 02/14/19 9:01 PM |
| A0214091.D | N034104-004C | SAMP | 1 | 02/14/19 9:06 PM |
| A0214092.D | N034104-005C | SAMP | 1 | 02/14/19 9:12 PM |
| A0214093.D | N034104-006C | SAMP | 1 | 02/14/19 9:17 PM |
| A0214094.D | N034104-007C | SAMP | 1 | 02/14/19 9:23 PM |
| A0214095.D | N034104-008C | SAMP | 1 | 02/14/19 9:28 PM |
| A0214096.D | N034104-009C | SAMP | 1 | 02/14/19 9:34 PM |
| A0214097.D | N034104-010C | SAMP | 1 | 02/14/19 9:40 PM |
| A0214098.D | N034104-011C | SAMP | 1 | 02/14/19 9:46 PM |
| A0214099.D | N034104-012C | SAMP | 1 | 02/14/19 9:51 PM |
| A0214100.D | N034104-013C | SAMP | 1 | 02/14/19 9:57 PM |
| A0214101.D | CCV7 | CCV | 1 | 02/14/19 10:02 PM |
| A0214102.D | CCB7 | CCB | 1 | 02/14/19 10:08 PM |
| A0214103.D | N034104-014C | SAMP | 1 | 02/14/19 10:13 PM |
| A0214104.D | N034104-015C | SAMP | 1 | 02/14/19 10:19 PM |
| A0214105.D | N034109-001B | SAMP | 1 | 02/14/19 10:25 PM |
| A0214106.D | MB-72459 | MBLK | 1 | 02/14/19 10:30 PM |
| A0214107.D | LCS-72459 | LCS | 1 | 02/14/19 10:36 PM |
| A0214108.D | N034107-001B | SAMP | 1 | 02/14/19 10:41 PM |
| A0214109.D | N034107-001B | SAMP | 5 | 02/14/19 10:47 PM |
| A0214110.D | N034107-001B-PS | PS | 1 | 02/14/19 10:52 PM |
| A0214111.D | N034107-001B-MS | MS | 1 | 02/14/19 10:58 PM |
| A0214112.D | N034107-001B-MSD | MSD | 1 | 02/14/19 11:04 PM |
| A0214113.D | CCV8 | CCV | 1 | 02/14/19 11:09 PM |
| A0214114.D | CCB8 | CCB | 1 | 02/14/19 11:14 PM |
| A0214115.D | ICSA3 | ICSA | 1 | 02/14/19 11:20 PM |
| A0214116.D | ICSAB3 | ICSAB | 1 | 02/14/19 11:26 PM |
| A0214117.D | N034107-002B | SAMP | 1 | 02/14/19 11:32 PM |
| A0214118.D | N034107-003B | SAMP | 1 | 02/14/19 11:37 PM |
| A0214119.D | N034107-004B | SAMP | 1 | 02/14/19 11:43 PM |
| A0214120.D | N034107-005B | SAMP | 1 | 02/14/19 11:48 PM |
| A0214121.D | N034107-006B | SAMP | 1 | 02/14/19 11:54 PM |
| A0214122.D | N034107-007B | SAMP | 1 | 02/15/19 12:00 AM |
| A0214123.D | N034107-010B | SAMP | 1 | 02/15/19 12:05 AM |
| A0214124.D | N034107-011B | SAMP | 1 | 02/15/19 12:11 AM |
| A0214125.D | N034107-012B | SAMP | 1 | 02/15/19 12:16 AM |
| A0214126.D | N034107-013B | SAMP | 1 | 02/15/19 12:22 AM |

**INJECTION LOG: 190214A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0214127.D | CCV9 | CCV | 1 | 02/15/19 12:29 AM |
| A0214128.D | CCB9 | CCB | 1 | 02/15/19 12:33 AM |
| A0214129.D | N034107-014B | SAMP | 1 | 02/15/19 12:39 AM |
| A0214130.D | N034107-015B | SAMP | 1 | 02/15/19 12:44 AM |
| A0214131.D | N034107-016B | SAMP | 1 | 02/15/19 12:50 AM |
| A0214132.D | N034107-017B | SAMP | 1 | 02/15/19 12:55 AM |
| A0214133.D | N034107-018B | SAMP | 1 | 02/15/19 1:01 AM |
| A0214134.D | N034107-019B | SAMP | 1 | 02/15/19 1:07 AM |
| A0214135.D | N034107-020B | SAMP | 1 | 02/15/19 1:12 AM |
| A0214136.D | N034107-021B | SAMP | 1 | 02/15/19 1:18 AM |
| A0214137.D | N034107-022B | SAMP | 1 | 02/15/19 1:23 AM |
| A0214138.D | CCV10 | CCV | 1 | 02/15/19 1:29 AM |
| A0214139.D | CCB10 | CCB | 1 | 02/15/19 1:35 AM |
| A0214140.D | ICSA4 | ICSA | 1 | 02/15/19 1:40 AM |
| A0214141.D | ICSAB4 | ICSAB | 1 | 02/15/19 1:46 AM |

**INJECTION LOG: 190222B**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| B0222001.D | RINSE | RINSE | 1 | 02/22/19 5:17 PM |
| B0222002.D | Cal Blank | IBLK | 1 | 02/22/19 5:23 PM |
| B0222003.D | Std1-0.1/1 ppb | ICAL | 1 | 02/22/19 5:29 PM |
| B0222004.D | Std2-0.5/5 ppb | ICAL | 1 | 02/22/19 5:35 PM |
| B0222005.D | Std3-5/50 ppb | ICAL | 1 | 02/22/19 5:41 PM |
| B0222006.D | Std4-10/100 ppb | ICAL | 1 | 02/22/19 5:47 PM |
| B0222007.D | Std5-20/200 ppb | ICAL | 1 | 02/22/19 5:53 PM |
| B0222008.D | Std6-40/400 ppb | ICAL | 1 | 02/22/19 5:59 PM |
| B0222009.D | Std7-100/1000 ppb | ICAL | 1 | 02/22/19 6:04 PM |
| B0222010.D | Std8-200/2000 ppb | ICAL | 1 | 02/22/19 6:10 PM |
| B0222011.D | ICV | ICV | 1 | 02/22/19 6:16 PM |
| B0222012.D | ICB | ICB | 1 | 02/22/19 6:22 PM |
| B0222013.D | LLICV | CCV1 | 1 | 02/22/19 6:28 PM |
| B0222014.D | ICSA1 | ICSA | 1 | 02/22/19 6:34 PM |
| B0222015.D | ICSAB1 | ICSAB | 1 | 02/22/19 6:40 PM |
| B0222016.D | LLICV | CCV1 | 1 | 02/22/19 6:46 PM |
| B0222017.D | MB-72614 | MBLK | 1 | 02/22/19 6:52 PM |
| B0222018.D | LCS-72614 | LCS | 1 | 02/22/19 6:57 PM |
| B0222019.D | N034201-001A | SAMP | 1 | 02/22/19 7:03 PM |
| B0222020.D | N034201-001A | SAMP | 5 | 02/22/19 7:09 PM |
| B0222021.D | N034201-001A-PS | PS | 1 | 02/22/19 7:15 PM |
| B0222022.D | N034201-001A-MS | MS | 1 | 02/22/19 7:21 PM |
| B0222023.D | N034201-001A-MSD | MSD | 1 | 02/22/19 7:27 PM |
| B0222024.D | N034201-002A | SAMP | 1 | 02/22/19 7:33 PM |
| B0222025.D | N034201-003A | SAMP | 1 | 02/22/19 7:39 PM |
| B0222026.D | N034201-004A | SAMP | 1 | 02/22/19 7:45 PM |
| B0222027.D | CCV1 | CCV | 1 | 02/22/19 7:50 PM |
| B0222028.D | CCB1 | CCB | 1 | 02/22/19 7:56 PM |
| B0222029.D | N034091-003B | SAMP | 1 | 02/22/19 8:02 PM |
| B0222030.D | N034104-004C | SAMP | 1 | 02/22/19 8:08 PM |
| B0222031.D | N034104-005C | SAMP | 1 | 02/22/19 8:15 PM |
| B0222032.D | N034104-006C | SAMP | 1 | 02/22/19 8:21 PM |
| B0222033.D | N034104-008C | SAMP | 1 | 02/22/19 8:27 PM |
| B0222034.D | N034104-012C | SAMP | 1 | 02/22/19 8:32 PM |
| B0222035.D | N034104-014C | SAMP | 1 | 02/22/19 8:37 PM |
| B0222036.D | N034104-015C | SAMP | 1 | 02/22/19 8:43 PM |
| B0222037.D | N034091-004B | SAMP | 5 | 02/22/19 8:49 PM |
| B0222038.D | N034091-003B | SAMP | 1 | 02/22/19 8:55 PM |
| B0222039.D | CCV2 | CCV | 1 | 02/22/19 9:01 PM |
| B0222040.D | CCB2 | CCB | 1 | 02/22/19 9:07 PM |
| B0222041.D | N034104-004C | SAMP | 1 | 02/22/19 9:13 PM |
| B0222042.D | N034104-005C | SAMP | 1 | 02/22/19 9:19 PM |

**INJECTION LOG: 190222B**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| B0222043.D | N034104-006C | SAMP | 1 | 02/22/19 9:25 PM |
| B0222044.D | N034104-008C | SAMP | 1 | 02/22/19 9:31 PM |
| B0222045.D | N034104-012C | SAMP | 1 | 02/22/19 9:37 PM |
| B0222046.D | N034104-014C | SAMP | 1 | 02/22/19 9:43 PM |
| B0222047.D | N034104-015C | SAMP | 1 | 02/22/19 9:49 PM |
| B0222048.D | N034089-005B | SAMP | 1 | 02/22/19 9:55 PM |
| B0222049.D | N034089-005A | SAMP | 1 | 02/22/19 10:01 PM |
| B0222050.D | N034090-004B | SAMP | 1 | 02/22/19 10:06 PM |
| B0222051.D | CCV3 | CCV | 1 | 02/22/19 10:12 PM |
| B0222052.D | CCB3 | CCB | 1 | 02/22/19 10:18 PM |
| B0222053.D | ICSA2 | ICSA | 1 | 02/22/19 10:24 PM |
| B0222054.D | ICSAB2 | ICSAB | 1 | 02/22/19 10:30 PM |
| B0222055.D | N034090-004A | SAMP | 1 | 02/22/19 10:36 PM |
| B0222056.D | N034090-006B | SAMP | 1 | 02/22/19 10:42 PM |
| B0222057.D | N034090-006A | SAMP | 1 | 02/22/19 10:48 PM |
| B0222058.D | N034090-007B | SAMP | 1 | 02/22/19 10:54 PM |
| B0222059.D | N034090-007A | SAMP | 1 | 02/22/19 11:00 PM |
| B0222060.D | N034090-009B | SAMP | 1 | 02/22/19 11:05 PM |
| B0222061.D | N034090-009A | SAMP | 1 | 02/22/19 11:11 PM |
| B0222062.D | N034090-011B | SAMP | 1 | 02/22/19 11:17 PM |
| B0222063.D | N034090-011A | SAMP | 1 | 02/22/19 11:23 PM |
| B0222064.D | N034102-002B | SAMP | 1 | 02/22/19 11:29 PM |
| B0222065.D | CCV4 | CCV | 1 | 02/22/19 11:36 PM |
| B0222066.D | CCB4 | CCB | 1 | 02/22/19 11:42 PM |
| B0222067.D | N034102-002A | SAMP | 1 | 02/22/19 11:47 PM |
| B0222068.D | N034105-004B | SAMP | 1 | 02/22/19 11:53 PM |
| B0222069.D | N034105-004A | SAMP | 1 | 02/22/19 11:59 PM |
| B0222070.D | N034107-006B | SAMP | 1 | 02/23/19 12:04 AM |
| B0222071.D | N034107-006A | SAMP | 1 | 02/23/19 12:10 AM |
| B0222072.D | N034107-012B | SAMP | 1 | 02/23/19 12:16 AM |
| B0222073.D | N034107-012A | SAMP | 1 | 02/23/19 12:22 AM |
| B0222074.D | N034107-016B | SAMP | 1 | 02/23/19 12:28 AM |
| B0222075.D | N034107-016A | SAMP | 1 | 02/23/19 12:34 AM |
| B0222076.D | N034107-017B | SAMP | 1 | 02/23/19 12:40 AM |
| B0222077.D | CCV5 | CCV | 1 | 02/23/19 12:46 AM |
| B0222078.D | CCB5 | CCB | 1 | 02/23/19 12:52 AM |
| B0222079.D | N034107-017A | SAMP | 1 | 02/23/19 12:58 AM |
| B0222080.D | CCV6 | CCV | 1 | 02/23/19 1:03 AM |
| B0222081.D | CCB6 | CCB | 1 | 02/23/19 1:09 AM |
| B0222082.D | ICSA3 | ICSA | 1 | 02/23/19 1:15 AM |
| B0222083.D | ICSAB3 | ICSAB | 1 | 02/23/19 1:21 AM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/13/2019 4:00:00**
Prep End Date: **2/13/2019 8:30:00**
Reviewed/ Date: NS 2/27/2019
Initials/ Date: for
Prep Batch **72458** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.8** | **01-17** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72458 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-72458 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-001C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-001C-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-001C-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-002C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-003C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-004C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-005C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-006C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-007C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-008C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-009C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-010C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10549 | NITRIC ACID |
| 10553 | HYDROCHLORIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/13/2019 4:00:00**
Prep End Date: **2/13/2019 8:30:00**
Reviewed/ Date: NS 2/27/2019
Initials/ Date: for
Prep Batch **72458** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.8** | **01-17** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| N034104-011C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-012C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-013C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-014C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-015C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034109-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10549 | NITRIC ACID |
| 10553 | HYDROCHLORIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

# INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 14 Feb 2019 10:02:37 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 110620.00 | 0.00 | |
| 24 Mg | 216739.00 | 0.00 | |
| 25 Mg | 27681.80 | 0.00 | |
| 26 Mg | 31834.00 | 0.00 | |
| 59 Co | 174914.00 | 0.00 | |
| 115 In | 232788.00 | 0.00 | |
| 206 Pb | 86499.40 | 0.00 | |
| 207 Pb | 75534.40 | 0.00 | |
| 208 Pb | 185435.00 | 0.00 | |

RSD (%)

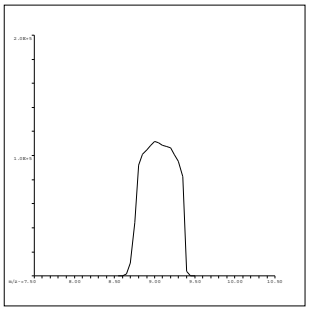
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 0.88 | 5.00 | |
| 24 Mg | 0.84 | 5.00 | |
| 25 Mg | 1.13 | 5.00 | |
| 26 Mg | 3.00 | 5.00 | |
| 59 Co | 1.09 | 5.00 | |
| 115 In | 0.96 | 5.00 | |
| 206 Pb | 0.82 | 5.00 | |
| 207 Pb | 1.10 | 5.00 | |
| 208 Pb | 1.56 | 5.00 | |

Ion Ratio

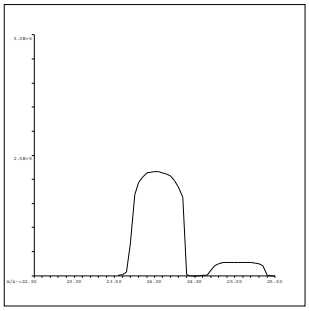
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | | | |
| 24 Mg | | | |
| 25 Mg | | | |
| 26 Mg | | | |
| 59 Co | | | |
| 115 In | | | |
| 206 Pb | | | |
| 207 Pb | | | |
| 208 Pb | | | |

Maximum Bkg. Count(CPS)

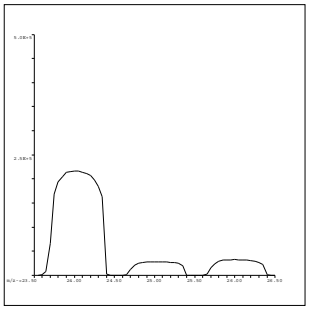
| Element | Actual | Required | Flag |
|---|---|---|---|



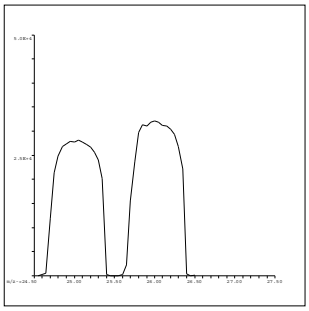
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



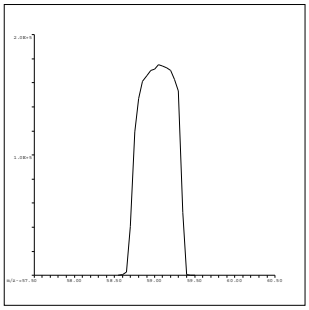
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



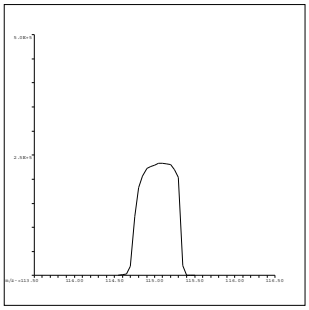
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



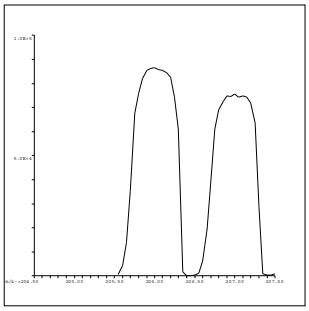
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



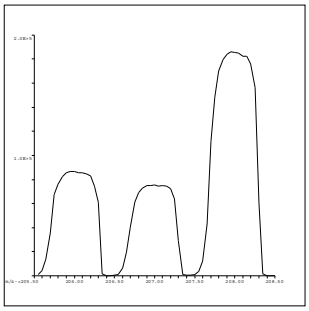
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



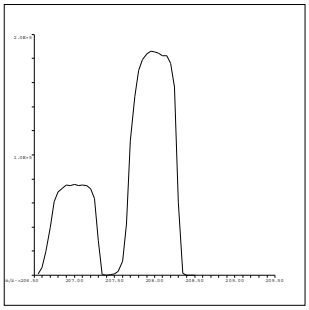
115 In
Mass Calib.
Actual: 115.10
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 22 Feb 2019 10:38:45 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 130715.00 | 0.00 | |
| 24 Mg | 221970.00 | 0.00 | |
| 25 Mg | 28675.40 | 0.00 | |
| 26 Mg | 32688.70 | 0.00 | |
| 59 Co | 175804.00 | 0.00 | |
| 115 In | 208657.00 | 0.00 | |
| 206 Pb | 73021.20 | 0.00 | |
| 207 Pb | 64257.40 | 0.00 | |
| 208 Pb | 158965.00 | 0.00 | |

RSD (%)

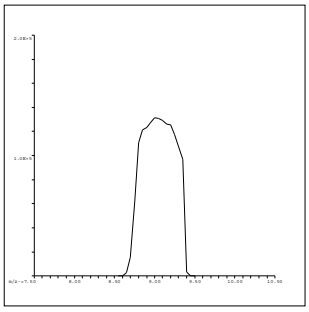
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 1.25 | 5.00 | |
| 24 Mg | 0.72 | 5.00 | |
| 25 Mg | 1.56 | 5.00 | |
| 26 Mg | 1.66 | 5.00 | |
| 59 Co | 0.83 | 5.00 | |
| 115 In | 0.75 | 5.00 | |
| 206 Pb | 0.79 | 5.00 | |
| 207 Pb | 0.44 | 5.00 | |
| 208 Pb | 0.51 | 5.00 | |

Ion Ratio

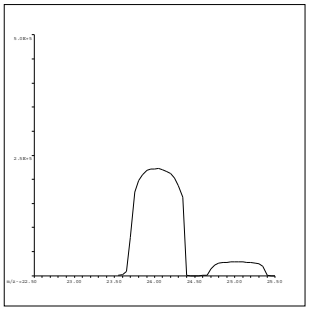
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | | | |
| 24 Mg | | | |
| 25 Mg | | | |
| 26 Mg | | | |
| 59 Co | | | |
| 115 In | | | |
| 206 Pb | | | |
| 207 Pb | | | |
| 208 Pb | | | |

Maximum Bkg. Count(CPS)

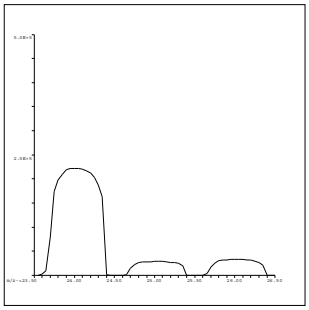
| Element | Actual | Required | Flag |
|---|---|---|---|



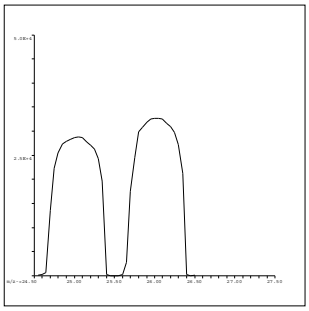
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



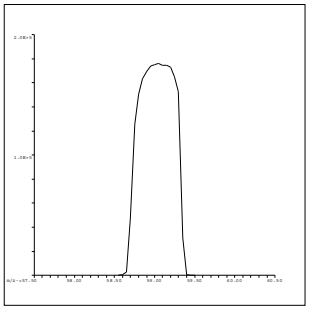
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



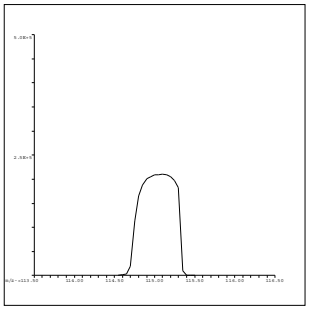
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



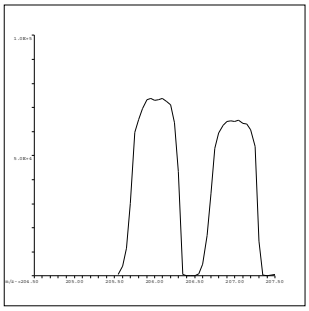
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



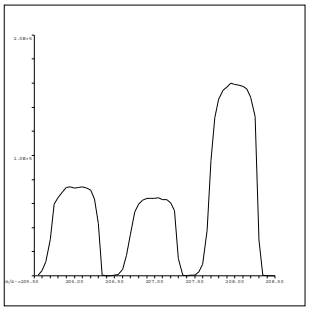
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



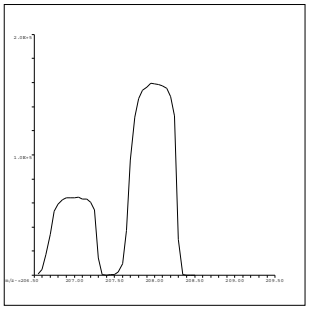
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:

QC Tune Result:Pass

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190214A**

**Instrument ID: ICPMS-02**

| Analyte | Data File | A0214002.D | A0214003.D | A0214004.D | A0214005.D | A0214006.D | A0214007.D | A0214008.D | A0214009.D | A0214010.D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 02/14/2019 12:50 PM | 02/14/2019 12:55 PM | 02/14/2019 01:01 PM | 02/14/2019 01:06 PM | 02/14/2019 01:12 PM | 02/14/2019 01:18 PM | 02/14/2019 01:23 PM | 02/14/2019 01:29 PM | 02/14/2019 01:34 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std1-0.1/1 ppb | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.1/1 ug/L | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 45 Sc ( ISTD ) [ 2 ] | CPS | 38266.9 | | 37298 | 37725.6 | 38020.9 | 37397.2 | 37615.5 | 37717.7 | 37974.1 | |
| 55 Mn [ 2 ] | CPS | 14.2 | | 614.7 | 6191.5 | 12719.8 | 25315.5 | 50275.8 | 124258.1 | 249266.1 | 1.0000 |
| 52 Cr [ 2 ] | CPS | 111.1 | | 1394.5 | 13236.5 | 26633.7 | 52298.7 | 104634.4 | 261547.9 | 520544.7 | 1.0000 |
| 72 Ge ( ISTD ) [ 1 ] | CPS | 15508.8 | | 15107.4 | 15139.7 | 15169.8 | 15106.4 | 15210.9 | 15505.6 | 15179.7 | |
| 78 Se [ 1 ] | CPS | 0 | | 28.9 | 237.8 | 496.7 | 1111.2 | 2068 | 5302.2 | 10627.2 | 0.9998 |
| 72 Ge ( ISTD ) [ 2 ] | CPS | 18785.8 | 18907 | 18571.1 | 18656.7 | 18854.7 | 18574.4 | 18369.7 | 18320.8 | 18568.9 | |
| 75 As [ 2 ] | CPS | 28.4 | 44.9 | 154.7 | 1187.6 | 2371.7 | 4573.1 | 9125.7 | 23114.1 | 46160.6 | 1.0000 |
| 103 Rh ( ISTD ) [ 2 ] | CPS | 538422.1 | | 527575.5 | 528380.3 | 525282.6 | 523419.5 | 523257.3 | 519921.5 | 517230 | |
| 95 Mo [ 2 ] | CPS | 178.9 | | 576.7 | 5183.2 | 10244.7 | 21340.3 | 43247.8 | 111822.2 | 227706.3 | 0.9999 |
| 159 Tb ( ISTD ) [ 3 ] | CPS | 1814075.5 | | 1799276.7 | 1798796.5 | 1797511.7 | 1794419.4 | 1777325.3 | 1784834.8 | 1772214.2 | |
| 137 Ba [ 3 ] | CPS | -17.8 | | 1159.7 | 11542.6 | 22845.4 | 45917.4 | 91194.6 | 228515.2 | 449867.8 | 1.0000 |

| Standard Code | |
|---|---|
| ICAL: 2MSST-180608B | |
| ICAL: 2MSST-~~170620B~~ | 180205B |
| ICAL: 2MWST-~~180409H~~ | 181001C |
| IS Mix: 2MWST-~~180618C~~ | 181126B |

Calibration Acceptance Criteria: > 0.995 Correlation

NS 2/27/2019
for CEI

**INITIAL CALIBRATION SUMMARY: 190222B**

**Instrument ID: ICPMS-02**

| Analyte | Data File | B0222002.D | B0222004.D | B0222005.D | B0222006.D | B0222007.D | B0222008.D | B0222009.D | B0222010.D | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 02/22/2019 05:23 PM | 02/22/2019 05:35 PM | 02/22/2019 05:41 PM | 02/22/2019 05:47 PM | 02/22/2019 05:53 PM | 02/22/2019 05:59 PM | 02/22/2019 06:04 PM | 02/22/2019 06:10 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 72 Ge ( ISTD ) [ 1 ] | CPS | 14503.6 | 13870.7 | 13611.6 | 12966.6 | 12977.8 | 12783.2 | 12667.5 | 12430.6 | |
| 78 Se [ 1 ] | CPS | 2.2 | 30 | 234.5 | 476.7 | 933.4 | 1834.6 | 4525.2 | 8801.5 | 1.0000 |

| Standard Code |
|---|
| ICAL: 2MSST-180608B |
| ICAL: 2MSST-180205B |
| ICAL: 2MWST-181001C |
| IS Mix: 2MWST-181126B |

Calibration Acceptance Criteria: > 0.995 Correlation

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293429** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.961 | 0.10 | 10.00 | 0 | 99.6 | 90 | 110 | | | | |
| Barium | 10.134 | 1.0 | 10.00 | 0 | 101 | 90 | 110 | | | | |
| Manganese | 106.209 | 0.50 | 100.0 | 0 | 106 | 90 | 110 | | | | |
| Molybdenum | 10.140 | 0.50 | 10.00 | 0 | 101 | 90 | 110 | | | | |
| Selenium | 10.296 | 0.50 | 10.00 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293431** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.082 | 0.10 | 0.1000 | 0 | 81.6 | 80 | 120 | | | | |
| Molybdenum | 0.472 | 0.50 | 0.5000 | 0 | 94.3 | 80 | 120 | | | | |
| Selenium | 0.499 | 0.50 | 0.5000 | 0 | 99.8 | 80 | 120 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293434** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 1.173 | 1.0 | 1.000 | 0 | 117 | 80 | 120 | | | | |
| Manganese | 0.545 | 0.50 | 0.5000 | 0 | 109 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293445** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.656 | 0.10 | 20.00 | 0 | 98.3 | 90 | 110 | | | | |
| Barium | 20.945 | 1.0 | 20.00 | 0 | 105 | 90 | 110 | | | | |
| Manganese | 20.343 | 0.50 | 20.00 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **131940**
Client ID: **CCV** Batch ID: **R131940** TestNo: **EPA 6020** Analysis Date: **2/14/2019** SeqNo: **3293445**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 19.328 | 0.50 | 20.00 | 0 | 96.6 | 90 | 110 | | | | |
| Selenium | 19.688 | 0.50 | 20.00 | 0 | 98.4 | 90 | 110 | | | | |

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **131940**
Client ID: **CCV** Batch ID: **R131940** TestNo: **EPA 6020** Analysis Date: **2/14/2019** SeqNo: **3293457**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.352 | 0.10 | 20.00 | 0 | 96.8 | 90 | 110 | | | | |
| Barium | 21.496 | 1.0 | 20.00 | 0 | 107 | 90 | 110 | | | | |
| Manganese | 20.184 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Molybdenum | 18.695 | 0.50 | 20.00 | 0 | 93.5 | 90 | 110 | | | | |
| Selenium | 18.868 | 0.50 | 20.00 | 0 | 94.3 | 90 | 110 | | | | |

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **131940**
Client ID: **CCV** Batch ID: **R131940** TestNo: **EPA 6020** Analysis Date: **2/14/2019** SeqNo: **3293469**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 18.845 | 0.10 | 20.00 | 0 | 94.2 | 90 | 110 | | | | |
| Barium | 21.599 | 1.0 | 20.00 | 0 | 108 | 90 | 110 | | | | |
| Manganese | 19.871 | 0.50 | 20.00 | 0 | 99.4 | 90 | 110 | | | | |
| Molybdenum | 19.813 | 0.50 | 20.00 | 0 | 99.1 | 90 | 110 | | | | |
| Selenium | 19.351 | 0.50 | 20.00 | 0 | 96.8 | 90 | 110 | | | | |

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **131940**
Client ID: **CCV** Batch ID: **R131940** TestNo: **EPA 6020** Analysis Date: **2/14/2019** SeqNo: **3293481**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 18.703 | 0.10 | 20.00 | 0 | 93.5 | 90 | 110 | | | | |
| Barium | 21.961 | 1.0 | 20.00 | 0 | 110 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293481** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 19.626 | 0.50 | 20.00 | 0 | 98.1 | 90 | 110 | | | | |
| Molybdenum | 19.275 | 0.50 | 20.00 | 0 | 96.4 | 90 | 110 | | | | |
| Selenium | 18.189 | 0.50 | 20.00 | 0 | 90.9 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293495** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.008 | 0.10 | 20.00 | 0 | 95.0 | 90 | 110 | | | | |
| Barium | 21.682 | 1.0 | 20.00 | 0 | 108 | 90 | 110 | | | | |
| Manganese | 19.789 | 0.50 | 20.00 | 0 | 98.9 | 90 | 110 | | | | |
| Molybdenum | 18.714 | 0.50 | 20.00 | 0 | 93.6 | 90 | 110 | | | | |
| Selenium | 18.452 | 0.50 | 20.00 | 0 | 92.3 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293507** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.054 | 0.10 | 20.00 | 0 | 95.3 | 90 | 110 | | | | |
| Barium | 21.452 | 1.0 | 20.00 | 0 | 107 | 90 | 110 | | | | |
| Manganese | 19.866 | 0.50 | 20.00 | 0 | 99.3 | 90 | 110 | | | | |
| Molybdenum | 18.320 | 0.50 | 20.00 | 0 | 91.6 | 90 | 110 | | | | |
| Selenium | 18.870 | 0.50 | 20.00 | 0 | 94.3 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293519** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.356 | 0.10 | 20.00 | 0 | 96.8 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293519** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 21.301 | 1.0 | 20.00 | 0 | 107 | 90 | 110 | | | | |
| Manganese | 19.766 | 0.50 | 20.00 | 0 | 98.8 | 90 | 110 | | | | |
| Molybdenum | 19.322 | 0.50 | 20.00 | 0 | 96.6 | 90 | 110 | | | | |
| Selenium | 19.387 | 0.50 | 20.00 | 0 | 96.9 | 90 | 110 | | | | |

| Sample ID **CCV8** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293531** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.314 | 0.10 | 20.00 | 0 | 96.6 | 90 | 110 | | | | |
| Barium | 21.438 | 1.0 | 20.00 | 0 | 107 | 90 | 110 | | | | |
| Manganese | 20.014 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Molybdenum | 19.173 | 0.50 | 20.00 | 0 | 95.9 | 90 | 110 | | | | |
| Selenium | 19.112 | 0.50 | 20.00 | 0 | 95.6 | 90 | 110 | | | | |

| Sample ID **CCV9** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293545** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 18.843 | 0.10 | 20.00 | 0 | 94.2 | 90 | 110 | | | | |
| Barium | 21.279 | 1.0 | 20.00 | 0 | 106 | 90 | 110 | | | | |
| Manganese | 19.521 | 0.50 | 20.00 | 0 | 97.6 | 90 | 110 | | | | |
| Molybdenum | 18.346 | 0.50 | 20.00 | 0 | 91.7 | 90 | 110 | | | | |
| Selenium | 18.098 | 0.50 | 20.00 | 0 | 90.5 | 90 | 110 | | | | |

| Sample ID **CCV10** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293556** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Sample ID **CCV10** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | | RunNo: **131940** | |
| Client ID: **CCV** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | | SeqNo: **3293556** | |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.950 | 0.10 | 20.00 | 0 | 99.8 | 90 | 110 | | | | |
| Barium | 22.580 | 1.0 | 20.00 | 0 | 113 | 90 | 110 | | | | S |
| Manganese | 20.134 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Molybdenum | 19.297 | 0.50 | 20.00 | 0 | 96.5 | 90 | 110 | | | | |
| Selenium | 20.084 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |

%Rec of Ba in CCV10 failed, biased high. However, N034104 samples were closed by CCV8/CCB8/ICSA3/ICSAB3.

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

NS 2/27/2019

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132092** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132092** | TestNo: **EPA 6020** | | Analysis Date: **2/22/2019** | SeqNo: **3300648** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 9.993 | 0.50 | 10.00 | 0 | 99.9 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132092** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132092** | TestNo: **EPA 6020** | | Analysis Date: **2/22/2019** | SeqNo: **3300653** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 0.474 | 0.50 | 0.5000 | 0 | 94.7 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132092** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132092** | TestNo: **EPA 6020** | | Analysis Date: **2/22/2019** | SeqNo: **3300664** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 19.175 | 0.50 | 20.00 | 0 | 95.9 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132092** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132092** | TestNo: **EPA 6020** | | Analysis Date: **2/22/2019** | SeqNo: **3300676** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 18.952 | 0.50 | 20.00 | 0 | 94.8 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132092** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132092** | TestNo: **EPA 6020** | | Analysis Date: **2/22/2019** | SeqNo: **3300688** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 19.296 | 0.50 | 20.00 | 0 | 96.5 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293560** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.405 | 1.0 | 10.00 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293562** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 1.068 | 1.0 | 1.000 | 0 | 107 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293576** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.062 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293588** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.038 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293600** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.466 | 1.0 | 20.00 | 0 | 97.3 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293612** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.089 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293626** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.970 | 1.0 | 20.00 | 0 | 99.9 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293638** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.876 | 1.0 | 20.00 | 0 | 99.4 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293650** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.083 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV8** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293662** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.024 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCV9** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293676** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.611 | 1.0 | 20.00 | 0 | 98.1 | 90 | 110 | | | | |

| Sample ID **CCV10** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293687** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.058 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293430** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293446** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.325 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293458** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293470** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293482** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293496** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293508** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293520** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.216 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293532** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB9** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293546** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.240 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB10** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293557** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.271 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

Mo detection in CCB-1 and CCB-10 is > 1/2RL. However, N034104 samples were enclosed between CCV5/CCB5 and CCV8/CCB8/ICSA3/ICSAB3.

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

NS 2/27/2019

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132092** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132092** | TestNo: **EPA 6020** | | Analysis Date: **2/22/2019** | SeqNo: **3300649** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132092** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132092** | TestNo: **EPA 6020** | | Analysis Date: **2/22/2019** | SeqNo: **3300665** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132092** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132092** | TestNo: **EPA 6020** | | Analysis Date: **2/22/2019** | SeqNo: **3300677** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132092** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132092** | TestNo: **EPA 6020** | | Analysis Date: **2/22/2019** | SeqNo: **3300689** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293561** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293577** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293589** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293601** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293613** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293627** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293639** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293651** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293663** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB9** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293677** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCB10** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293688** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293432** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293433** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.129 | 0.10 | 20.00 | 0 | 95.6 | 80 | 120 | | | | |
| Barium | 20.476 | 1.0 | 20.00 | 0 | 102 | 80 | 120 | | | | |
| Manganese | 18.046 | 0.50 | 20.00 | 0 | 90.2 | 80 | 120 | | | | |
| Molybdenum | 19.566 | 0.50 | 20.00 | 0 | 97.8 | 80 | 120 | | | | |
| Selenium | 17.741 | 0.50 | 20.00 | 0 | 88.7 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293483** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293484** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.054 | 0.10 | 20.00 | 0 | 95.3 | 80 | 120 | | | | |
| Barium | 22.480 | 1.0 | 20.00 | 0 | 112 | 80 | 120 | | | | |
| Manganese | 17.700 | 0.50 | 20.00 | 0 | 88.5 | 80 | 120 | | | | |
| Molybdenum | 19.745 | 0.50 | 20.00 | 0 | 98.7 | 80 | 120 | | | | |
| Selenium | 17.077 | 0.50 | 20.00 | 0 | 85.4 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293533** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293534** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.031 | 0.10 | 20.00 | 0 | 95.2 | 80 | 120 | | | | |
| Barium | 23.638 | 1.0 | 20.00 | 0 | 118 | 80 | 120 | | | | |
| Manganese | 17.760 | 0.50 | 20.00 | 0 | 88.8 | 80 | 120 | | | | |
| Molybdenum | 19.720 | 0.50 | 20.00 | 0 | 98.6 | 80 | 120 | | | | |
| Selenium | 18.087 | 0.50 | 20.00 | 0 | 90.4 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293558** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB4** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **131940** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131940** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293559** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.047 | 0.10 | 20.00 | 0 | 95.2 | 80 | 120 | | | | |
| Barium | 24.254 | 1.0 | 20.00 | 0 | 121 | 80 | 120 | | | | S |
| Manganese | 17.735 | 0.50 | 20.00 | 0 | 88.7 | 80 | 120 | | | | |
| Molybdenum | 19.615 | 0.50 | 20.00 | 0 | 98.1 | 80 | 120 | | | | |
| Selenium | 18.083 | 0.50 | 20.00 | 0 | 90.4 | 80 | 120 | | | | |

%Rec of Ba in ICSAB4 failed, biased high. However, N034104 samples were closed by CCV8/CCB8/ICSA3/ICSAB3.

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

NS 2/25/2019

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132092** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132092** | TestNo: **EPA 6020** | | Analysis Date: **2/22/2019** | SeqNo: **3300651** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132092** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132092** | TestNo: **EPA 6020** | | Analysis Date: **2/22/2019** | SeqNo: **3300652** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 18.595 | 0.50 | 20.00 | 0 | 93.0 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132092** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132092** | TestNo: **EPA 6020** | | Analysis Date: **2/22/2019** | SeqNo: **3300690** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132092** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132092** | TestNo: **EPA 6020** | | Analysis Date: **2/22/2019** | SeqNo: **3300691** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 18.655 | 0.50 | 20.00 | 0 | 93.3 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293563** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293564** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 18.051 | 1.0 | 20.00 | 0 | 90.3 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293614** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293615** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 17.899 | 1.0 | 20.00 | 0 | 89.5 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293664** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/14/2019** | SeqNo: **3293665** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 18.229 | 1.0 | 20.00 | 0 | 91.1 | 80 | 120 | | | | |

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293689** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB4** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131941** | TestNo: **EPA 6020** | | Analysis Date: **2/15/2019** | SeqNo: **3293690** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 17.613 | 1.0 | 20.00 | 0 | 88.1 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 159 Tb ( ISTD ) [ 3 ] | | | | | 45 Sc ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 1814075.5 | 1814075.5 | 100 | PASS | 70-125 | 38266.9 | 38266.9 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 1807775 | 1814075.5 | 99.65 | PASS | 70-125 | 37827.1 | 38266.9 | 98.85 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 1799276.7 | 1814075.5 | 99.18 | PASS | 70-125 | 37298 | 38266.9 | 97.47 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 1798796.5 | 1814075.5 | 99.16 | PASS | 70-125 | 37725.6 | 38266.9 | 98.59 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 1797511.7 | 1814075.5 | 99.087 | PASS | 70-125 | 38020.9 | 38266.9 | 99.36 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 1794419.4 | 1814075.5 | 98.92 | PASS | 70-125 | 37397.2 | 38266.9 | 97.73 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 1777325.3 | 1814075.5 | 97.97 | PASS | 70-125 | 37615.5 | 38266.9 | 98.3 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 1784834.8 | 1814075.5 | 98.39 | PASS | 70-125 | 37717.7 | 38266.9 | 98.56 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 1772214.2 | 1814075.5 | 97.69 | PASS | 70-125 | 37974.1 | 38266.9 | 99.23 | PASS | 70-125 |
| ICV | ICV | 1 | 1884445.1 | 1814075.5 | 103.88 | PASS | 70-125 | 38025.3 | 38266.9 | 99.37 | PASS | 70-125 |
| ICB | ICB | 1 | 1911917.8 | 1814075.5 | 105.39 | PASS | 70-125 | 39034.2 | 38266.9 | 102.01 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 2049155.6 | 1814075.5 | 112.96 | PASS | 70-125 | 42338.9 | 38266.9 | 110.64 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 1869743.6 | 1814075.5 | 103.07 | PASS | 70-125 | 42882.4 | 38266.9 | 112.06 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 1902906.1 | 1814075.5 | 104.9 | PASS | 70-125 | 43786 | 38266.9 | 114.42 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 1963779.4 | 1814075.5 | 108.25 | PASS | 70-125 | 36098.7 | 38266.9 | 94.33 | PASS | 70-125 |
| CCV1 | CCV | 1 | 2027263.8 | 1814075.5 | 111.75 | PASS | 70-125 | 44269.4 | 38266.9 | 115.69 | PASS | 70-125 |
| CCB1 | CCB | 1 | 1947193.3 | 1814075.5 | 107.34 | PASS | 70-125 | 40788.5 | 38266.9 | 106.59 | PASS | 70-125 |
| CCV2 | CCV | 1 | 1919687 | 1814075.5 | 105.82 | PASS | 70-125 | 34009.8 | 38266.9 | 88.88 | PASS | 70-125 |
| CCB2 | CCB | 1 | 1955470.2 | 1814075.5 | 107.79 | PASS | 70-125 | 35791.4 | 38266.9 | 93.53 | PASS | 70-125 |
| CCV3 | CCV | 1 | 2053967.9 | 1814075.5 | 113.22 | PASS | 70-125 | 40400.8 | 38266.9 | 105.58 | PASS | 70-125 |
| CCB3 | CCB | 1 | 1856362.3 | 1814075.5 | 102.33 | PASS | 70-125 | 34304.9 | 38266.9 | 89.65 | PASS | 70-125 |
| CCV4 | CCV | 1 | 1925004.2 | 1814075.5 | 106.11 | PASS | 70-125 | 36743.6 | 38266.9 | 96.019 | PASS | 70-125 |
| CCB4 | CCB | 1 | 1755020 | 1814075.5 | 96.74 | PASS | 70-125 | 32969.1 | 38266.9 | 86.16 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 2094804.2 | 1814075.5 | 115.48 | PASS | 70-125 | 44858.9 | 38266.9 | 117.23 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 2043525.9 | 1814075.5 | 112.65 | PASS | 70-125 | 44961.6 | 38266.9 | 117.49 | PASS | 70-125 |
| CCV5 | CCV | 1 | 1874692.4 | 1814075.5 | 103.34 | PASS | 70-125 | 34899.5 | 38266.9 | 91.2 | PASS | 70-125 |
| CCB5 | CCB | 1 | 1523727.5 | 1814075.5 | 83.99 | PASS | 70-125 | 27500 | 38266.9 | 71.86 | PASS | 70-125 |
| MB-72458 | MBLK | 1 | 2000877.8 | 1814075.5 | 110.3 | PASS | 70-125 | 40805 | 38266.9 | 106.63 | PASS | 70-125 |
| LCS-72458 | LCS | 1 | 2110287.3 | 1814075.5 | 116.33 | PASS | 70-125 | 38113.2 | 38266.9 | 99.6 | PASS | 70-125 |
| N034104-001C | SAMP | 1 | 2002252.1 | 1814075.5 | 110.37 | PASS | 70-125 | 37330.4 | 38266.9 | 97.55 | PASS | 70-125 |
| N034104-001C | SAMP | 5 | 2057283.8 | 1814075.5 | 113.41 | PASS | 70-125 | 41835.4 | 38266.9 | 109.33 | PASS | 70-125 |
| N034104-001C-PS | PS | 1 | 2088345.5 | 1814075.5 | 115.12 | PASS | 70-125 | 41847.8 | 38266.9 | 109.36 | PASS | 70-125 |
| N034104-001C-MS | MS | 1 | 2109365.9 | 1814075.5 | 116.28 | PASS | 70-125 | 43013.9 | 38266.9 | 112.4 | PASS | 70-125 |
| N034104-001C-MSD | MSD | 1 | 2134651.1 | 1814075.5 | 117.67 | PASS | 70-125 | 43641.2 | 38266.9 | 114.04 | PASS | 70-125 |
| N034104-002C | SAMP | 1 | 2105037.4 | 1814075.5 | 116.04 | PASS | 70-125 | 42564 | 38266.9 | 111.23 | PASS | 70-125 |
| N034104-003C | SAMP | 1 | 2120329.2 | 1814075.5 | 116.88 | PASS | 70-125 | 43340.5 | 38266.9 | 113.26 | PASS | 70-125 |
| CCV6 | CCV | 1 | 1830204.7 | 1814075.5 | 100.89 | PASS | 70-125 | 33258.3 | 38266.9 | 86.91 | PASS | 70-125 |
| CCB6 | CCB | 1 | 2059498.1 | 1814075.5 | 113.53 | PASS | 70-125 | 41288.5 | 38266.9 | 107.9 | PASS | 70-125 |
| N034104-004C | SAMP | 1 | 1981654.1 | 1814075.5 | 109.24 | PASS | 70-125 | 35883.9 | 38266.9 | 93.77 | PASS | 70-125 |
| N034104-005C | SAMP | 1 | 1992333.1 | 1814075.5 | 109.83 | PASS | 70-125 | 37252.4 | 38266.9 | 97.35 | PASS | 70-125 |
| N034104-006C | SAMP | 1 | 2020805.3 | 1814075.5 | 111.4 | PASS | 70-125 | 37896.3 | 38266.9 | 99.032 | PASS | 70-125 |

**INTERNAL STANDARD: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 159 Tb ( ISTD ) [ 3 ] | | | | | 45 Sc ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| N034104-007C | SAMP | 1 | 2000746 | 1814075.5 | 110.29 | PASS | 70-125 | 38455.2 | 38266.9 | 100.49 | PASS | 70-125 |
| N034104-008C | SAMP | 1 | 1974290 | 1814075.5 | 108.83 | PASS | 70-125 | 38057.6 | 38266.9 | 99.45 | PASS | 70-125 |
| N034104-009C | SAMP | 1 | 2046585.3 | 1814075.5 | 112.82 | PASS | 70-125 | 41317.5 | 38266.9 | 107.97 | PASS | 70-125 |
| N034104-010C | SAMP | 1 | 1989084.2 | 1814075.5 | 109.65 | PASS | 70-125 | 36354.9 | 38266.9 | 95.004 | PASS | 70-125 |
| N034104-011C | SAMP | 1 | 2132760.8 | 1814075.5 | 117.57 | PASS | 70-125 | 42470.5 | 38266.9 | 110.98 | PASS | 70-125 |
| N034104-012C | SAMP | 1 | 2010928.6 | 1814075.5 | 110.85 | PASS | 70-125 | 36351.3 | 38266.9 | 94.99 | PASS | 70-125 |
| N034104-013C | SAMP | 1 | 1996068.2 | 1814075.5 | 110.03 | PASS | 70-125 | 40487.8 | 38266.9 | 105.8 | PASS | 70-125 |
| CCV7 | CCV | 1 | 1803388.8 | 1814075.5 | 99.41 | PASS | 70-125 | 32022.7 | 38266.9 | 83.68 | PASS | 70-125 |
| CCB7 | CCB | 1 | 2057952.7 | 1814075.5 | 113.44 | PASS | 70-125 | 41951.6 | 38266.9 | 109.63 | PASS | 70-125 |
| N034104-014C | SAMP | 1 | 1915941.8 | 1814075.5 | 105.62 | PASS | 70-125 | 34101.2 | 38266.9 | 89.11 | PASS | 70-125 |
| N034104-015C | SAMP | 1 | 1901504.3 | 1814075.5 | 104.82 | PASS | 70-125 | 35820.3 | 38266.9 | 93.61 | PASS | 70-125 |
| N034109-001B | SAMP | 1 | 2069098.6 | 1814075.5 | 114.06 | PASS | 70-125 | 41197.2 | 38266.9 | 107.66 | PASS | 70-125 |
| CCV8 | CCV | 1 | 1796995.7 | 1814075.5 | 99.058 | PASS | 70-125 | 31700.8 | 38266.9 | 82.84 | PASS | 70-125 |
| CCB8 | CCB | 1 | 1585195.8 | 1814075.5 | 87.38 | PASS | 70-125 | 26961.4 | 38266.9 | 70.46 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 1887351.8 | 1814075.5 | 104.04 | PASS | 70-125 | 38721.3 | 38266.9 | 101.19 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 1888200.1 | 1814075.5 | 104.09 | PASS | 70-125 | 39603.4 | 38266.9 | 103.49 | PASS | 70-125 |
| CCV9 | CCV | 1 | 1782752.3 | 1814075.5 | 98.27 | PASS | 70-125 | 30936.2 | 38266.9 | 80.84 | PASS | 70-125 |
| CCB9 | CCB | 1 | 1980487.5 | 1814075.5 | 109.17 | PASS | 70-125 | 39046.6 | 38266.9 | 102.04 | PASS | 70-125 |
| CCV10 | CCV | 1 | 2015306.1 | 1814075.5 | 111.09 | PASS | 70-125 | 39330.7 | 38266.9 | 102.78 | PASS | 70-125 |
| CCB10 | CCB | 1 | 1971196.8 | 1814075.5 | 108.66 | PASS | 70-125 | 38379.4 | 38266.9 | 100.29 | PASS | 70-125 |
| ICSA4 | ICSA | 1 | 1914372.8 | 1814075.5 | 105.53 | PASS | 70-125 | 39018.7 | 38266.9 | 101.96 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 1891422.4 | 1814075.5 | 104.26 | PASS | 70-125 | 39815 | 38266.9 | 104.05 | PASS | 70-125 |

**INTERNAL STANDARD: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 18785.8 | 18785.8 | 100 | PASS | 70-125 | 15508.8 | 15508.8 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 18907 | 18785.8 | 100.65 | PASS | 70-125 | 15684.7 | 15508.8 | 101.13 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 18571.1 | 18785.8 | 98.86 | PASS | 70-125 | 15107.4 | 15508.8 | 97.41 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 18656.7 | 18785.8 | 99.31 | PASS | 70-125 | 15139.7 | 15508.8 | 97.62 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 18854.7 | 18785.8 | 100.37 | PASS | 70-125 | 15169.8 | 15508.8 | 97.81 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 18574.4 | 18785.8 | 98.87 | PASS | 70-125 | 15106.4 | 15508.8 | 97.41 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 18369.7 | 18785.8 | 97.79 | PASS | 70-125 | 15210.9 | 15508.8 | 98.079 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 18320.8 | 18785.8 | 97.52 | PASS | 70-125 | 15505.6 | 15508.8 | 99.98 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 18568.9 | 18785.8 | 98.85 | PASS | 70-125 | 15179.7 | 15508.8 | 97.88 | PASS | 70-125 |
| ICV | ICV | 1 | 18878.1 | 18785.8 | 100.49 | PASS | 70-125 | 14846.1 | 15508.8 | 95.73 | PASS | 70-125 |
| ICB | ICB | 1 | 19611.3 | 18785.8 | 104.39 | PASS | 70-125 | 16386.5 | 15508.8 | 105.66 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 21641.6 | 18785.8 | 115.2 | PASS | 70-125 | 18207.3 | 15508.8 | 117.4 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 20755.9 | 18785.8 | 110.49 | PASS | 70-125 | 16639 | 15508.8 | 107.29 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 21028.6 | 18785.8 | 111.94 | PASS | 70-125 | 17900.3 | 15508.8 | 115.42 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 19070.6 | 18785.8 | 101.52 | PASS | 70-125 | 15648 | 15508.8 | 100.9 | PASS | 70-125 |
| CCV1 | CCV | 1 | 22511.6 | 18785.8 | 119.83 | PASS | 70-125 | 19325.3 | 15508.8 | 124.61 | PASS | 70-125 |
| CCB1 | CCB | 1 | 20828.3 | 18785.8 | 110.87 | PASS | 70-125 | 18057.2 | 15508.8 | 116.43 | PASS | 70-125 |
| CCV2 | CCV | 1 | 17808 | 18785.8 | 94.8 | PASS | 70-125 | 14333.4 | 15508.8 | 92.42 | PASS | 70-125 |
| CCB2 | CCB | 1 | 19001.6 | 18785.8 | 101.15 | PASS | 70-125 | 15960.5 | 15508.8 | 102.91 | PASS | 70-125 |
| CCV3 | CCV | 1 | 21177.6 | 18785.8 | 112.73 | PASS | 70-125 | 17496.6 | 15508.8 | 112.82 | PASS | 70-125 |
| CCB3 | CCB | 1 | 18226.3 | 18785.8 | 97.022 | PASS | 70-125 | 14166.5 | 15508.8 | 91.34 | PASS | 70-125 |
| CCV4 | CCV | 1 | 19396.5 | 18785.8 | 103.25 | PASS | 70-125 | 15015.1 | 15508.8 | 96.82 | PASS | 70-125 |
| CCB4 | CCB | 1 | 17215.1 | 18785.8 | 91.64 | PASS | 70-125 | 13316.9 | 15508.8 | 85.87 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 22748.6 | 18785.8 | 121.1 | PASS | 70-125 | 17902.5 | 15508.8 | 115.43 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 21972 | 18785.8 | 116.96 | PASS | 70-125 | 18361.9 | 15508.8 | 118.4 | PASS | 70-125 |
| CCV5 | CCV | 1 | 18409.8 | 18785.8 | 98 | PASS | 70-125 | 13937.5 | 15508.8 | 89.87 | PASS | 70-125 |
| CCB5 | CCB | 1 | 14681.4 | 18785.8 | 78.15 | PASS | 70-125 | 11531.1 | 15508.8 | 74.35 | PASS | 70-125 |
| MB-72458 | MBLK | 1 | 21100.8 | 18785.8 | 112.32 | PASS | 70-125 | 16675.8 | 15508.8 | 107.52 | PASS | 70-125 |
| LCS-72458 | LCS | 1 | 20131.8 | 18785.8 | 107.16 | PASS | 70-125 | 15844.8 | 15508.8 | 102.17 | PASS | 70-125 |
| N034104-001C | SAMP | 1 | 19643.5 | 18785.8 | 104.57 | PASS | 70-125 | 15817 | 15508.8 | 101.99 | PASS | 70-125 |
| N034104-001C | SAMP | 5 | 21454.6 | 18785.8 | 114.21 | PASS | 70-125 | 17565.5 | 15508.8 | 113.26 | PASS | 70-125 |
| N034104-001C-PS | PS | 1 | 21374.6 | 18785.8 | 113.78 | PASS | 70-125 | 17137.3 | 15508.8 | 110.5 | PASS | 70-125 |
| N034104-001C-MS | MS | 1 | 21967.6 | 18785.8 | 116.94 | PASS | 70-125 | 17534.4 | 15508.8 | 113.06 | PASS | 70-125 |
| N034104-001C-MSD | MSD | 1 | 22012.1 | 18785.8 | 117.17 | PASS | 70-125 | 17999.3 | 15508.8 | 116.06 | PASS | 70-125 |
| N034104-002C | SAMP | 1 | 21517 | 18785.8 | 114.54 | PASS | 70-125 | 17675.7 | 15508.8 | 113.97 | PASS | 70-125 |
| N034104-003C | SAMP | 1 | 22110.1 | 18785.8 | 117.7 | PASS | 70-125 | 17925.9 | 15508.8 | 115.59 | PASS | 70-125 |
| CCV6 | CCV | 1 | 17650.1 | 18785.8 | 93.95 | PASS | 70-125 | 13750.7 | 15508.8 | 88.66 | PASS | 70-125 |
| CCB6 | CCB | 1 | 21709.5 | 18785.8 | 115.56 | PASS | 70-125 | 17610 | 15508.8 | 113.55 | PASS | 70-125 |
| N034104-004C | SAMP | 1 | 18973.8 | 18785.8 | 101 | PASS | 70-125 | 14867.2 | 15508.8 | 95.86 | PASS | 70-125 |
| N034104-005C | SAMP | 1 | 19498.9 | 18785.8 | 103.8 | PASS | 70-125 | 16092.8 | 15508.8 | 103.77 | PASS | 70-125 |
| N034104-006C | SAMP | 1 | 19742.5 | 18785.8 | 105.09 | PASS | 70-125 | 16247.5 | 15508.8 | 104.76 | PASS | 70-125 |

**INTERNAL STANDARD: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| N034104-007C | SAMP | 1 | 20009.5 | 18785.8 | 106.51 | PASS | 70-125 | 16492.2 | 15508.8 | 106.34 | PASS | 70-125 |
| N034104-008C | SAMP | 1 | 19805.8 | 18785.8 | 105.43 | PASS | 70-125 | 16574.5 | 15508.8 | 106.87 | PASS | 70-125 |
| N034104-009C | SAMP | 1 | 21198.8 | 18785.8 | 112.84 | PASS | 70-125 | 17249.6 | 15508.8 | 111.22 | PASS | 70-125 |
| N034104-010C | SAMP | 1 | 19075 | 18785.8 | 101.54 | PASS | 70-125 | 15331 | 15508.8 | 98.85 | PASS | 70-125 |
| N034104-011C | SAMP | 1 | 21849.6 | 18785.8 | 116.31 | PASS | 70-125 | 17853.6 | 15508.8 | 115.12 | PASS | 70-125 |
| N034104-012C | SAMP | 1 | 19245.2 | 18785.8 | 102.45 | PASS | 70-125 | 15138.6 | 15508.8 | 97.61 | PASS | 70-125 |
| N034104-013C | SAMP | 1 | 21048.6 | 18785.8 | 112.05 | PASS | 70-125 | 17402.1 | 15508.8 | 112.21 | PASS | 70-125 |
| CCV7 | CCV | 1 | 16801.3 | 18785.8 | 89.44 | PASS | 70-125 | 13229.1 | 15508.8 | 85.3 | PASS | 70-125 |
| CCB7 | CCB | 1 | 22033.2 | 18785.8 | 117.29 | PASS | 70-125 | 17938.2 | 15508.8 | 115.66 | PASS | 70-125 |
| N034104-014C | SAMP | 1 | 18083.8 | 18785.8 | 96.26 | PASS | 70-125 | 13921.9 | 15508.8 | 89.77 | PASS | 70-125 |
| N034104-015C | SAMP | 1 | 18570 | 18785.8 | 98.85 | PASS | 70-125 | 15417.7 | 15508.8 | 99.41 | PASS | 70-125 |
| N034109-001B | SAMP | 1 | 21296.7 | 18785.8 | 113.37 | PASS | 70-125 | 17376.4 | 15508.8 | 112.04 | PASS | 70-125 |
| CCV8 | CCV | 1 | 16782.4 | 18785.8 | 89.34 | PASS | 70-125 | 12990 | 15508.8 | 83.76 | PASS | 70-125 |
| CCB8 | CCB | 1 | 14752.7 | 18785.8 | 78.53 | PASS | 70-125 | 11455.5 | 15508.8 | 73.86 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 19633.5 | 18785.8 | 104.51 | PASS | 70-125 | 15247.5 | 15508.8 | 98.32 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 20055.1 | 18785.8 | 106.76 | PASS | 70-125 | 16022.8 | 15508.8 | 103.31 | PASS | 70-125 |
| CCV9 | CCV | 1 | 16290.8 | 18785.8 | 86.72 | PASS | 70-125 | 12801 | 15508.8 | 82.54 | PASS | 70-125 |
| CCB9 | CCB | 1 | 20307.6 | 18785.8 | 108.1 | PASS | 70-125 | 16687.9 | 15508.8 | 107.6 | PASS | 70-125 |
| CCV10 | CCV | 1 | 20832.8 | 18785.8 | 110.9 | PASS | 70-125 | 17338.6 | 15508.8 | 111.8 | PASS | 70-125 |
| CCB10 | CCB | 1 | 20334.3 | 18785.8 | 108.24 | PASS | 70-125 | 16496.6 | 15508.8 | 106.37 | PASS | 70-125 |
| ICSA4 | ICSA | 1 | 19910.5 | 18785.8 | 105.99 | PASS | 70-125 | 15812.6 | 15508.8 | 101.96 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 19664.6 | 18785.8 | 104.68 | PASS | 70-125 | 15831.5 | 15508.8 | 102.08 | PASS | 70-125 |

**INTERNAL STANDARD: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 538422.1 | 538422.1 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 535561.2 | 538422.1 | 99.47 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 527575.5 | 538422.1 | 97.99 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 528380.3 | 538422.1 | 98.13 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 525282.6 | 538422.1 | 97.56 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 523419.5 | 538422.1 | 97.21 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 523257.3 | 538422.1 | 97.18 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 519921.5 | 538422.1 | 96.56 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 517230 | 538422.1 | 96.064 | PASS | 70-125 |
| ICV | ICV | 1 | 550495.5 | 538422.1 | 102.24 | PASS | 70-125 |
| ICB | ICB | 1 | 560935.4 | 538422.1 | 104.18 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 601173 | 538422.1 | 111.65 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 533596.4 | 538422.1 | 99.1 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 545370.5 | 538422.1 | 101.29 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 527312.6 | 538422.1 | 97.94 | PASS | 70-125 |
| CCV1 | CCV | 1 | 602254.9 | 538422.1 | 111.86 | PASS | 70-125 |
| CCB1 | CCB | 1 | 569829.5 | 538422.1 | 105.83 | PASS | 70-125 |
| CCV2 | CCV | 1 | 502990.7 | 538422.1 | 93.42 | PASS | 70-125 |
| CCB2 | CCB | 1 | 514921.2 | 538422.1 | 95.64 | PASS | 70-125 |
| CCV3 | CCV | 1 | 565200.7 | 538422.1 | 104.97 | PASS | 70-125 |
| CCB3 | CCB | 1 | 500551.6 | 538422.1 | 92.97 | PASS | 70-125 |
| CCV4 | CCV | 1 | 530972.4 | 538422.1 | 98.62 | PASS | 70-125 |
| CCB4 | CCB | 1 | 472959.9 | 538422.1 | 87.84 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 573730.6 | 538422.1 | 106.56 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 571205.5 | 538422.1 | 106.09 | PASS | 70-125 |
| CCV5 | CCV | 1 | 507212.7 | 538422.1 | 94.2 | PASS | 70-125 |
| CCB5 | CCB | 1 | 407237.9 | 538422.1 | 75.64 | PASS | 70-125 |
| MB-72458 | MBLK | 1 | 572477.8 | 538422.1 | 106.33 | PASS | 70-125 |
| LCS-72458 | LCS | 1 | 556203.9 | 538422.1 | 103.3 | PASS | 70-125 |
| N034104-001C | SAMP | 1 | 493057.6 | 538422.1 | 91.57 | PASS | 70-125 |
| N034104-001C | SAMP | 5 | 563859 | 538422.1 | 104.72 | PASS | 70-125 |
| N034104-001C-PS | PS | 1 | 544956.5 | 538422.1 | 101.21 | PASS | 70-125 |
| N034104-001C-MS | MS | 1 | 555258.7 | 538422.1 | 103.13 | PASS | 70-125 |
| N034104-001C-MSD | MSD | 1 | 558993.3 | 538422.1 | 103.82 | PASS | 70-125 |
| N034104-002C | SAMP | 1 | 547852.9 | 538422.1 | 101.75 | PASS | 70-125 |
| N034104-003C | SAMP | 1 | 550868.7 | 538422.1 | 102.31 | PASS | 70-125 |
| CCV6 | CCV | 1 | 486172.4 | 538422.1 | 90.3 | PASS | 70-125 |
| CCB6 | CCB | 1 | 580601.9 | 538422.1 | 107.83 | PASS | 70-125 |
| N034104-004C | SAMP | 1 | 482983.4 | 538422.1 | 89.7 | PASS | 70-125 |
| N034104-005C | SAMP | 1 | 496513.5 | 538422.1 | 92.22 | PASS | 70-125 |
| N034104-006C | SAMP | 1 | 500824.1 | 538422.1 | 93.017 | PASS | 70-125 |

**INTERNAL STANDARD: 190214A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| N034104-007C | SAMP | 1 | 504438 | 538422.1 | 93.69 | PASS | 70-125 |
| N034104-008C | SAMP | 1 | 499463.1 | 538422.1 | 92.76 | PASS | 70-125 |
| N034104-009C | SAMP | 1 | 532678.3 | 538422.1 | 98.93 | PASS | 70-125 |
| N034104-010C | SAMP | 1 | 485913.5 | 538422.1 | 90.25 | PASS | 70-125 |
| N034104-011C | SAMP | 1 | 553652.6 | 538422.1 | 102.83 | PASS | 70-125 |
| N034104-012C | SAMP | 1 | 491573.2 | 538422.1 | 91.3 | PASS | 70-125 |
| N034104-013C | SAMP | 1 | 526100.7 | 538422.1 | 97.71 | PASS | 70-125 |
| CCV7 | CCV | 1 | 473870 | 538422.1 | 88.011 | PASS | 70-125 |
| CCB7 | CCB | 1 | 588292.1 | 538422.1 | 109.26 | PASS | 70-125 |
| N034104-014C | SAMP | 1 | 466029.9 | 538422.1 | 86.55 | PASS | 70-125 |
| N034104-015C | SAMP | 1 | 474217.2 | 538422.1 | 88.075 | PASS | 70-125 |
| N034109-001B | SAMP | 1 | 544468.1 | 538422.1 | 101.12 | PASS | 70-125 |
| CCV8 | CCV | 1 | 469579.9 | 538422.1 | 87.21 | PASS | 70-125 |
| CCB8 | CCB | 1 | 409836.1 | 538422.1 | 76.12 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 498593 | 538422.1 | 92.6 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 511299.3 | 538422.1 | 94.96 | PASS | 70-125 |
| CCV9 | CCV | 1 | 460006.1 | 538422.1 | 85.44 | PASS | 70-125 |
| CCB9 | CCB | 1 | 548782 | 538422.1 | 101.92 | PASS | 70-125 |
| CCV10 | CCV | 1 | 549145.1 | 538422.1 | 101.99 | PASS | 70-125 |
| CCB10 | CCB | 1 | 539750.4 | 538422.1 | 100.25 | PASS | 70-125 |
| ICSA4 | ICSA | 1 | 496902.8 | 538422.1 | 92.29 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 500666.8 | 538422.1 | 92.99 | PASS | 70-125 |

**INTERNAL STANDARD: 190222B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 14503.6 | 14503.6 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 14216.6 | 14503.6 | 98.021 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 13870.7 | 14503.6 | 95.64 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 13611.6 | 14503.6 | 93.85 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 12966.6 | 14503.6 | 89.4 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 12977.8 | 14503.6 | 89.48 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 12783.2 | 14503.6 | 88.14 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 12667.5 | 14503.6 | 87.34 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 12430.6 | 14503.6 | 85.71 | PASS | 70-125 |
| ICV | ICV | 1 | 12420.6 | 14503.6 | 85.64 | PASS | 70-125 |
| ICB | ICB | 1 | 12238.3 | 14503.6 | 84.38 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 13791.8 | 14503.6 | 95.092 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 15285.4 | 14503.6 | 105.39 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 15071.8 | 14503.6 | 103.92 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 16954.8 | 14503.6 | 116.9 | PASS | 70-125 |
| CCV1 | CCV | 1 | 13541.5 | 14503.6 | 93.37 | PASS | 70-125 |
| CCB1 | CCB | 1 | 12580.8 | 14503.6 | 86.74 | PASS | 70-125 |
| N034104-004C | SAMP | 1 | 17700 | 14503.6 | 122.04 | PASS | 70-125 |
| N034104-005C | SAMP | 1 | 17231.8 | 14503.6 | 118.81 | PASS | 70-125 |
| N034104-006C | SAMP | 1 | 13974.2 | 14503.6 | 96.35 | PASS | 70-125 |
| N034104-008C | SAMP | 1 | 17932.5 | 14503.6 | 123.64 | PASS | 70-125 |
| N034104-012C | SAMP | 1 | 18126.1 | 14503.6 | 124.98 | PASS | 70-125 |
| N034104-014C | SAMP | 1 | 12343.9 | 14503.6 | 85.11 | PASS | 70-125 |
| N034104-015C | SAMP | 1 | 17010.4 | 14503.6 | 117.28 | PASS | 70-125 |
| CCV2 | CCV | 1 | 16021.6 | 14503.6 | 110.47 | PASS | 70-125 |
| CCB2 | CCB | 1 | 15392.1 | 14503.6 | 106.13 | PASS | 70-125 |
| N034104-004C | SAMP | 1 | 18101.6 | 14503.6 | 124.81 | PASS | 70-125 |
| N034104-005C | SAMP | 1 | 18170.6 | 14503.6 | 125.28 | NR! | 70-125 |
| N034104-006C | SAMP | 1 | 18109.5 | 14503.6 | 124.86 | PASS | 70-125 |
| N034104-008C | SAMP | 1 | 17608.8 | 14503.6 | 121.41 | PASS | 70-125 |
| N034104-012C | SAMP | 1 | 18126.1 | 14503.6 | 124.98 | PASS | 70-125 |
| N034104-014C | SAMP | 1 | 17519.9 | 14503.6 | 120.8 | PASS | 70-125 |
| N034104-015C | SAMP | 1 | 17145 | 14503.6 | 118.21 | PASS | 70-125 |
| CCV3 | CCV | 1 | 15980.5 | 14503.6 | 110.18 | PASS | 70-125 |
| CCB3 | CCB | 1 | 15303.2 | 14503.6 | 105.51 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 15897.1 | 14503.6 | 109.61 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 15343.2 | 14503.6 | 105.79 | PASS | 70-125 |
| CCV4 | CCV | 1 | 15531.2 | 14503.6 | 107.09 | PASS | 70-125 |
| CCB4 | CCB | 1 | 15791.4 | 14503.6 | 108.88 | PASS | 70-125 |
| CCV5 | CCV | 1 | 14642.5 | 14503.6 | 100.96 | PASS | 70-125 |
| CCB5 | CCB | 1 | 14586.9 | 14503.6 | 100.57 | PASS | 70-125 |

**INTERNAL STANDARD: 190222B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| CCV6 | CCV | 1 | 14845 | 14503.6 | 102.35 | PASS | 70-125 |
| CCB6 | CCB | 1 | 14302.2 | 14503.6 | 98.61 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 14694.8 | 14503.6 | 101.32 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 14244.4 | 14503.6 | 98.21 | PASS | 70-125 |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-MS-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034104
Test Method: EPA 6020
Analysis Date: 2/14/2019

Matrix: Groundwater
Batch No.: 72458

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to several analytes. The calculated concentration is <25RL.

| Sample ID | Analyte | Units | Calc Val | OQual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|
| N034104-001C DT 5X | Arsenic | ug/L | 2.539182 | NA | 2.290839 | 10.84% | 10 |
| N034104-001C DT 5X | Barium | ug/L | 124.8039 | PASS | 122.0361 | 2.27% | 10 |
| N034104-001C DT 5X | Chromium | ug/L | 0 | NA | 0 | | 10 |
| N034104-001C DT 5X | Manganese | ug/L | 0 | NA | 0 | | 10 |
| N034104-001C DT 5X | Molybdenum | ug/L | 4.909751 | NA | 5.3778 | 8.70% | 10 |
| N034104-001C DT 5X | Selenium | ug/L | 0 | NA | 2.094369 | 100.00% | 10 |

Note: NA - Not applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **N034104-001C-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **131940**
Client ID: **ZZZZZZ** Batch ID: **72458** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **2/14/2019** SeqNo: **3293502**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 12.635 | 0.10 | 10.00 | 2.291 | 103 | 80 | 120 | | | | |
| Barium | 123.086 | 1.0 | 10.00 | 122.0 | 10.5 | 80 | 120 | | | | S |
| Manganese | 100.506 | 0.50 | 100.0 | 0 | 101 | 80 | 120 | | | | |
| Molybdenum | 16.658 | 0.50 | 10.00 | 5.378 | 113 | 80 | 120 | | | | |
| Selenium | 12.539 | 0.50 | 10.00 | 2.094 | 104 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034104
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | **N034104-001C-PS** | SampType: **PS** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **131941** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **72458** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/14/2019** | SeqNo: **3293633** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.894 | 1.0 | 10.00 | 0 | 98.9 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Amount of Sample:** 25 mL
**Units:** ug/L

| Analyte | AMT SPIKED, ppb | 1 | 2 | 3 | 4 | 5 | 6 | 7 | SD | MDL | LOD | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANTIMONY | 0.50 | 0.525 | 0.514 | 0.473 | 0.500 | 0.492 | 0.486 | 0.530 | 0.0210 | 0.0660 | 0.100 | 0.50 |
| ARSENIC | 0.10 | 0.099 | 0.104 | 0.087 | 0.048 | 0.060 | 0.069 | 0.120 | 0.0259 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 1.00 | 1.041 | 1.059 | 1.052 | 1.011 | 0.967 | 0.957 | 1.023 | 0.0403 | 0.1264 | 0.250 | 1.00 |
| BERYLLIUM | 0.50 | 0.469 | 0.476 | 0.473 | 0.495 | 0.480 | 0.488 | 0.507 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.50 | 0.515 | 0.513 | 0.492 | 0.534 | 0.499 | 0.483 | 0.508 | 0.0168 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 1.00 | 0.979 | 0.986 | 0.940 | 0.990 | 0.946 | 0.978 | 0.977 | 0.0197 | 0.0618 | 0.250 | 1.00 |
| COBALT | 0.50 | 0.499 | 0.489 | 0.486 | 0.488 | 0.465 | 0.502 | 0.505 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| COPPER | 1.00 | 1.110 | 0.667 | 1.039 | 1.060 | 1.006 | 1.099 | 1.075 | 0.1544 | 0.4850 | 0.500 | 1.00 |
| IRON | 10.00 | 10.873 | 10.802 | 10.142 | 9.991 | 9.846 | 9.852 | 10.596 | 0.4463 | 1.4014 | 2.500 | 10.00 |
| LEAD | 1.00 | 0.928 | 0.931 | 0.899 | 0.996 | 0.990 | 0.987 | 0.997 | 0.0406 | 0.1274 | 0.250 | 1.00 |
| MANGANESE | 0.50 | 0.577 | 0.588 | 0.561 | 0.566 | 0.517 | 0.541 | 0.520 | 0.0276 | 0.0866 | 0.100 | 0.50 |
| MOLYBDENUM | 0.50 | 0.514 | 0.504 | 0.467 | 0.478 | 0.456 | 0.433 | 0.527 | 0.0338 | 0.1061 | 0.250 | 0.50 |
| NICKEL | 1.00 | 0.961 | 0.965 | 0.977 | 0.907 | 0.914 | 0.962 | 1.075 | 0.0551 | 0.1731 | 0.250 | 1.00 |
| SELENIUM | 0.50 | 0.450 | 0.478 | 0.419 | 0.693 | 0.707 | 0.495 | 0.555 | 0.1155 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.50 | 0.558 | 0.511 | 0.490 | 0.542 | 0.458 | 0.490 | 0.684 | 0.0745 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.50 | 0.437 | 0.428 | 0.408 | 0.538 | 0.446 | 0.438 | 0.525 | 0.0504 | 0.1583 | 0.250 | 0.50 |
| URANIUM | 0.50 | 0.478 | 0.467 | 0.461 | 0.517 | 0.510 | 0.521 | 0.521 | 0.0267 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 1.00 | 0.950 | 0.969 | 0.900 | 0.844 | 0.829 | 0.848 | 1.053 | 0.0820 | 0.2574 | 0.500 | 1.00 |
| ZINC | 10.00 | 11.259 | 11.279 | 10.915 | 9.620 | 9.849 | 9.745 | 10.241 | 0.7235 | 2.2717 | 2.500 | 10.00 |

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Units:** ug/L

| Analyte | MDLs | MDLb | MDL | LOD | PQL |
|---|---|---|---|---|---|
| ANTIMONY | 0.0660 | 0.1564 | 0.1564 | 0.300 | 0.50 |
| ARSENIC | 0.0813 | 0.0387 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 0.1264 | 0.1497 | 0.1497 | 0.300 | 1.00 |
| BERYLLIUM | 0.0424 | 0.0153 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.0527 | 0.0060 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 0.0618 | 0.1298 | 0.1298 | 0.300 | 1.00 |
| COBALT | 0.0424 | 0.0339 | 0.0424 | 0.100 | 0.50 |
| COPPER | 0.4850 | 0.5459 | 0.5459 | 0.600 | 1.00 |
| IRON | 1.4014 | 4.3484 | 4.3484 | 5.000 | 10.00 |
| LEAD | 0.1274 | 0.1008 | 0.1274 | 0.300 | 1.00 |
| MANGANESE | 0.0866 | 0.2552 | 0.2552 | 0.300 | 0.50 |
| MOLYBDENUM | 0.1061 | 0.2149 | 0.2149 | 0.300 | 0.50 |
| NICKEL | 0.1731 | 0.2606 | 0.2606 | 0.300 | 1.00 |
| SELENIUM | 0.3628 | 0.0953 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.2340 | 0.2023 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.1583 | 0.1924 | 0.1924 | 0.300 | 0.50 |
| URANIUM | 0.0838 | 0.0020 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 0.2574 | 0.2768 | 0.2768 | 0.600 | 1.00 |
| ZINC | 2.2717 | 0.4511 | 2.2717 | 3.000 | 10.00 |

February 28, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034126

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on February 13, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Litucas for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab Order:** N034126

# CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N034126-002 due to matrix interference. Sample was analyzed at lower dilution however matrix spike recovery was not met indicating possible matrix interference. Sample was reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Manganese in QC samples N034120-001B-MS and N034120-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab Order:** N034126
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034126-001A | MW-703-Q119 | Groundwater | 2/13/2019 3:30:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-002A | MW-64BR-Q119 | Groundwater | 2/13/2019 10:00:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-002B | MW-64BR-Q119 | Groundwater | 2/13/2019 10:00:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-002C | MW-64BR-Q119 | Groundwater | 2/13/2019 10:00:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-002D | MW-64BR-Q119 | Groundwater | 2/13/2019 10:00:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-003A | MW-38S-Q119 | Groundwater | 2/13/2019 8:19:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-003B | MW-38S-Q119 | Groundwater | 2/13/2019 8:19:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-003C | MW-38S-Q119 | Groundwater | 2/13/2019 8:19:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-003D | MW-38S-Q119 | Groundwater | 2/13/2019 8:19:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-004A | MW-38S-SMT-Q119 | Groundwater | 2/13/2019 8:40:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-004B | MW-38S-SMT-Q119 | Groundwater | 2/13/2019 8:40:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-004C | MW-38S-SMT-Q119 | Groundwater | 2/13/2019 8:40:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-004D | MW-38S-SMT-Q119 | Groundwater | 2/13/2019 8:40:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-005A | MW-65-160-Q119 | Groundwater | 2/13/2019 12:36:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-005B | MW-65-160-Q119 | Groundwater | 2/13/2019 12:36:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-005C | MW-65-160-Q119 | Groundwater | 2/13/2019 12:36:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-005D | MW-65-160-Q119 | Groundwater | 2/13/2019 12:36:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-006A | MW-65-225-Q119 | Groundwater | 2/13/2019 1:31:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-006B | MW-65-225-Q119 | Groundwater | 2/13/2019 1:31:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-006C | MW-65-225-Q119 | Groundwater | 2/13/2019 1:31:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-006D | MW-65-225-Q119 | Groundwater | 2/13/2019 1:31:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-007A | MW-68-180-Q119 | Groundwater | 2/13/2019 11:37:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-007B | MW-68-180-Q119 | Groundwater | 2/13/2019 11:37:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-007C | MW-68-180-Q119 | Groundwater | 2/13/2019 11:37:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-007D | MW-68-180-Q119 | Groundwater | 2/13/2019 11:37:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-008A | MW-69-195-Q119 | Groundwater | 2/13/2019 2:46:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-008B | MW-69-195-Q119 | Groundwater | 2/13/2019 2:46:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-008C | MW-69-195-Q119 | Groundwater | 2/13/2019 2:46:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-008D | MW-69-195-Q119 | Groundwater | 2/13/2019 2:46:00 PM | 2/13/2019 | 2/28/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-64BR-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 10:00:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 13000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-38S-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 8:19:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 1600 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-38S-SMT-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 8:40:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 1600 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-65-160-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 12:36:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 3800 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-65-225-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 1:31:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 8700 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-68-180-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 11:37:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 5000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-69-195-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 2:46:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 2800 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID **N034126-006CDUP** | SampType: **DUP** | TestCode: **120.1_WPGE** | Units: **umhos/cm** | Prep Date: | RunNo: **131845** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131845** | TestNo: **EPA 120.1** | | Analysis Date: **2/14/2019** | SeqNo: **3288956** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 8740.000 | 0.10 | | | | | | 8710 | 0.344 | 2 | |

| Sample ID **N034129-010BDUP** | SampType: **DUP** | TestCode: **120.1_WPGE** | Units: **umhos/cm** | Prep Date: | RunNo: **131845** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131845** | TestNo: **EPA 120.1** | | Analysis Date: **2/14/2019** | SeqNo: **3288969** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 909.000 | 0.10 | | | | | | 912.0 | 0.329 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-703-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 3:30:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190222A** | QC Batch: **R132052** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/22/2019 02:17 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-64BR-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 10:00:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190222A** | QC Batch: **R132052** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.17 | 1.0 | | µg/L | 5 | 2/22/2019 02:28 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190225B** | QC Batch: **72497** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/25/2019 07:04 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-38S-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 8:19:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190222A** QC Batch: **R132052** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 5.1 | 0.033 | 0.20 | | µg/L | 1 | 2/22/2019 02:38 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190225B** QC Batch: **72497** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | 5.6 | 0.13 | 1.0 | | µg/L | 1 | 2/25/2019 07:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-38S-SMT-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 8:40:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190222A** | QC Batch: **R132052** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 3.7 | 0.033 | 0.20 | | µg/L | 1 | 2/22/2019 02:47 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190225B** | QC Batch: **72497** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | 3.8 | 0.13 | 1.0 | | µg/L | 1 | 2/25/2019 07:16 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-65-160-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 12:36:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| **EPA 218.6** | | | | | | | |
| RunID: **NV00922-IC7_190222A** QC Batch: **R132052** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 220 | 0.66 | 4.0 | | µg/L | 20 | 2/22/2019 02:57 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** **EPA 6020** | | | | | | | |
| RunID: **NV00922-ICP7_190225B** QC Batch: **72497** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | 220 | 0.65 | 5.0 | | µg/L | 5 | 2/25/2019 10:02 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-65-225-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 1:31:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| **EPA 218.6** | | | | | | | |
| RunID: **NV00922-IC7_190222A** QC Batch: **R132052** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 490 | 1.7 | 10 | | µg/L | 50 | 2/22/2019 04:54 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** **EPA 6020** | | | | | | | |
| RunID: **NV00922-ICP7_190225B** QC Batch: **72497** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | 490 | 0.65 | 5.0 | | µg/L | 5 | 2/25/2019 10:08 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-68-180-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 11:37:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190222A** | QC Batch: **R132052** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 37000 | 130 | 800 | | µg/L | 4000 | 2/22/2019 05:13 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190225B** | QC Batch: **72497** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | 42000 | 32 | 250 | | µg/L | 250 | 2/25/2019 08:22 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-69-195-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 2:46:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190222A** | QC Batch: **R132052** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 110 | 1.7 | 10 | | µg/L | 50 | 2/22/2019 03:25 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190225B** | QC Batch: **72497** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | 100 | 0.13 | 1.0 | | µg/L | 1 | 2/25/2019 08:34 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | MB-R132052 | SampType: | MBLK | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132052 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132052 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/22/2019 | SeqNo: | 3299214 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | | | |

| Sample ID | LCS-R132052 | SampType: | LCS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132052 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132052 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/22/2019 | SeqNo: | 3299215 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | 5.091 | 0.20 | 5.000 | 0 | 102 | 90 | 110 | | | | | | |

| Sample ID | N034271-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132052 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132052 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/22/2019 | SeqNo: | 3299217 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | 10.567 | 2.0 | 10.00 | 0 | 106 | 90 | 110 | | | | | | |

| Sample ID | N034271-002AMSD | SampType: | MSD | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132052 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132052 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/22/2019 | SeqNo: | 3299218 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | 10.633 | 2.0 | 10.00 | 0 | 106 | 90 | 110 | 10.57 | 0.623 | 20 | | | |

| Sample ID | N034121-010ADUP | SampType: | DUP | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132052 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132052 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/22/2019 | SeqNo: | 3299222 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | 212.660 | 4.0 | | | | | | 214.3 | 0.767 | 20 | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **N034284-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299224** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 540.600 | 10 | 250.0 | 290.1 | 100 | 90 | 110 | | | | |

| Sample ID **N034286-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299226** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.297 | 1.0 | 5.000 | 0 | 106 | 90 | 110 | | | | |

| Sample ID **N034288-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299365** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.500 | 2.0 | 10.00 | 0 | 105 | 90 | 110 | | | | |

| Sample ID **N034126-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299374** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.162 | 0.20 | 1.000 | 0.1017 | 106 | 90 | 110 | | | | |

| Sample ID **N034126-002AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299375** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.099 | 1.0 | 5.000 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **N034126-003AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299376** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.287 | 0.20 | 5.000 | 5.118 | 103 | 90 | 110 | | | | |

| Sample ID **N034126-004AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299377** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 9.039 | 0.20 | 5.000 | 3.698 | 107 | 90 | 110 | | | | |

| Sample ID **N034126-005AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299378** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 317.700 | 4.0 | 100.0 | 222.5 | 95.2 | 90 | 110 | | | | |

| Sample ID **N034126-008AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299379** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 355.515 | 10 | 250.0 | 107.8 | 99.1 | 90 | 110 | | | | |

| Sample ID **N034126-006AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299381** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 732.695 | 10 | 250.0 | 488.9 | 97.5 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034126-007AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132052 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132052 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/22/2019 | SeqNo: | 3299383 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 58547.600 | 800 | 20000 | 37190 | 107 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | MB-72497 | SampType: | MBLK | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132108 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72497 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/25/2019 | SeqNo: | 3301638 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-72497 | SampType: | LCS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132108 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72497 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/25/2019 | SeqNo: | 3301639 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.965 | 1.0 | 10.00 | 0 | 99.7 | 85 | 115 | | | | |

| Sample ID | N034120-001B-MS | SampType: | MS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132108 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72497 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/25/2019 | SeqNo: | 3301645 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.322 | 1.0 | 10.00 | 0.3967 | 99.3 | 75 | 125 | | | | |

| Sample ID | N034120-001B-MSD | SampType: | MSD | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132108 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72497 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/25/2019 | SeqNo: | 3301646 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.424 | 1.0 | 10.00 | 0.3967 | 100 | 75 | 125 | 10.32 | 0.987 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-64BR-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 10:00:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190222B** | QC Batch: **R132057** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | ND | 0.032 | 0.050 | | mg/L | 1 | 2/22/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-38S-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 8:19:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190222B** | QC Batch: **R132057** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 3.8 | 0.16 | 0.25 | | mg/L | 5 | 2/22/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-38S-SMT-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 8:40:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190227C** | QC Batch: **R132167** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 4.5 | 0.16 | 0.25 | | mg/L | 5 | 2/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-65-160-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 12:36:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190227C** | QC Batch: **R132167** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 15 | 0.63 | 1.0 | | mg/L | 20 | 2/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-65-225-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 1:31:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190227C** | QC Batch: **R132167** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 9.4 | 0.32 | 0.50 | | mg/L | 10 | 2/27/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-68-180-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 11:37:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190227C** | QC Batch: **R132167** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 33 | 1.6 | 2.5 | | mg/L | 50 | 2/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-69-195-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 2:46:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190227C** | QC Batch: **R132167** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 12 | 0.32 | 0.50 | | mg/L | 10 | 2/27/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | MB-R132057 | SampType: | MBLK | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132057 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132057 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/22/2019 | SeqNo: | 3299342 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID | LCS-R132057 | SampType: | LCS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132057 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132057 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/22/2019 | SeqNo: | 3299343 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.493 | 0.050 | 0.5000 | 0 | 98.6 | 85 | 115 | | | | |

| Sample ID | N034133-003ADUP | SampType: | DUP | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132057 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132057 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/22/2019 | SeqNo: | 3299346 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 3.068 | 0.25 | | | | | | 3.320 | 7.89 | 20 | |

| Sample ID | N034133-005AMS | SampType: | MS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132057 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132057 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/22/2019 | SeqNo: | 3299349 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 4.919 | 0.25 | 2.500 | 2.625 | 91.8 | 75 | 125 | | | | |

| Sample ID | N034133-005AMSD | SampType: | MSD | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132057 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132057 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/22/2019 | SeqNo: | 3299350 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 4.723 | 0.25 | 2.500 | 2.625 | 83.9 | 75 | 125 | 4.919 | 4.08 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | MB-R132167 | SampType: | MBLK | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132167 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132167 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3304083 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | | | |

| Sample ID | LCS-R132167 | SampType: | LCS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132167 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132167 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3304084 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Nitrate/Nitrite as N | 0.498 | 0.050 | 0.5000 | 0 | 99.6 | 85 | 115 | | | | | | |

| Sample ID | N034126-005DMS | SampType: | MS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132167 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132167 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3304087 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Nitrate/Nitrite as N | 25.382 | 1.0 | 10.00 | 15.49 | 99.0 | 75 | 125 | | | | | | |

| Sample ID | N034126-005DMSD | SampType: | MSD | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132167 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132167 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3304088 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Nitrate/Nitrite as N | 25.708 | 1.0 | 10.00 | 15.49 | 102 | 75 | 125 | 25.38 | 1.28 | 20 | | | |

| Sample ID | N034126-007DDUP | SampType: | DUP | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132167 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132167 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3304091 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Nitrate/Nitrite as N | 32.065 | 2.5 | | | | | | 33.33 | 3.87 | 20 | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-64BR-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 10:00:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190225A** | QC Batch: **72497** | | | | PrepDate | **2/14/2019** | Analyst: **CEI** |
| Arsenic | 4.1 | 0.081 | 0.10 | | µg/L | 1 | 2/25/2019 07:04 PM |
| Manganese | 940 | 2.6 | 5.0 | | µg/L | 10 | 2/25/2019 09:57 PM |
| Molybdenum | 65 | 0.21 | 0.50 | | µg/L | 1 | 2/25/2019 07:04 PM |
| Selenium | ND | 0.36 | 0.50 | | µg/L | 1 | 2/25/2019 07:04 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-38S-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 8:19:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190225A** | QC Batch: **72497** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 6.0 | 0.081 | 0.10 | | µg/L | 1 | 2/25/2019 07:10 PM |
| Manganese | 57 | 0.26 | 0.50 | | µg/L | 1 | 2/25/2019 07:10 PM |
| Molybdenum | 32 | 0.21 | 0.50 | | µg/L | 1 | 2/25/2019 07:10 PM |
| Selenium | 2.6 | 0.36 | 0.50 | | µg/L | 1 | 2/25/2019 07:10 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034126-004

**Client Sample ID:** MW-38S-SMT-Q119
**Collection Date:** 2/13/2019 8:40:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190225A** | QC Batch: **72497** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 6.3 | 0.081 | 0.10 | | µg/L | 1 | 2/25/2019 07:16 PM |
| Manganese | 75 | 0.26 | 0.50 | | µg/L | 1 | 2/25/2019 07:16 PM |
| Molybdenum | 30 | 0.21 | 0.50 | | µg/L | 1 | 2/25/2019 07:16 PM |
| Selenium | 3.7 | 0.36 | 0.50 | | µg/L | 1 | 2/25/2019 07:16 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-65-160-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 12:36:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190225A** | QC Batch: **72497** | | | | PrepDate | **2/14/2019** | Analyst: **CEI** |
| Arsenic | 0.76 | 0.081 | 0.10 | | µg/L | 1 | 2/25/2019 07:22 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/25/2019 07:22 PM |
| Molybdenum | 42 | 0.21 | 0.50 | | µg/L | 1 | 2/25/2019 07:22 PM |
| Selenium | 11 | 0.36 | 0.50 | | µg/L | 1 | 2/25/2019 07:22 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-65-225-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 1:31:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** | | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190225A** | QC Batch: **72497** | | | | PrepDate | **2/14/2019** | Analyst: **CEI** |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 2/25/2019 07:28 PM |
| Manganese | 12 | 0.26 | 0.50 | | µg/L | 1 | 2/25/2019 07:28 PM |
| Molybdenum | 28 | 0.21 | 0.50 | | µg/L | 1 | 2/25/2019 07:28 PM |
| Selenium | 8.2 | 0.36 | 0.50 | | µg/L | 1 | 2/25/2019 07:28 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-68-180-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 11:37:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190225A** | QC Batch: **72497** | | | | PrepDate | **2/14/2019** | Analyst: **CEI** |
| Arsenic | 2.6 | 0.081 | 0.10 | | µg/L | 1 | 2/25/2019 08:28 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/25/2019 08:28 PM |
| Molybdenum | 46 | 0.21 | 0.50 | | µg/L | 1 | 2/25/2019 08:28 PM |
| Selenium | 21 | 0.36 | 0.50 | | µg/L | 1 | 2/25/2019 08:28 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-69-195-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 2:46:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** | | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190225A** | QC Batch: **72497** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.4 | 0.081 | 0.10 | | µg/L | 1 | 2/25/2019 08:34 PM |
| Manganese | 1.0 | 0.26 | 0.50 | | µg/L | 1 | 2/25/2019 08:34 PM |
| Molybdenum | 70 | 0.21 | 0.50 | | µg/L | 1 | 2/25/2019 08:34 PM |
| Selenium | 9.4 | 0.36 | 0.50 | | µg/L | 1 | 2/25/2019 08:34 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **MB-72497** | SampType: **MBLK** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/14/2019** | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72497** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/25/2019** | SeqNo: **3301527** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **LCS-72497** | SampType: **LCS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/14/2019** | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72497** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/25/2019** | SeqNo: **3301528** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.986 | 0.10 | 10.00 | 0 | 99.9 | 85 | 115 | | | | |
| Manganese | 102.536 | 0.50 | 100.0 | 0 | 103 | 85 | 115 | | | | |
| Molybdenum | 9.535 | 0.50 | 10.00 | 0 | 95.4 | 85 | 115 | | | | |
| Selenium | 9.586 | 0.50 | 10.00 | 0 | 95.9 | 85 | 115 | | | | |

| Sample ID **N034120-001B-MS** | SampType: **MS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/14/2019** | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72497** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/25/2019** | SeqNo: **3301534** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.654 | 0.10 | 10.00 | 1.368 | 103 | 75 | 125 | | | | |
| Molybdenum | 14.943 | 0.50 | 10.00 | 3.912 | 110 | 75 | 125 | | | | |
| Selenium | 10.312 | 0.50 | 10.00 | 0 | 103 | 75 | 125 | | | | |

| Sample ID **N034120-001B-MSD** | SampType: **MSD** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/14/2019** | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72497** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/25/2019** | SeqNo: **3301535** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.432 | 0.10 | 10.00 | 1.368 | 101 | 75 | 125 | 11.65 | 1.93 | 20 | |
| Molybdenum | 15.044 | 0.50 | 10.00 | 3.912 | 111 | 75 | 125 | 14.94 | 0.673 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | N034120-001B-MSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132107 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72497 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/25/2019 | SeqNo: | 3301535 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 9.640 | 0.50 | 10.00 | 0 | 96.4 | 75 | 125 | 10.31 | 6.73 | 20 | |

| Sample ID | N034120-001B-MS | SampType: | MS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132107 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72497 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/25/2019 | SeqNo: | 3301566 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 310.597 | 2.5 | 100.0 | 184.3 | 126 | 75 | 125 | | | | S |

| Sample ID | N034120-001B-MSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132107 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72497 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/25/2019 | SeqNo: | 3301567 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 309.894 | 2.5 | 100.0 | 184.3 | 126 | 75 | 125 | 310.6 | 0.227 | 20 | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: | |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@pivox.com | P.O.# SWA-ASSET-C9817-057 |
| Submitted By: Joe Gatel | | Phone: 949-727-1400, ext 200 | Fax: |
| Title: Scientist | Phone: 916-786-3302 Fax: | | |
| Signature: Date: 2/13/2019 | Sampled By: Jordan Tc Vahue | | |
| I hereby authorize ASSET Labs to perform the tests indicated below. | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | | |
| Project Name: PG&E Topock - GMP | Signature: | Date: 2/13/2019 | |
| Project Number: RC000753.801D | | | |

| EDD Requirement | | QA/QC | | Sample Receipt Condition | Y | N |
|---|---|---|---|---|---|---|
| Excel EDD | | RTNE | | 1. Chilled | ✓ | |
| Geotracker | | RWQCB | ✓ | 2. Headspace | | |
| Labspec | | CalTrans | | 3. Container Intact | ✓ | |
| Others | ✓ | LEVEL III | | 4. Seal Present | | |
| Specify: RWQCB | | LEVEL IV | | 5. IR number | 2 | |
| Global ID: | | Regulatory | | 6. Method of Cooling: ICE | | |
| | | Specify State: | | Sample Temp: 2.9°C | | |

Matrix: Ground x | Sediment | Potable | Soil | NPDES | Other Solid | Surface

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly) | 2x250 mL poly | Metals Dissolved (SW 6020) Arsenic; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Cr; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Manganese; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Molybdenum; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Selenium; HNO3 (500 mL poly) | Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly) | Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly) | Specific Conductance (EPA 120.1) (1 liter poly) | Total Dissolved Solids (SM92540) (1 liter poly) | Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly) | 1 liter poly | 500 mL poly | 3x40 mL poly | 250 mL poly | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034126 - 01 | MW-703-Q119 | 2/13/2019 | 15:30 | | X | | | | | | | | | | | | | | | | E | 1 | P | B | |
| 2 | - 02 | MW-64BR-Q119 | 2/13/2019 | 10:00 | | X | | X | X | X | X | X | X | | X | | | | | | | E | 4 | P | BNS | |
| 3 | - 03 | MW-38S-Q119 | 2/13/2019 | 8:19 | | X | | X | X | X | X | X | X | | X | | | | | | | E | 4 | P | BNS | |
| 4 | - 04 | MW-38S-SMT-Q119 | 2/13/2019 | 8:40 | | X | | X | X | X | X | X | X | | X | | | | | | | E | 4 | P | BNS | |
| 5 | - 05 | MW-65-160-Q119 | 2/13/2019 | 12:36 | | X | | X | X | X | X | X | X | | X | | | | | | | E | 4 | P | BNS | |
| 6 | - 06 | MW-65-225-Q119 | 2/13/2019 | 13:31 | | X | | X | X | X | X | X | X | | X | | | | | | | E | 4 | P | BNS | |
| 7 | - 07 | MW-68-180-Q119 | 2/13/2019 | 11:37 | | X | | X | X | X | X | X | X | | X | | | | | | | E | 4 | P | BNS | |
| 8 | - 08 | MW-69-195-Q119 | 2/13/2019 | 14:46 | | X | | X | X | X | X | X | X | | X | | | | | | | E | 4 | P | BNS | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | |

Courier:
Tracking No.:

| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| Jordan Tcvahue | 2/13/19 1605 | JORDAN Ic | 2-13-19 1605 |
| JORDAN Ic | 2/13/19 1945 | JORDAN Ic | 2/13/19 1945 |
| | | | |

**Turn Around Time (TAT)**

| | | |
|---|---|---|
| | A | < 24 Hrs or Same Day TAT |
| | B | = Next Workday |
| | C | = 2 Workdays |
| | D | = 3 Workdays |
| X | E | = Routine 5-7 Workdays |

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

| Preservatives: | | | | Container Type: | | |
|---|---|---|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C | T=Tube | V=VOA | P=Pint |
| Z=$Zn(AC)_2$ | O=NaOH | T=$Na_2S_2O_3$ | | J=Jar | B=Tedlar | G=Glass |
| Others/Specify: | B | (NH4)2SO4/NH4OH | | M=Metal | M=Metal | C=Can |

White=Laboratory Copy
Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 2/13/2019 | Workorder: | N034126 |
| Rep sample Temp (Deg C): | 2.9 | IR Gun ID: | 2 |

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA  Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☑ | No ☐ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☐ | No ☐ | NA ☑ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments:

Checklist Completed By: YR 2/18/2019

Reviewed By: LG 021919

# ASSET Laboratories

## WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034126

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034126-001A | MW-703-Q119 | 2/13/2019 3:30:00 PM | 2/27/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034126-002A | MW-64BR-Q119 | 2/13/2019 10:00:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034126-002B | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034126-002C | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034126-002D | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034126-003A | MW-38S-Q119 | 2/13/2019 8:19:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034126-003B | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034126-003C | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034126-003D | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034126-004A | MW-38S-SMT-Q119 | 2/13/2019 8:40:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034126-004B | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034126-004C | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034126-004D | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034126-005A | MW-65-160-Q119 | 2/13/2019 12:36:00 PM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034126-005B | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034126

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034126-005B | MW-65-160-Q119 | 2/13/2019 12:36:00 PM | 2/27/2019 | Groundwater | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034126-005C | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034126-005D | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034126-006A | MW-65-225-Q119 | 2/13/2019 1:31:00 PM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034126-006B | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034126-006C | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034126-006D | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034126-007A | MW-68-180-Q119 | 2/13/2019 11:37:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034126-007B | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034126-007C | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034126-007D | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034126-008A | MW-69-195-Q119 | 2/13/2019 2:46:00 PM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034126-008B | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034126-008C | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034126

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034126-008D | MW-69-195-Q119 | 2/13/2019 2:46:00 PM | 2/27/2019 | Groundwater | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034126-009A | FOLDER | 2/27/2019 | 2/27/2019 | | EDD | RWQCB | ☐ | ☐ | ☐ | LAB |
| | | | 2/27/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 2/27/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# *ARCADIS*

Project: PG&E Topock - GMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N034126

## *ANALYTICAL and QC RESULTS*
## *SAMPLE RECEIVING ITEMS*

*PRIVILEGED AND CONFIDENTIAL*

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## ASSET Laboratories Work Order: N034126


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| EPA 6020_Dissolved | 202-273 |

February 28, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034126

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on February 13, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Litucas for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab Order:** N034126

# CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N034126-002 due to matrix interference. Sample was analyzed at lower dilution however matrix spike recovery was not met indicating possible matrix interference. Sample was reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Manganese in QC samples N034120-001B-MS and N034120-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

## ASSET Laboratories

**Date:** *28-Feb-19*

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab Order:** N034126
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034126-001A | MW-703-Q119 | Groundwater | 2/13/2019 3:30:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-002A | MW-64BR-Q119 | Groundwater | 2/13/2019 10:00:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-002B | MW-64BR-Q119 | Groundwater | 2/13/2019 10:00:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-002C | MW-64BR-Q119 | Groundwater | 2/13/2019 10:00:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-002D | MW-64BR-Q119 | Groundwater | 2/13/2019 10:00:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-003A | MW-38S-Q119 | Groundwater | 2/13/2019 8:19:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-003B | MW-38S-Q119 | Groundwater | 2/13/2019 8:19:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-003C | MW-38S-Q119 | Groundwater | 2/13/2019 8:19:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-003D | MW-38S-Q119 | Groundwater | 2/13/2019 8:19:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-004A | MW-38S-SMT-Q119 | Groundwater | 2/13/2019 8:40:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-004B | MW-38S-SMT-Q119 | Groundwater | 2/13/2019 8:40:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-004C | MW-38S-SMT-Q119 | Groundwater | 2/13/2019 8:40:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-004D | MW-38S-SMT-Q119 | Groundwater | 2/13/2019 8:40:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-005A | MW-65-160-Q119 | Groundwater | 2/13/2019 12:36:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-005B | MW-65-160-Q119 | Groundwater | 2/13/2019 12:36:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-005C | MW-65-160-Q119 | Groundwater | 2/13/2019 12:36:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-005D | MW-65-160-Q119 | Groundwater | 2/13/2019 12:36:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-006A | MW-65-225-Q119 | Groundwater | 2/13/2019 1:31:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-006B | MW-65-225-Q119 | Groundwater | 2/13/2019 1:31:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-006C | MW-65-225-Q119 | Groundwater | 2/13/2019 1:31:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-006D | MW-65-225-Q119 | Groundwater | 2/13/2019 1:31:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-007A | MW-68-180-Q119 | Groundwater | 2/13/2019 11:37:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-007B | MW-68-180-Q119 | Groundwater | 2/13/2019 11:37:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-007C | MW-68-180-Q119 | Groundwater | 2/13/2019 11:37:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-007D | MW-68-180-Q119 | Groundwater | 2/13/2019 11:37:00 AM | 2/13/2019 | 2/28/2019 |
| N034126-008A | MW-69-195-Q119 | Groundwater | 2/13/2019 2:46:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-008B | MW-69-195-Q119 | Groundwater | 2/13/2019 2:46:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-008C | MW-69-195-Q119 | Groundwater | 2/13/2019 2:46:00 PM | 2/13/2019 | 2/28/2019 |
| N034126-008D | MW-69-195-Q119 | Groundwater | 2/13/2019 2:46:00 PM | 2/13/2019 | 2/28/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-64BR-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 10:00:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 13000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-38S-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 8:19:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 1600 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-38S-SMT-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 8:40:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 1600 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-65-160-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 12:36:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 3800 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-65-225-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 1:31:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 8700 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-68-180-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 11:37:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 5000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-69-195-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 2:46:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 2800 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID **N034126-006CDUP** | SampType: **DUP** | TestCode: **120.1_WPGE** | Units: **umhos/cm** | Prep Date: | RunNo: **131845** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131845** | TestNo: **EPA 120.1** | | Analysis Date: **2/14/2019** | SeqNo: **3288956** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 8740.000 | 0.10 | | | | | | 8710 | 0.344 | 2 | |

| Sample ID **N034129-010BDUP** | SampType: **DUP** | TestCode: **120.1_WPGE** | Units: **umhos/cm** | Prep Date: | RunNo: **131845** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131845** | TestNo: **EPA 120.1** | | Analysis Date: **2/14/2019** | SeqNo: **3288969** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 909.000 | 0.10 | | | | | | 912.0 | 0.329 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-703-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 3:30:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190222A** | QC Batch: **R132052** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/22/2019 02:17 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-64BR-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 10:00:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | **EPA 218.6** | | | | | |
| RunID: **NV00922-IC7_190222A** QC Batch: **R132052** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.17 | 1.0 | | µg/L | 5 | 2/22/2019 02:28 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190225B** QC Batch: **72497** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/25/2019 07:04 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-38S-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 8:19:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190222A** QC Batch: **R132052** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 5.1 | 0.033 | 0.20 | | µg/L | 1 | 2/22/2019 02:38 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190225B** QC Batch: **72497** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | 5.6 | 0.13 | 1.0 | | µg/L | 1 | 2/25/2019 07:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-38S-SMT-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 8:40:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190222A** | QC Batch: **R132052** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 3.7 | 0.033 | 0.20 | | µg/L | 1 | 2/22/2019 02:47 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190225B** | QC Batch: **72497** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | 3.8 | 0.13 | 1.0 | | µg/L | 1 | 2/25/2019 07:16 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034126-005

**Client Sample ID:** MW-65-160-Q119
**Collection Date:** 2/13/2019 12:36:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190222A** | QC Batch: **R132052** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 220 | 0.66 | 4.0 | | µg/L | 20 | 2/22/2019 02:57 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190225B** | QC Batch: **72497** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | 220 | 0.65 | 5.0 | | µg/L | 5 | 2/25/2019 10:02 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-65-225-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 1:31:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190222A** | QC Batch: **R132052** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 490 | 1.7 | 10 | | µg/L | 50 | 2/22/2019 04:54 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190225B** | QC Batch: **72497** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | 490 | 0.65 | 5.0 | | µg/L | 5 | 2/25/2019 10:08 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034126-007

**Client Sample ID:** MW-68-180-Q119
**Collection Date:** 2/13/2019 11:37:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190222A** | QC Batch: **R132052** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 37000 | 130 | 800 | | µg/L | 4000 | 2/22/2019 05:13 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190225B** | QC Batch: **72497** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | 42000 | 32 | 250 | | µg/L | 250 | 2/25/2019 08:22 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-69-195-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 2:46:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190222A** | QC Batch: **R132052** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 110 | 1.7 | 10 | | µg/L | 50 | 2/22/2019 03:25 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190225B** | QC Batch: **72497** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | 100 | 0.13 | 1.0 | | µg/L | 1 | 2/25/2019 08:34 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | MB-R132052 | SampType: | MBLK | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132052 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132052 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/22/2019 | SeqNo: | 3299214 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | | | |

| Sample ID | LCS-R132052 | SampType: | LCS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132052 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132052 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/22/2019 | SeqNo: | 3299215 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | 5.091 | 0.20 | 5.000 | 0 | 102 | 90 | 110 | | | | | | |

| Sample ID | N034271-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132052 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132052 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/22/2019 | SeqNo: | 3299217 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | 10.567 | 2.0 | 10.00 | 0 | 106 | 90 | 110 | | | | | | |

| Sample ID | N034271-002AMSD | SampType: | MSD | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132052 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132052 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/22/2019 | SeqNo: | 3299218 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | 10.633 | 2.0 | 10.00 | 0 | 106 | 90 | 110 | 10.57 | 0.623 | 20 | | | |

| Sample ID | N034121-010ADUP | SampType: | DUP | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132052 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132052 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/22/2019 | SeqNo: | 3299222 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | 212.660 | 4.0 | | | | | | 214.3 | 0.767 | 20 | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **N034284-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299224** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 540.600 | 10 | 250.0 | 290.1 | 100 | 90 | 110 | | | | |

| Sample ID **N034286-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299226** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.297 | 1.0 | 5.000 | 0 | 106 | 90 | 110 | | | | |

| Sample ID **N034288-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299365** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.500 | 2.0 | 10.00 | 0 | 105 | 90 | 110 | | | | |

| Sample ID **N034126-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299374** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.162 | 0.20 | 1.000 | 0.1017 | 106 | 90 | 110 | | | | |

| Sample ID **N034126-002AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299375** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.099 | 1.0 | 5.000 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **N034126-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132052**
Client ID: **ZZZZZZ** Batch ID: **R132052** TestNo: **EPA 218.6** Analysis Date: **2/22/2019** SeqNo: **3299376**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.287 | 0.20 | 5.000 | 5.118 | 103 | 90 | 110 | | | | |

Sample ID **N034126-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132052**
Client ID: **ZZZZZZ** Batch ID: **R132052** TestNo: **EPA 218.6** Analysis Date: **2/22/2019** SeqNo: **3299377**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 9.039 | 0.20 | 5.000 | 3.698 | 107 | 90 | 110 | | | | |

Sample ID **N034126-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132052**
Client ID: **ZZZZZZ** Batch ID: **R132052** TestNo: **EPA 218.6** Analysis Date: **2/22/2019** SeqNo: **3299378**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 317.700 | 4.0 | 100.0 | 222.5 | 95.2 | 90 | 110 | | | | |

Sample ID **N034126-008AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132052**
Client ID: **ZZZZZZ** Batch ID: **R132052** TestNo: **EPA 218.6** Analysis Date: **2/22/2019** SeqNo: **3299379**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 355.515 | 10 | 250.0 | 107.8 | 99.1 | 90 | 110 | | | | |

Sample ID **N034126-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132052**
Client ID: **ZZZZZZ** Batch ID: **R132052** TestNo: **EPA 218.6** Analysis Date: **2/22/2019** SeqNo: **3299381**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 732.695 | 10 | 250.0 | 488.9 | 97.5 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034126-007AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132052 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132052 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/22/2019 | SeqNo: | 3299383 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 58547.600 | 800 | 20000 | 37190 | 107 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | MB-72497 | SampType: | MBLK | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132108 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72497 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/25/2019 | SeqNo: | 3301638 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-72497 | SampType: | LCS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132108 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72497 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/25/2019 | SeqNo: | 3301639 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.965 | 1.0 | 10.00 | 0 | 99.7 | 85 | 115 | | | | |

| Sample ID | N034120-001B-MS | SampType: | MS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132108 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72497 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/25/2019 | SeqNo: | 3301645 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.322 | 1.0 | 10.00 | 0.3967 | 99.3 | 75 | 125 | | | | |

| Sample ID | N034120-001B-MSD | SampType: | MSD | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132108 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72497 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/25/2019 | SeqNo: | 3301646 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.424 | 1.0 | 10.00 | 0.3967 | 100 | 75 | 125 | 10.32 | 0.987 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-64BR-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 10:00:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190222B** | QC Batch: **R132057** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | ND | 0.032 | 0.050 | | mg/L | 1 | 2/22/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-38S-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 8:19:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190222B** | QC Batch: **R132057** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 3.8 | 0.16 | 0.25 | | mg/L | 5 | 2/22/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-38S-SMT-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 8:40:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190227C** | QC Batch: **R132167** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 4.5 | 0.16 | 0.25 | | mg/L | 5 | 2/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-65-160-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 12:36:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190227C** | QC Batch: **R132167** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 15 | 0.63 | 1.0 | | mg/L | 20 | 2/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-65-225-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 1:31:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190227C** | QC Batch: **R132167** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 9.4 | 0.32 | 0.50 | | mg/L | 10 | 2/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-68-180-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 11:37:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190227C** | QC Batch: **R132167** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 33 | 1.6 | 2.5 | | mg/L | 50 | 2/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-69-195-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 2:46:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190227C** | QC Batch: **R132167** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 12 | 0.32 | 0.50 | | mg/L | 10 | 2/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **MB-R132057** | SampType: **MBLK** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | | | RunNo: **132057** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R132057** | TestNo: **SM4500-NO3** | | Analysis Date: **2/22/2019** | | | SeqNo: **3299342** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **LCS-R132057** | SampType: **LCS** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | | | RunNo: **132057** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R132057** | TestNo: **SM4500-NO3** | | Analysis Date: **2/22/2019** | | | SeqNo: **3299343** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Nitrate/Nitrite as N | 0.493 | 0.050 | 0.5000 | 0 | 98.6 | 85 | 115 | | | | |

| Sample ID **N034133-003ADUP** | SampType: **DUP** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | | | RunNo: **132057** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132057** | TestNo: **SM4500-NO3** | | Analysis Date: **2/22/2019** | | | SeqNo: **3299346** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Nitrate/Nitrite as N | 3.068 | 0.25 | | | | | | 3.320 | 7.89 | 20 | |

| Sample ID **N034133-005AMS** | SampType: **MS** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | | | RunNo: **132057** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132057** | TestNo: **SM4500-NO3** | | Analysis Date: **2/22/2019** | | | SeqNo: **3299349** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Nitrate/Nitrite as N | 4.919 | 0.25 | 2.500 | 2.625 | 91.8 | 75 | 125 | | | | |

| Sample ID **N034133-005AMSD** | SampType: **MSD** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | | | RunNo: **132057** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132057** | TestNo: **SM4500-NO3** | | Analysis Date: **2/22/2019** | | | SeqNo: **3299350** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Nitrate/Nitrite as N | 4.723 | 0.25 | 2.500 | 2.625 | 83.9 | 75 | 125 | 4.919 | 4.08 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | MB-R132167 | SampType: | MBLK | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132167 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132167 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3304083 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID | LCS-R132167 | SampType: | LCS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132167 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132167 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3304084 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.498 | 0.050 | 0.5000 | 0 | 99.6 | 85 | 115 | | | | |

| Sample ID | N034126-005DMS | SampType: | MS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132167 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132167 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3304087 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 25.382 | 1.0 | 10.00 | 15.49 | 99.0 | 75 | 125 | | | | |

| Sample ID | N034126-005DMSD | SampType: | MSD | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132167 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132167 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3304088 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 25.708 | 1.0 | 10.00 | 15.49 | 102 | 75 | 125 | 25.38 | 1.28 | 20 | |

| Sample ID | N034126-007DDUP | SampType: | DUP | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132167 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132167 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3304091 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 32.065 | 2.5 | | | | | | 33.33 | 3.87 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034126-002

**Client Sample ID:** MW-64BR-Q119
**Collection Date:** 2/13/2019 10:00:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190225A** | QC Batch: **72497** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 4.1 | 0.081 | 0.10 | | µg/L | 1 | 2/25/2019 07:04 PM |
| Manganese | 940 | 2.6 | 5.0 | | µg/L | 10 | 2/25/2019 09:57 PM |
| Molybdenum | 65 | 0.21 | 0.50 | | µg/L | 1 | 2/25/2019 07:04 PM |
| Selenium | ND | 0.36 | 0.50 | | µg/L | 1 | 2/25/2019 07:04 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034126-003

**Client Sample ID:** MW-38S-Q119
**Collection Date:** 2/13/2019 8:19:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190225A** | QC Batch: **72497** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 6.0 | 0.081 | 0.10 | | µg/L | 1 | 2/25/2019 07:10 PM |
| Manganese | 57 | 0.26 | 0.50 | | µg/L | 1 | 2/25/2019 07:10 PM |
| Molybdenum | 32 | 0.21 | 0.50 | | µg/L | 1 | 2/25/2019 07:10 PM |
| Selenium | 2.6 | 0.36 | 0.50 | | µg/L | 1 | 2/25/2019 07:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-38S-SMT-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 8:40:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190225A** | QC Batch: **72497** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 6.3 | 0.081 | 0.10 | | µg/L | 1 | 2/25/2019 07:16 PM |
| Manganese | 75 | 0.26 | 0.50 | | µg/L | 1 | 2/25/2019 07:16 PM |
| Molybdenum | 30 | 0.21 | 0.50 | | µg/L | 1 | 2/25/2019 07:16 PM |
| Selenium | 3.7 | 0.36 | 0.50 | | µg/L | 1 | 2/25/2019 07:16 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034126-005

**Client Sample ID:** MW-65-160-Q119
**Collection Date:** 2/13/2019 12:36:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190225A** | QC Batch: **72497** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 0.76 | 0.081 | 0.10 | | µg/L | 1 | 2/25/2019 07:22 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/25/2019 07:22 PM |
| Molybdenum | 42 | 0.21 | 0.50 | | µg/L | 1 | 2/25/2019 07:22 PM |
| Selenium | 11 | 0.36 | 0.50 | | µg/L | 1 | 2/25/2019 07:22 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034126-006

**Client Sample ID:** MW-65-225-Q119
**Collection Date:** 2/13/2019 1:31:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190225A** | QC Batch: **72497** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 2/25/2019 07:28 PM |
| Manganese | 12 | 0.26 | 0.50 | | µg/L | 1 | 2/25/2019 07:28 PM |
| Molybdenum | 28 | 0.21 | 0.50 | | µg/L | 1 | 2/25/2019 07:28 PM |
| Selenium | 8.2 | 0.36 | 0.50 | | µg/L | 1 | 2/25/2019 07:28 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-68-180-Q119 |
| **Lab Order:** | N034126 | **Collection Date:** | 2/13/2019 11:37:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034126-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190225A** | QC Batch: **72497** | | | | PrepDate | **2/14/2019** | Analyst: **CEI** |
| Arsenic | 2.6 | 0.081 | 0.10 | | µg/L | 1 | 2/25/2019 08:28 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/25/2019 08:28 PM |
| Molybdenum | 46 | 0.21 | 0.50 | | µg/L | 1 | 2/25/2019 08:28 PM |
| Selenium | 21 | 0.36 | 0.50 | | µg/L | 1 | 2/25/2019 08:28 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034126-008

**Client Sample ID:** MW-69-195-Q119
**Collection Date:** 2/13/2019 2:46:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190225A** | QC Batch: **72497** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.4 | 0.081 | 0.10 | | µg/L | 1 | 2/25/2019 08:34 PM |
| Manganese | 1.0 | 0.26 | 0.50 | | µg/L | 1 | 2/25/2019 08:34 PM |
| Molybdenum | 70 | 0.21 | 0.50 | | µg/L | 1 | 2/25/2019 08:34 PM |
| Selenium | 9.4 | 0.36 | 0.50 | | µg/L | 1 | 2/25/2019 08:34 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **MB-72497** | SampType: **MBLK** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/14/2019** | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72497** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/25/2019** | SeqNo: **3301527** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **LCS-72497** | SampType: **LCS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/14/2019** | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72497** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/25/2019** | SeqNo: **3301528** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.986 | 0.10 | 10.00 | 0 | 99.9 | 85 | 115 | | | | |
| Manganese | 102.536 | 0.50 | 100.0 | 0 | 103 | 85 | 115 | | | | |
| Molybdenum | 9.535 | 0.50 | 10.00 | 0 | 95.4 | 85 | 115 | | | | |
| Selenium | 9.586 | 0.50 | 10.00 | 0 | 95.9 | 85 | 115 | | | | |

| Sample ID **N034120-001B-MS** | SampType: **MS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/14/2019** | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72497** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/25/2019** | SeqNo: **3301534** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.654 | 0.10 | 10.00 | 1.368 | 103 | 75 | 125 | | | | |
| Molybdenum | 14.943 | 0.50 | 10.00 | 3.912 | 110 | 75 | 125 | | | | |
| Selenium | 10.312 | 0.50 | 10.00 | 0 | 103 | 75 | 125 | | | | |

| Sample ID **N034120-001B-MSD** | SampType: **MSD** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/14/2019** | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72497** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/25/2019** | SeqNo: **3301535** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.432 | 0.10 | 10.00 | 1.368 | 101 | 75 | 125 | 11.65 | 1.93 | 20 | |
| Molybdenum | 15.044 | 0.50 | 10.00 | 3.912 | 111 | 75 | 125 | 14.94 | 0.673 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | N034120-001B-MSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132107 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72497 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/25/2019 | SeqNo: | 3301535 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 9.640 | 0.50 | 10.00 | 0 | 96.4 | 75 | 125 | 10.31 | 6.73 | 20 | |

| Sample ID | N034120-001B-MS | SampType: | MS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132107 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72497 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/25/2019 | SeqNo: | 3301566 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 310.597 | 2.5 | 100.0 | 184.3 | 126 | 75 | 125 | | | | S |

| Sample ID | N034120-001B-MSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132107 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72497 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/25/2019 | SeqNo: | 3301567 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 309.894 | 2.5 | 100.0 | 184.3 | 126 | 75 | 125 | 310.6 | 0.227 | 20 | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD



| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: | |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@pivox.com | P.O.# SWA-ASSET-C9817-057 |
| Submitted By: Joe Gatel | | Phone: 949-727-1400, ext 200 | Fax: |
| Title: Scientist | Phone: 916-786-3302 Fax: | | |
| Signature: Date: 2/13/2019 | Sampled By: Jordan Tc Vanhie | | |
| I hereby authorize ASSET Labs to perform the tests indicated below. | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | | |
| Project Name: PG&E Topock - GMP | Signature: Date: 2/13/2019 | | |
| Project Number: RC000753.801D | | | |

| EDD Requirement | | QA/QC | | Sample Receipt Condition | Y | N |
|---|---|---|---|---|---|---|
| Excel EDD | | RTNE | | 1. Chilled | ✓ | |
| Geotracker | | RWQCB | ✓ | 2. Headspace | | |
| Labspec | | CalTrans | | 3. Container Intact | ✓ | |
| Others | ✓ | LEVEL III | | 4. Seal Present | | |
| Specify: RWQCB | | LEVEL IV | | 5. IR number | 2 | |
| Global ID: | | Regulatory | | 6. Method of Cooling: ICE | | |
| | | Specify State: | | Sample Temp: 2.9°C | | |

Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly | 2x250 mL poly | Metals Dissolved (SW 6020) Arsenic; HNO3 500 mL poly | Metals Dissolved (SW 6020) Cr; HNO3 500 mL poly | Metals Dissolved (SW 6020) Manganese; HNO3 500 mL poly | Metals Dissolved (SW 6020) Molybdenum; HNO3 500 mL poly | Metals Dissolved (SW 6020) Selenium; HNO3 500 mL poly | Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly | Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly | Specific Conductance (EPA 120.1) 1 liter poly | Total Dissolved Solids (SM92540) 1 liter poly | Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly | 500 mL poly | 3x40 mL poly | 250 mL poly | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034126 - 01 | MW-703-Q119 | 2/13/2019 | 15:30 | | X | | | | | | | | | | | | | | | E | 1 | P | B | |
| 2 | - 02 | MW-64BR-Q119 | 2/13/2019 | 10:00 | | X | | X | X | X | X | X | X | | X | | | | | | E | 4 | P | BNS | |
| 3 | - 03 | MW-38S-Q119 | 2/13/2019 | 8:19 | | X | | X | X | X | X | X | X | | X | | | | | | E | 4 | P | BNS | |
| 4 | - 04 | MW-38S-SMT-Q119 | 2/13/2019 | 8:40 | | X | | X | X | X | X | X | X | | X | | | | | | E | 4 | P | BNS | |
| 5 | - 05 | MW-65-160-Q119 | 2/13/2019 | 12:36 | | X | | X | X | X | X | X | X | | X | | | | | | E | 4 | P | BNS | |
| 6 | - 06 | MW-65-225-Q119 | 2/13/2019 | 13:31 | | X | | X | X | X | X | X | X | | X | | | | | | E | 4 | P | BNS | |
| 7 | - 07 | MW-68-180-Q119 | 2/13/2019 | 11:37 | | X | | X | X | X | X | X | X | | X | | | | | | E | 4 | P | BNS | |
| 8 | - 08 | MW-69-195-Q119 | 2/13/2019 | 14:46 | | X | | X | X | X | X | X | X | | X | | | | | | E | 4 | P | BNS | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | |

| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| Jordan Tc Vanhie | 2/13/19 1605 | Jordan Tc Vanhie | 2-13-19 1605 |
| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |
| Jordan Tc Vanhie | 2/13/19 1945 | Jordan Tc Vanhie | 2/13/19 1945 |
| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |

**Turn Around Time (TAT)**

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

| Preservatives: | | | | Container Type: | | |
|---|---|---|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C | T=Tube | V=VOA | P=Pint |
| Z=$Zn(AC)_2$ | O=NaOH | T=$Na_2S_2O_3$ | | J=Jar | B=Tedlar | G=Glass |
| Others/Specify: | B | (NH4)2SO4/NH4OH | | M=Metal | M=Metal | C=Can |

White=Laboratory Copy
Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 2/13/2019 | Workorder: | N034126 |
| Rep sample Temp (Deg C): | 2.9 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | NA | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☑ | No ☐ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☐ | No ☐ | NA ☑ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments:

Checklist Completed By: YR 2/18/2019

Reviewed By: LG 021919

# ASSET Laboratories

## WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034126

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034126-001A | MW-703-Q119 | 2/13/2019 3:30:00 PM | 2/27/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034126-002A | MW-64BR-Q119 | 2/13/2019 10:00:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034126-002B | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034126-002C | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034126-002D | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034126-003A | MW-38S-Q119 | 2/13/2019 8:19:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034126-003B | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034126-003C | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034126-003D | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034126-004A | MW-38S-SMT-Q119 | 2/13/2019 8:40:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034126-004B | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034126-004C | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034126-004D | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034126-005A | MW-65-160-Q119 | 2/13/2019 12:36:00 PM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034126-005B | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034126

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034126-005B | MW-65-160-Q119 | 2/13/2019 12:36:00 PM | 2/27/2019 | Groundwater | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034126-005C | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034126-005D | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034126-006A | MW-65-225-Q119 | 2/13/2019 1:31:00 PM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034126-006B | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034126-006C | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034126-006D | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034126-007A | MW-68-180-Q119 | 2/13/2019 11:37:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034126-007B | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034126-007C | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034126-007D | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034126-008A | MW-69-195-Q119 | 2/13/2019 2:46:00 PM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034126-008B | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034126-008C | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |

## WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034126

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034126-008D | MW-69-195-Q119 | 2/13/2019 2:46:00 PM | 2/27/2019 | Groundwater | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034126-009A | FOLDER | 2/27/2019 | 2/27/2019 | | EDD | RWQCB | ☐ | ☐ | ☐ | LAB |
| | | | 2/27/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 2/27/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# List of Analysts

## ASSET Laboratories Work Order: N034126

| NAME | TEST METHOD |
|---|---|
| Quennie Manimtim | SM 4500-NO3F |
| Claire Ignacio | EPA 6020_Dissolved |
| Lilia Ramit | EPA 120.1 |
| Hanah Glodoviza | EPA 218.6 |

# EPA 120.1

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R131845 **Analyst:** LSR

**ASSET #:** N034126 **Date Analyzed:** 14-Feb

**Method:** EPA 120.1

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | | | X | | | |
| 11. LCS compounds within control limits. | | | X | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 2/25/2019

2nd Level Reviewer: 2/27/2019 Date:

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

# Conductivity Logbook

**Date:** 2/14/19 1410

**Analyst:** DSR

| Standard | Std ID | Reading | Comments |
|---|---|---|---|
| 11.26 µS/cm | CNW-181011A | 11.28 @17.8C | % Rec: (90-110%) |
| 1410 | 1901070 | 1421 @18.1C | |
| 9988 | 1807311 | 9950 @18.2C | |
| 99661 | 1811218 | 99300 @18.2C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | NOV4126-002C | H2O | 13060 @17.9C | |
| 2 | 3C | | 1572 @17.7C | |
| 3 | 4C | | 1558 @17.4C | |
| 4 | 5C | | 3830 @17.3C | |
| 5 | 6C | | 8710 @17.4C | |
| 6 | 6COUP | | 8740 @17.1C | |
| 7 | 7C | | 5090 @17.4C | |
| 8 | 8C | | 2810 @17.5C | |
| 9 | NOV4129-002B | | 903 @17.5C | |
| 10 | 3B | | 900 @17.4C | |
| Dup | 4B | | 912 @17.4C | Accept: 10% water, 20% soil |
| | Std Chk: | | | % Rec: (90-110%) |

Julia Ramit 2/25/2019

**Date:**

**Analyst:** CONTD

| Standard | Std ID | Reading | Comments |
|---|---|---|---|
| 1413 µS/cm | CNW-181022A | 1437 @17.9C | % Rec: (90-110%) |
| 10000 | B | 9810 @18.2C | |
| 99922 | C | 97900 @18.2C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | NOV4129-005B | H2O | 908 @17.6C | |
| 2 | 6B | | 904 @17.6C | STD CHECK |
| 3 | 7B | | 909 @17.7C | 1413 CNW181022A |
| 4 | 8B | | 906 @17.6C | = 1424 @ 18.8C |
| 5 | 9B | | 907 @17.6C | 10000 CNW181022B |
| 6 | 10B | | 912 @17.5C | = 9860 @ 18.8C |
| 7 | 10B DUP | | 909 @17.3C | 99922 CNW181022C |
| 8 | 11B | | 902 @17.3C | = 97700 @ 18.7C |
| 9 | 12B | | 914 @17.4C | |
| 10 | 13B | | 934 @17.6C | |
| Dup | 14B | | 915 @17.7C | Accept: 10% water, 20% soil |
| | Std Chk: | | | % Rec: (90-110%) |



ASSET LABORATORIES
CALIFORNIA | P:562.219.7435 F:562.219.7436
11110 Artesia Blvd., Ste B, Cerritos, CA 90703
NEVADA | P:702.307.2659 F:702.[illegible]691
3151 W. Post Rd., Las Vegas, NV 89118

# EPA 218.6

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**QC Batch Number:** R132052
**ASSET #:** N034126

**Instrument ID:** IC-07
**Analyst:** HSG
**Date Analyzed:** 2/22/2019

**Method:**

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | x | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | x | | |
| 3. ICV within ± 10% of expected value. | X | | | x | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | x | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | x | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | x | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | X | | | x | | |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | x | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | X | | | x | | |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | x | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | X | | | | | |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | x |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | X | | | x | | |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | x |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | X | | | x | | |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | X | | | x | | |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | x |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | X | | | x | | |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | x |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | x | | |
| 21. Are all samples analyzed within hold time? | X | | | x | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | x |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | x | | |
| 24. LCS compounds are within control limits. | X | | | x | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | x | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | x |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | x | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | x |
| 29. All manual integrations initialed, date and reasons included. | X | | | x | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | x | | |
| 31. All samples and QC raw data present in package. | X | | | x | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | x | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | x | | |
| 34 Is the QC summary report present and complete? | X | | | x | | |

Comments:

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer HSG Date: 2/28/2019

2nd Level Reviewer 2/28/2019 Date: —

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 218.6
**TEST NAME:** HEXAVALENT CHROMIUM BY IC
**MATRIX:** Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N034126-003A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 5.1185 * 1$$

$$Cr^{+6}, \mu g/L = 5.1185$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 5.1}$$

NS 2/28/2019

# ANALYSIS RUN LOG

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 1:17 PM | Not Reported |
| 10 | ICV | ICV | 1 | Hexavalent Chromium | 02/21/19 1:28 PM | Reported |
| 11 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/21/19 1:37 PM | Reported |
| 12 | ICB | ICB | 1 | Hexavalent Chromium | 02/21/19 1:47 PM | Reported |
| 13 | MB-R132043 | MBLK | 1 | Hexavalent Chromium | 02/21/19 1:56 PM | Reported |
| 14 | LCS-R132043 | LCS | 1 | Hexavalent Chromium | 02/21/19 2:06 PM | Reported |
| 15 | N034269-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:18 PM | Not Reported |
| 16 | N034271-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:30 PM | Not Reported |
| 17 | N034271-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:39 PM | Not Reported |
| 18 | N034104-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:49 PM | Reported |
| 19 | N034107-018A | SAMP | 5 | Hexavalent Chromium | 02/21/19 2:58 PM | Reported |
| 20 | N034269-001AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:08 PM | Not Reported |
| 21 | N034271-002AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:17 PM | Not Reported |
| 22 | N034271-001A | SAMP | 100 | Hexavalent Chromium | 02/21/19 3:27 PM | Reported |
| 23 | CCV-1 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 3:36 PM | Reported |
| 24 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/21/19 3:46 PM | Reported |
| 25 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 3:55 PM | Not Reported |
| 26 | N034269-001A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:03 PM | Reported |
| 27 | N034269-001AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:14 PM | Reported |
| 28 | N034271-002A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:24 PM | Not Reported |
| 29 | N034271-002AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:33 PM | Not Reported |
| 30 | N034104-009AMS | MS | 1 | Hexavalent Chromium | 02/21/19 4:43 PM | Reported |
| 31 | N034104-009AMSD | MSD | 1 | Hexavalent Chromium | 02/21/19 4:52 PM | Reported |
| 32 | N034107-018ADUP | DUP | 5 | Hexavalent Chromium | 02/21/19 5:02 PM | Reported |
| 33 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 5:11 PM | Reported |
| 34 | N034271-002A | SAMP | 10 | Hexavalent Chromium | 02/21/19 5:20 PM | Not Reported |
| 35 | CCV-2 | CCV | 1 | Hexavalent Chromium | 02/21/19 5:30 PM | Reported |
| 36 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/21/19 5:39 PM | Reported |
| 37 | N034271-002AMS | MS | 10 | Hexavalent Chromium | 02/21/19 5:52 PM | Not Reported |
| 38 | N034121-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:03 PM | Reported |
| 39 | N034121-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:13 PM | Reported |
| 40 | N034121-003A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:22 PM | Reported |
| 41 | N034121-004A | SAMP | 50 | Hexavalent Chromium | 02/21/19 6:32 PM | Reported |
| 42 | N034121-005A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:41 PM | Reported |

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034121-006A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:50 PM | Reported |
| 44 | N034121-007A | SAMP | 20 | Hexavalent Chromium | 02/21/19 7:00 PM | Reported |
| 45 | N034121-008A | SAMP | 5 | Hexavalent Chromium | 02/21/19 7:09 PM | Not Reported |
| 46 | N034121-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:19 PM | Reported |
| 47 | CCV-3 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 7:28 PM | Reported |
| 48 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/21/19 7:38 PM | Reported |
| 49 | N034121-010A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:47 PM | Not Reported |
| 50 | N034121-011A | SAMP | 10 | Hexavalent Chromium | 02/21/19 7:57 PM | Reported |
| 51 | N034121-008A | SAMP | 10 | Hexavalent Chromium | 02/21/19 8:06 PM | Reported |
| 52 | N034121-011A | SAMP | 20 | Hexavalent Chromium | 02/21/19 8:16 PM | Not Reported |
| 53 | CCV-4 | CCV | 1 | Hexavalent Chromium | 02/21/19 8:25 PM | Reported |
| 54 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/21/19 8:35 PM | Reported |
| 55 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 8:44 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190221B** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **22/Feb/19 08:53:05** |
| *No. of Injections:* | **58** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 9 | 1000 | Unknown | | 02/21/2019 13:17 | Finished | BLANK |
| 10 | ICV,ICV,1, | 10 | 1000 | Unknown | | 02/21/2019 13:28 | Finished | ICV @5ppb, IWST-190221B |
| 11 | PQL@0.2ppb,CCV2, | 11 | 1000 | Unknown | | 02/21/2019 13:37 | Finished | PQL @ 0.2ppb |
| 12 | ICB,ICB,1, | 12 | 1000 | Unknown | | 02/21/2019 13:47 | Finished | ICB R190115A |
| 13 | MB-H2O,MBLK,1, | 13 | 1000 | Unknown | | 02/21/2019 13:56 | Finished | MB R190115A |
| 14 | LCS-H2O,LCS,1, | 14 | 1000 | Unknown | | 02/21/2019 14:06 | Finished | LCS @5ppb, IWST-190221B |
| 15 | N034269-001A,SAMP | 16 | 1000 | Unknown | | 02/21/2019 14:18 | Finished | SAMP,10mL |
| 16 | N034271-001A,SAMP | 17 | 1000 | Unknown | | 02/21/2019 14:30 | Finished | SAMP,10mL |
| 17 | N034271-002A,SAMP | 18 | 1000 | Unknown | | 02/21/2019 14:39 | Finished | SAMP,10mL |
| 18 | N034104-009A,SAMP | 19 | 1000 | Unknown | | 02/21/2019 14:49 | Finished | SAMP,10mL |
| 19 | N034107-018A,SAMP | 20 | 1000 | Unknown | | 02/21/2019 14:58 | Finished | SAMP,2>10mL |
| 20 | N034269-001AMS,MS | 21 | 1000 | Unknown | | 02/21/2019 15:08 | Finished | SAMP,10mL |
| 21 | N034271-002AMS,MS | 22 | 1000 | Unknown | | 02/21/2019 15:17 | Finished | SAMP,10mL |
| 22 | N034271-001A,SAMP | 23 | 1000 | Unknown | | 02/21/2019 15:27 | Finished | SAMP,10mL |
| 23 | CCV-1,CCV1,1, | 24 | 1000 | Unknown | | 02/21/2019 15:36 | Finished | CCV @10ppb, IWST-190221A |
| 24 | CCB-1,CCB,1, | 25 | 1000 | Unknown | | 02/21/2019 15:46 | Finished | CCB R190115A |
| 25 | N034271-001AMS,MS | 26 | 1000 | Unknown | | 02/21/2019 15:55 | Interrupted | SAMP,2>10mL |
| 26 | N034269-001A,SAMP | 27 | 1000 | Unknown | | 02/21/2019 16:03 | Finished | SAMP,2>10mL |
| 27 | N034269-001AMS,MS | 28 | 1000 | Unknown | | 02/21/2019 16:14 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 28 | N034271-002A,SAMP | 29 | 1000 | Unknown | | 02/21/2019 16:24 | Finished | SAMP,2>10mL |
| 29 | N034271-002AMS,MS | 30 | 1000 | Unknown | | 02/21/2019 16:33 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 30 | N034104-009AMS,MS | 31 | 1000 | Unknown | | 02/21/2019 16:43 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034104-009AMSD,M | 32 | 1000 | Unknown | | 02/21/2019 16:52 | Finished | MSD (1ppb), IWST-190221B,10 |
| 32 | N034107-018ADUP,D | 33 | 1000 | Unknown | | 02/21/2019 17:02 | Finished | DUP,10mL |
| 33 | N034271-001AMS,MS | 34 | 1000 | Unknown | | 02/21/2019 17:11 | Finished | SAMP,10mL |
| 34 | N034271-002A,SAMP | 35 | 1000 | Unknown | | 02/21/2019 17:20 | Finished | SAMP,1>10mL |
| 35 | CCV-2,CCV,1, | 36 | 1000 | Unknown | | 02/21/2019 17:30 | Finished | CCV @5ppb, IWST-190221A |
| 36 | CCB-2,CCB,1, | 37 | 1000 | Unknown | | 02/21/2019 17:39 | Finished | CCB R190115A |
| 37 | N034271-002AMS,MS | 1 | 1000 | Unknown | | 02/21/2019 17:52 | Finished | MS (1ppb), IWST-190221B,1>1 |
| 38 | N034121-001A,SAMP | 2 | 1000 | Unknown | | 02/21/2019 18:03 | Finished | SAMP,10mL |
| 39 | N034121-002A,SAMP | 3 | 1000 | Unknown | | 02/21/2019 18:13 | Finished | SAMP,10mL |
| 40 | N034121-003A,SAMP | 4 | 1000 | Unknown | | 02/21/2019 18:22 | Finished | SAMP,10mL |
| 41 | N034121-004A,SAMP | 5 | 1000 | Unknown | | 02/21/2019 18:32 | Finished | SAMP,10mL |
| 42 | N034121-005A,SAMP | 6 | 1000 | Unknown | | 02/21/2019 18:41 | Finished | SAMP,10mL |
| 43 | N034121-006A,SAMP | 7 | 1000 | Unknown | | 02/21/2019 18:50 | Finished | SAMP,10mL |
| 44 | N034121-007A,SAMP | 8 | 1000 | Unknown | | 02/21/2019 19:00 | Finished | SAMP,10mL |
| 45 | N034121-008A,SAMP | 9 | 1000 | Unknown | | 02/21/2019 19:09 | Finished | SAMP,10mL |
| 46 | N034121-009A,SAMP | 10 | 1000 | Unknown | | 02/21/2019 19:19 | Finished | SAMP,10mL |
| 47 | CCV-3,CCV1,1, | 11 | 1000 | Unknown | | 02/21/2019 19:28 | Finished | CCV @10ppb, IWST-190221A |
| 48 | CCB-3,CCB,1, | 12 | 1000 | Unknown | | 02/21/2019 19:38 | Finished | CCB R190115A |
| 49 | N034121-010A,SAMP | 13 | 1000 | Unknown | | 02/21/2019 19:47 | Finished | SAMP,10mL |
| 50 | N034121-011A,SAMP | 14 | 1000 | Unknown | | 02/21/2019 19:57 | Finished | SAMP,10mL |
| 51 | N034121-008A,SAMP | 15 | 1000 | Unknown | | 02/21/2019 20:06 | Finished | SAMP,1>10mL |
| 52 | N034121-011A,SAMP | 16 | 1000 | Unknown | | 02/21/2019 20:16 | Finished | SAMP,1>10mL |
| 53 | CCV-4,CCV,1, | 17 | 1000 | Unknown | | 02/21/2019 20:25 | Finished | CCV @5ppb, IWST-190221A |
| 54 | CCB-4,CCB,1, | 18 | 1000 | Unknown | | 02/21/2019 20:35 | Finished | CCB R190115A |
| 55 | BLANK | 19 | 1000 | Unknown | | 02/21/2019 20:44 | Finished | BLANK |
| 56 | SHUTDOWN | 20 | 1000 | Unknown | | 02/21/2019 20:53 | Finished | |
| 57 | Eluent: R190219B | 21 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 58 | PCR: R190220A | 22 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

**INJECTION LOG: 190222A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/22/19 8:29 AM | Not Reported |
| 10 | CCV-1 | CCV | 1 | Hexavalent Chromium | 02/22/19 8:40 AM | Reported |
| 11 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/22/19 8:50 AM | Reported |
| 12 | CCB-1 | ICB | 1 | Hexavalent Chromium | 02/22/19 8:59 AM | Reported |
| 13 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/22/19 9:33 AM | Reported |
| 14 | MB-R132052 | MBLK | 1 | Hexavalent Chromium | 02/22/19 9:48 AM | Reported |
| 15 | LCS-R132052 | LCS | 1 | Hexavalent Chromium | 02/22/19 9:59 AM | Reported |
| 16 | N034271-002A | SAMP | 10 | Hexavalent Chromium | 02/22/19 10:10 AM | Reported |
| 17 | N034271-002AMS | MS | 10 | Hexavalent Chromium | 02/22/19 10:22 AM | Reported |
| 18 | N034284-001A | SAMP | 1 | Hexavalent Chromium | 02/22/19 10:31 AM | Not Reported |
| 19 | N034286-001A | SAMP | 1 | Hexavalent Chromium | 02/22/19 10:40 AM | Not Reported |
| 20 | N034288-001A | SAMP | 1 | Hexavalent Chromium | 02/22/19 10:50 AM | Not Reported |
| 21 | N034121-010A | SAMP | 10 | Hexavalent Chromium | 02/22/19 10:59 AM | Not Reported |
| 22 | N034121-010ADUP | DUP | 10 | Hexavalent Chromium | 02/22/19 11:09 AM | Not Reported |
| 23 | N034271-002AMSD | MSD | 10 | Hexavalent Chromium | 02/22/19 11:18 AM | Reported |
| 24 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 02/22/19 11:28 AM | Reported |
| 25 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/22/19 11:37 AM | Reported |
| 26 | N034121-010A | SAMP | 20 | Hexavalent Chromium | 02/22/19 11:47 AM | Reported |
| 27 | N034121-010ADUP | DUP | 20 | Hexavalent Chromium | 02/22/19 11:56 AM | Reported |
| 28 | N034284-001A | SAMP | 50 | Hexavalent Chromium | 02/22/19 12:06 PM | Reported |
| 29 | N034284-001AMS | MS | 50 | Hexavalent Chromium | 02/22/19 12:15 PM | Reported |
| 30 | N034286-001AMS | MS | 1 | Hexavalent Chromium | 02/22/19 12:25 PM | Not Reported |
| 31 | N034288-001AMS | MS | 1 | Hexavalent Chromium | 02/22/19 12:34 PM | Not Reported |
| 32 | N034286-001A | SAMP | 5 | Hexavalent Chromium | 02/22/19 12:43 PM | Reported |
| 33 | N034286-001AMS | MS | 5 | Hexavalent Chromium | 02/22/19 12:53 PM | Reported |
| 34 | N034288-001A | SAMP | 5 | Hexavalent Chromium | 02/22/19 1:02 PM | Not Reported |
| 35 | N034288-001AMS | MS | 5 | Hexavalent Chromium | 02/22/19 1:12 PM | Not Reported |
| 36 | CCV-3 | CCV | 1 | Hexavalent Chromium | 02/22/19 1:21 PM | Reported |
| 37 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/22/19 1:31 PM | Reported |
| 38 | N034288-001A | SAMP | 10 | Hexavalent Chromium | 02/22/19 1:48 PM | Reported |
| 39 | N034288-001AMS | MS | 10 | Hexavalent Chromium | 02/22/19 2:00 PM | Reported |
| 40 | N034126-001A | SAMP | 1 | Hexavalent Chromium | 02/22/19 2:17 PM | Reported |
| 41 | N034126-002A | SAMP | 5 | Hexavalent Chromium | 02/22/19 2:28 PM | Reported |
| 42 | N034126-003A | SAMP | 1 | Hexavalent Chromium | 02/22/19 2:38 PM | Reported |

**INJECTION LOG: 190222A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034126-004A | SAMP | 1 | Hexavalent Chromium | 02/22/19 2:47 PM | Reported |
| 44 | N034126-005A | SAMP | 20 | Hexavalent Chromium | 02/22/19 2:57 PM | Reported |
| 45 | N034126-006A | SAMP | 20 | Hexavalent Chromium | 02/22/19 3:06 PM | Not Reported |
| 46 | N034126-007A | SAMP | 2000 | Hexavalent Chromium | 02/22/19 3:16 PM | Not Reported |
| 47 | N034126-008A | SAMP | 50 | Hexavalent Chromium | 02/22/19 3:25 PM | Reported |
| 48 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/22/19 3:35 PM | Reported |
| 49 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/22/19 3:44 PM | Reported |
| 50 | N034126-001AMS | MS | 1 | Hexavalent Chromium | 02/22/19 3:55 PM | Reported |
| 51 | N034126-002AMS | MS | 5 | Hexavalent Chromium | 02/22/19 4:06 PM | Reported |
| 52 | N034126-003AMS | MS | 1 | Hexavalent Chromium | 02/22/19 4:16 PM | Reported |
| 53 | N034126-004AMS | MS | 1 | Hexavalent Chromium | 02/22/19 4:25 PM | Reported |
| 54 | N034126-005AMS | MS | 20 | Hexavalent Chromium | 02/22/19 4:35 PM | Reported |
| 55 | N034126-008AMS | MS | 50 | Hexavalent Chromium | 02/22/19 4:44 PM | Reported |
| 56 | N034126-006A | SAMP | 50 | Hexavalent Chromium | 02/22/19 4:54 PM | Reported |
| 57 | N034126-006AMS | MS | 50 | Hexavalent Chromium | 02/22/19 5:03 PM | Reported |
| 58 | N034126-007A | SAMP | 4000 | Hexavalent Chromium | 02/22/19 5:13 PM | Reported |
| 59 | N034126-007AMS | MS | 4000 | Hexavalent Chromium | 02/22/19 5:22 PM | Reported |
| 60 | CCV-5 | CCV | 1 | Hexavalent Chromium | 02/22/19 5:43 PM | Reported |
| 61 | CCB-5 | CCB | 1 | Hexavalent Chromium | 02/22/19 5:54 PM | Reported |
| 62 | N034125-002A | SAMP | 1 | Hexavalent Chromium | 02/22/19 6:03 PM | Not Reported |
| 63 | N034125-002AMS | MS | 1 | Hexavalent Chromium | 02/22/19 6:13 PM | Not Reported |
| 64 | N034128-002A | SAMP | 1 | Hexavalent Chromium | 02/22/19 6:22 PM | Not Reported |
| 65 | N034128-002AMS | MS | 1 | Hexavalent Chromium | 02/22/19 6:31 PM | Not Reported |
| 66 | N034270-002A | SAMP | 1 | Hexavalent Chromium | 02/22/19 6:41 PM | Not Reported |
| 67 | N034270-002AMS | MS | 1 | Hexavalent Chromium | 02/22/19 6:50 PM | Not Reported |
| 68 | N034272-002A | SAMP | 1 | Hexavalent Chromium | 02/22/19 7:00 PM | Not Reported |
| 69 | N034272-002AMS | MS | 1 | Hexavalent Chromium | 02/22/19 7:09 PM | Not Reported |
| 70 | N034272-004A | SAMP | 1 | Hexavalent Chromium | 02/22/19 7:19 PM | Not Reported |
| 71 | N034272-004AMS | MS | 1 | Hexavalent Chromium | 02/22/19 7:28 PM | Not Reported |
| 72 | CCV-6 | CCV1 | 1 | Hexavalent Chromium | 02/22/19 7:38 PM | Not Reported |
| 73 | CCB-6 | CCB | 1 | Hexavalent Chromium | 02/22/19 7:47 PM | Not Reported |
| 74 | N034126-002A | SAMP | 1 | Hexavalent Chromium | 02/22/19 7:57 PM | Not Reported |
| 75 | N034126-002AMS | MS | 1 | Hexavalent Chromium | 02/22/19 8:06 PM | Not Reported |
| 76 | CCV-7 | CCV | 1 | Hexavalent Chromium | 02/22/19 8:16 PM | Not Reported |
| 77 | CCB-7 | CCB | 1 | Hexavalent Chromium | 02/22/19 8:25 PM | Not Reported |
| 78 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/22/19 8:35 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190222A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **23/Feb/19 08:02:37** |
| *No. of Injections:* | **81** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 1 | 1000 | Unknown | | 02/22/2019 08:29 | Finished | BLANK |
| 10 | CCV-1,CCV,1, | 2 | 1000 | Unknown | | 02/22/2019 08:40 | Finished | CCV @5ppb, IWST-190221B |
| 11 | PQL@0.2ppb,CCV2,1 | 3 | 1000 | Unknown | | 02/22/2019 08:50 | Finished | PQL @ 0.2ppb |
| 12 | CCB-1,ICB,1, | 4 | 1000 | Unknown | | 02/22/2019 08:59 | Finished | CCB R190115A |
| 13 | PQL@0.2ppb,CCV2,1 | 1 | 1000 | Unknown | | 02/22/2019 09:33 | Finished | PQL @ 0.2ppb |
| 14 | MB-H2O,MBLK,1, | 2 | 1000 | Unknown | | 02/22/2019 09:48 | Finished | MB R190115A |
| 15 | LCS-H2O,LCS,1, | 3 | 1000 | Unknown | | 02/22/2019 09:59 | Finished | LCS @5ppb, IWST-190221B |
| 16 | N034271-002A,SAMF | 4 | 1000 | Unknown | | 02/22/2019 10:10 | Finished | SAMP,1>10mL |
| 17 | N034271-002AMS,MS | 5 | 1000 | Unknown | | 02/22/2019 10:22 | Finished | MS (1ppb), IWST-190221B,1>1 |
| 18 | N034284-001A,SAMF | 6 | 1000 | Unknown | | 02/22/2019 10:31 | Finished | SAMP,10mL |
| 19 | N034286-001A,SAMF | 7 | 1000 | Unknown | | 02/22/2019 10:40 | Finished | SAMP,10mL |
| 20 | N034288-001A,SAMF | 8 | 1000 | Unknown | | 02/22/2019 10:50 | Finished | SAMP,10mL |
| 21 | N034121-010A,SAMF | 9 | 1000 | Unknown | | 02/22/2019 10:59 | Finished | SAMP,1>10mL |
| 22 | N034121-010ADUP,D | 10 | 1000 | Unknown | | 02/22/2019 11:09 | Finished | DUP,1>10mL |
| 23 | N034271-002AMSD,M | 11 | 1000 | Unknown | | 02/22/2019 11:18 | Finished | MSD (1ppb), IWST-190221B,1 |
| 24 | CCV-2,CCV1,1, | 12 | 1000 | Unknown | | 02/22/2019 11:28 | Finished | CCV @10ppb, IWST-190221A |
| 25 | CCB-2,CCB,1, | 13 | 1000 | Unknown | | 02/22/2019 11:37 | Finished | CCB R190115A |
| 26 | N034121-010A,SAMF | 14 | 1000 | Unknown | | 02/22/2019 11:47 | Finished | SAMP,0.5>10mL |
| 27 | N034121-010ADUP,D | 15 | 1000 | Unknown | | 02/22/2019 11:56 | Finished | DUP,0.5>10mL |
| 28 | N034284-001A,SAMF | 16 | 1000 | Unknown | | 02/22/2019 12:06 | Finished | SAMP,0.2>10mL |
| 29 | N034284-001AMS,MS | 17 | 1000 | Unknown | | 02/22/2019 12:15 | Finished | MS (1ppb), IWST-190221B,0.2 |
| 30 | N034286-001AMS,MS | 18 | 1000 | Unknown | | 02/22/2019 12:25 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034288-001AMS,MS | 19 | 1000 | Unknown | | 02/22/2019 12:34 | Finished | MS (1ppb), IWST-190221B,10 |
| 32 | N034286-001A,SAMF | 20 | 1000 | Unknown | | 02/22/2019 12:43 | Finished | SAMP,2>10mL |
| 33 | N034286-001AMS,MS | 21 | 1000 | Unknown | | 02/22/2019 12:53 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 34 | N034288-001A,SAMF | 22 | 1000 | Unknown | | 02/22/2019 13:02 | Finished | SAMP,2>10mL |
| 35 | N034288-001AMS,MS | 23 | 1000 | Unknown | | 02/22/2019 13:12 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 36 | CCV-3,CCV,1, | 24 | 1000 | Unknown | | 02/22/2019 13:21 | Finished | CCV @5ppb, IWST-190221A |
| 37 | CCB-3,CCB,1, | 25 | 1000 | Unknown | | 02/22/2019 13:31 | Finished | CCB R190115A |
| 38 | N034288-001A,SAMF | 27 | 1000 | Unknown | | 02/22/2019 13:48 | Finished | SAMP,1>10mL |
| 39 | N034288-001AMS,MS | 28 | 1000 | Unknown | | 02/22/2019 14:00 | Finished | MS (1ppb), IWST-190221B,10 |
| 40 | N034126-001A,SAMF | 29 | 1000 | Unknown | | 02/22/2019 14:17 | Finished | SAMP,10mL |
| 41 | N034126-002A,SAMF | 30 | 1000 | Unknown | | 02/22/2019 14:28 | Finished | SAMP,2>10mL |
| 42 | N034126-003A,SAMF | 31 | 1000 | Unknown | | 02/22/2019 14:38 | Finished | SAMP,10mL |
| 43 | N034126-004A,SAMF | 32 | 1000 | Unknown | | 02/22/2019 14:47 | Finished | SAMP,10mL |
| 44 | N034126-005A,SAMF | 33 | 1000 | Unknown | | 02/22/2019 14:57 | Finished | SAMP,0.5>10mL |
| 45 | N034126-006A,SAMF | 34 | 1000 | Unknown | | 02/22/2019 15:06 | Finished | SAMP,0.5>10mL |
| 46 | N034126-007A,SAMF | 35 | 1000 | Unknown | | 02/22/2019 15:16 | Finished | SAMP,0.005>10mL |
| 47 | N034126-008A,SAMF | 36 | 1000 | Unknown | | 02/22/2019 15:25 | Finished | SAMP,0.2>10mL |
| 48 | CCV-4,CCV1,1, | 37 | 1000 | Unknown | | 02/22/2019 15:35 | Finished | CCV @10ppb, IWST-190221A |
| 49 | CCB-4,CCB,1, | 38 | 1000 | Unknown | | 02/22/2019 15:44 | Finished | CCB R190115A |
| 50 | N034126-001AMS,MS | 40 | 1000 | Unknown | | 02/22/2019 15:55 | Finished | MS (1ppb), IWST-190221B,10 |
| 51 | N034126-002AMS,MS | 41 | 1000 | Unknown | | 02/22/2019 16:06 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 52 | N034126-003AMS,MS | 42 | 1000 | Unknown | | 02/22/2019 16:16 | Finished | MS (5ppb), IWST-190221B,10 |
| 53 | N034126-004AMS,MS | 43 | 1000 | Unknown | | 02/22/2019 16:25 | Finished | MS (5ppb), IWST-190221B,10 |
| 54 | N034126-005AMS,MS | 44 | 1000 | Unknown | | 02/22/2019 16:35 | Finished | MS (5ppb), IWST-190221B,0.5 |
| 55 | N034126-008AMS,MS | 45 | 1000 | Unknown | | 02/22/2019 16:44 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 56 | N034126-006A,SAMF | 46 | 1000 | Unknown | | 02/22/2019 16:54 | Finished | SAMP,0.2>10mL |
| 57 | N034126-006AMS,MS | 47 | 1000 | Unknown | | 02/22/2019 17:03 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 58 | N034126-007A,SAMF | 48 | 1000 | Unknown | | 02/22/2019 17:13 | Finished | SAMP,0.0025>10mL |
| 59 | N034126-007AMS,MS | 49 | 1000 | Unknown | | 02/22/2019 17:22 | Finished | SAMP,10mL |
| 60 | CCV-5,CCV,1, | 1 | 1000 | Unknown | | 02/22/2019 17:43 | Finished | CCV @5ppb, IWST-190221A |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | CCB-5,CCB,1, | 2 | 1000 | Unknown | | 02/22/2019 17:54 | Finished | CCB R190115A |
| 62 | N034125-002A,SAMP | 3 | 1000 | Unknown | | 02/22/2019 18:03 | Finished | SAMP,10mL |
| 63 | N034125-002AMS,MS | 4 | 1000 | Unknown | | 02/22/2019 18:13 | Finished | MS (1ppb), IWST-190221B,10 |
| 64 | N034128-002A,SAMP | 5 | 1000 | Unknown | | 02/22/2019 18:22 | Finished | SAMP,10mL |
| 65 | N034128-002AMS,MS | 6 | 1000 | Unknown | | 02/22/2019 18:31 | Finished | MS (1ppb), IWST-190221B,10 |
| 66 | N034270-002A,SAMP | 7 | 1000 | Unknown | | 02/22/2019 18:41 | Finished | SAMP,10mL |
| 67 | N034270-002AMS,MS | 8 | 1000 | Unknown | | 02/22/2019 18:50 | Finished | MS (1ppb), IWST-190221B,10 |
| 68 | N034272-002A,SAMP | 9 | 1000 | Unknown | | 02/22/2019 19:00 | Finished | SAMP,10mL |
| 69 | N034272-002AMS,MS | 10 | 1000 | Unknown | | 02/22/2019 19:09 | Finished | MS (1ppb), IWST-190221B,10 |
| 70 | N034272-004A,SAMP | 11 | 1000 | Unknown | | 02/22/2019 19:19 | Finished | SAMP,10mL |
| 71 | N034272-004AMS,MS | 12 | 1000 | Unknown | | 02/22/2019 19:28 | Finished | MS (1ppb), IWST-190221B,10 |
| 72 | CCV-6,CCV1,1, | 13 | 1000 | Unknown | | 02/22/2019 19:38 | Finished | CCV @10ppb, IWST-190221A |
| 73 | CCB-6,CCB,1, | 14 | 1000 | Unknown | | 02/22/2019 19:47 | Finished | CCB R190115A |
| 74 | N034126-002A,SAMP | 15 | 1000 | Unknown | | 02/22/2019 19:57 | Finished | SAMP,10mL |
| 75 | N034126-002AMS,MS | 16 | 1000 | Unknown | | 02/22/2019 20:06 | Finished | MS (1ppb), IWST-190221B,10 |
| 76 | CCV-7,CCV,1, | 17 | 1000 | Unknown | | 02/22/2019 20:16 | Finished | CCV @5ppb, IWST-190221A |
| 77 | CCB-7,CCB,1, | 18 | 1000 | Unknown | | 02/22/2019 20:25 | Finished | CCB R190115A |
| 78 | BLANK | 19 | 1000 | Unknown | | 02/22/2019 20:35 | Finished | BLANK |
| 79 | SHUTDOWN | 20 | 1000 | Unknown | | 02/22/2019 20:44 | Finished | |
| 80 | Eluent: R190219B | 21 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 81 | PCR: R190220A | 22 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# SAMPLE PREPARATION LOG

# Hexavalent Chromium Preparation and Runlog

## Sample Preparation

Date Prepared: 2/14/19
Time Prepared: 1300
Prepared By: MG

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: R CINV-181102A
NH4OH + NH4SO4 eluent: R1902234/R190219B/R190226B
NH4OH + NH4SO4 buffer: R190115A/R190211C

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | N034126-1A | 9.48 | - | ~250mL | ~250mL | | |
| 2) | 2A | 9.51 | - | | | | |
| 3) | 3A | 9.66 | - | | | | |
| 4) | 4A | 9.64 | - | | | | |
| 5) | 5A | 9.36 | - | | | | |
| 6) | 6A | 9.44 | - | | | | |
| 7) | 7A | 9.54 | - | | | | |
| 8) | 8A | 9.43 | - | | | | |
| 9) | N034123-1A | 9.38 | - | | | | |
| 10) | 2A | 9.36 | - | | | | |
| 11) | 3A | 9.35 | - | | | | |
| 12) | 4A | 9.39 | - | | | | |
| 13) | 5A | 9.37 | - | | | | |
| 14) | 6A | 9.47 | - | | | | |
| 15) | 7A | 9.36 | - | | | | |
| | 8A | 9.53 | - | | | | |

## Sample Preparation

Date Prepared: 2/14/19
Time Prepared: 1300
Prepared By: MG

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CINV-181102A
NH4OH + NH4SO4 eluent: R190213A/R190223A/R190226B
NH4OH + NH4SO4 buffer: R190115A/R190211C

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | N034123-9A | 9.43 | - | ~250mL | ~250mL | | |
| 2) | 10A | 9.49 | - | | | | |
| 3) | 11A | 9.46 | - | | | | |
| 4) | 12A | 9.45 | - | | | | |
| 5) | 13A | 9.30 | - | | | | |
| 6) | 14A | 9.36 | - | | | | |
| 7) | 15A | 9.51 | - | | | | |
| 8) | 16A | 9.51 | - | | | | |
| 9) | 17A | 9.30 | - | | | | |
| 10) | 18A | 9.34 | - | | | | |
| 11) | 19A | 9.48 | - | | | | |
| 12) | 20A | 9.53 | - | | | | |
| 13) | N034124-1A | 9.51 | - | | | | |
| 14) | N034125-2A | 9.49 | - | | | | |
| 15) | N034127-1A | 9.44 | - | | | | |
| | N034128-2A | 9.55 | - | | | | |

Logbook No. 15

# INITIAL CALIBRATION DATA SUMMARY

**(EPA 218.6) - INITIAL CALIBRATION**

Instrument ID: IC-07
Date Calibrated: 2/21/2019

Initial Calibration:

| Hexavalent Chromium | STD1 | STD2 | STD3 | STD4 | STD5 | STD6 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0.2 | 1 | 5 | 10 | 15 | 20 | $R^2$ |
| Area,mAU*min | 0.0556 | 0.2392 | 1.2310 | 2.4655 | 3.7365 | 4.9505 | 1.0000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock | Working |
|---|---|---|
| Standard Concentration: | 1,000,000 PPB | 1,000 PPB |
| Standard ID: | ISST-170814H | IWST-~~181022C~~ |

190221A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

NS 2/28/2019
for HSG

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3299208** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.126 | 0.20 | 5.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3299209** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.232 | 0.20 | 0.2000 | 0 | 116 | 80 | 120 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299211** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.060 | 0.20 | 5.000 | 0 | 101 | 95 | 105 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299213** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.235 | 0.20 | 0.2000 | 0 | 117 | 80 | 120 | | | | |

| Sample ID **CCV-2** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299219** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.210 | 0.20 | 10.00 | 0 | 102 | 95 | 105 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299227** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.075 | 0.20 | 5.000 | 0 | 102 | 95 | 105 | | | | |

| Sample ID **CCV-4** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299372** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.092 | 0.20 | 10.00 | 0 | 101 | 95 | 105 | | | | |

| Sample ID **CCV-5** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299384** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.132 | 0.20 | 5.000 | 0 | 103 | 95 | 105 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3299210** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299212** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299220** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299228** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.100 | 0.20 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132052** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132052** | TestNo: **EPA 218.6** | | Analysis Date: **2/22/2019** | SeqNo: **3299373** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

Detection in CCB-3 is >0.02ppb. However, N034126 samples are either ND or >10x the CCB detection.

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

NS 2/28/2019

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **CCB-5** SampType: **CCB** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132052**
Client ID: **CCB** Batch ID: **R132052** TestNo: **EPA 218.6** Analysis Date: **2/22/2019** SeqNo: **3299385**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# RETENTION TIME SUMMARY

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/22/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.106 | |
| CCV-1 | 4.098 | |
| CCV-2 | 4.098 | |
| CCV-3 | 4.098 | |
| CCV-4 | 4.098 | |
| CCV-5 | 4.098 | |

| | |
|---|---|
| **Average** | 4.098 |
| **Actual RT Window** | 4.018 - 4.178 |
| **Applied RT Window** | 3.898 - 4.298 |

| | | |
|---|---|---|
| MB-R132052 | N.A. | N.A. |
| LCS-R132052 | 4.098 | PASS |
| N034271-002A | N.A. | N.A. |
| N034271-002AMS | 4.098 | PASS |
| N034284-001A | 3.956 | PASS |
| N034286-001A | N.A. | N.A. |
| N034288-001A | 4.131 | PASS |
| N034121-010A | 4.098 | PASS |
| N034121-010ADUP | 4.098 | PASS |
| N034271-002AMSD | 4.081 | PASS |
| N034121-010A | 4.090 | PASS |
| N034121-010ADUP | 4.098 | PASS |
| N034284-001A | 4.098 | PASS |
| N034284-001AMS | 4.090 | PASS |
| N034286-001AMS | N.A. | N.A. |
| N034288-001AMS | 3.756 | FAIL |
| N034286-001A | N.A. | N.A. |
| N034286-001AMS | 4.006 | PASS |
| N034288-001A | N.A. | N.A. |
| N034288-001AMS | 4.048 | PASS |
| N034288-001A | N.A. | N.A. |
| N034288-001AMS | 4.073 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/22/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.106 | |
| CCV-1 | 4.098 | |
| CCV-2 | 4.098 | |
| CCV-3 | 4.098 | |
| CCV-4 | 4.098 | |
| CCV-5 | 4.098 | |
| **Average** | 4.098 | |
| **Actual RT Window** | 4.018 - 4.178 | |
| **Applied RT Window** | 3.898 - 4.298 | |
| N034126-001A | 4.115 | PASS |
| N034126-002A | N.A. | N.A. |
| N034126-003A | 4.073 | PASS |
| N034126-004A | 4.073 | PASS |
| N034126-005A | 4.090 | PASS |
| N034126-006A | 4.090 | PASS |
| N034126-007A | 4.098 | PASS |
| N034126-008A | 4.081 | PASS |
| N034126-001AMS | 4.098 | PASS |
| N034126-002AMS | 4.065 | PASS |
| N034126-003AMS | 4.081 | PASS |
| N034126-004AMS | 4.073 | PASS |
| N034126-005AMS | 4.098 | PASS |
| N034126-008AMS | 4.098 | PASS |
| N034126-006A | 4.098 | PASS |
| N034126-006AMS | 4.098 | PASS |
| N034126-007A | 4.098 | PASS |
| N034126-007AMS | 4.098 | PASS |
| N034125-002A | 4.090 | PASS |
| N034125-002AMS | 4.098 | PASS |
| N034128-002A | 4.106 | PASS |
| N034128-002AMS | 4.098 | PASS |
| N034270-002A | 4.081 | PASS |

## RETENTION TIME (RT) SUMMARY

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/22/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.106 | |
| CCV-1 | 4.098 | |
| CCV-2 | 4.098 | |
| CCV-3 | 4.098 | |
| CCV-4 | 4.098 | |
| CCV-5 | 4.098 | |
| **Average** | 4.098 | |
| **Actual RT Window** | 4.018 - 4.178 | |
| **Applied RT Window** | 3.898 - 4.298 | |
| N034270-002AMS | 4.090 | PASS |
| N034272-002A | 4.073 | PASS |
| N034272-002AMS | 4.098 | PASS |
| N034272-004A | 4.048 | PASS |
| N034272-004AMS | 4.048 | PASS |
| N034126-002A | N.A. | N.A. |
| N034126-002AMS | N.A. | N.A. |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

| Datafile | 170505 | 170508 | 170509 | 170510 | 170511 | 170512 | 170515 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte** | **#1** | **#2** | **#3** | **#4** | **#5** | **#6** | **#7** | **Spike Conc., mg/L** | **SD** | **$t_{(n-1)}$ value** | **MDL** | **PQL** | **Remarks** |
| Hexavalent Chromium | 0.1949 | 0.2135 | 0.1840 | 0.1828 | 0.2011 | 0.1936 | 0.1911 | 0.20 | 0.0105 | 3.143 | **0.0331** | **0.20** | OK,meets criteria |

Students' **t** Values at 99% CL

| # | $t_{(n-1)}$ |
|---|---|
| 10 | 2.821 |
| 9 | 2.896 |
| 8 | 2.998 |
| 7 | 3.143 |

## LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

| Compound | MDL | LOD Spike Conc., µg/L | LOD actual Conc., µg/L |
|---|---|---|---|
| Hexavalent Chromium | 0.0331 | 0.100 | 0.116 |

| Compound | PQL | PQL Spike Conc., µg/L | PQL actual Conc., µg/L | % Recovery |
|---|---|---|---|---|
| Hexavalent Chromium | 0.200 | 0.200 | 0.201 | **100** |

# RAW DATA

# INITIAL CALIBRATION

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 1:17 PM | Not Reported |
| 10 | ICV | ICV | 1 | Hexavalent Chromium | 02/21/19 1:28 PM | Reported |
| 11 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/21/19 1:37 PM | Reported |
| 12 | ICB | ICB | 1 | Hexavalent Chromium | 02/21/19 1:47 PM | Reported |
| 13 | MB-R132043 | MBLK | 1 | Hexavalent Chromium | 02/21/19 1:56 PM | Reported |
| 14 | LCS-R132043 | LCS | 1 | Hexavalent Chromium | 02/21/19 2:06 PM | Reported |
| 15 | N034269-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:18 PM | Not Reported |
| 16 | N034271-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:30 PM | Not Reported |
| 17 | N034271-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:39 PM | Not Reported |
| 18 | N034104-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:49 PM | Reported |
| 19 | N034107-018A | SAMP | 5 | Hexavalent Chromium | 02/21/19 2:58 PM | Reported |
| 20 | N034269-001AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:08 PM | Not Reported |
| 21 | N034271-002AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:17 PM | Not Reported |
| 22 | N034271-001A | SAMP | 100 | Hexavalent Chromium | 02/21/19 3:27 PM | Reported |
| 23 | CCV-1 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 3:36 PM | Reported |
| 24 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/21/19 3:46 PM | Reported |
| 25 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 3:55 PM | Not Reported |
| 26 | N034269-001A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:03 PM | Reported |
| 27 | N034269-001AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:14 PM | Reported |
| 28 | N034271-002A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:24 PM | Not Reported |
| 29 | N034271-002AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:33 PM | Not Reported |
| 30 | N034104-009AMS | MS | 1 | Hexavalent Chromium | 02/21/19 4:43 PM | Reported |
| 31 | N034104-009AMSD | MSD | 1 | Hexavalent Chromium | 02/21/19 4:52 PM | Reported |
| 32 | N034107-018ADUP | DUP | 5 | Hexavalent Chromium | 02/21/19 5:02 PM | Reported |
| 33 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 5:11 PM | Reported |
| 34 | N034271-002A | SAMP | 10 | Hexavalent Chromium | 02/21/19 5:20 PM | Not Reported |
| 35 | CCV-2 | CCV | 1 | Hexavalent Chromium | 02/21/19 5:30 PM | Reported |
| 36 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/21/19 5:39 PM | Reported |
| 37 | N034271-002AMS | MS | 10 | Hexavalent Chromium | 02/21/19 5:52 PM | Not Reported |
| 38 | N034121-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:03 PM | Reported |
| 39 | N034121-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:13 PM | Reported |
| 40 | N034121-003A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:22 PM | Reported |
| 41 | N034121-004A | SAMP | 50 | Hexavalent Chromium | 02/21/19 6:32 PM | Reported |
| 42 | N034121-005A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:41 PM | Reported |

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034121-006A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:50 PM | Reported |
| 44 | N034121-007A | SAMP | 20 | Hexavalent Chromium | 02/21/19 7:00 PM | Reported |
| 45 | N034121-008A | SAMP | 5 | Hexavalent Chromium | 02/21/19 7:09 PM | Not Reported |
| 46 | N034121-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:19 PM | Reported |
| 47 | CCV-3 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 7:28 PM | Reported |
| 48 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/21/19 7:38 PM | Reported |
| 49 | N034121-010A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:47 PM | Not Reported |
| 50 | N034121-011A | SAMP | 10 | Hexavalent Chromium | 02/21/19 7:57 PM | Reported |
| 51 | N034121-008A | SAMP | 10 | Hexavalent Chromium | 02/21/19 8:06 PM | Reported |
| 52 | N034121-011A | SAMP | 20 | Hexavalent Chromium | 02/21/19 8:16 PM | Not Reported |
| 53 | CCV-4 | CCV | 1 | Hexavalent Chromium | 02/21/19 8:25 PM | Reported |
| 54 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/21/19 8:35 PM | Reported |
| 55 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 8:44 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190221B** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **22/Feb/19 08:53:05** |
| *No. of Injections:* | **58** | *Updated By:* | **ics 5000** |

## Injection Details

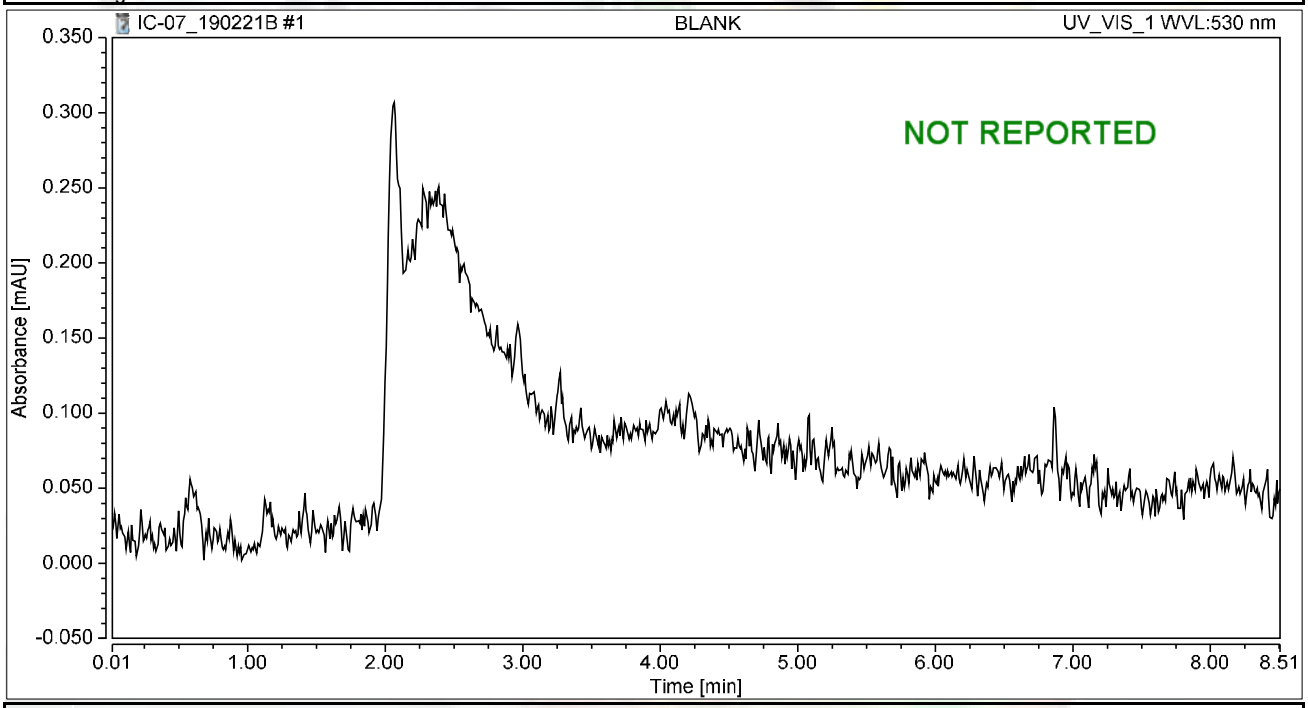
| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 9 | 1000 | Unknown | | 02/21/2019 13:17 | Finished | BLANK |
| 10 | ICV,ICV,1, | 10 | 1000 | Unknown | | 02/21/2019 13:28 | Finished | ICV @5ppb, IWST-190221B |
| 11 | PQL@0.2ppb,CCV2,1 | 11 | 1000 | Unknown | | 02/21/2019 13:37 | Finished | PQL @ 0.2ppb |
| 12 | ICB,ICB,1, | 12 | 1000 | Unknown | | 02/21/2019 13:47 | Finished | ICB R190115A |
| 13 | MB-H2O,MBLK,1, | 13 | 1000 | Unknown | | 02/21/2019 13:56 | Finished | MB R190115A |
| 14 | LCS-H2O,LCS,1, | 14 | 1000 | Unknown | | 02/21/2019 14:06 | Finished | LCS @5ppb, IWST-190221B |
| 15 | N034269-001A,SAMF | 16 | 1000 | Unknown | | 02/21/2019 14:18 | Finished | SAMP,10mL |
| 16 | N034271-001A,SAMF | 17 | 1000 | Unknown | | 02/21/2019 14:30 | Finished | SAMP,10mL |
| 17 | N034271-002A,SAMF | 18 | 1000 | Unknown | | 02/21/2019 14:39 | Finished | SAMP,10mL |
| 18 | N034104-009A,SAMF | 19 | 1000 | Unknown | | 02/21/2019 14:49 | Finished | SAMP,10mL |
| 19 | N034107-018A,SAMF | 20 | 1000 | Unknown | | 02/21/2019 14:58 | Finished | SAMP,2>10mL |
| 20 | N034269-001AMS,MS | 21 | 1000 | Unknown | | 02/21/2019 15:08 | Finished | SAMP,10mL |
| 21 | N034271-002AMS,MS | 22 | 1000 | Unknown | | 02/21/2019 15:17 | Finished | SAMP,10mL |
| 22 | N034271-001A,SAMF | 23 | 1000 | Unknown | | 02/21/2019 15:27 | Finished | SAMP,10mL |
| 23 | CCV-1,CCV1,1, | 24 | 1000 | Unknown | | 02/21/2019 15:36 | Finished | CCV @10ppb, IWST-190221A |
| 24 | CCB-1,CCB,1, | 25 | 1000 | Unknown | | 02/21/2019 15:46 | Finished | CCB R190115A |
| 25 | N034271-001AMS,MS | 26 | 1000 | Unknown | | 02/21/2019 15:55 | Interrupted | SAMP,2>10mL |
| 26 | N034269-001A,SAMF | 27 | 1000 | Unknown | | 02/21/2019 16:03 | Finished | SAMP,2>10mL |
| 27 | N034269-001AMS,MS | 28 | 1000 | Unknown | | 02/21/2019 16:14 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 28 | N034271-002A,SAMF | 29 | 1000 | Unknown | | 02/21/2019 16:24 | Finished | SAMP,2>10mL |
| 29 | N034271-002AMS,MS | 30 | 1000 | Unknown | | 02/21/2019 16:33 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 30 | N034104-009AMS,MS | 31 | 1000 | Unknown | | 02/21/2019 16:43 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034104-009AMSD,M | 32 | 1000 | Unknown | | 02/21/2019 16:52 | Finished | MSD (1ppb), IWST-190221B,10 |
| 32 | N034107-018ADUP,D | 33 | 1000 | Unknown | | 02/21/2019 17:02 | Finished | DUP,10mL |
| 33 | N034271-001AMS,MS | 34 | 1000 | Unknown | | 02/21/2019 17:11 | Finished | SAMP,10mL |
| 34 | N034271-002A,SAMF | 35 | 1000 | Unknown | | 02/21/2019 17:20 | Finished | SAMP,1>10mL |
| 35 | CCV-2,CCV,1, | 36 | 1000 | Unknown | | 02/21/2019 17:30 | Finished | CCV @5ppb, IWST-190221A |
| 36 | CCB-2,CCB,1, | 37 | 1000 | Unknown | | 02/21/2019 17:39 | Finished | CCB R190115A |
| 37 | N034271-002AMS,MS | 1 | 1000 | Unknown | | 02/21/2019 17:52 | Finished | MS (1ppb), IWST-190221B,1>1 |
| 38 | N034121-001A,SAMF | 2 | 1000 | Unknown | | 02/21/2019 18:03 | Finished | SAMP,10mL |
| 39 | N034121-002A,SAMF | 3 | 1000 | Unknown | | 02/21/2019 18:13 | Finished | SAMP,10mL |
| 40 | N034121-003A,SAMF | 4 | 1000 | Unknown | | 02/21/2019 18:22 | Finished | SAMP,10mL |
| 41 | N034121-004A,SAMF | 5 | 1000 | Unknown | | 02/21/2019 18:32 | Finished | SAMP,10mL |
| 42 | N034121-005A,SAMF | 6 | 1000 | Unknown | | 02/21/2019 18:41 | Finished | SAMP,10mL |
| 43 | N034121-006A,SAMF | 7 | 1000 | Unknown | | 02/21/2019 18:50 | Finished | SAMP,10mL |
| 44 | N034121-007A,SAMF | 8 | 1000 | Unknown | | 02/21/2019 19:00 | Finished | SAMP,10mL |
| 45 | N034121-008A,SAMF | 9 | 1000 | Unknown | | 02/21/2019 19:09 | Finished | SAMP,10mL |
| 46 | N034121-009A,SAMF | 10 | 1000 | Unknown | | 02/21/2019 19:19 | Finished | SAMP,10mL |
| 47 | CCV-3,CCV1,1, | 11 | 1000 | Unknown | | 02/21/2019 19:28 | Finished | CCV @10ppb, IWST-190221A |
| 48 | CCB-3,CCB,1, | 12 | 1000 | Unknown | | 02/21/2019 19:38 | Finished | CCB R190115A |
| 49 | N034121-010A,SAMF | 13 | 1000 | Unknown | | 02/21/2019 19:47 | Finished | SAMP,10mL |
| 50 | N034121-011A,SAMF | 14 | 1000 | Unknown | | 02/21/2019 19:57 | Finished | SAMP,10mL |
| 51 | N034121-008A,SAMF | 15 | 1000 | Unknown | | 02/21/2019 20:06 | Finished | SAMP,1>10mL |
| 52 | N034121-011A,SAMF | 16 | 1000 | Unknown | | 02/21/2019 20:16 | Finished | SAMP,1>10mL |
| 53 | CCV-4,CCV,1, | 17 | 1000 | Unknown | | 02/21/2019 20:25 | Finished | CCV @5ppb, IWST-190221A |
| 54 | CCB-4,CCB,1, | 18 | 1000 | Unknown | | 02/21/2019 20:35 | Finished | CCB R190115A |
| 55 | BLANK | 19 | 1000 | Unknown | | 02/21/2019 20:44 | Finished | BLANK |
| 56 | SHUTDOWN | 20 | 1000 | Unknown | | 02/21/2019 20:53 | Finished | |
| 57 | Eluent: R190219B | 21 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 58 | PCR: R190220A | 22 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 11:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

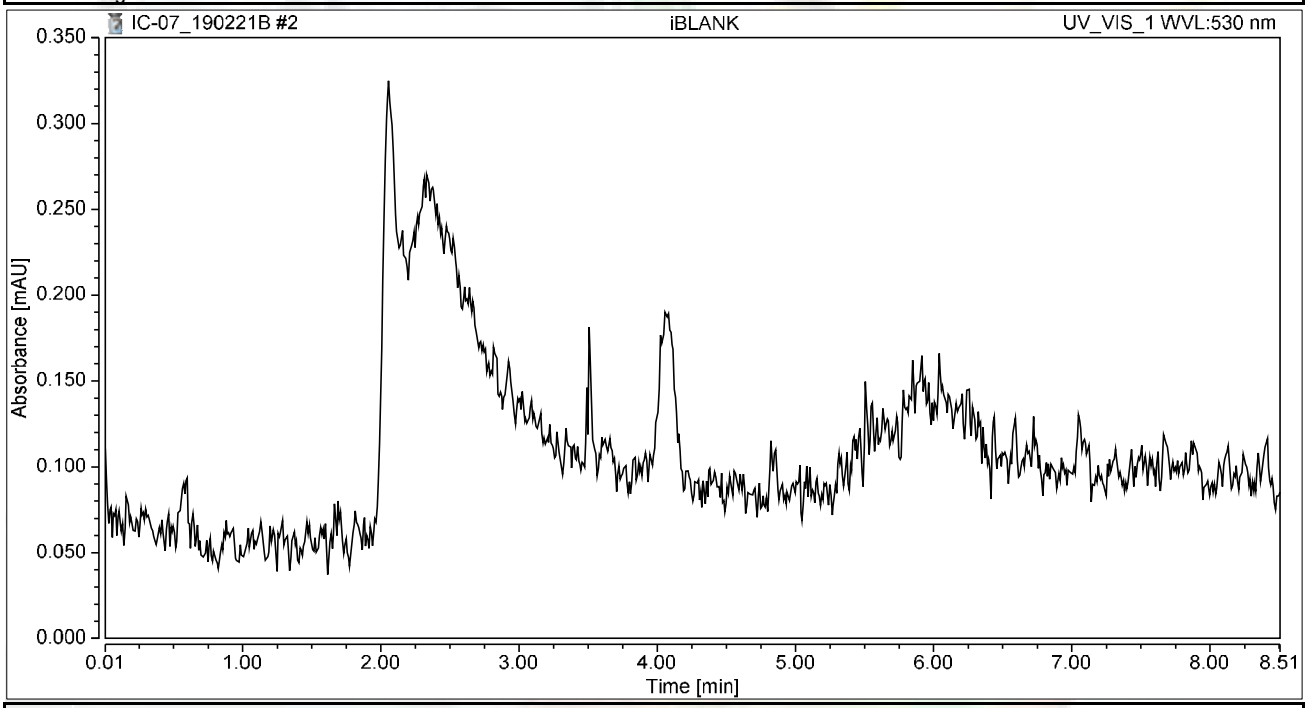
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **iBLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:04** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

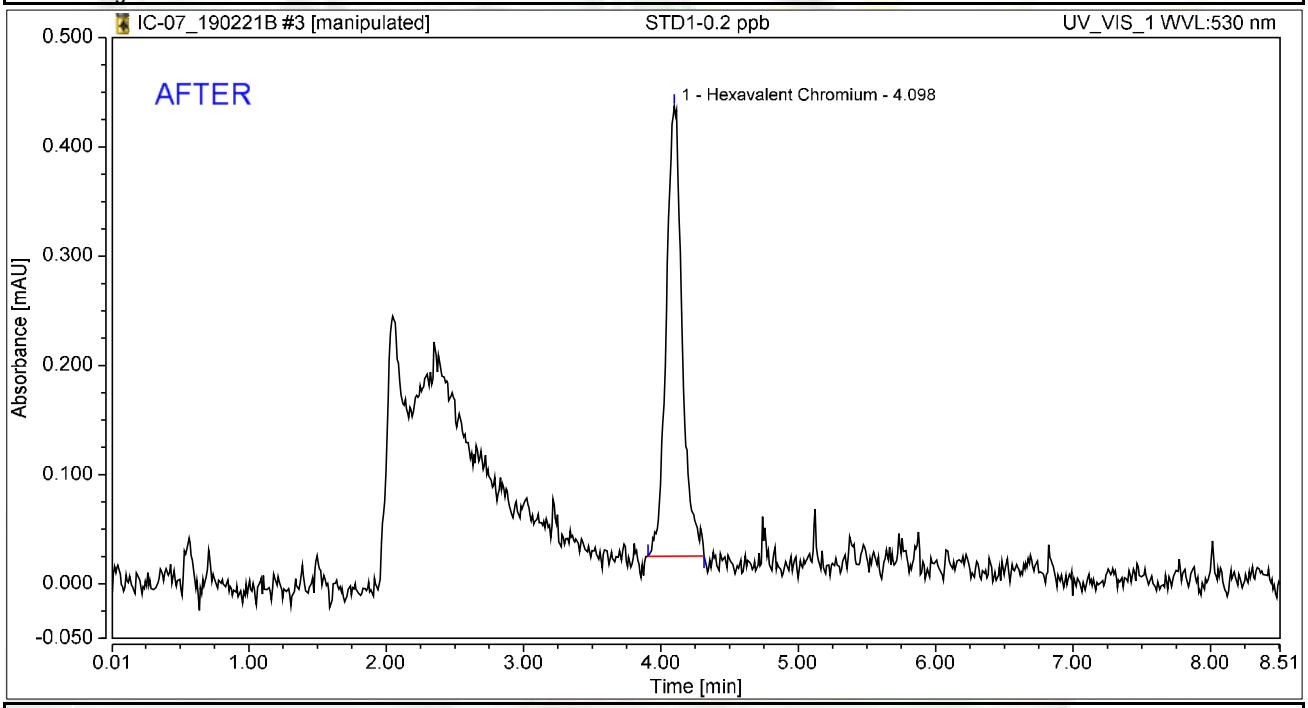
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD1-0.2 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **01** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.056 | 0.412 | 100.00 | 100.00 | 0.2243 |
| **Total:** | | | **0.056** | **0.412** | **100.00** | **100.00** | |

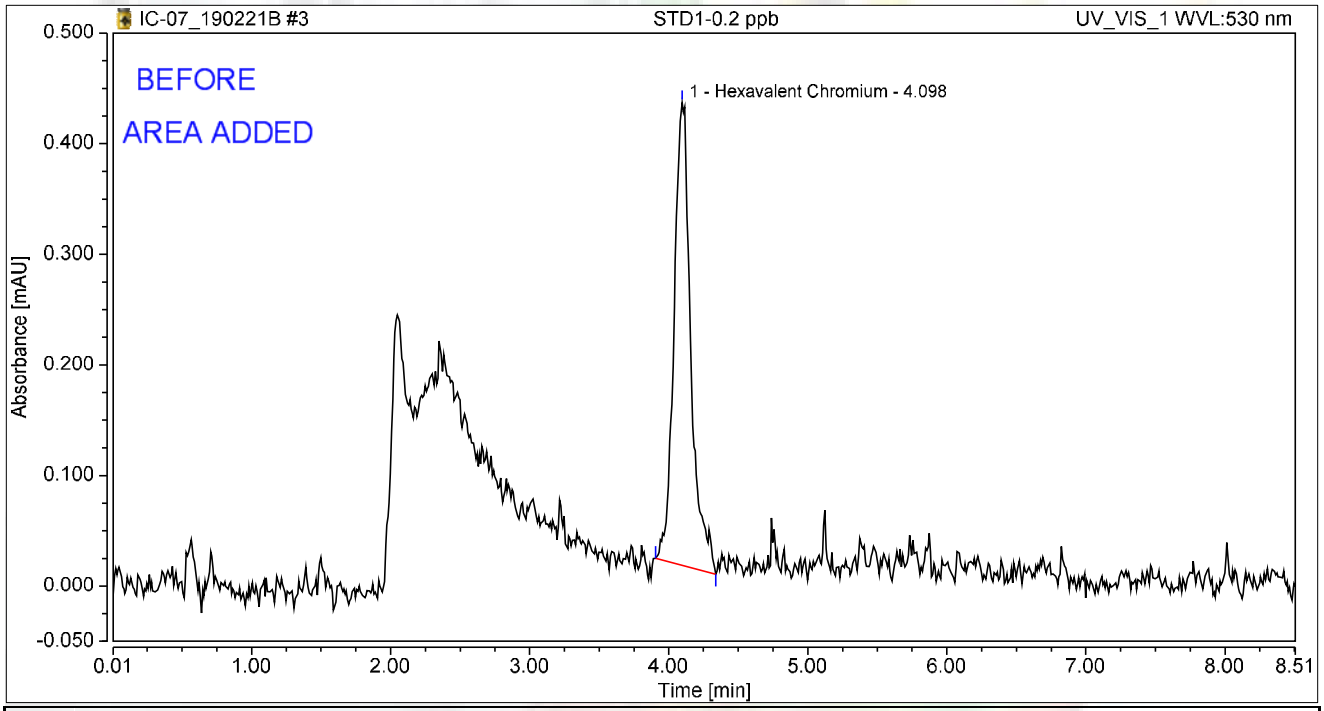
Reviewed by:
Nancy 2/28/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD1-0.2 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **01** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

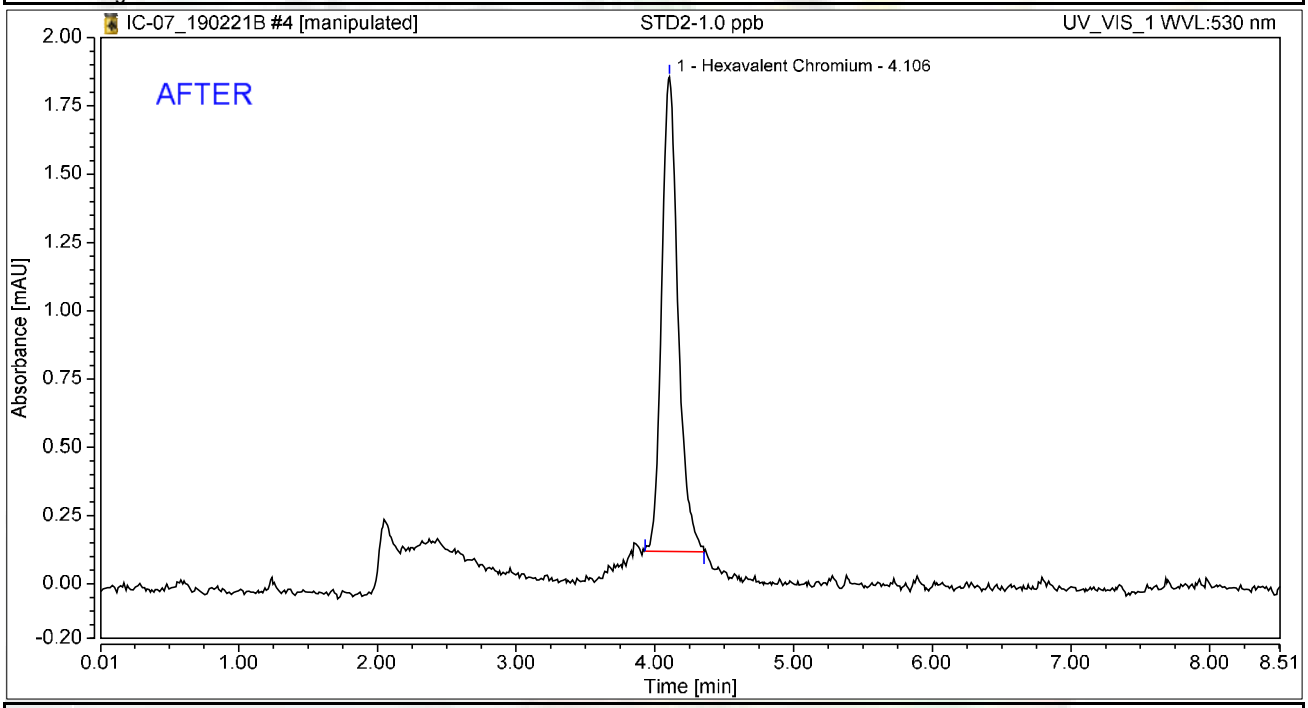
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.059 | 0.418 | 100.00 | 100.00 | 0.2356 |
| **Total:** | | | **0.059** | **0.418** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

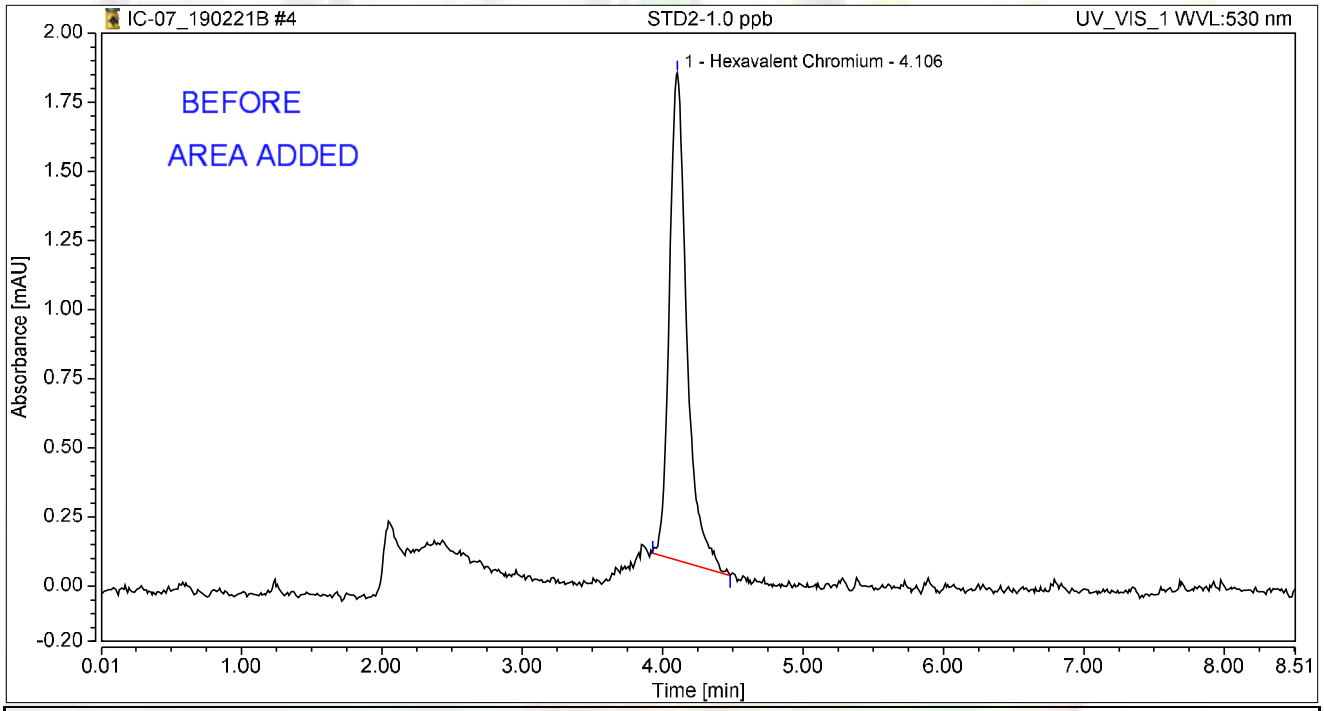
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.239 | 1.738 | 100.00 | 100.00 | 0.9651 |
| **Total:** | | | **0.239** | **1.738** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

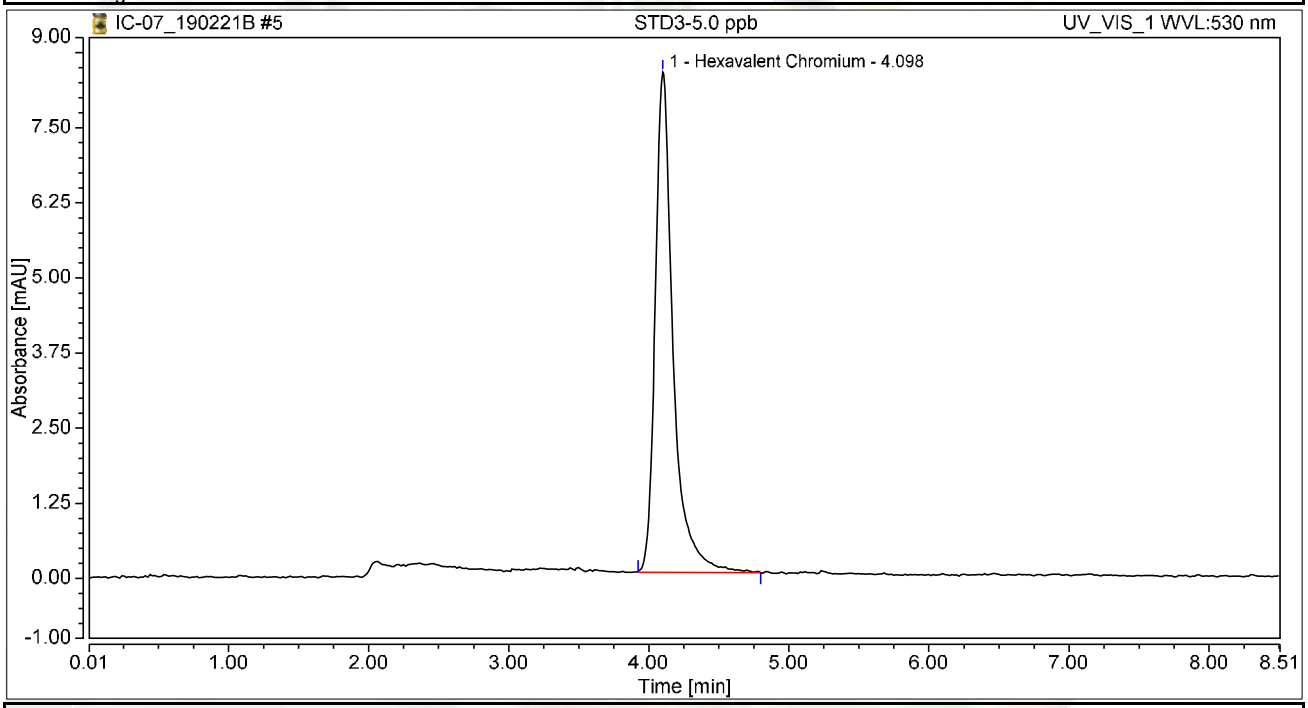
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.255 | 1.763 | 100.00 | 100.00 | 1.0261 |
| **Total:** | | | **0.255** | **1.763** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD3-5.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **03** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

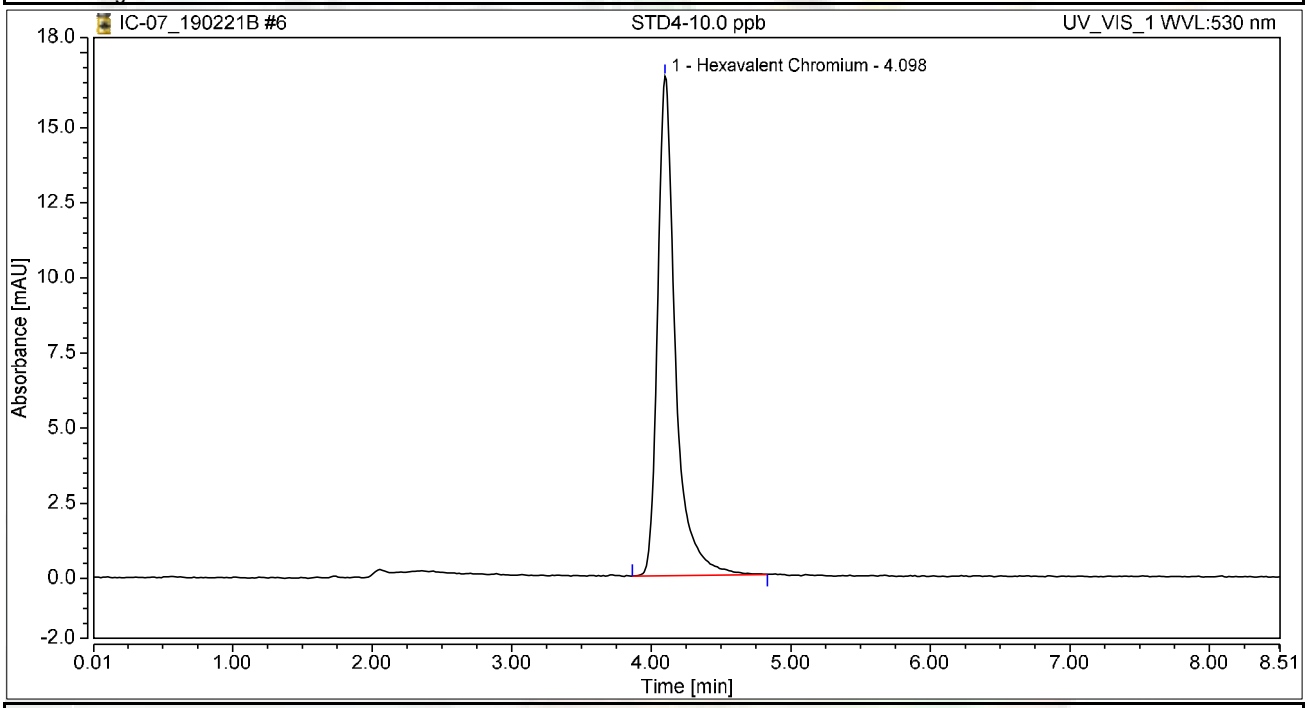
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.231 | 8.323 | 100.00 | 100.00 | 4.9676 |
| **Total:** | | | **1.231** | **8.323** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD4-10.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **04** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

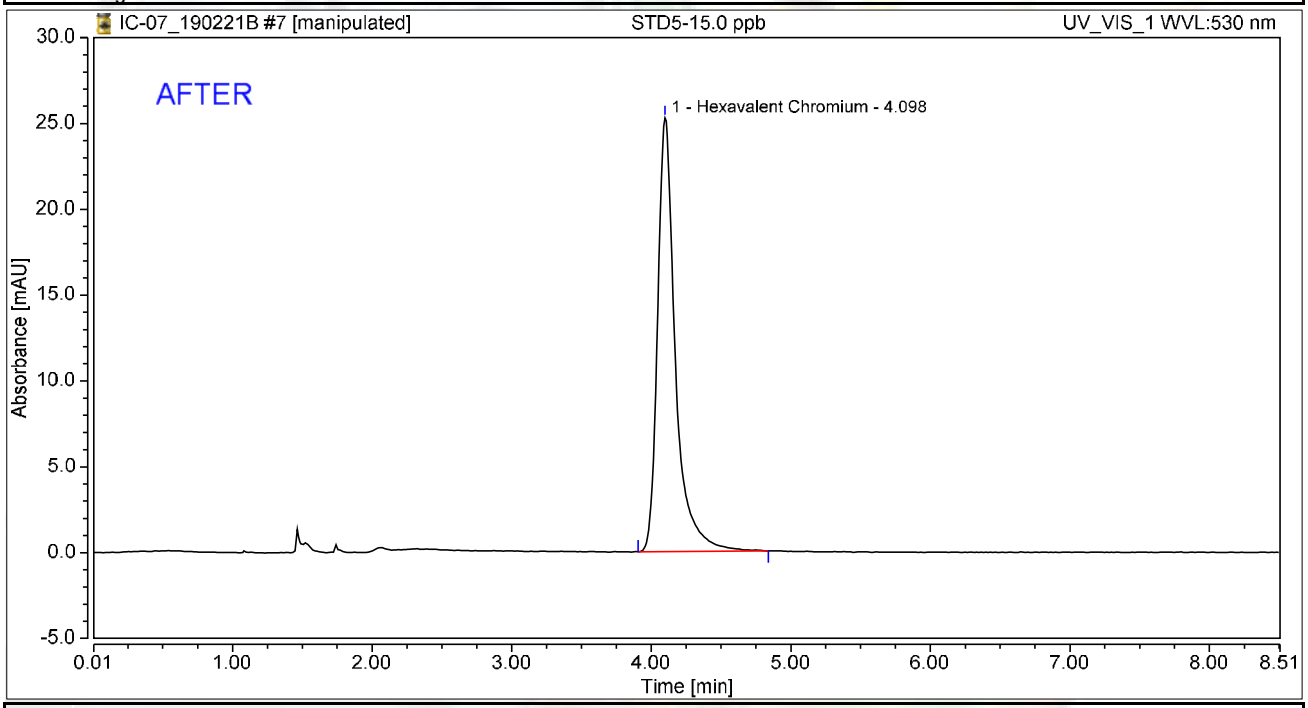
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.466 | 16.618 | 100.00 | 100.00 | 9.9491 |
| **Total:** | | | **2.466** | **16.618** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

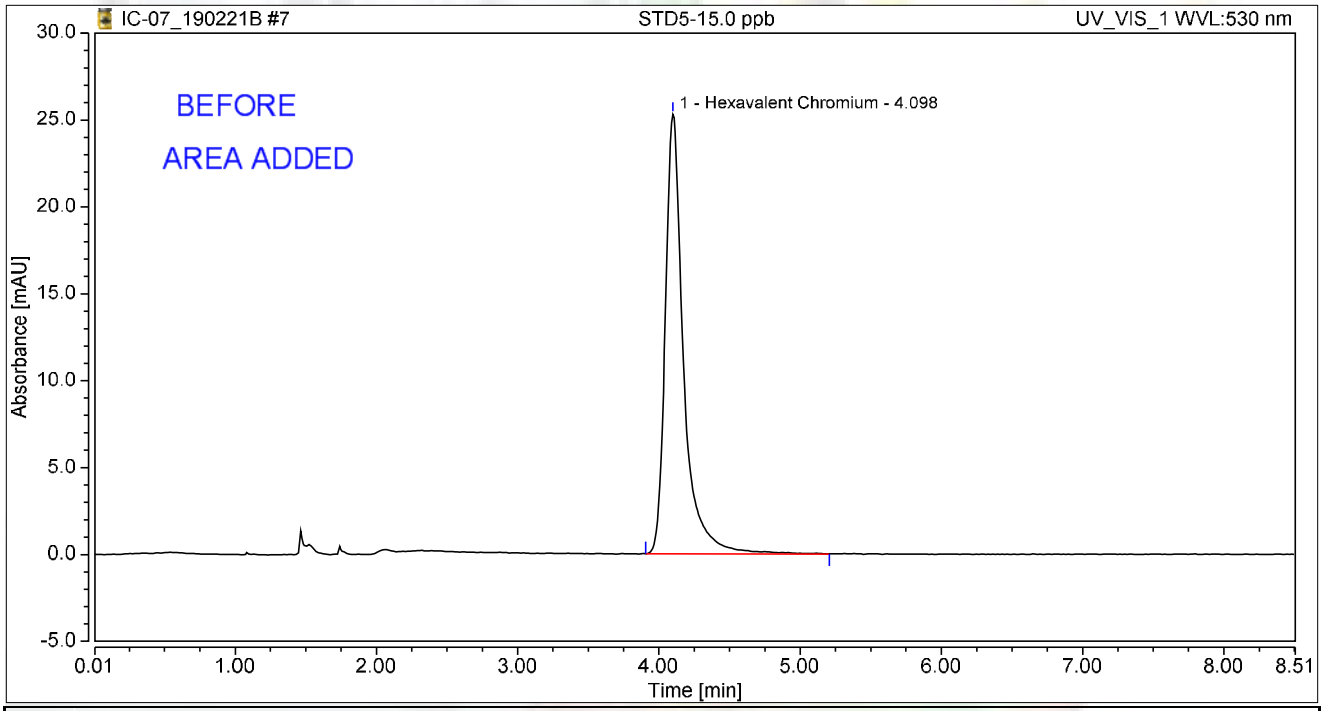
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 3.736 | 25.276 | 100.00 | 100.00 | 15.0777 |
| **Total:** | | | **3.736** | **25.276** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

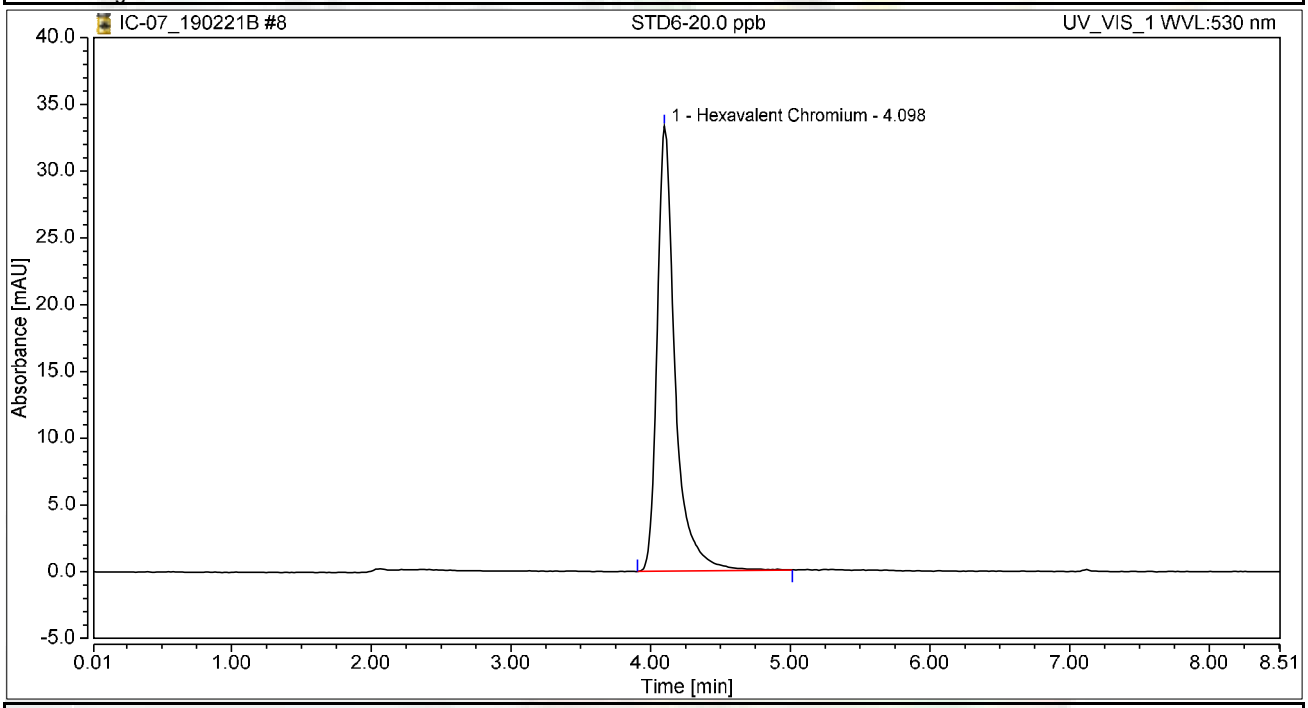
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 3.784 | 25.291 | 100.00 | 100.00 | 15.2098 |
| **Total:** | | | **3.784** | **25.291** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD6-20.0 ppb** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **06** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:03** | *Sample Weight:* | **1.0000** |

## Chromatogram



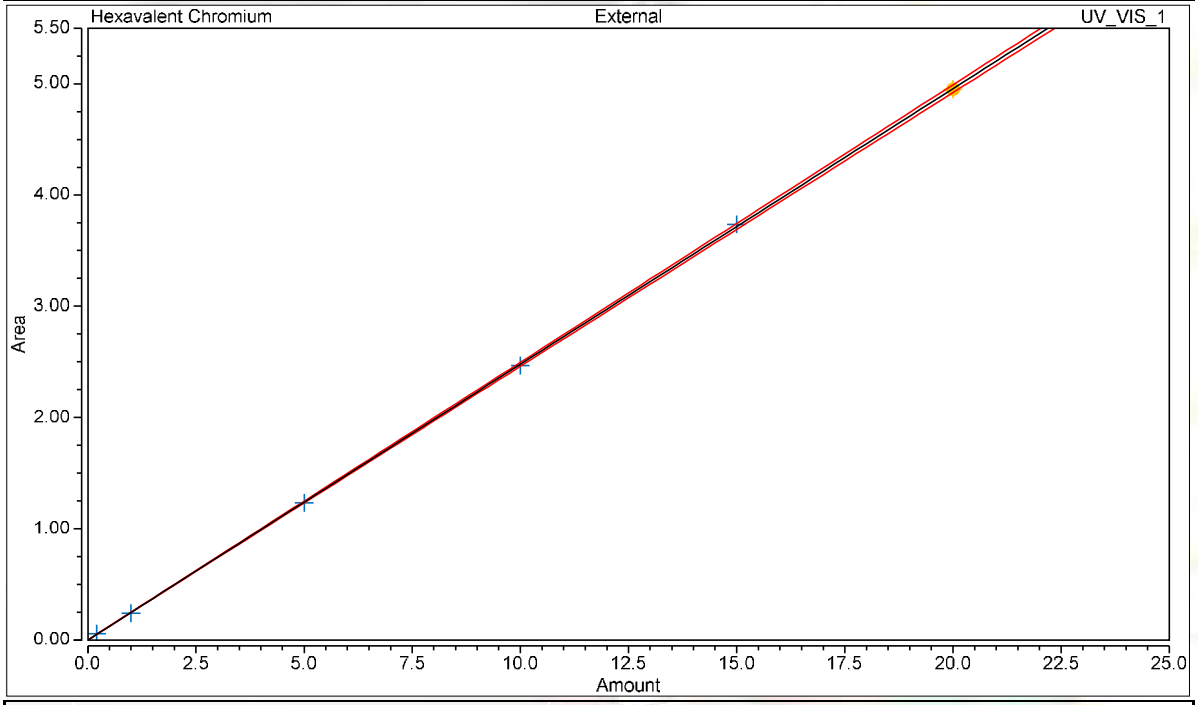

## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 4.951 | 33.317 | 100.00 | 100.00 | 19.9768 |
| **Total:** | | | **4.951** | **33.317** | **100.00** | **100.00** | |

# Initial Calibration Summary

| Calibration Details | Hexavalent Chromium | | |
|---|---|---|---|
| *Calibration Type* | Lin | *Offset (C0)* | 0.0000 |
| *Evaluation Type* | Area | *Slope (C1)* | 0.2478 |
| *Number of Calibration Points* | 6 | *Curve (C2)* | 0.0000 |
| *Number of disabled Calibration Points* | 0 | *R-Square* | 0.99996 |

Calibration Plot Hexavalent Chromium




Calibration Results Hexavalent Chromium

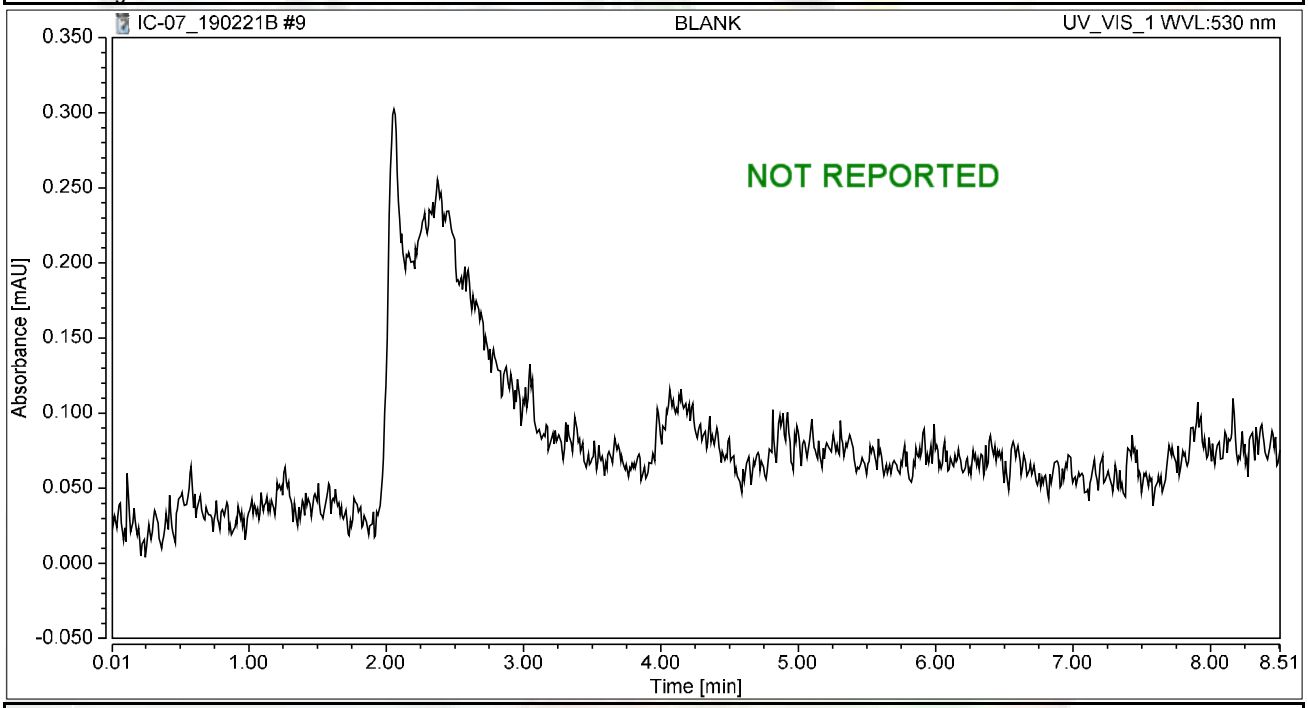
| No. | Injection Name | Calibration Level | X Value | Y Value | Area mAU*min | Height mAU |
|---|---|---|---|---|---|---|
| 3 | STD1-0.2 ppb | 01 | 0.2000 | 0.0556 | 0.056 | 0.412 |
| 4 | STD2-1.0 ppb | 02 | 1.0000 | 0.2392 | 0.239 | 1.738 |
| 5 | STD3-5.0 ppb | 03 | 5.0000 | 1.2310 | 1.231 | 8.323 |
| 6 | STD4-10.0 ppb | 04 | 10.0000 | 2.4655 | 2.466 | 16.618 |
| 7 | STD5-15.0 ppb | 05 | 15.0000 | 3.7365 | 3.736 | 25.276 |
| 8 | STD6-20.0 ppb | 06 | 20.0000 | 4.9505 | 4.951 | 33.317 |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

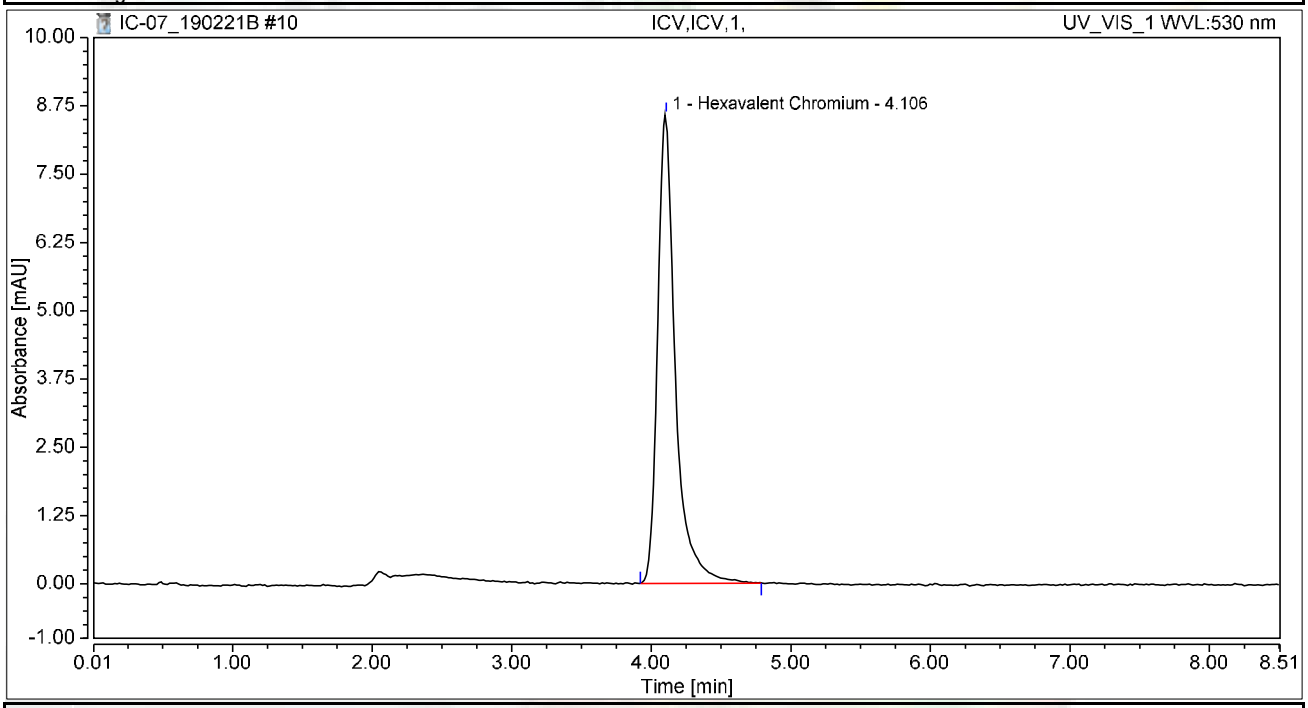
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICV,ICV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:28** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

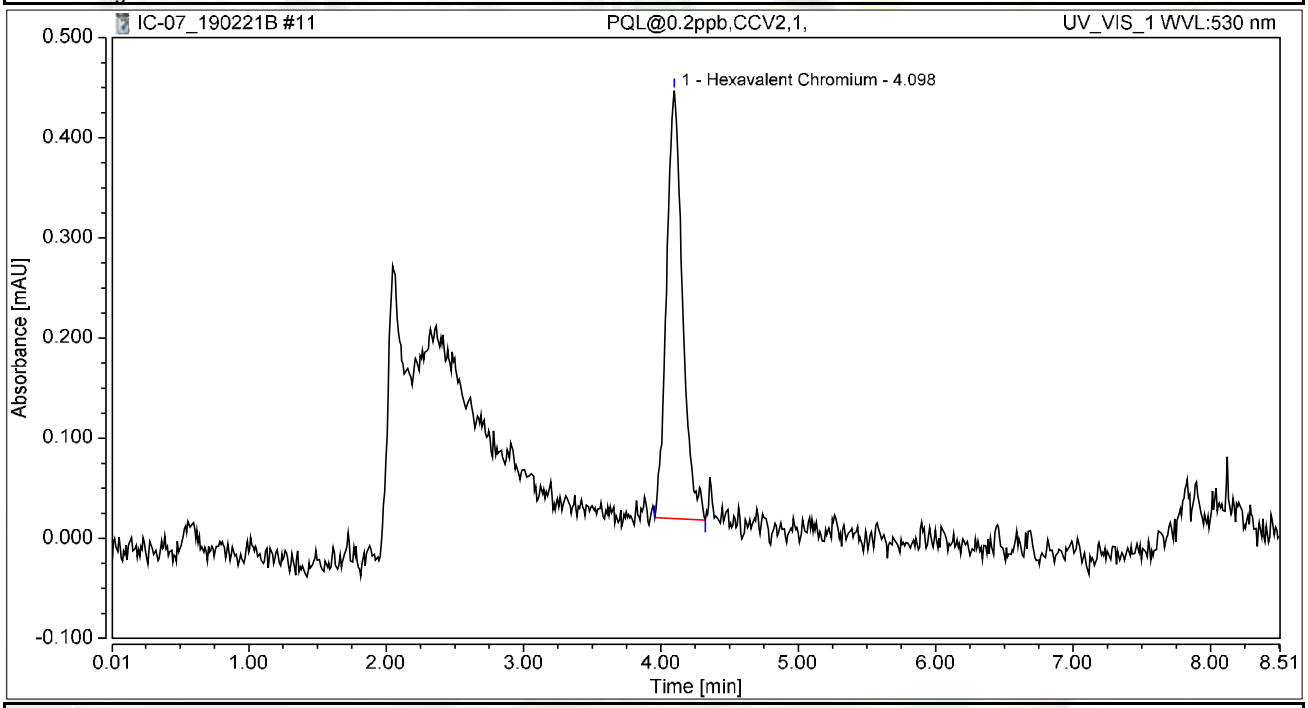
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.270 | 8.585 | 100.00 | 100.00 | 5.1256 |
| **Total:** | | | **1.270** | **8.585** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:37** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

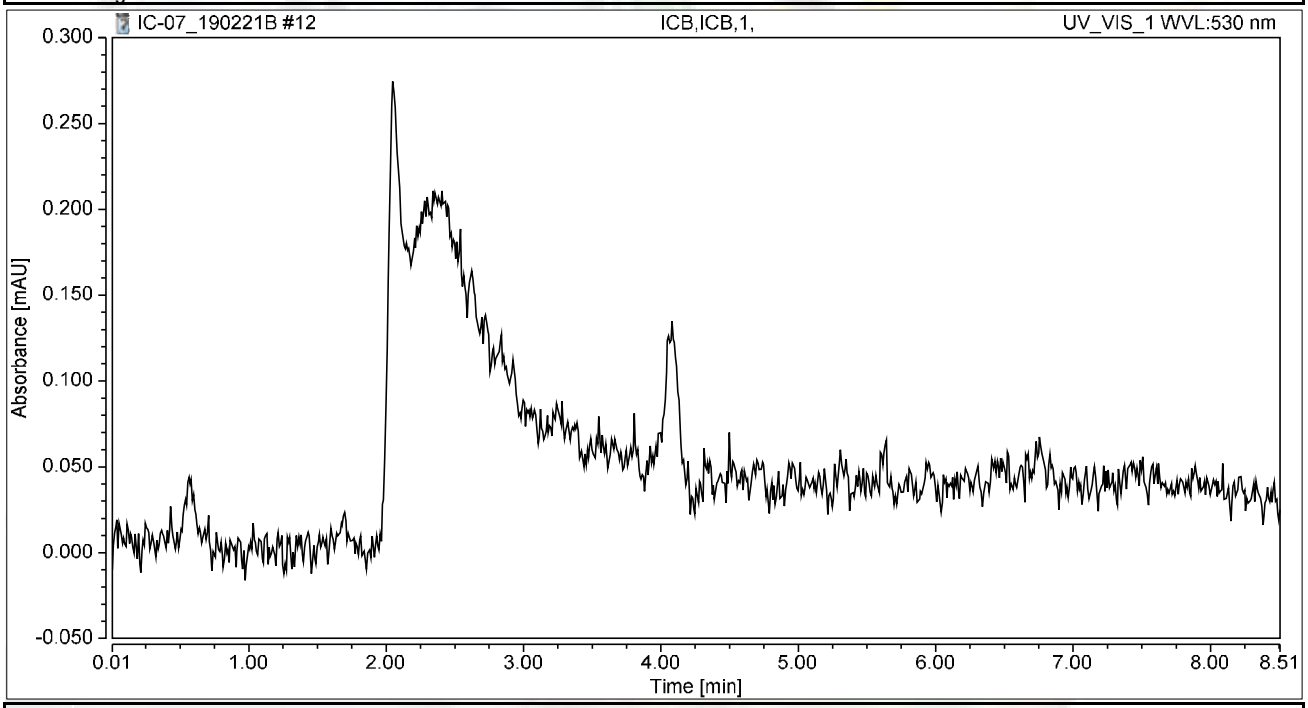
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.058 | 0.427 | 100.00 | 100.00 | 0.2324 |
| **Total:** | | | **0.058** | **0.427** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICB,ICB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:47** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# RAW DATA

**INJECTION LOG: 190222A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/22/19 8:29 AM | Not Reported |
| 10 | CCV-1 | CCV | 1 | Hexavalent Chromium | 02/22/19 8:40 AM | Reported |
| 11 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/22/19 8:50 AM | Reported |
| 12 | CCB-1 | ICB | 1 | Hexavalent Chromium | 02/22/19 8:59 AM | Reported |
| 13 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/22/19 9:33 AM | Reported |
| 14 | MB-R132052 | MBLK | 1 | Hexavalent Chromium | 02/22/19 9:48 AM | Reported |
| 15 | LCS-R132052 | LCS | 1 | Hexavalent Chromium | 02/22/19 9:59 AM | Reported |
| 16 | N034271-002A | SAMP | 10 | Hexavalent Chromium | 02/22/19 10:10 AM | Reported |
| 17 | N034271-002AMS | MS | 10 | Hexavalent Chromium | 02/22/19 10:22 AM | Reported |
| 18 | N034284-001A | SAMP | 1 | Hexavalent Chromium | 02/22/19 10:31 AM | Not Reported |
| 19 | N034286-001A | SAMP | 1 | Hexavalent Chromium | 02/22/19 10:40 AM | Not Reported |
| 20 | N034288-001A | SAMP | 1 | Hexavalent Chromium | 02/22/19 10:50 AM | Not Reported |
| 21 | N034121-010A | SAMP | 10 | Hexavalent Chromium | 02/22/19 10:59 AM | Not Reported |
| 22 | N034121-010ADUP | DUP | 10 | Hexavalent Chromium | 02/22/19 11:09 AM | Not Reported |
| 23 | N034271-002AMSD | MSD | 10 | Hexavalent Chromium | 02/22/19 11:18 AM | Reported |
| 24 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 02/22/19 11:28 AM | Reported |
| 25 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/22/19 11:37 AM | Reported |
| 26 | N034121-010A | SAMP | 20 | Hexavalent Chromium | 02/22/19 11:47 AM | Reported |
| 27 | N034121-010ADUP | DUP | 20 | Hexavalent Chromium | 02/22/19 11:56 AM | Reported |
| 28 | N034284-001A | SAMP | 50 | Hexavalent Chromium | 02/22/19 12:06 PM | Reported |
| 29 | N034284-001AMS | MS | 50 | Hexavalent Chromium | 02/22/19 12:15 PM | Reported |
| 30 | N034286-001AMS | MS | 1 | Hexavalent Chromium | 02/22/19 12:25 PM | Not Reported |
| 31 | N034288-001AMS | MS | 1 | Hexavalent Chromium | 02/22/19 12:34 PM | Not Reported |
| 32 | N034286-001A | SAMP | 5 | Hexavalent Chromium | 02/22/19 12:43 PM | Reported |
| 33 | N034286-001AMS | MS | 5 | Hexavalent Chromium | 02/22/19 12:53 PM | Reported |
| 34 | N034288-001A | SAMP | 5 | Hexavalent Chromium | 02/22/19 1:02 PM | Not Reported |
| 35 | N034288-001AMS | MS | 5 | Hexavalent Chromium | 02/22/19 1:12 PM | Not Reported |
| 36 | CCV-3 | CCV | 1 | Hexavalent Chromium | 02/22/19 1:21 PM | Reported |
| 37 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/22/19 1:31 PM | Reported |
| 38 | N034288-001A | SAMP | 10 | Hexavalent Chromium | 02/22/19 1:48 PM | Reported |
| 39 | N034288-001AMS | MS | 10 | Hexavalent Chromium | 02/22/19 2:00 PM | Reported |
| 40 | N034126-001A | SAMP | 1 | Hexavalent Chromium | 02/22/19 2:17 PM | Reported |
| 41 | N034126-002A | SAMP | 5 | Hexavalent Chromium | 02/22/19 2:28 PM | Reported |
| 42 | N034126-003A | SAMP | 1 | Hexavalent Chromium | 02/22/19 2:38 PM | Reported |

**INJECTION LOG: 190222A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034126-004A | SAMP | 1 | Hexavalent Chromium | 02/22/19 2:47 PM | Reported |
| 44 | N034126-005A | SAMP | 20 | Hexavalent Chromium | 02/22/19 2:57 PM | Reported |
| 45 | N034126-006A | SAMP | 20 | Hexavalent Chromium | 02/22/19 3:06 PM | Not Reported |
| 46 | N034126-007A | SAMP | 2000 | Hexavalent Chromium | 02/22/19 3:16 PM | Not Reported |
| 47 | N034126-008A | SAMP | 50 | Hexavalent Chromium | 02/22/19 3:25 PM | Reported |
| 48 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/22/19 3:35 PM | Reported |
| 49 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/22/19 3:44 PM | Reported |
| 50 | N034126-001AMS | MS | 1 | Hexavalent Chromium | 02/22/19 3:55 PM | Reported |
| 51 | N034126-002AMS | MS | 5 | Hexavalent Chromium | 02/22/19 4:06 PM | Reported |
| 52 | N034126-003AMS | MS | 1 | Hexavalent Chromium | 02/22/19 4:16 PM | Reported |
| 53 | N034126-004AMS | MS | 1 | Hexavalent Chromium | 02/22/19 4:25 PM | Reported |
| 54 | N034126-005AMS | MS | 20 | Hexavalent Chromium | 02/22/19 4:35 PM | Reported |
| 55 | N034126-008AMS | MS | 50 | Hexavalent Chromium | 02/22/19 4:44 PM | Reported |
| 56 | N034126-006A | SAMP | 50 | Hexavalent Chromium | 02/22/19 4:54 PM | Reported |
| 57 | N034126-006AMS | MS | 50 | Hexavalent Chromium | 02/22/19 5:03 PM | Reported |
| 58 | N034126-007A | SAMP | 4000 | Hexavalent Chromium | 02/22/19 5:13 PM | Reported |
| 59 | N034126-007AMS | MS | 4000 | Hexavalent Chromium | 02/22/19 5:22 PM | Reported |
| 60 | CCV-5 | CCV | 1 | Hexavalent Chromium | 02/22/19 5:43 PM | Reported |
| 61 | CCB-5 | CCB | 1 | Hexavalent Chromium | 02/22/19 5:54 PM | Reported |
| 62 | N034125-002A | SAMP | 1 | Hexavalent Chromium | 02/22/19 6:03 PM | Not Reported |
| 63 | N034125-002AMS | MS | 1 | Hexavalent Chromium | 02/22/19 6:13 PM | Not Reported |
| 64 | N034128-002A | SAMP | 1 | Hexavalent Chromium | 02/22/19 6:22 PM | Not Reported |
| 65 | N034128-002AMS | MS | 1 | Hexavalent Chromium | 02/22/19 6:31 PM | Not Reported |
| 66 | N034270-002A | SAMP | 1 | Hexavalent Chromium | 02/22/19 6:41 PM | Not Reported |
| 67 | N034270-002AMS | MS | 1 | Hexavalent Chromium | 02/22/19 6:50 PM | Not Reported |
| 68 | N034272-002A | SAMP | 1 | Hexavalent Chromium | 02/22/19 7:00 PM | Not Reported |
| 69 | N034272-002AMS | MS | 1 | Hexavalent Chromium | 02/22/19 7:09 PM | Not Reported |
| 70 | N034272-004A | SAMP | 1 | Hexavalent Chromium | 02/22/19 7:19 PM | Not Reported |
| 71 | N034272-004AMS | MS | 1 | Hexavalent Chromium | 02/22/19 7:28 PM | Not Reported |
| 72 | CCV-6 | CCV1 | 1 | Hexavalent Chromium | 02/22/19 7:38 PM | Not Reported |
| 73 | CCB-6 | CCB | 1 | Hexavalent Chromium | 02/22/19 7:47 PM | Not Reported |
| 74 | N034126-002A | SAMP | 1 | Hexavalent Chromium | 02/22/19 7:57 PM | Not Reported |
| 75 | N034126-002AMS | MS | 1 | Hexavalent Chromium | 02/22/19 8:06 PM | Not Reported |
| 76 | CCV-7 | CCV | 1 | Hexavalent Chromium | 02/22/19 8:16 PM | Not Reported |
| 77 | CCB-7 | CCB | 1 | Hexavalent Chromium | 02/22/19 8:25 PM | Not Reported |
| 78 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/22/19 8:35 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190222A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **23/Feb/19 08:02:37** |
| *No. of Injections:* | **81** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 1 | 1000 | Unknown | | 02/22/2019 08:29 | Finished | BLANK |
| 10 | CCV-1,CCV,1, | 2 | 1000 | Unknown | | 02/22/2019 08:40 | Finished | CCV @5ppb, IWST-190221B |
| 11 | PQL@0.2ppb,CCV2,1 | 3 | 1000 | Unknown | | 02/22/2019 08:50 | Finished | PQL @ 0.2ppb |
| 12 | CCB-1,ICB,1, | 4 | 1000 | Unknown | | 02/22/2019 08:59 | Finished | CCB R190115A |
| 13 | PQL@0.2ppb,CCV2,1 | 1 | 1000 | Unknown | | 02/22/2019 09:33 | Finished | PQL @ 0.2ppb |
| 14 | MB-H2O,MBLK,1, | 2 | 1000 | Unknown | | 02/22/2019 09:48 | Finished | MB R190115A |
| 15 | LCS-H2O,LCS,1, | 3 | 1000 | Unknown | | 02/22/2019 09:59 | Finished | LCS @5ppb, IWST-190221B |
| 16 | N034271-002A,SAMF | 4 | 1000 | Unknown | | 02/22/2019 10:10 | Finished | SAMP,1>10mL |
| 17 | N034271-002AMS,MS | 5 | 1000 | Unknown | | 02/22/2019 10:22 | Finished | MS (1ppb), IWST-190221B,1>1 |
| 18 | N034284-001A,SAMF | 6 | 1000 | Unknown | | 02/22/2019 10:31 | Finished | SAMP,10mL |
| 19 | N034286-001A,SAMF | 7 | 1000 | Unknown | | 02/22/2019 10:40 | Finished | SAMP,10mL |
| 20 | N034288-001A,SAMF | 8 | 1000 | Unknown | | 02/22/2019 10:50 | Finished | SAMP,10mL |
| 21 | N034121-010A,SAMF | 9 | 1000 | Unknown | | 02/22/2019 10:59 | Finished | SAMP,1>10mL |
| 22 | N034121-010ADUP,D | 10 | 1000 | Unknown | | 02/22/2019 11:09 | Finished | DUP,1>10mL |
| 23 | N034271-002AMSD,M | 11 | 1000 | Unknown | | 02/22/2019 11:18 | Finished | MSD (1ppb), IWST-190221B,1> |
| 24 | CCV-2,CCV1,1, | 12 | 1000 | Unknown | | 02/22/2019 11:28 | Finished | CCV @10ppb, IWST-190221A |
| 25 | CCB-2,CCB,1, | 13 | 1000 | Unknown | | 02/22/2019 11:37 | Finished | CCB R190115A |
| 26 | N034121-010A,SAMF | 14 | 1000 | Unknown | | 02/22/2019 11:47 | Finished | SAMP,0.5>10mL |
| 27 | N034121-010ADUP,D | 15 | 1000 | Unknown | | 02/22/2019 11:56 | Finished | DUP,0.5>10mL |
| 28 | N034284-001A,SAMF | 16 | 1000 | Unknown | | 02/22/2019 12:06 | Finished | SAMP,0.2>10mL |
| 29 | N034284-001AMS,MS | 17 | 1000 | Unknown | | 02/22/2019 12:15 | Finished | MS (1ppb), IWST-190221B,0.2 |
| 30 | N034286-001AMS,MS | 18 | 1000 | Unknown | | 02/22/2019 12:25 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034288-001AMS,MS | 19 | 1000 | Unknown | | 02/22/2019 12:34 | Finished | MS (1ppb), IWST-190221B,10 |
| 32 | N034286-001A,SAMF | 20 | 1000 | Unknown | | 02/22/2019 12:43 | Finished | SAMP,2>10mL |
| 33 | N034286-001AMS,MS | 21 | 1000 | Unknown | | 02/22/2019 12:53 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 34 | N034288-001A,SAMF | 22 | 1000 | Unknown | | 02/22/2019 13:02 | Finished | SAMP,2>10mL |
| 35 | N034288-001AMS,MS | 23 | 1000 | Unknown | | 02/22/2019 13:12 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 36 | CCV-3,CCV,1, | 24 | 1000 | Unknown | | 02/22/2019 13:21 | Finished | CCV @5ppb, IWST-190221A |
| 37 | CCB-3,CCB,1, | 25 | 1000 | Unknown | | 02/22/2019 13:31 | Finished | CCB R190115A |
| 38 | N034288-001A,SAMF | 27 | 1000 | Unknown | | 02/22/2019 13:48 | Finished | SAMP,1>10mL |
| 39 | N034288-001AMS,MS | 28 | 1000 | Unknown | | 02/22/2019 14:00 | Finished | MS (1ppb), IWST-190221B,10 |
| 40 | N034126-001A,SAMF | 29 | 1000 | Unknown | | 02/22/2019 14:17 | Finished | SAMP,10mL |
| 41 | N034126-002A,SAMF | 30 | 1000 | Unknown | | 02/22/2019 14:28 | Finished | SAMP,2>10mL |
| 42 | N034126-003A,SAMF | 31 | 1000 | Unknown | | 02/22/2019 14:38 | Finished | SAMP,10mL |
| 43 | N034126-004A,SAMF | 32 | 1000 | Unknown | | 02/22/2019 14:47 | Finished | SAMP,10mL |
| 44 | N034126-005A,SAMF | 33 | 1000 | Unknown | | 02/22/2019 14:57 | Finished | SAMP,0.5>10mL |
| 45 | N034126-006A,SAMF | 34 | 1000 | Unknown | | 02/22/2019 15:06 | Finished | SAMP,0.5>10mL |
| 46 | N034126-007A,SAMF | 35 | 1000 | Unknown | | 02/22/2019 15:16 | Finished | SAMP,0.005>10mL |
| 47 | N034126-008A,SAMF | 36 | 1000 | Unknown | | 02/22/2019 15:25 | Finished | SAMP,0.2>10mL |
| 48 | CCV-4,CCV1,1, | 37 | 1000 | Unknown | | 02/22/2019 15:35 | Finished | CCV @10ppb, IWST-190221A |
| 49 | CCB-4,CCB,1, | 38 | 1000 | Unknown | | 02/22/2019 15:44 | Finished | CCB R190115A |
| 50 | N034126-001AMS,MS | 40 | 1000 | Unknown | | 02/22/2019 15:55 | Finished | MS (1ppb), IWST-190221B,10 |
| 51 | N034126-002AMS,MS | 41 | 1000 | Unknown | | 02/22/2019 16:06 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 52 | N034126-003AMS,MS | 42 | 1000 | Unknown | | 02/22/2019 16:16 | Finished | MS (5ppb), IWST-190221B,10 |
| 53 | N034126-004AMS,MS | 43 | 1000 | Unknown | | 02/22/2019 16:25 | Finished | MS (5ppb), IWST-190221B,10 |
| 54 | N034126-005AMS,MS | 44 | 1000 | Unknown | | 02/22/2019 16:35 | Finished | MS (5ppb), IWST-190221B,0.5 |
| 55 | N034126-008AMS,MS | 45 | 1000 | Unknown | | 02/22/2019 16:44 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 56 | N034126-006A,SAMF | 46 | 1000 | Unknown | | 02/22/2019 16:54 | Finished | SAMP,0.2>10mL |
| 57 | N034126-006AMS,MS | 47 | 1000 | Unknown | | 02/22/2019 17:03 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 58 | N034126-007A,SAMF | 48 | 1000 | Unknown | | 02/22/2019 17:13 | Finished | SAMP,0.0025>10mL |
| 59 | N034126-007AMS,MS | 49 | 1000 | Unknown | | 02/22/2019 17:22 | Finished | SAMP,10mL |
| 60 | CCV-5,CCV,1, | 1 | 1000 | Unknown | | 02/22/2019 17:43 | Finished | CCV @5ppb, IWST-190221A |

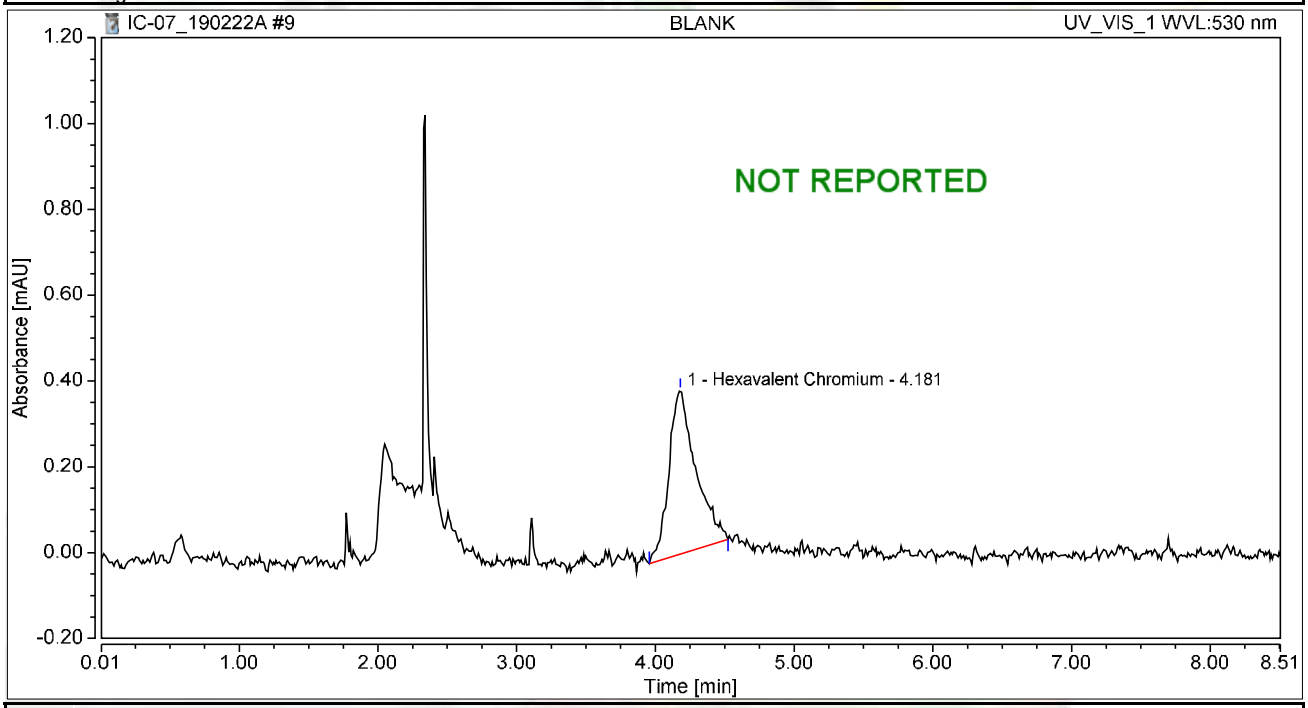
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | CCB-5,CCB,1, | 2 | 1000 | Unknown | | 02/22/2019 17:54 | Finished | CCB R190115A |
| 62 | N034125-002A,SAMP | 3 | 1000 | Unknown | | 02/22/2019 18:03 | Finished | SAMP,10mL |
| 63 | N034125-002AMS,MS | 4 | 1000 | Unknown | | 02/22/2019 18:13 | Finished | MS (1ppb), IWST-190221B,10 |
| 64 | N034128-002A,SAMP | 5 | 1000 | Unknown | | 02/22/2019 18:22 | Finished | SAMP,10mL |
| 65 | N034128-002AMS,MS | 6 | 1000 | Unknown | | 02/22/2019 18:31 | Finished | MS (1ppb), IWST-190221B,10 |
| 66 | N034270-002A,SAMP | 7 | 1000 | Unknown | | 02/22/2019 18:41 | Finished | SAMP,10mL |
| 67 | N034270-002AMS,MS | 8 | 1000 | Unknown | | 02/22/2019 18:50 | Finished | MS (1ppb), IWST-190221B,10 |
| 68 | N034272-002A,SAMP | 9 | 1000 | Unknown | | 02/22/2019 19:00 | Finished | SAMP,10mL |
| 69 | N034272-002AMS,MS | 10 | 1000 | Unknown | | 02/22/2019 19:09 | Finished | MS (1ppb), IWST-190221B,10 |
| 70 | N034272-004A,SAMP | 11 | 1000 | Unknown | | 02/22/2019 19:19 | Finished | SAMP,10mL |
| 71 | N034272-004AMS,MS | 12 | 1000 | Unknown | | 02/22/2019 19:28 | Finished | MS (1ppb), IWST-190221B,10 |
| 72 | CCV-6,CCV1,1, | 13 | 1000 | Unknown | | 02/22/2019 19:38 | Finished | CCV @10ppb, IWST-190221A |
| 73 | CCB-6,CCB,1, | 14 | 1000 | Unknown | | 02/22/2019 19:47 | Finished | CCB R190115A |
| 74 | N034126-002A,SAMP | 15 | 1000 | Unknown | | 02/22/2019 19:57 | Finished | SAMP,10mL |
| 75 | N034126-002AMS,MS | 16 | 1000 | Unknown | | 02/22/2019 20:06 | Finished | MS (1ppb), IWST-190221B,10 |
| 76 | CCV-7,CCV,1, | 17 | 1000 | Unknown | | 02/22/2019 20:16 | Finished | CCV @5ppb, IWST-190221A |
| 77 | CCB-7,CCB,1, | 18 | 1000 | Unknown | | 02/22/2019 20:25 | Finished | CCB R190115A |
| 78 | BLANK | 19 | 1000 | Unknown | | 02/22/2019 20:35 | Finished | BLANK |
| 79 | SHUTDOWN | 20 | 1000 | Unknown | | 02/22/2019 20:44 | Finished | |
| 80 | Eluent: R190219B | 21 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 81 | PCR: R190220A | 22 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 08:29** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

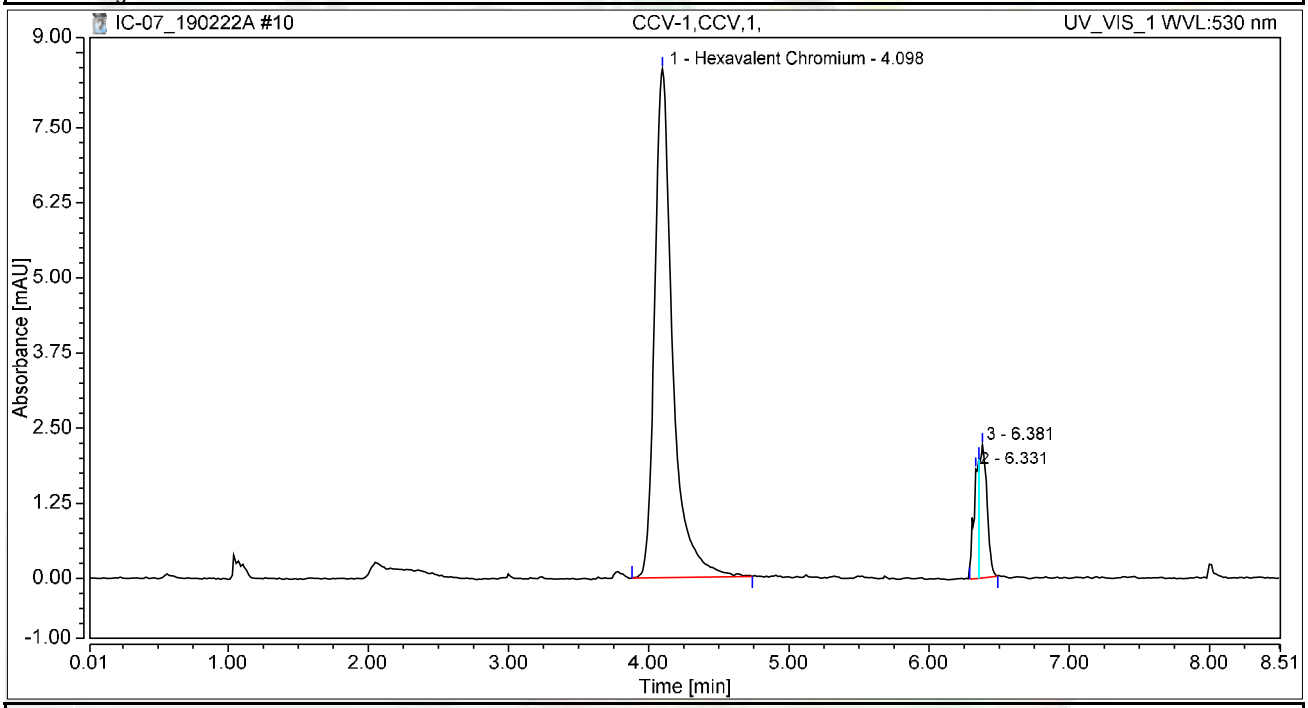
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.181 | 0.086 | 0.381 | 100.00 | 100.00 | 0.3470 |
| **Total:** | | | **0.086** | **0.381** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-1,CCV,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 08:40** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

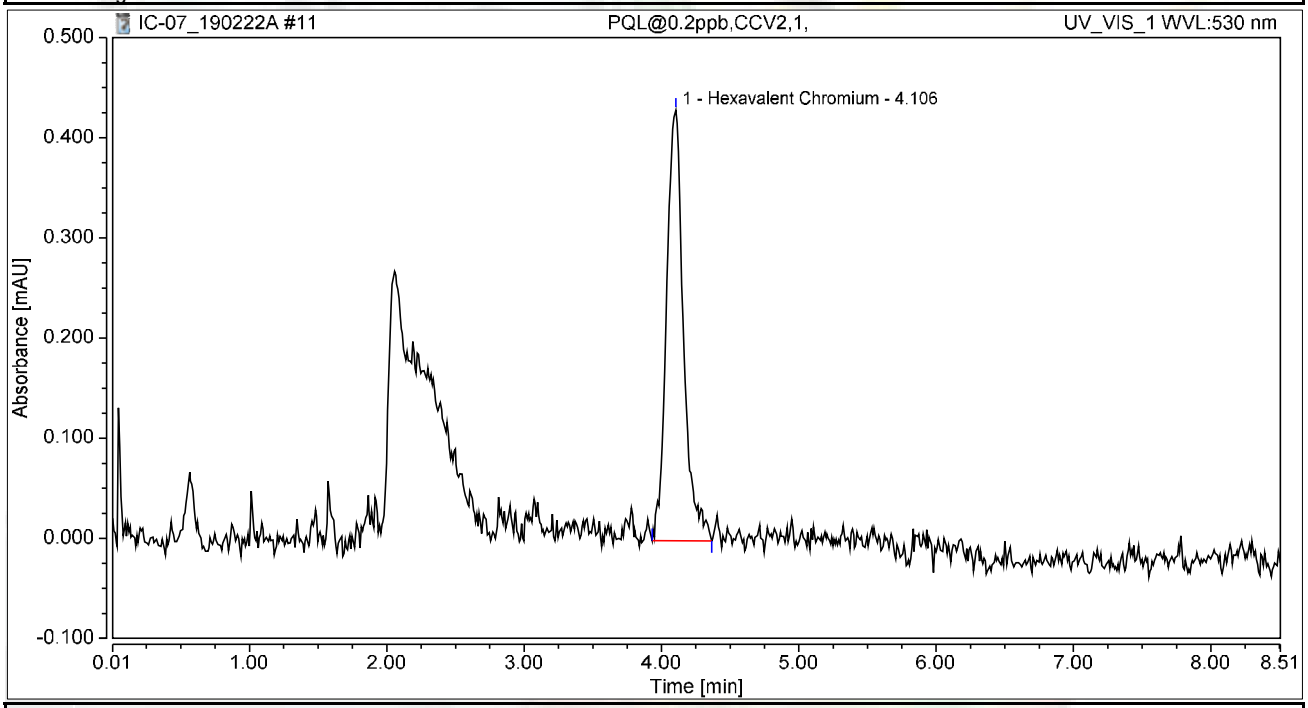
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.254 | 8.461 | 85.37 | 67.77 | 5.0600 |
| 2 | | 6.331 | 0.081 | 1.818 | 5.52 | 14.56 | n.a. |
| 3 | | 6.381 | 0.134 | 2.207 | 9.11 | 17.68 | n.a. |
| **Total:** | | | **1.469** | **12.486** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 08:50** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

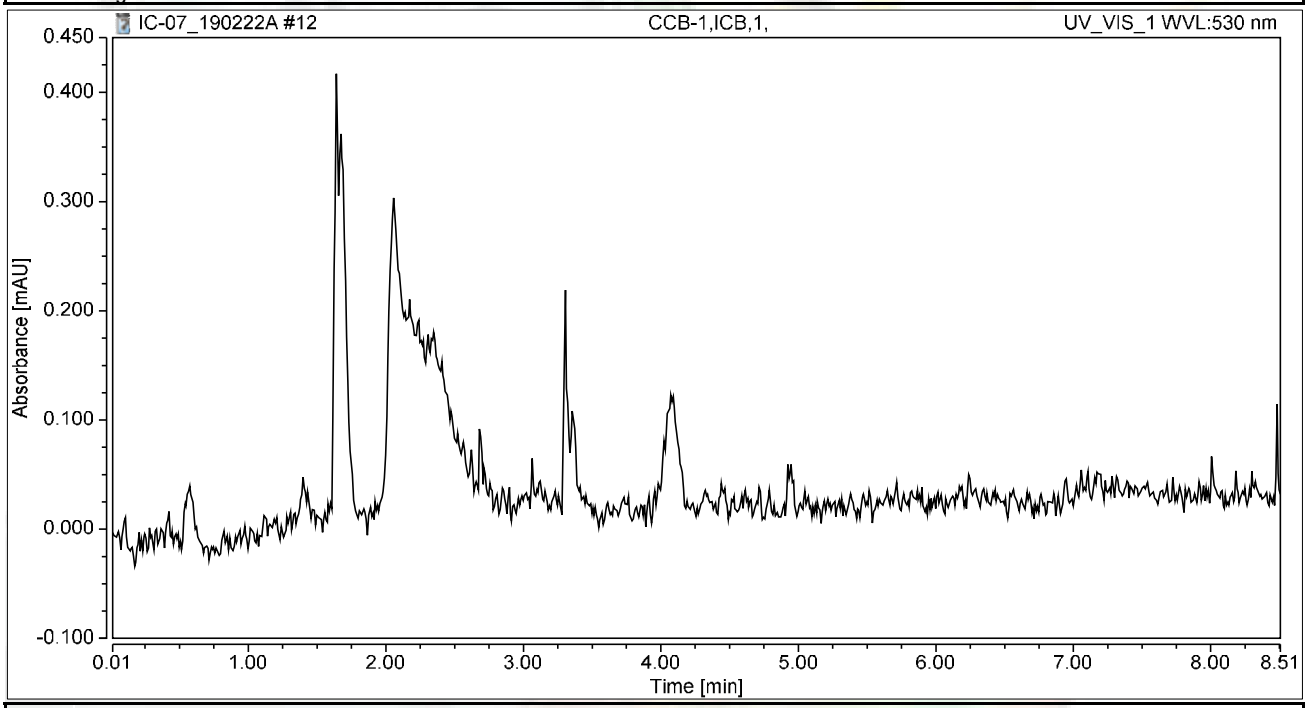
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.062 | 0.430 | 100.00 | 100.00 | 0.2484 |
| **Total:** | | | **0.062** | **0.430** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-1,ICB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 08:59** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

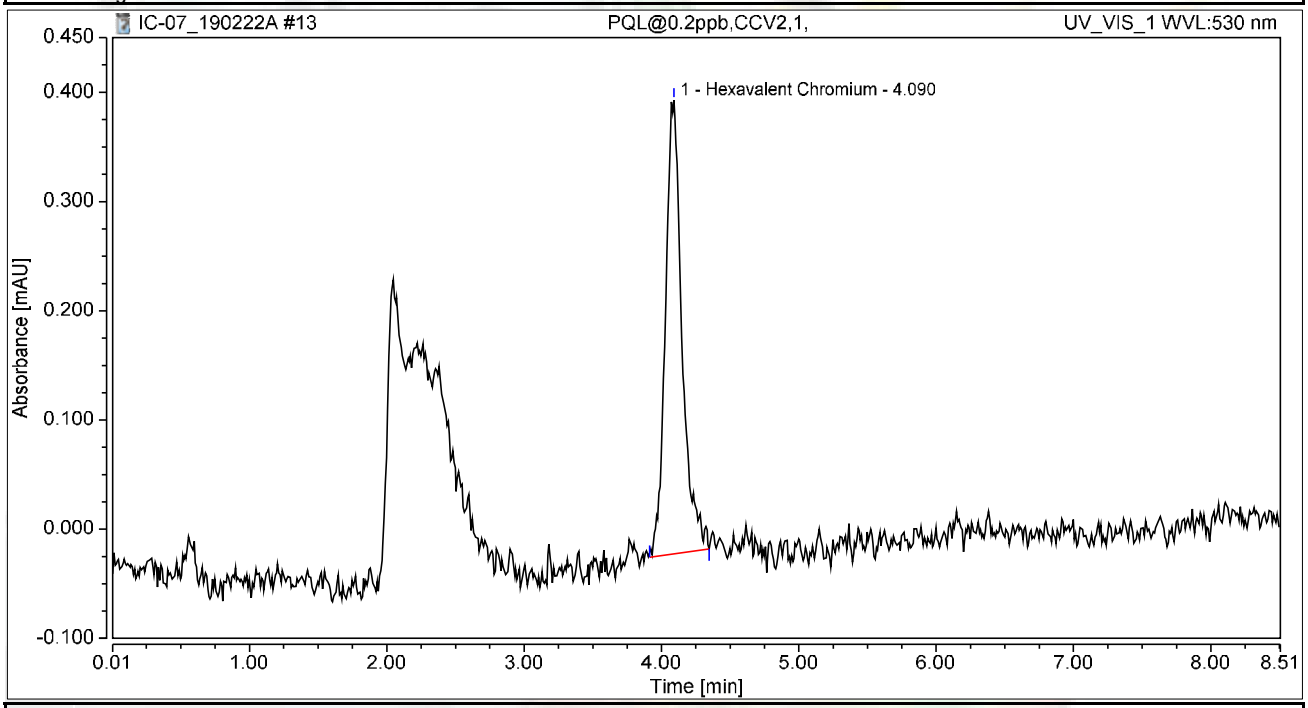
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 09:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

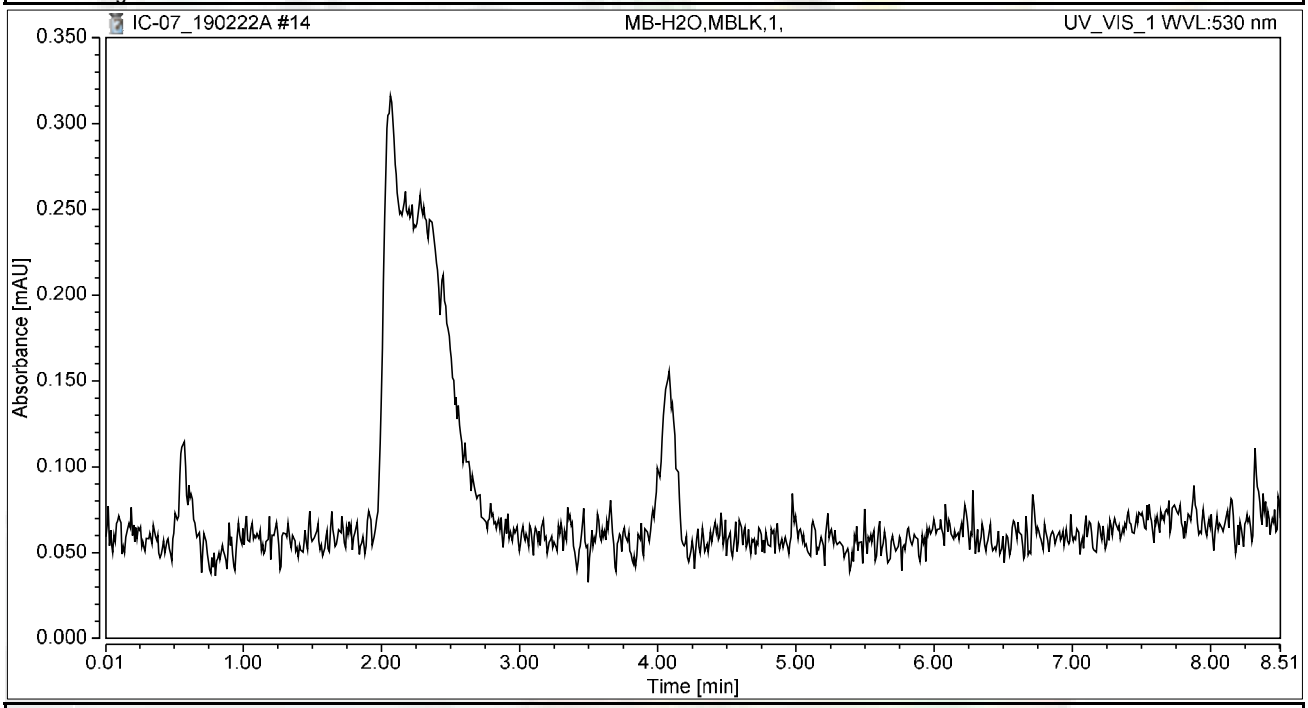
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.058 | 0.415 | 100.00 | 100.00 | 0.2347 |
| **Total:** | | | **0.058** | **0.415** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **MB-H2O,MBLK,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 09:48** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

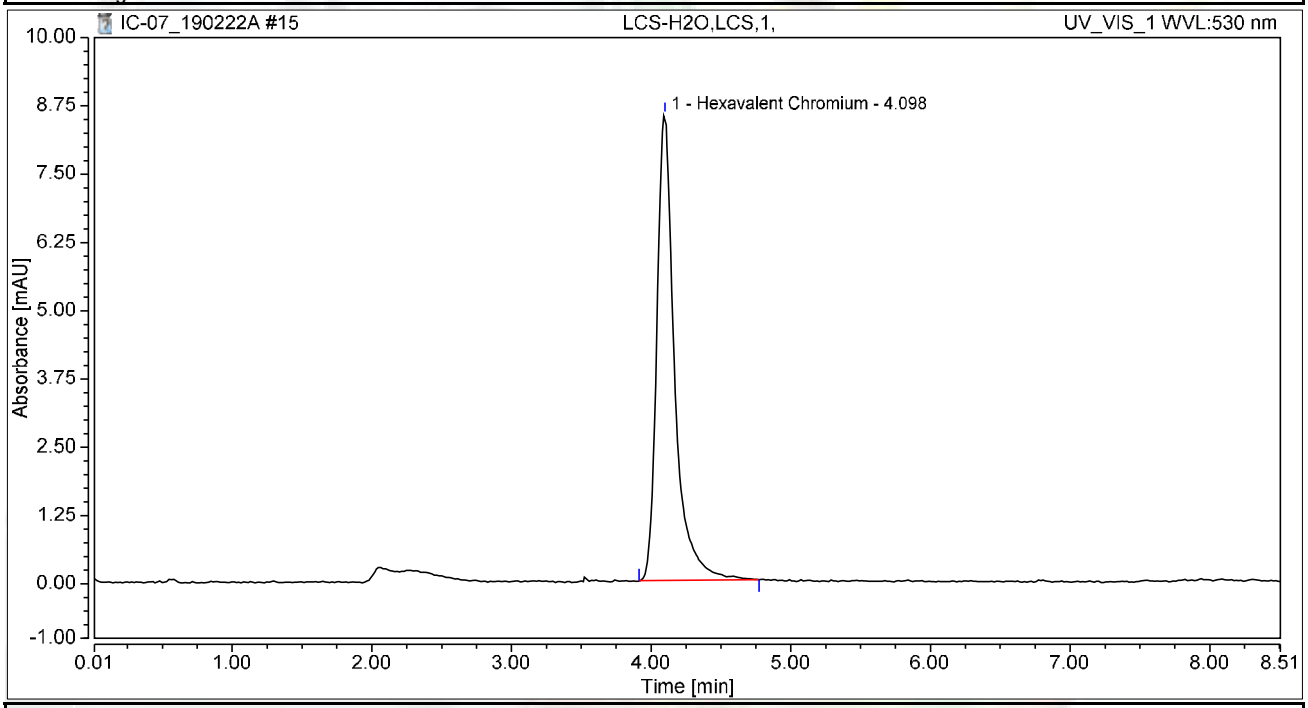
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **LCS-H2O,LCS,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 09:59** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

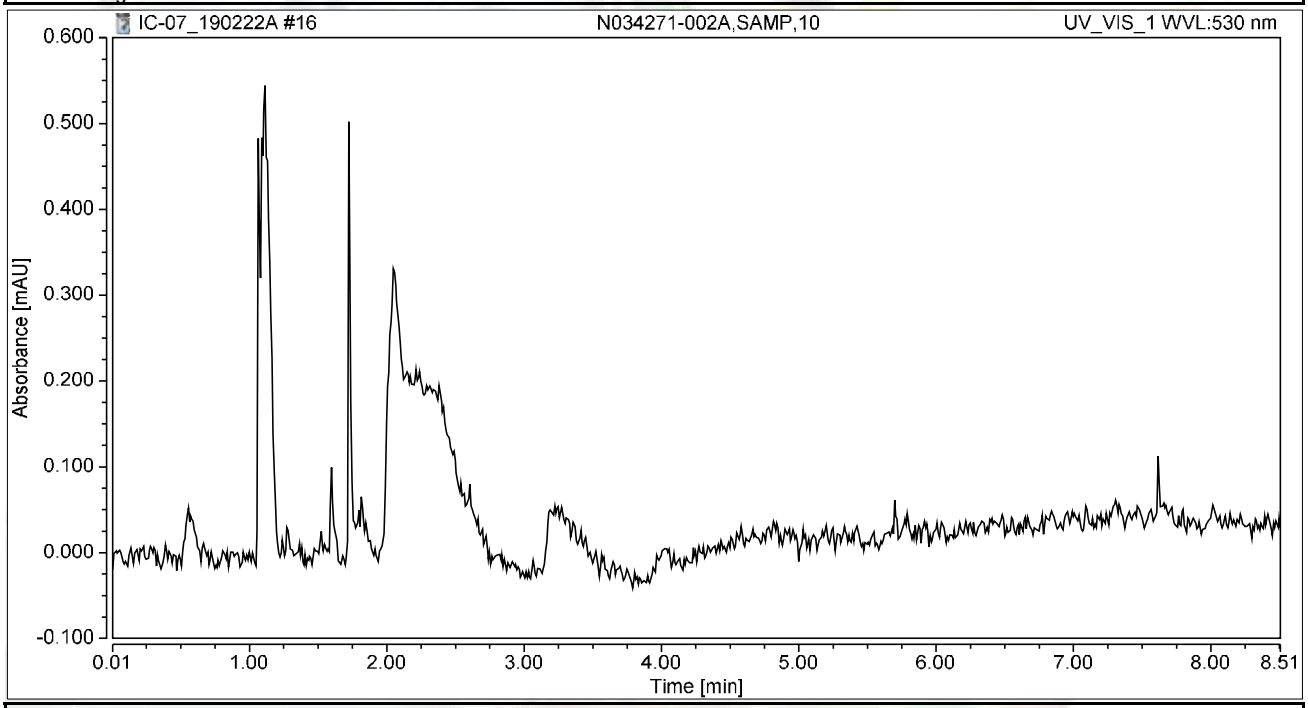
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.262 | 8.529 | 100.00 | 100.00 | 5.0906 |
| **Total:** | | | **1.262** | **8.529** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034271-002A,SAMP,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 10:10** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

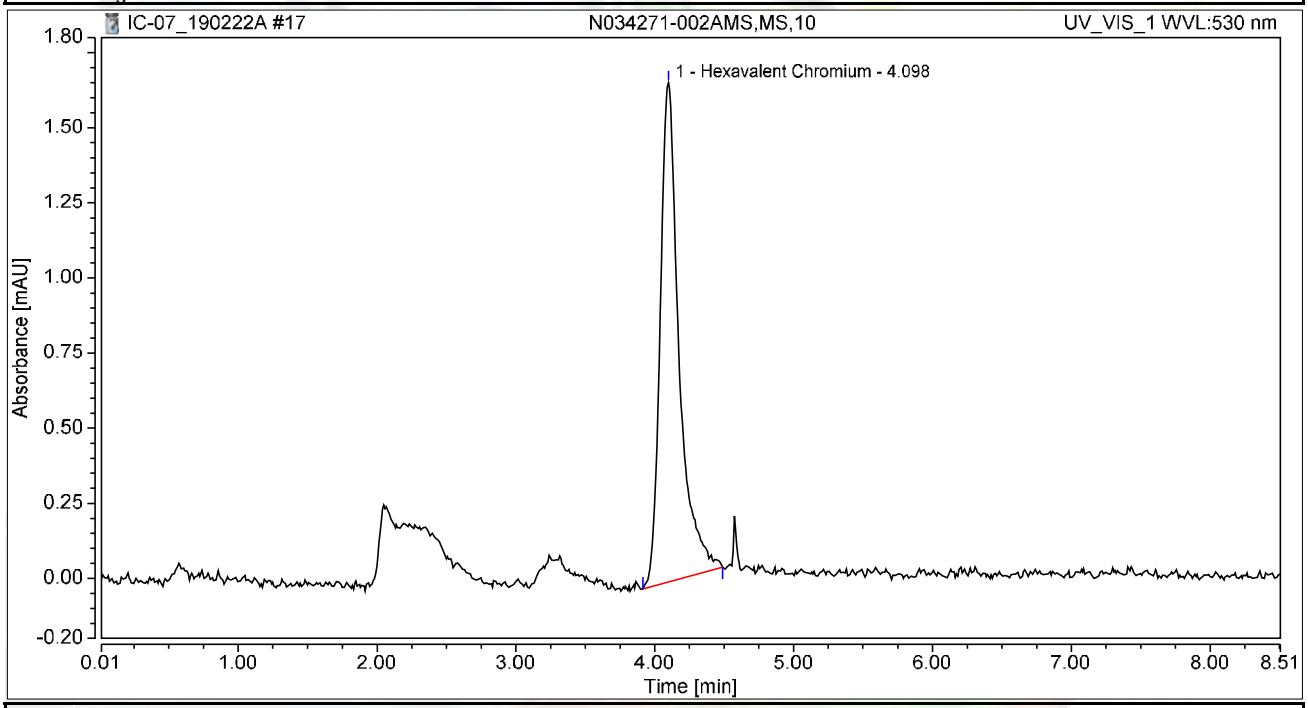
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034271-002AMS,MS,10** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 10:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

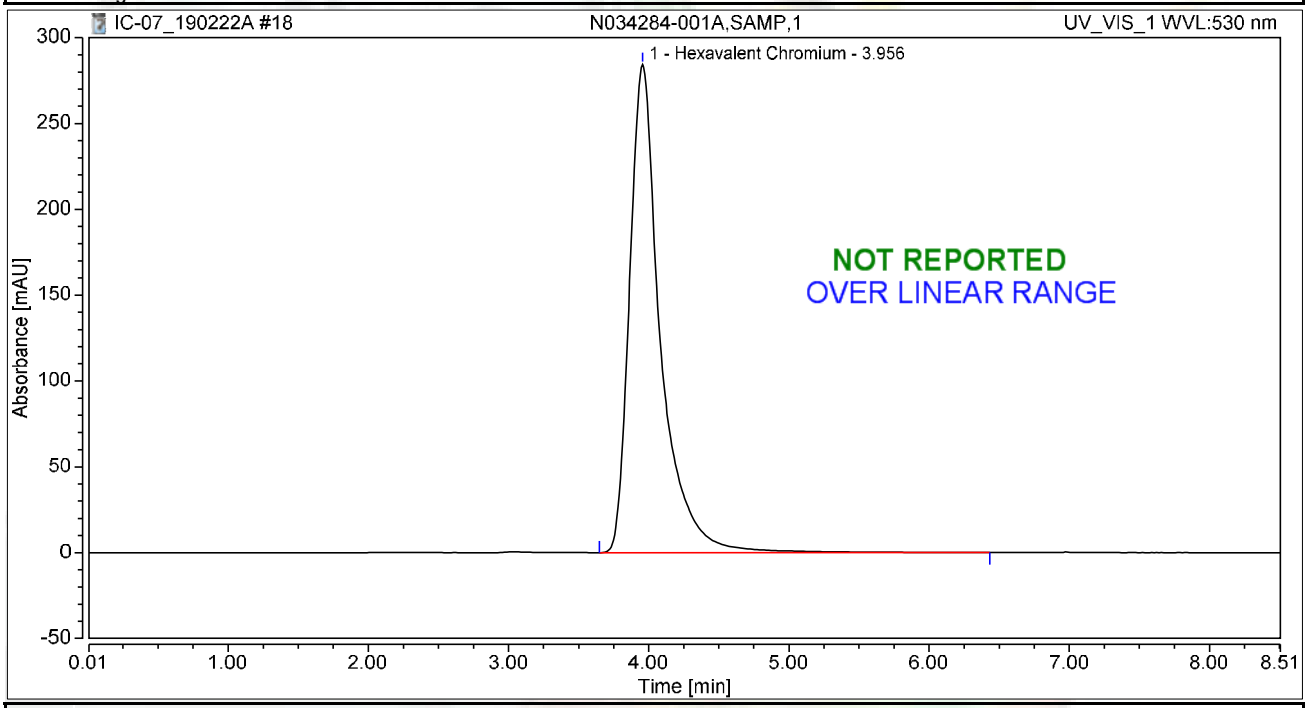
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.262 | 1.662 | 100.00 | 100.00 | 1.0567 |
| **Total:** | | | **0.262** | **1.662** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034284-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 10:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

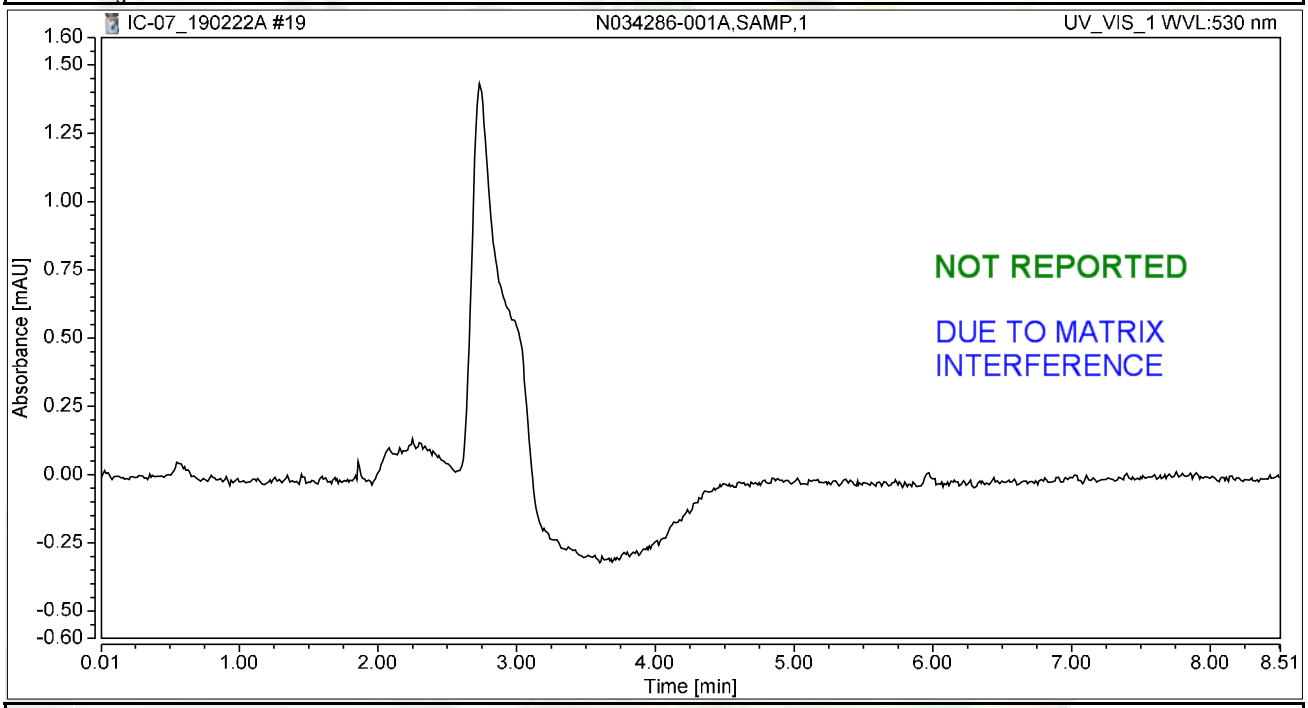
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.956 | 72.561 | 284.259 | 100.00 | 100.00 | 292.8031 |
| **Total:** | | | **72.561** | **284.259** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034286-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 10:40** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

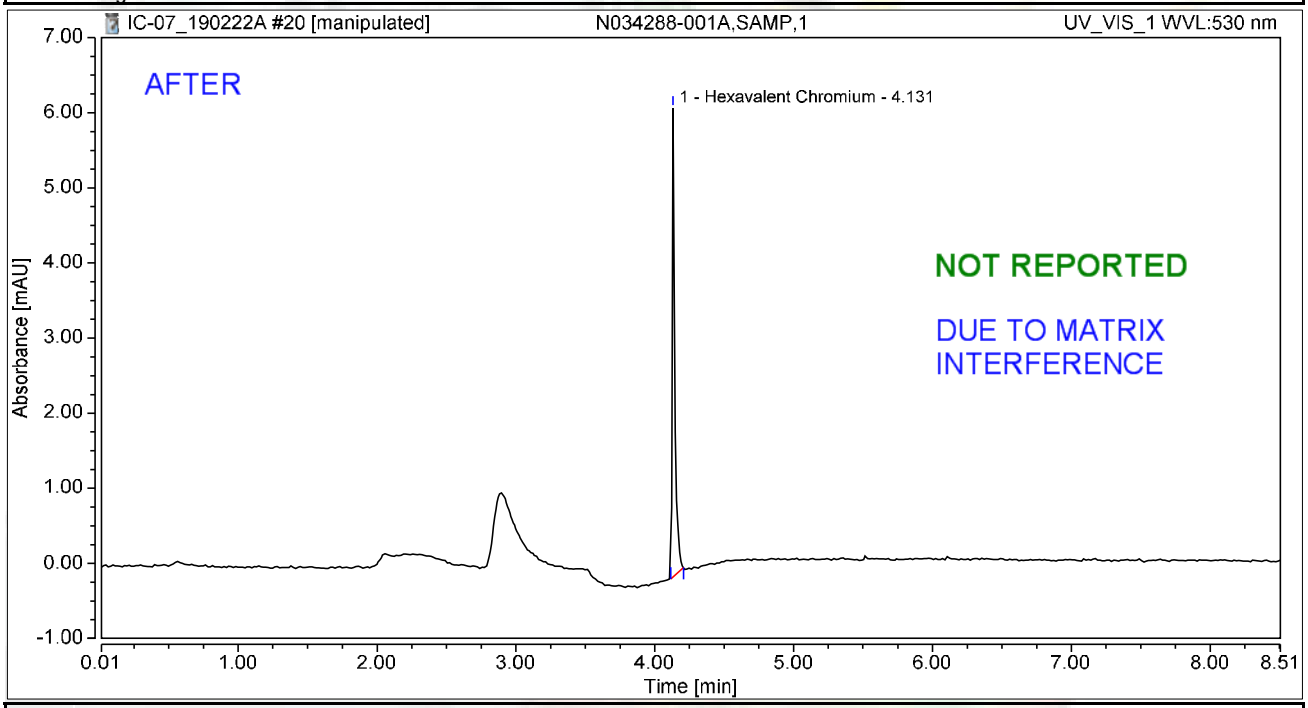
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034288-001A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 10:50** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

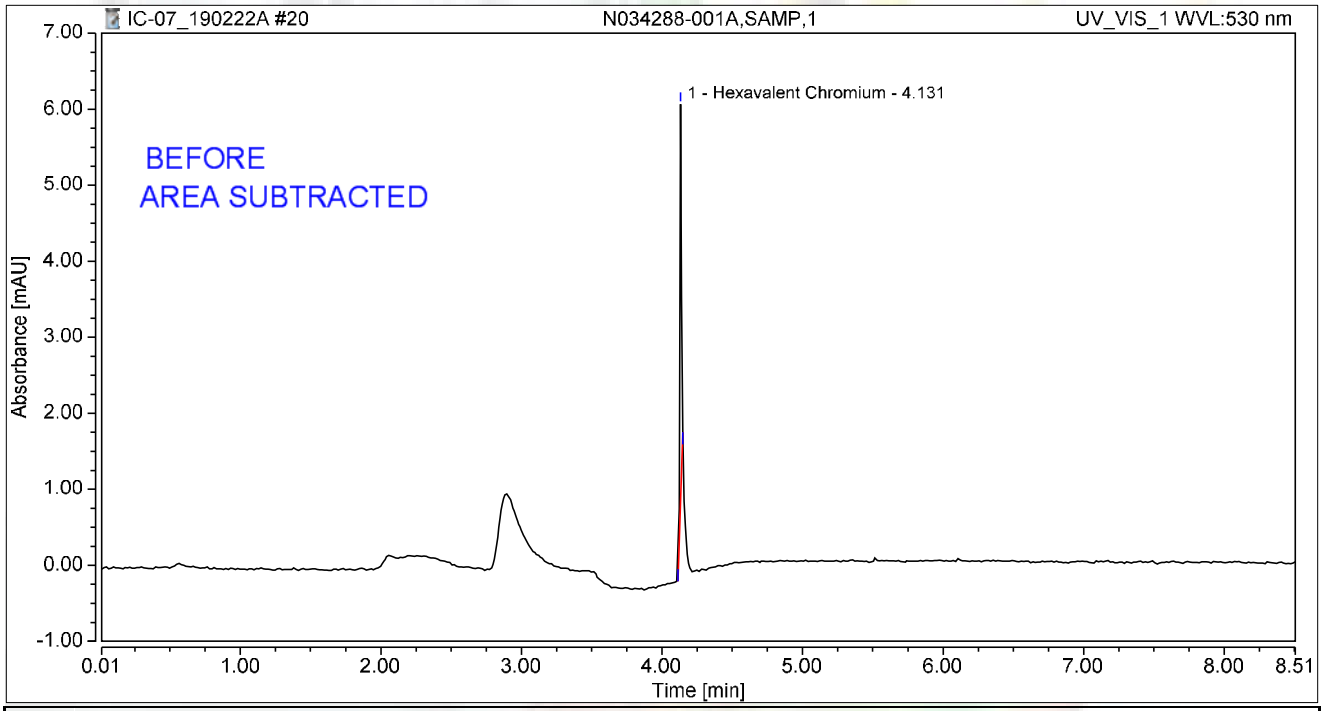
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 0.127 | 6.244 | 100.00 | 100.00 | 0.5118 |
| **Total:** | | | **0.127** | **6.244** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034288-001A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 10:50** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

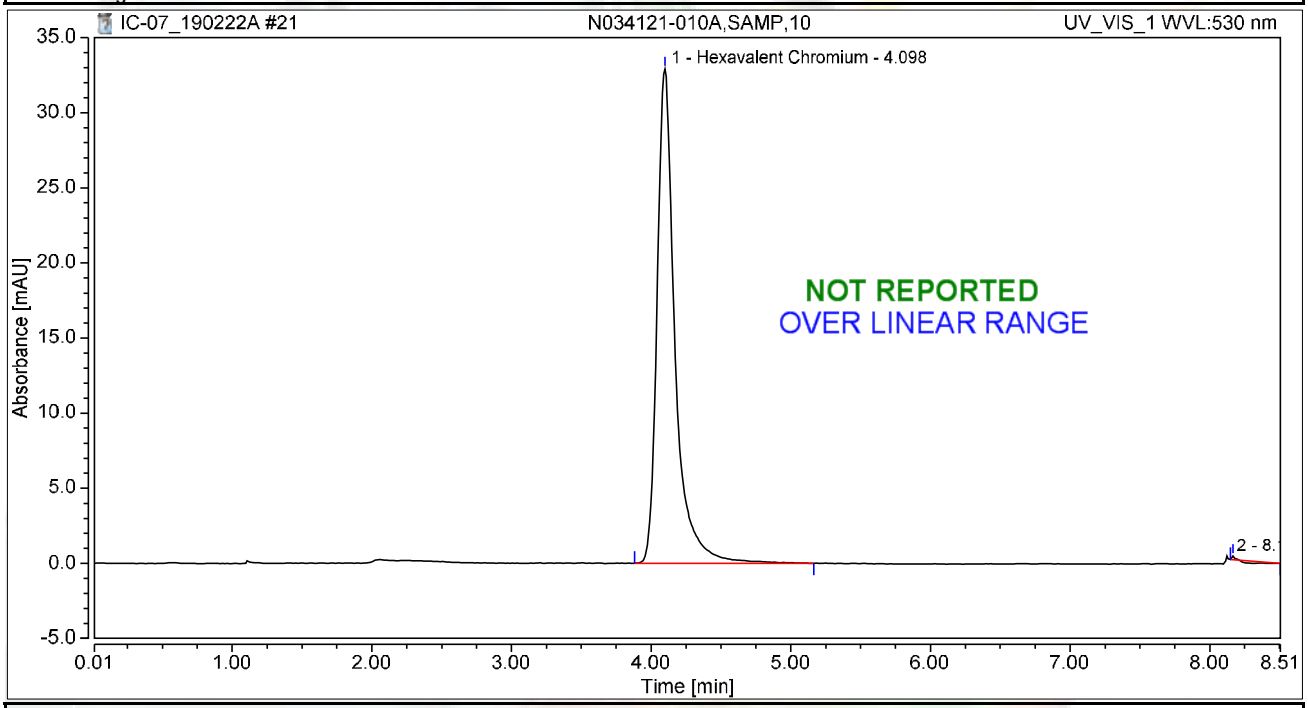
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 0.067 | 5.294 | 100.00 | 100.00 | 0.2697 |
| **Total:** | | | **0.067** | **5.294** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-010A,SAMP,10** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 10:59** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

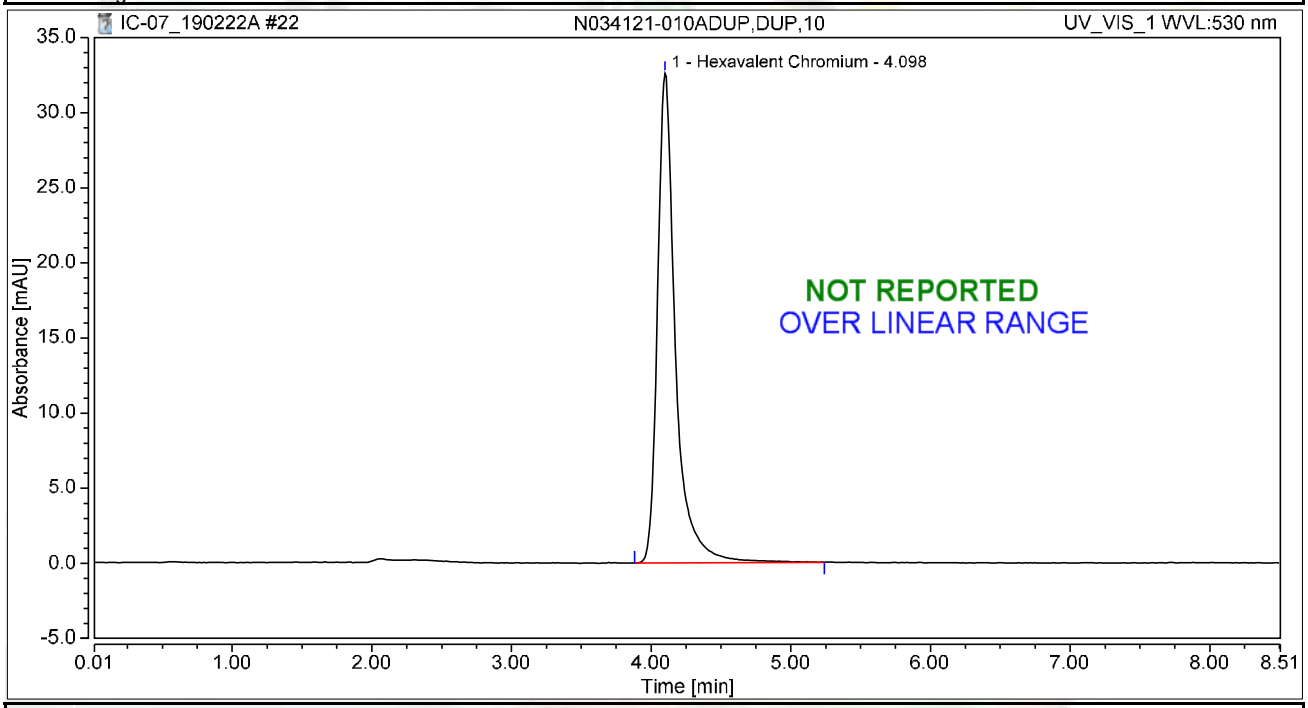
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 4.899 | 32.923 | 99.55 | 99.33 | 19.7684 |
| 2 | | 8.165 | 0.022 | 0.221 | 0.45 | 0.67 | n.a. |
| **Total:** | | | **4.921** | **33.143** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-010ADUP,DUP,10** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 11:09** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

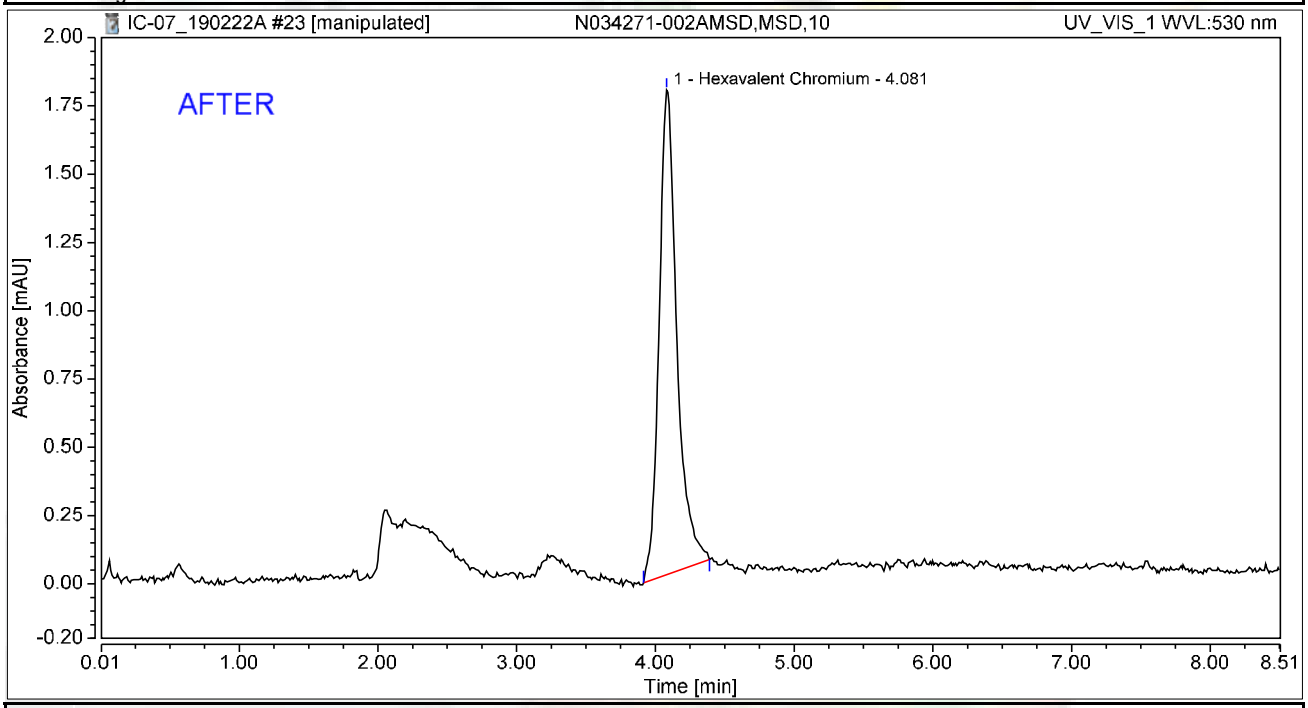
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 4.870 | 32.609 | 100.00 | 100.00 | 19.6535 |
| **Total:** | | | **4.870** | **32.609** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034271-002AMSD,MSD,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 11:18** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

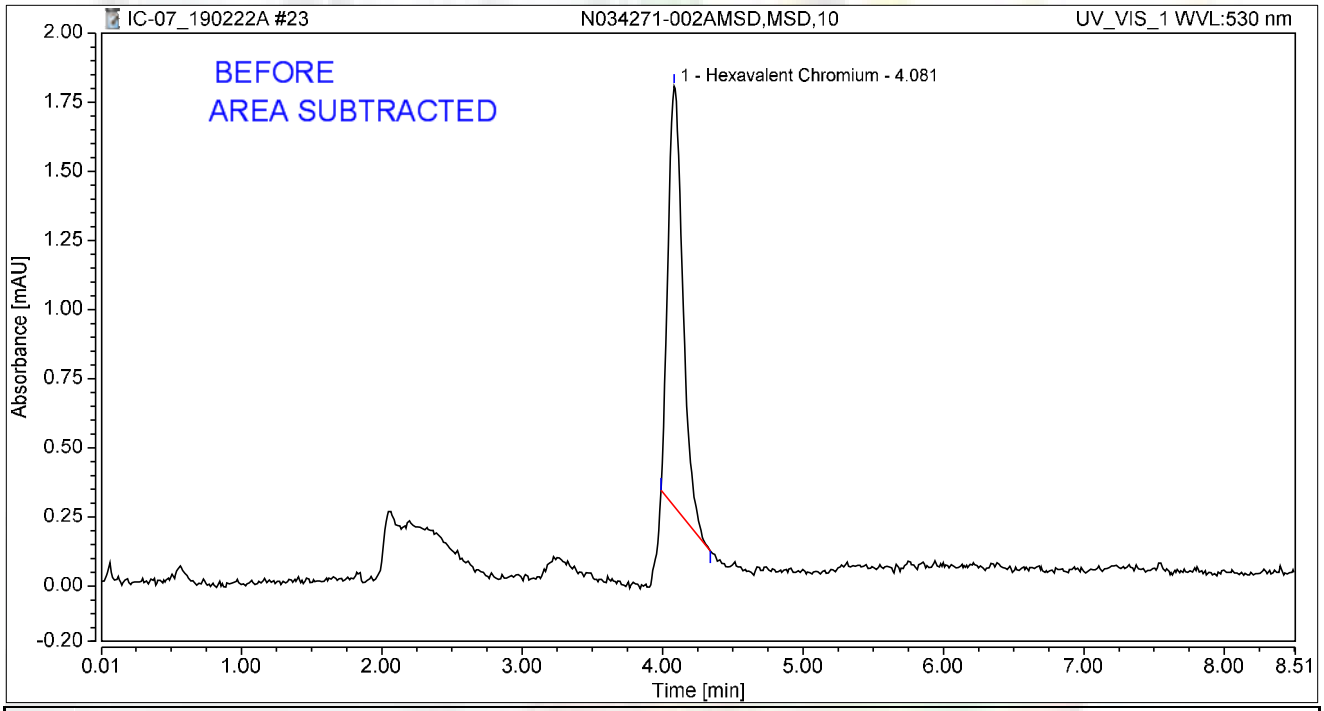
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.264 | 1.774 | 100.00 | 100.00 | 1.0633 |
| **Total:** | | | **0.264** | **1.774** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034271-002AMSD,MSD,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 11:18** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

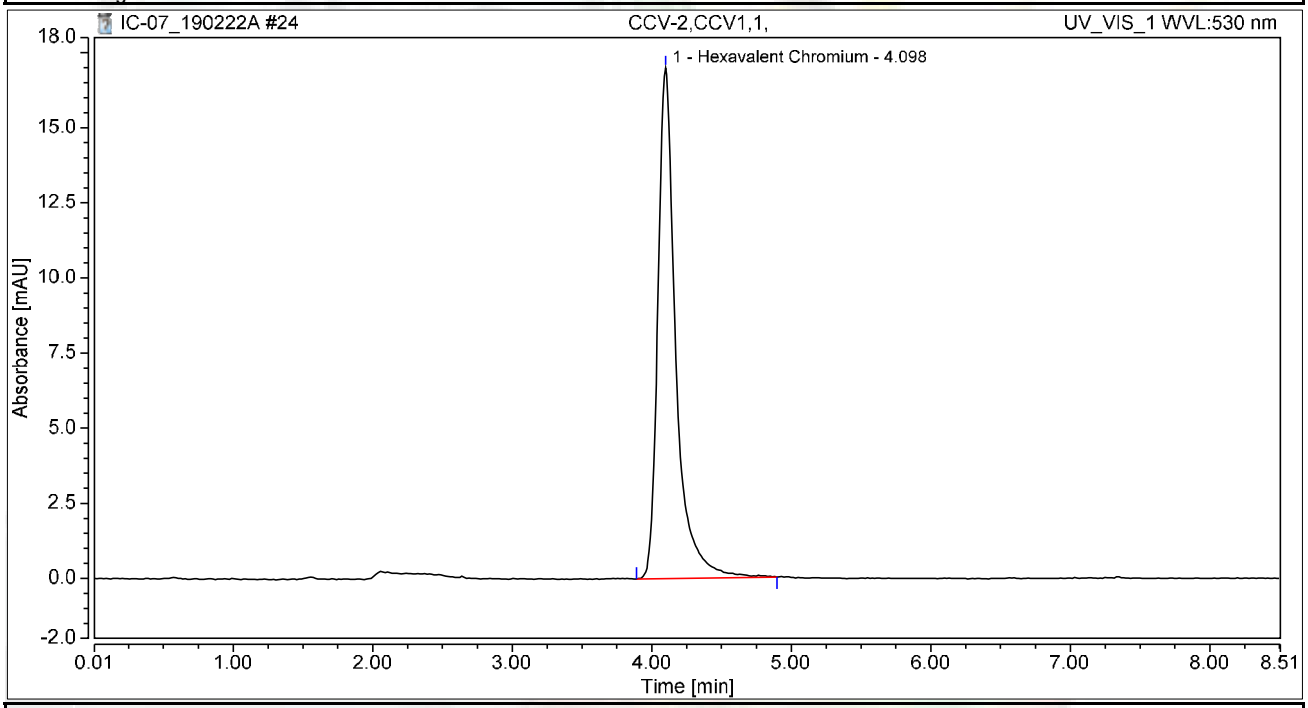
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.187 | 1.518 | 100.00 | 100.00 | 0.7555 |
| **Total:** | | | **0.187** | **1.518** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-2,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 11:28** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

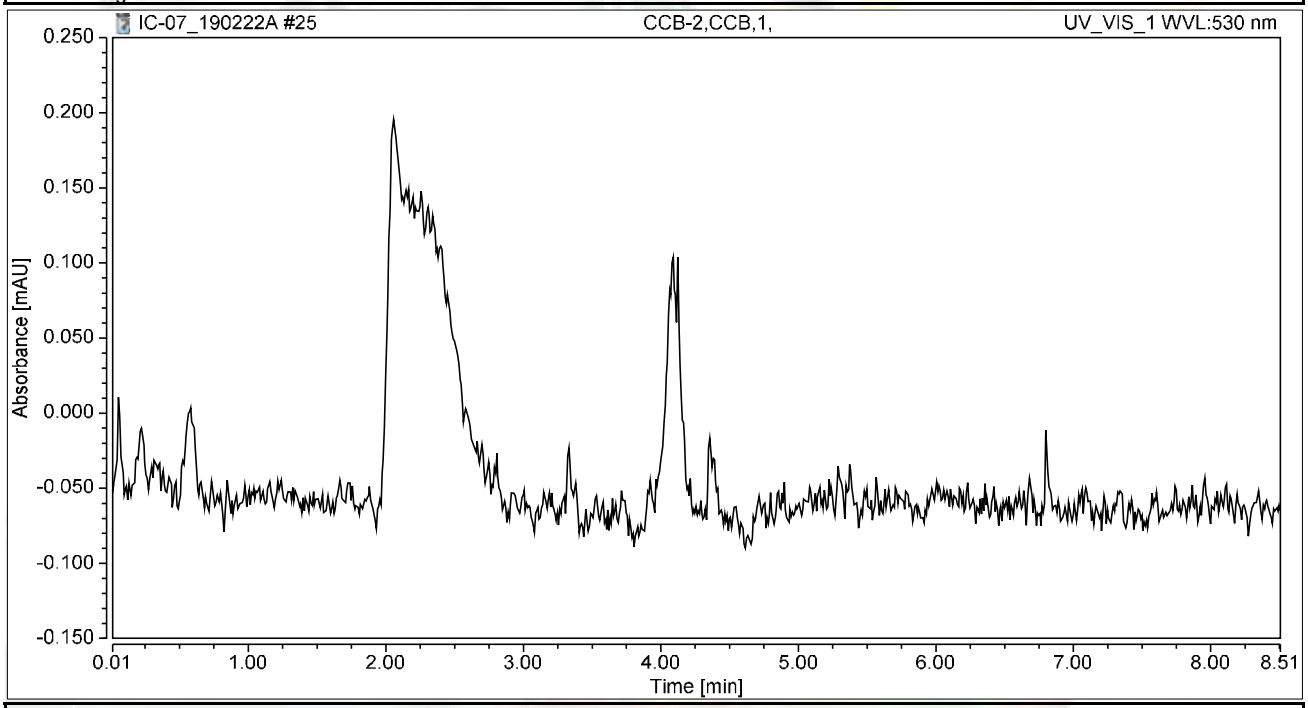
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.530 | 16.996 | 100.00 | 100.00 | 10.2097 |
| **Total:** | | | **2.530** | **16.996** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-2,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 11:37** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

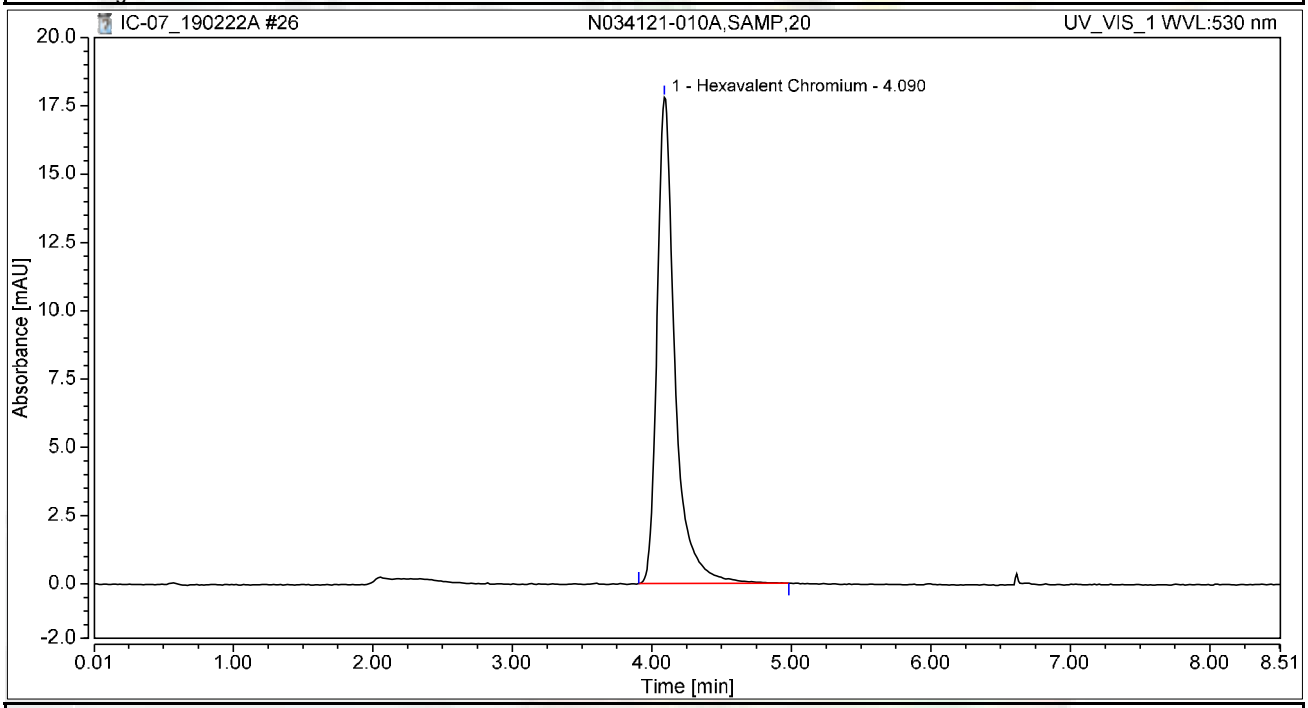
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-010A,SAMP,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 11:47** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

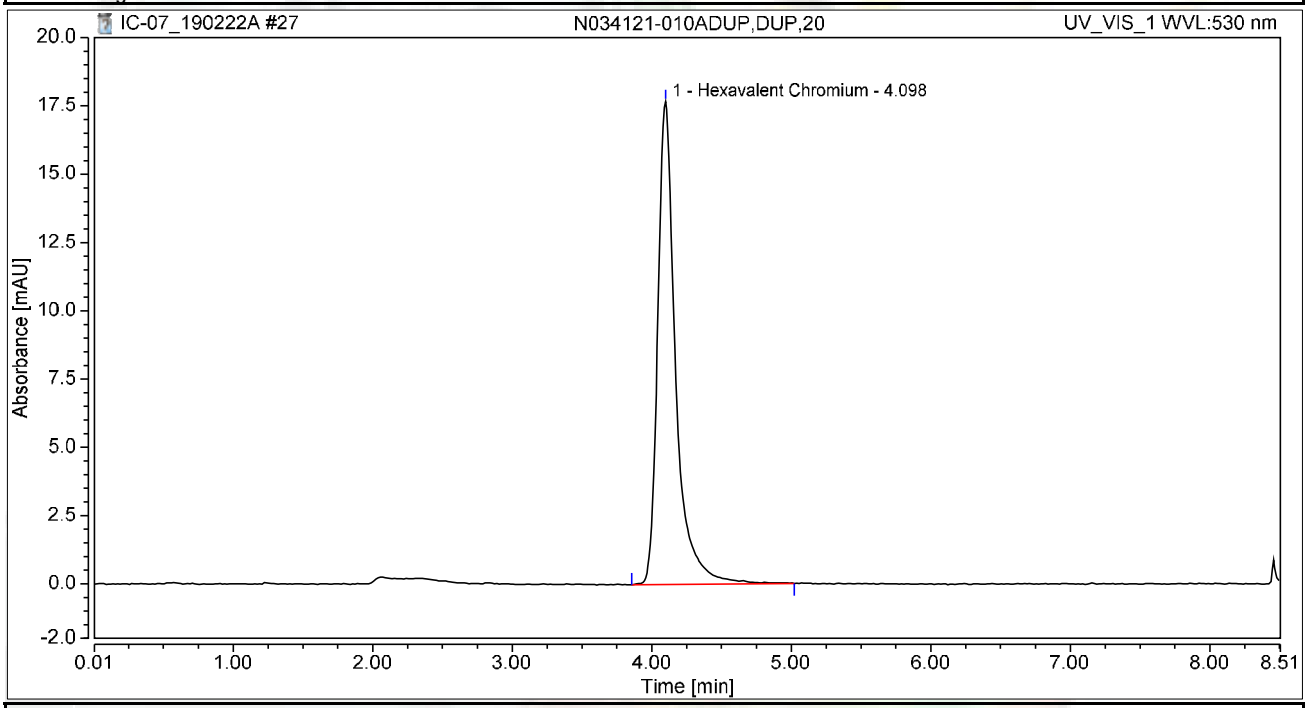
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 2.655 | 17.807 | 100.00 | 100.00 | 10.7149 |
| **Total:** | | | **2.655** | **17.807** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-010ADUP,DUP,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 11:56** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

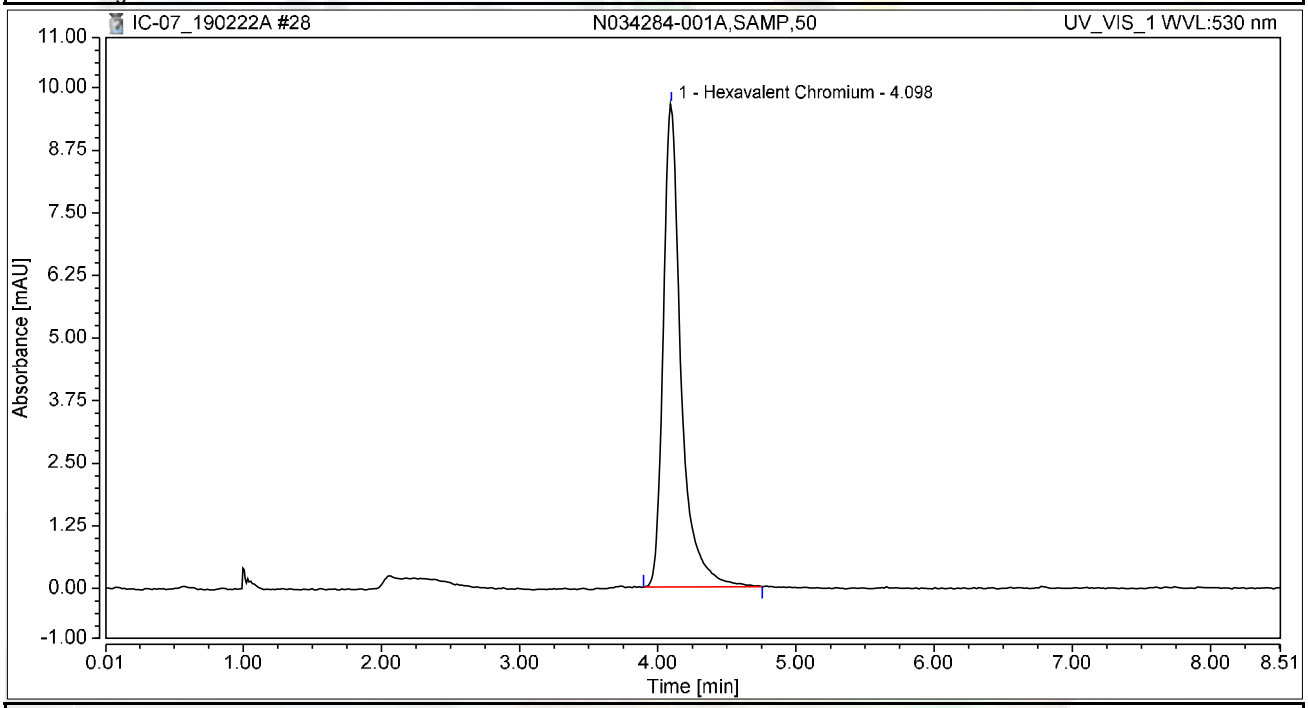
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.635 | 17.680 | 100.00 | 100.00 | 10.6330 |
| **Total:** | | | **2.635** | **17.680** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034284-001A,SAMP,50** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 12:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

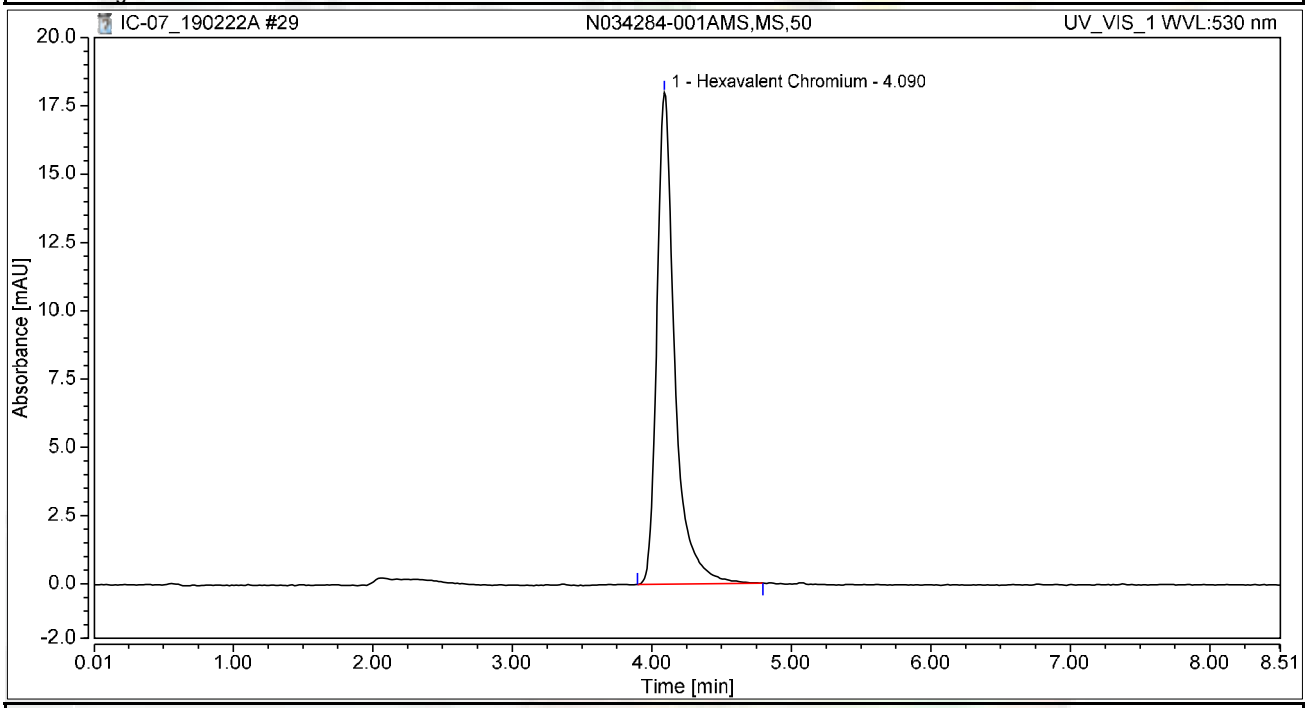
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.438 | 9.649 | 100.00 | 100.00 | 5.8028 |
| **Total:** | | | **1.438** | **9.649** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034284-001AMS,MS,50** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 12:15** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

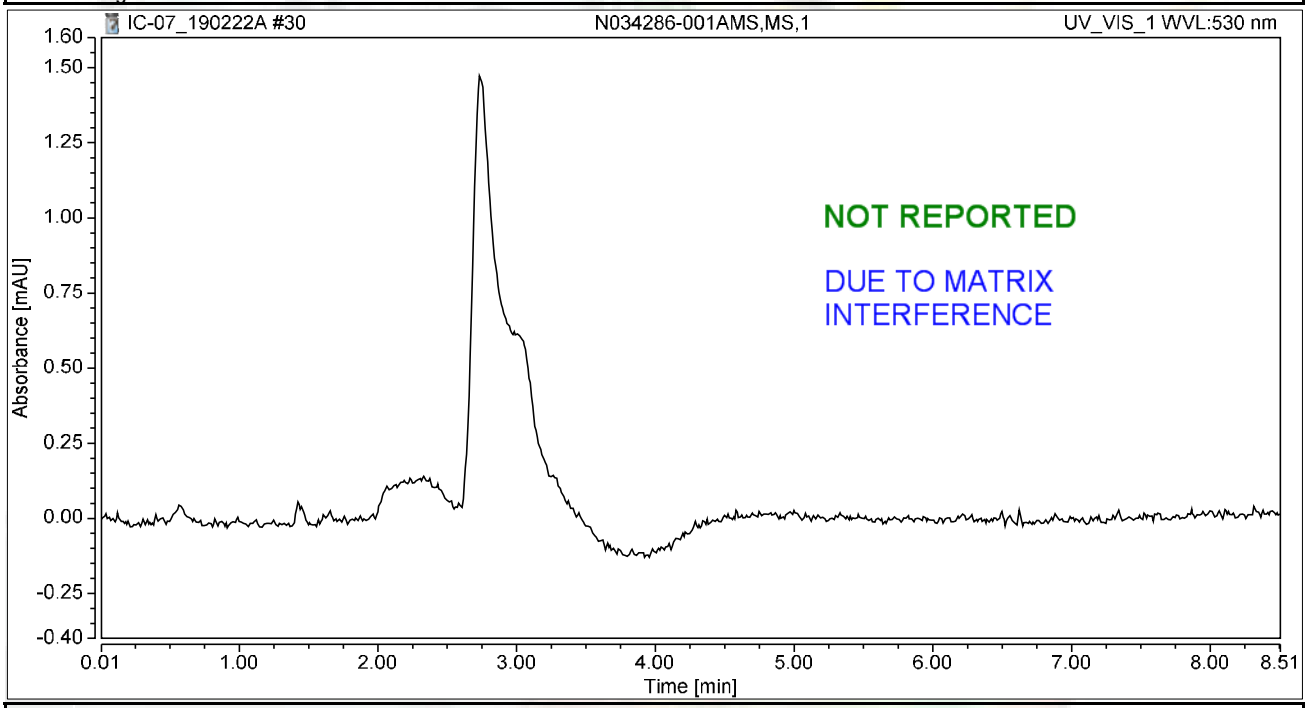
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 2.679 | 18.003 | 100.00 | 100.00 | 10.8120 |
| **Total:** | | | **2.679** | **18.003** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034286-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 12:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

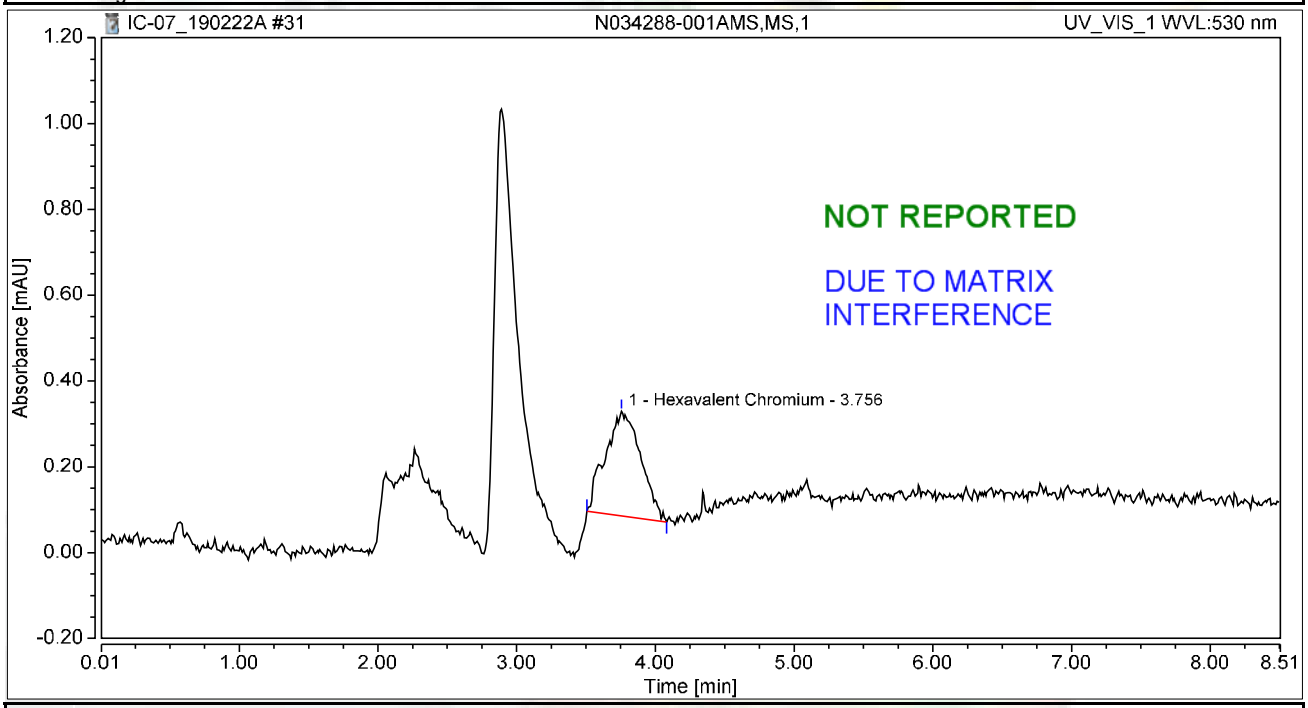
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034288-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 12:34** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

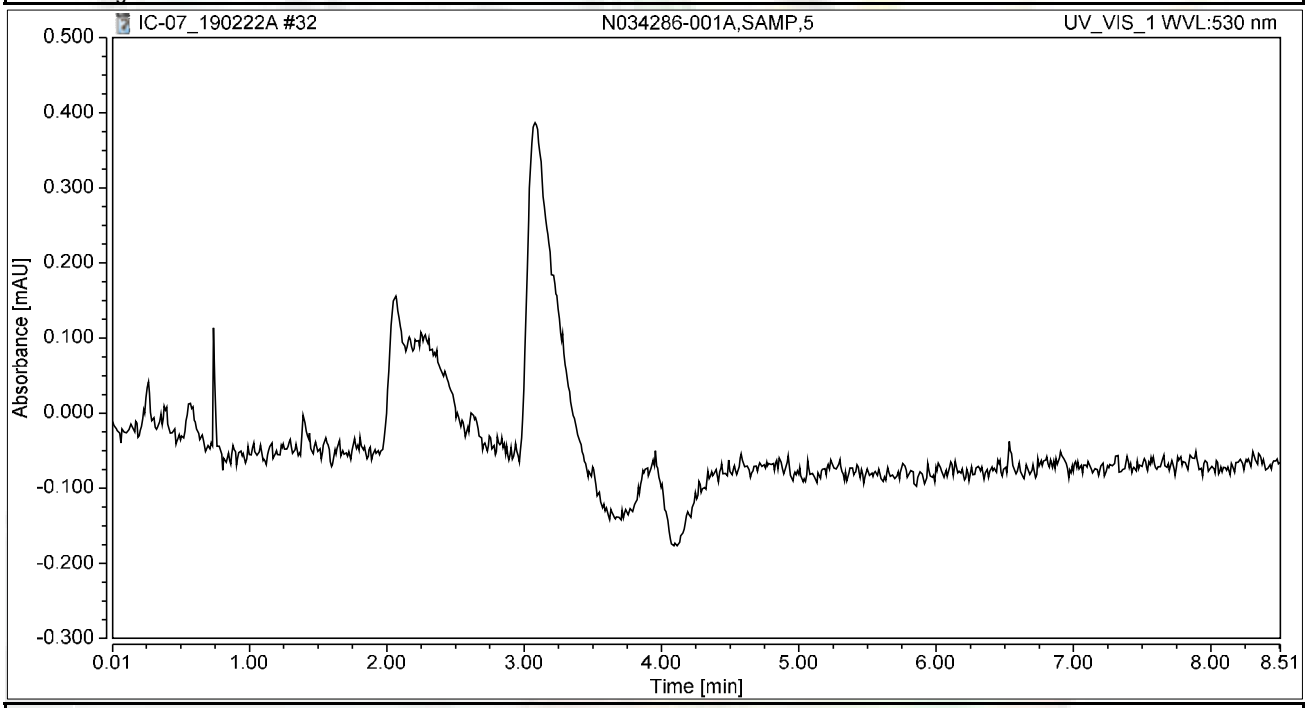
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.756 | 0.072 | 0.244 | 100.00 | 100.00 | 0.2912 |
| **Total:** | | | **0.072** | **0.244** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034286-001A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **20** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 12:43** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

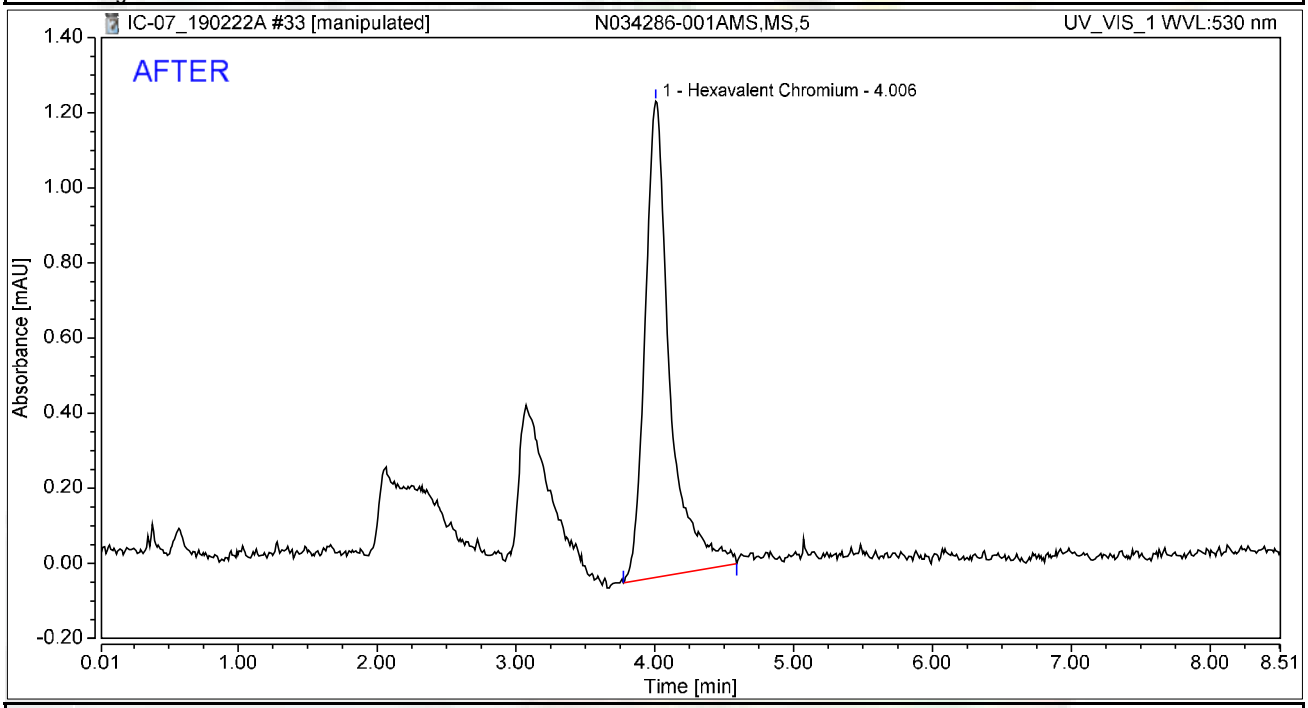
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034286-001AMS,MS,5** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 12:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.006 | 0.263 | 1.267 | 100.00 | 100.00 | 1.0593 |
| **Total:** | | | **0.263** | **1.267** | **100.00** | **100.00** | |

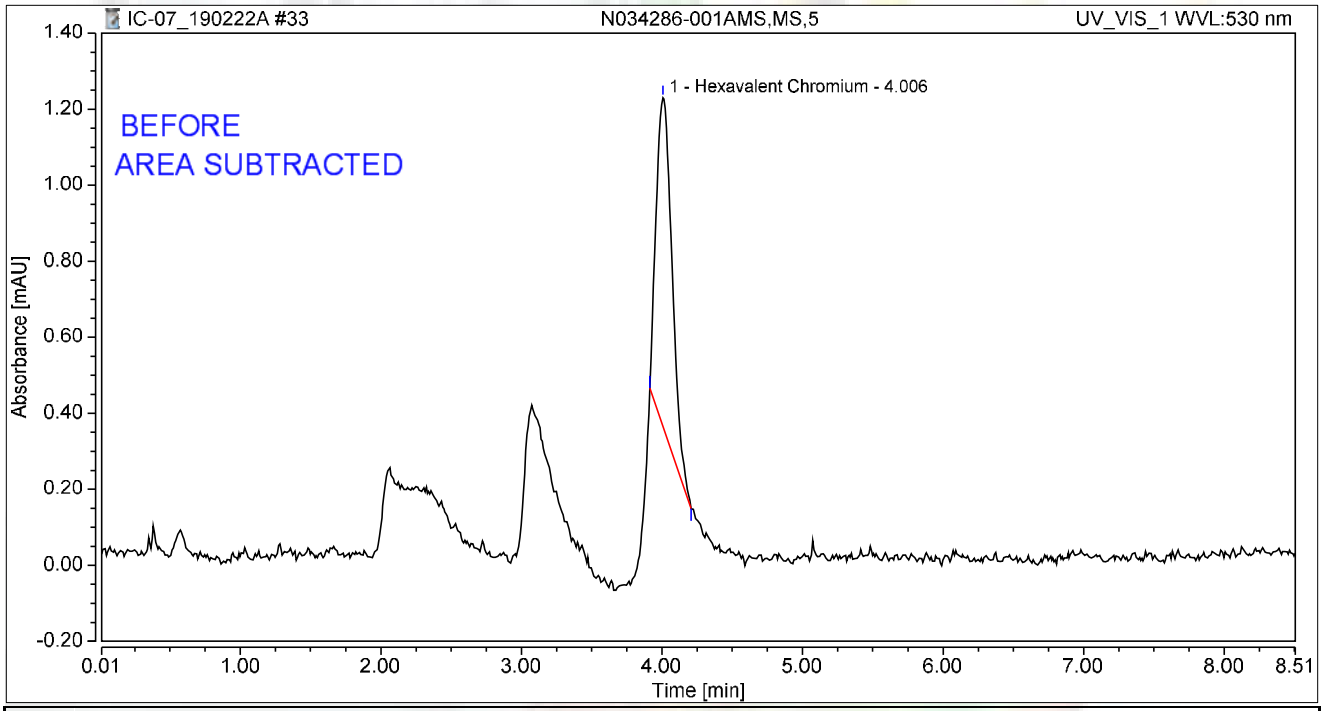
Reviewed by:
Nancy 2/27/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034286-001AMS,MS,5** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 12:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

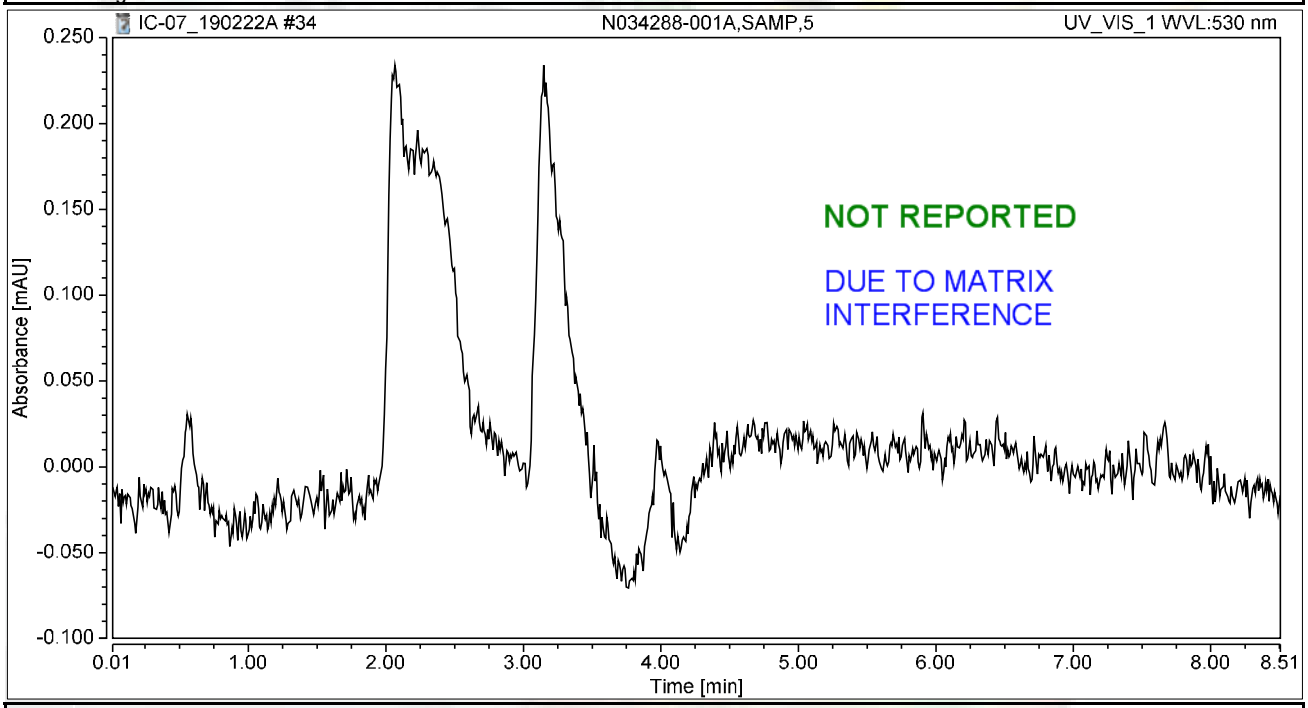
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.006 | 0.114 | 0.864 | 100.00 | 100.00 | 0.4587 |
| **Total:** | | | **0.114** | **0.864** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034288-001A,SAMP,5** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 13:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

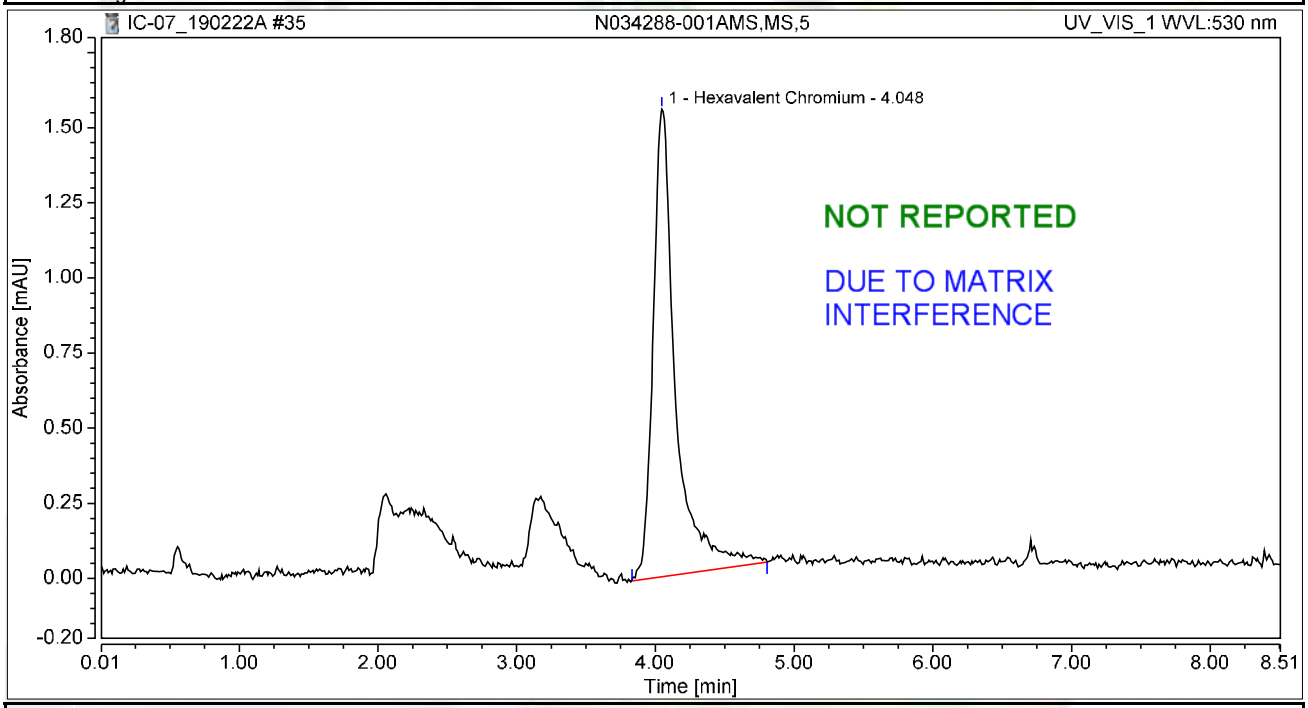
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034288-001AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **23** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 13:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

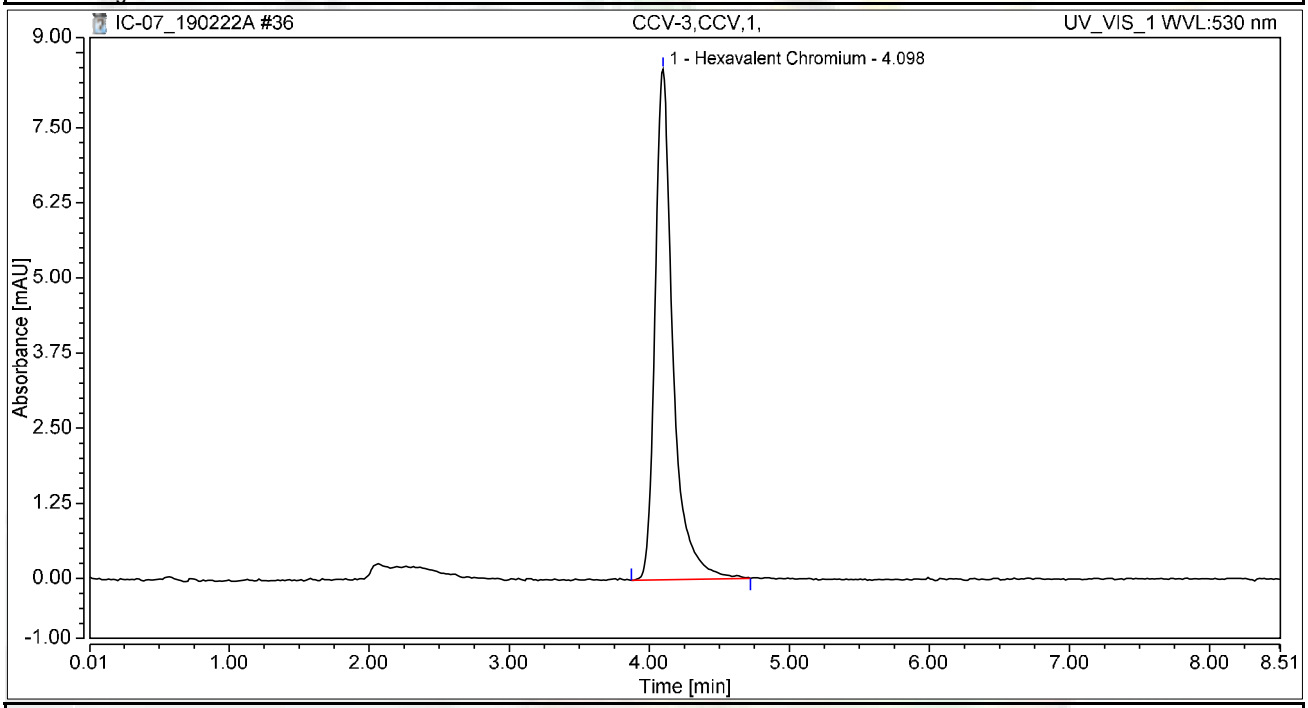
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.293 | 1.556 | 100.00 | 100.00 | 1.1811 |
| **Total:** | | | **0.293** | **1.556** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-3,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **24** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 13:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

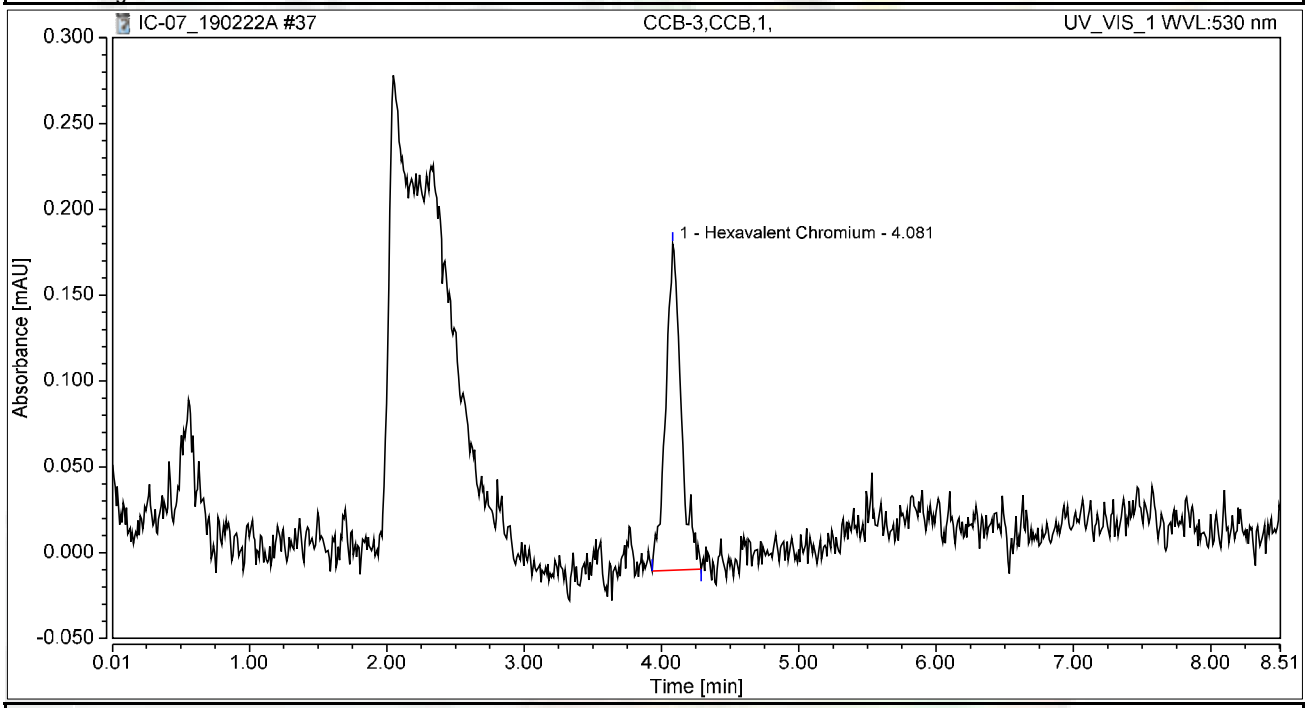
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.258 | 8.494 | 100.00 | 100.00 | 5.0751 |
| **Total:** | | | **1.258** | **8.494** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-3,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 13:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

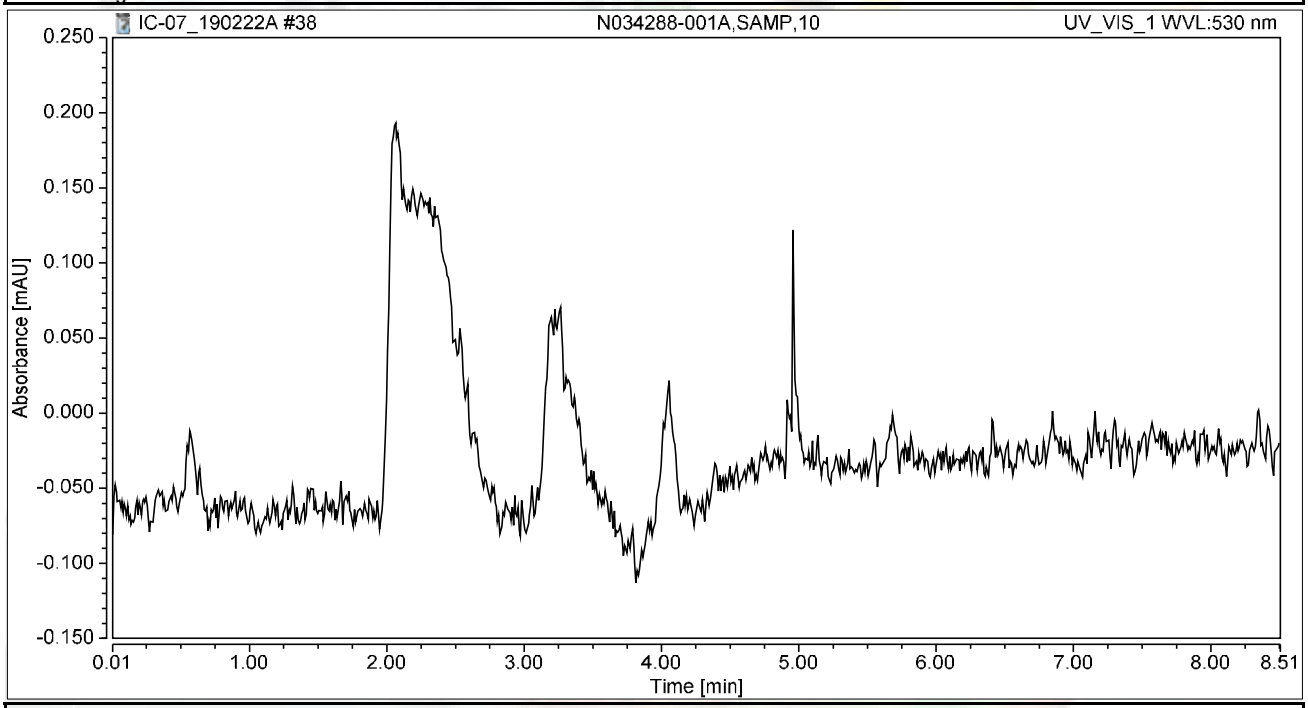
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.025 | 0.190 | 100.00 | 100.00 | 0.0999 |
| **Total:** | | | **0.025** | **0.190** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034288-001A,SAMP,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 13:48** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

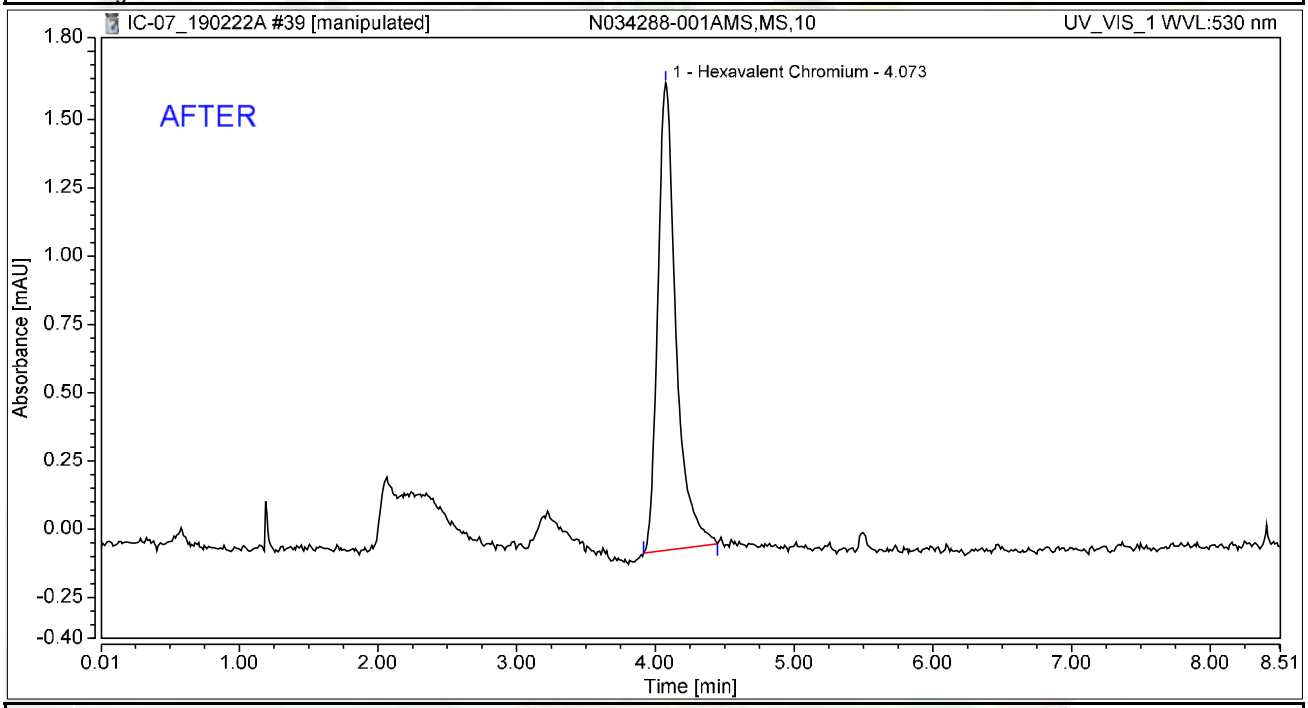
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034288-001AMS,MS,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **28** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 14:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 0.260 | 1.711 | 100.00 | 100.00 | 1.0500 |
| **Total:** | | | **0.260** | **1.711** | **100.00** | **100.00** | |

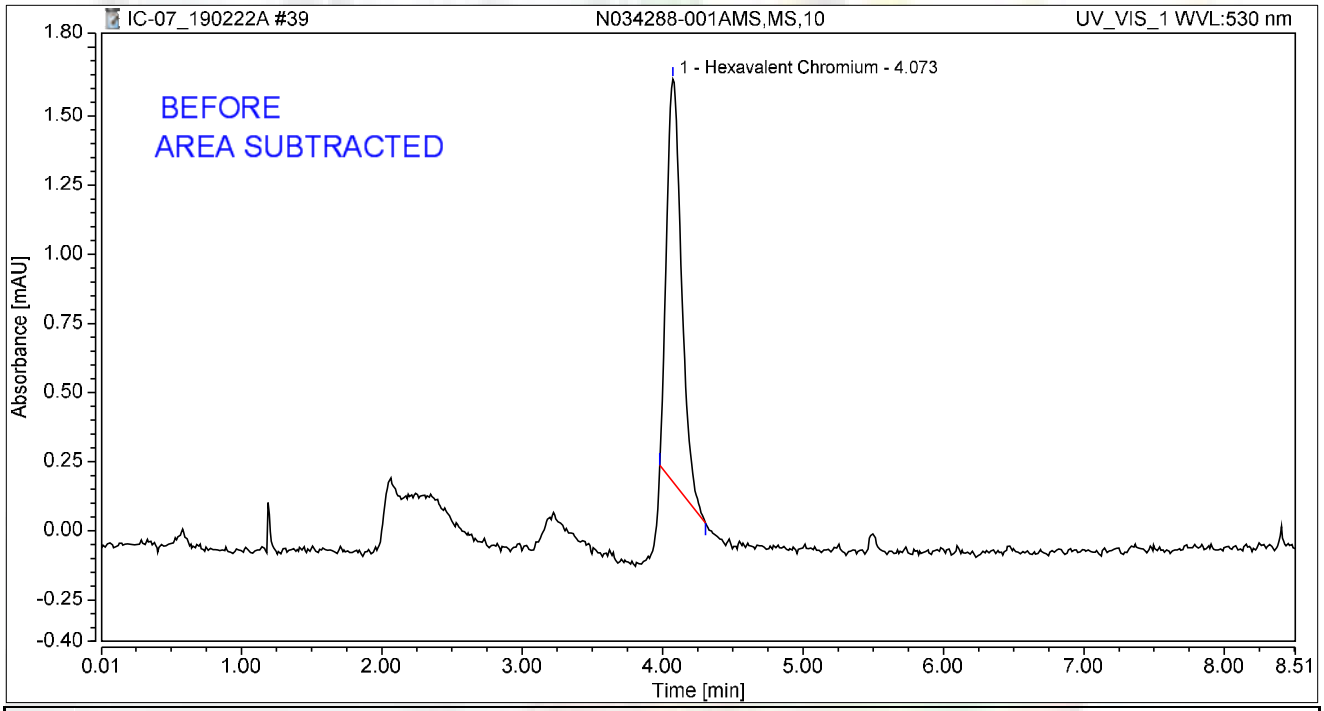
Reviewed by:
Nancy 2/27/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034288-001AMS,MS,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **28** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 14:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

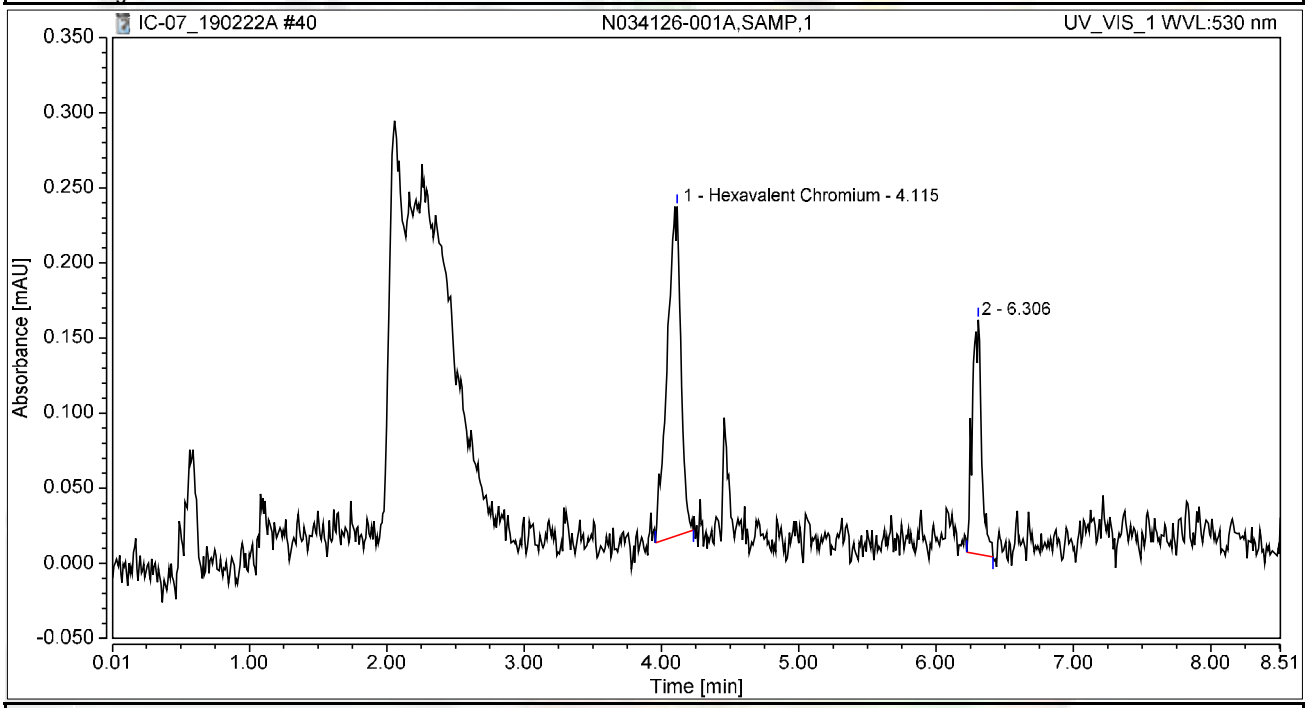
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 0.181 | 1.455 | 100.00 | 100.00 | 0.7293 |
| **Total:** | | | **0.181** | **1.455** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **29** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 14:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

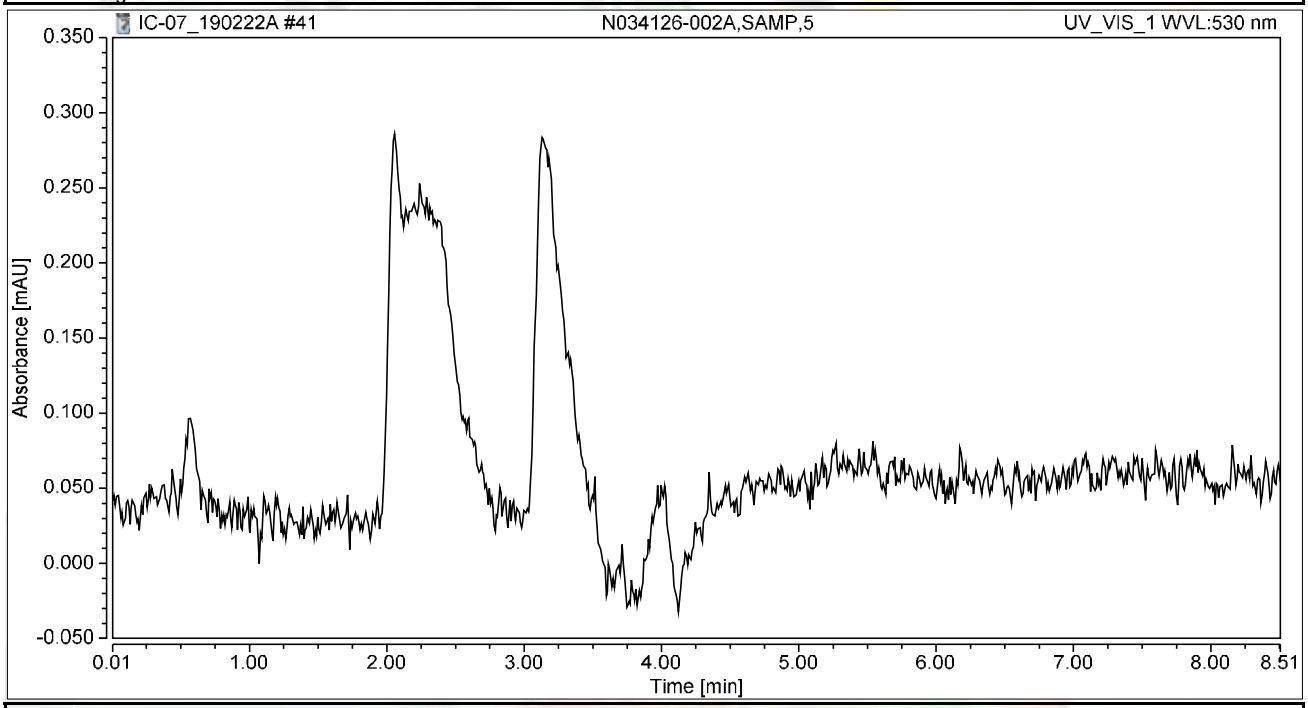
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 0.025 | 0.219 | 67.46 | 58.42 | 0.1017 |
| 2 | | 6.306 | 0.012 | 0.156 | 32.54 | 41.58 | n.a. |
| **Total:** | | | **0.037** | **0.375** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-002A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **30** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 14:28** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

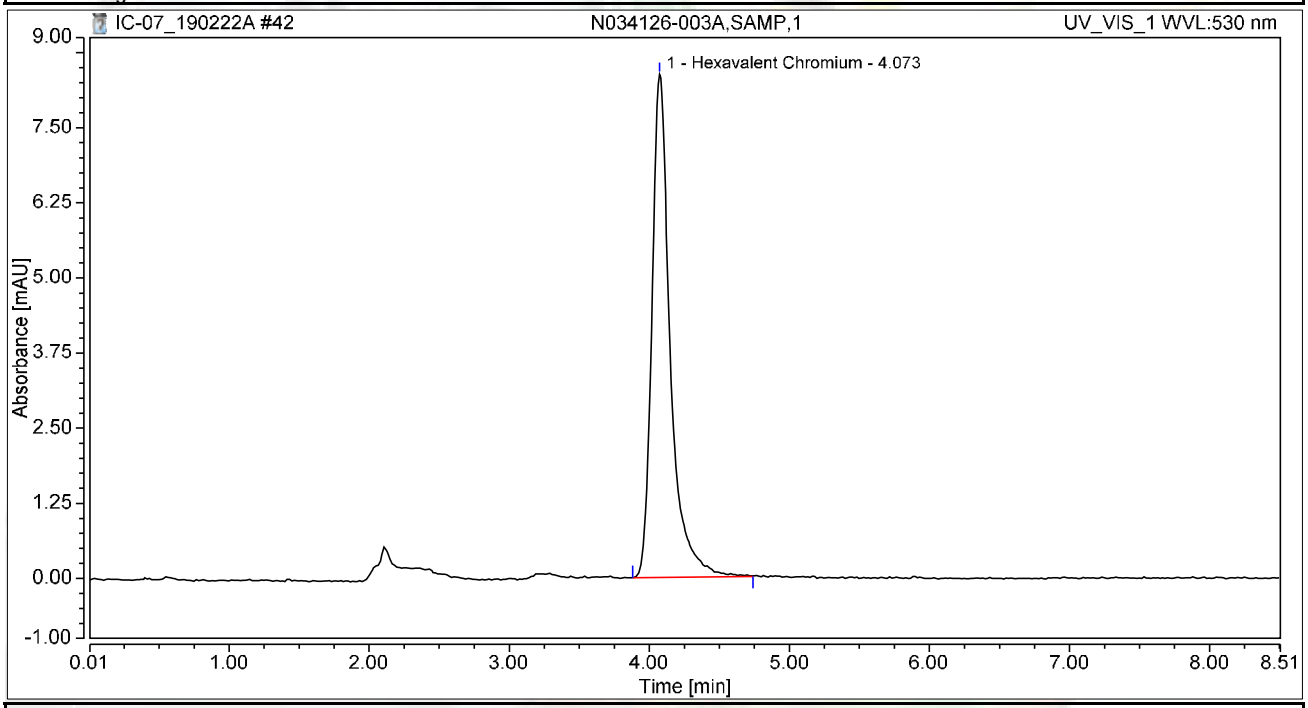
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-003A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **31** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 14:38** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

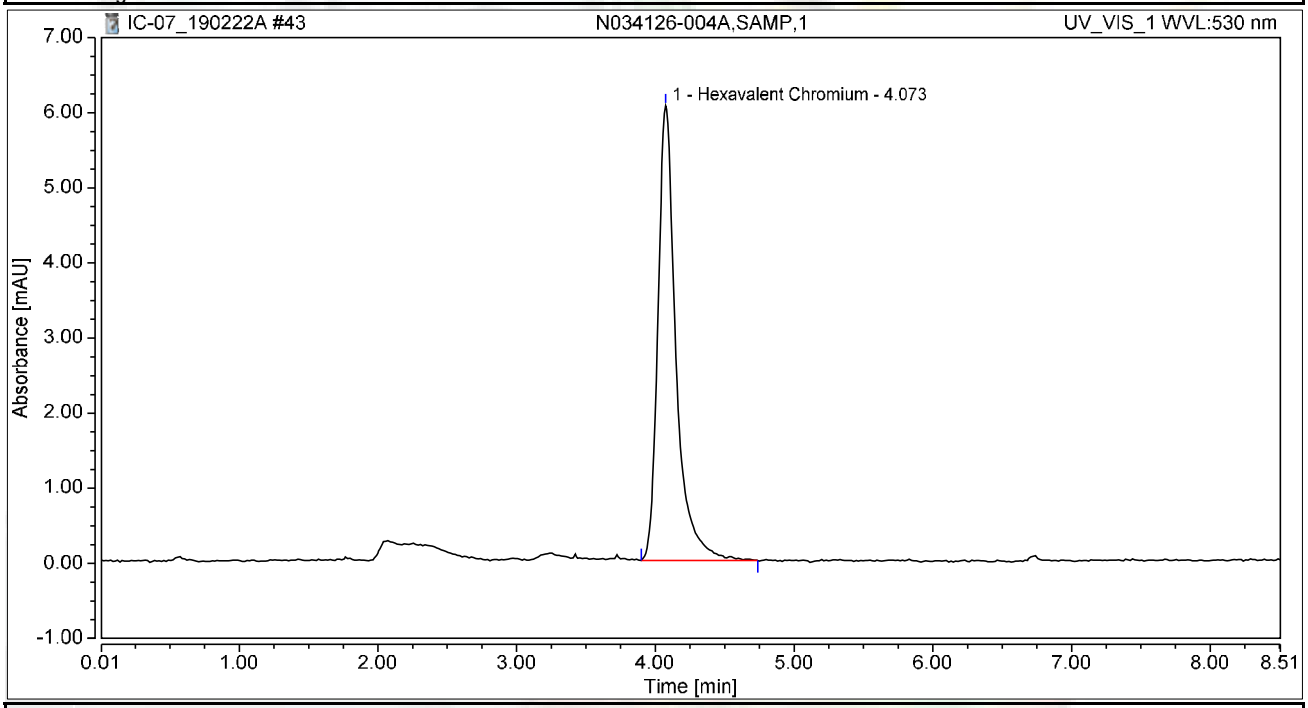
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 1.268 | 8.370 | 100.00 | 100.00 | 5.1185 |
| **Total:** | | | **1.268** | **8.370** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-004A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **32** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 14:47** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

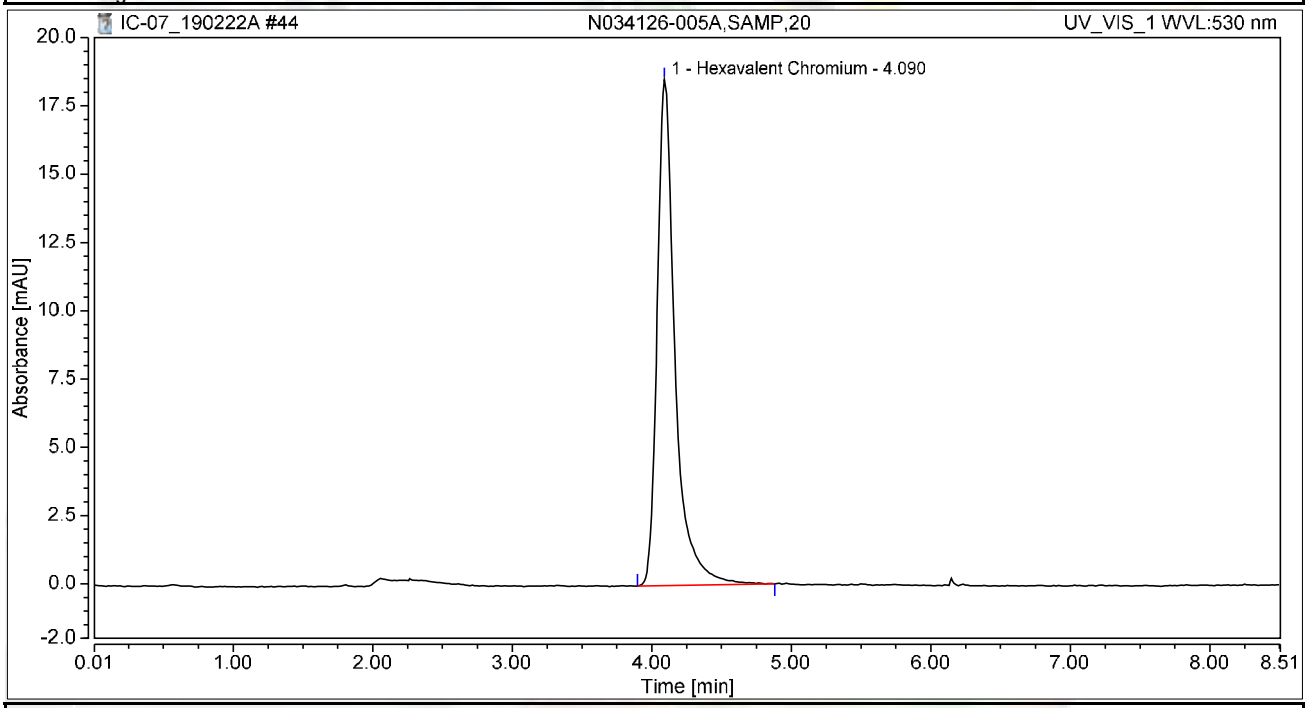
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 0.916 | 6.053 | 100.00 | 100.00 | 3.6982 |
| **Total:** | | | **0.916** | **6.053** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-005A,SAMP,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **33** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 14:57** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

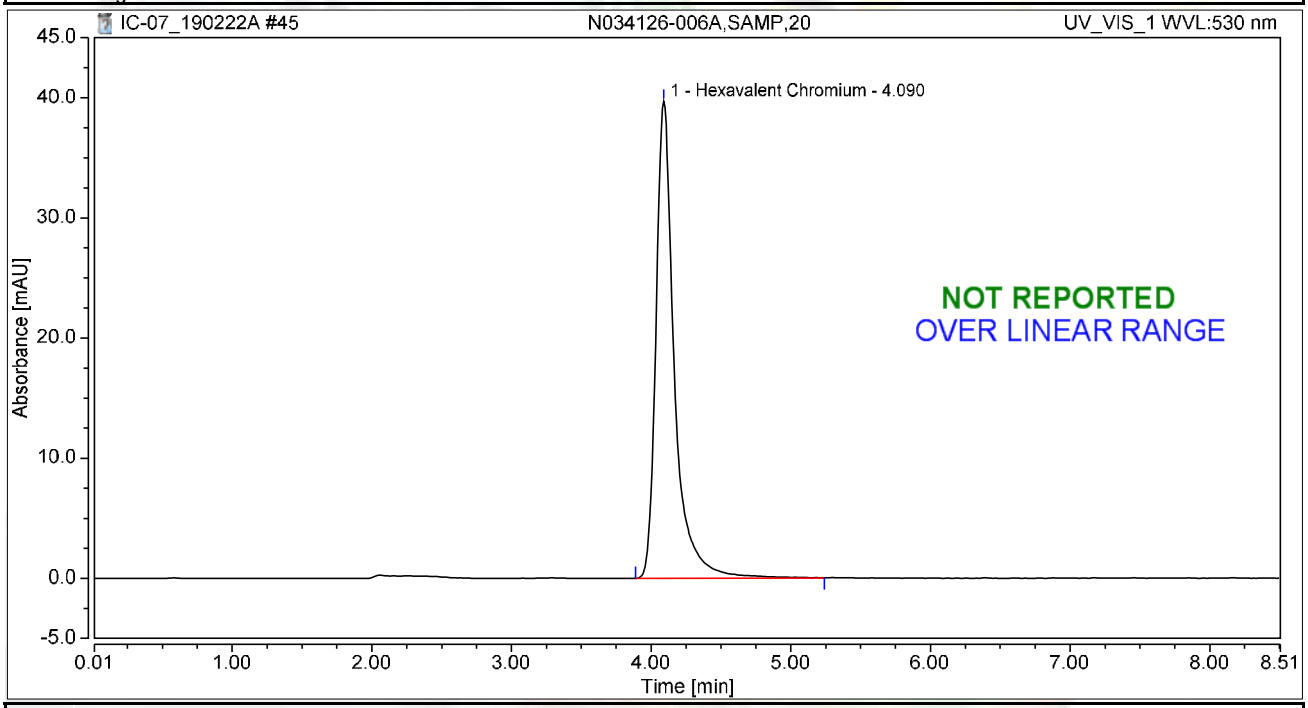
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 2.757 | 18.532 | 100.00 | 100.00 | 11.1253 |
| **Total:** | | | **2.757** | **18.532** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-006A,SAMP,20** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **34** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 15:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

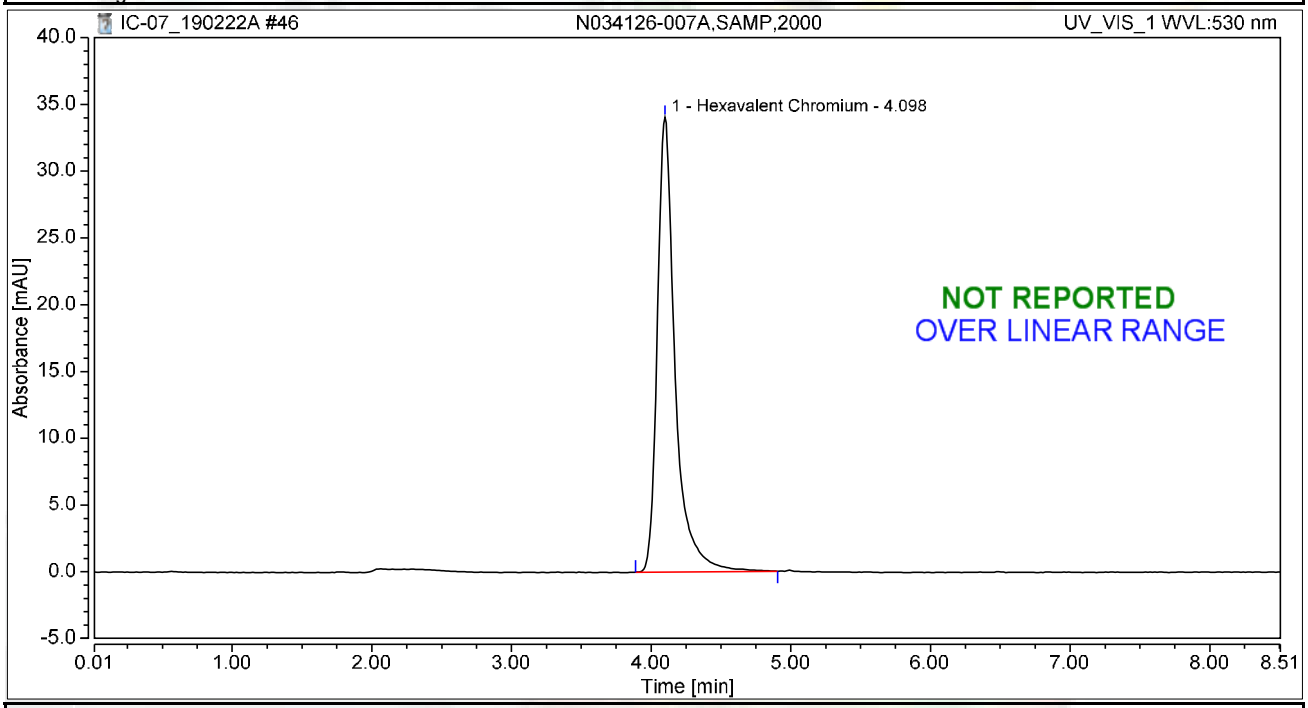
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 6.066 | 39.701 | 100.00 | 100.00 | 24.4797 |
| **Total:** | | | **6.066** | **39.701** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-007A,SAMP,2000** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **35** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 15:16** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

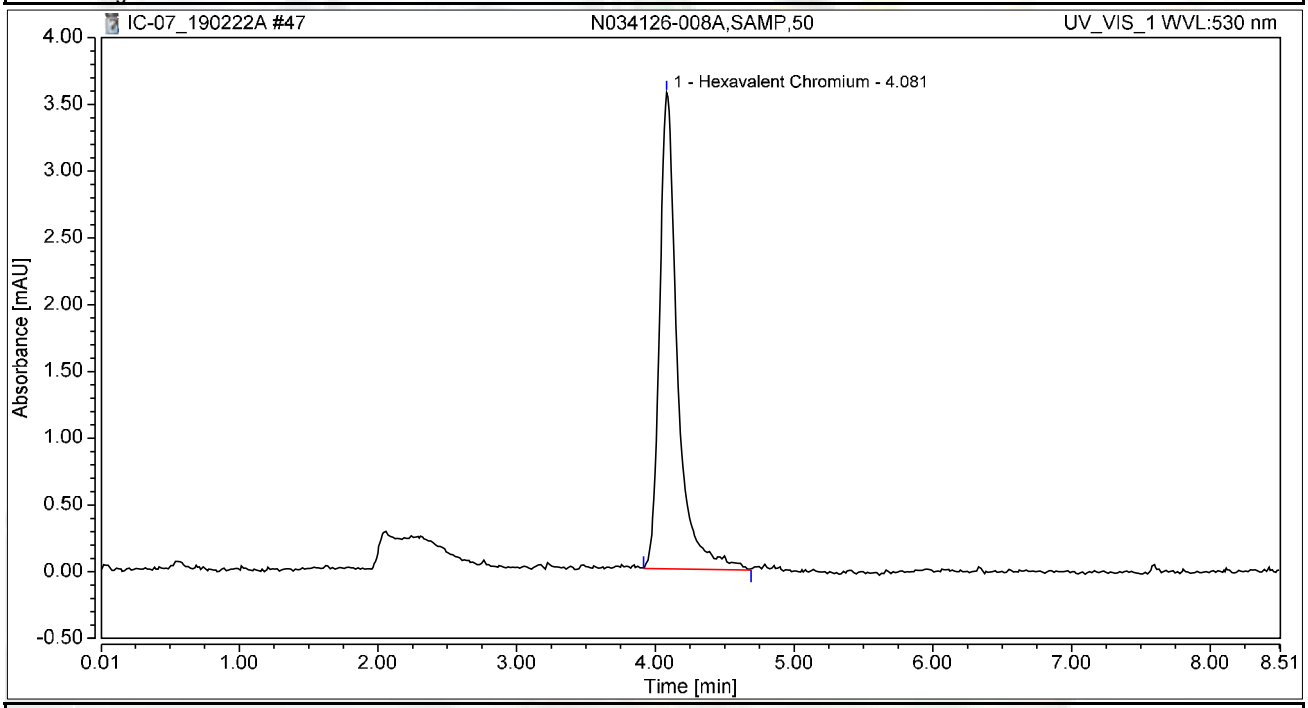
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 5.031 | 34.066 | 100.00 | 100.00 | 20.3023 |
| **Total:** | | | **5.031** | **34.066** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-008A,SAMP,50** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **36** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 15:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

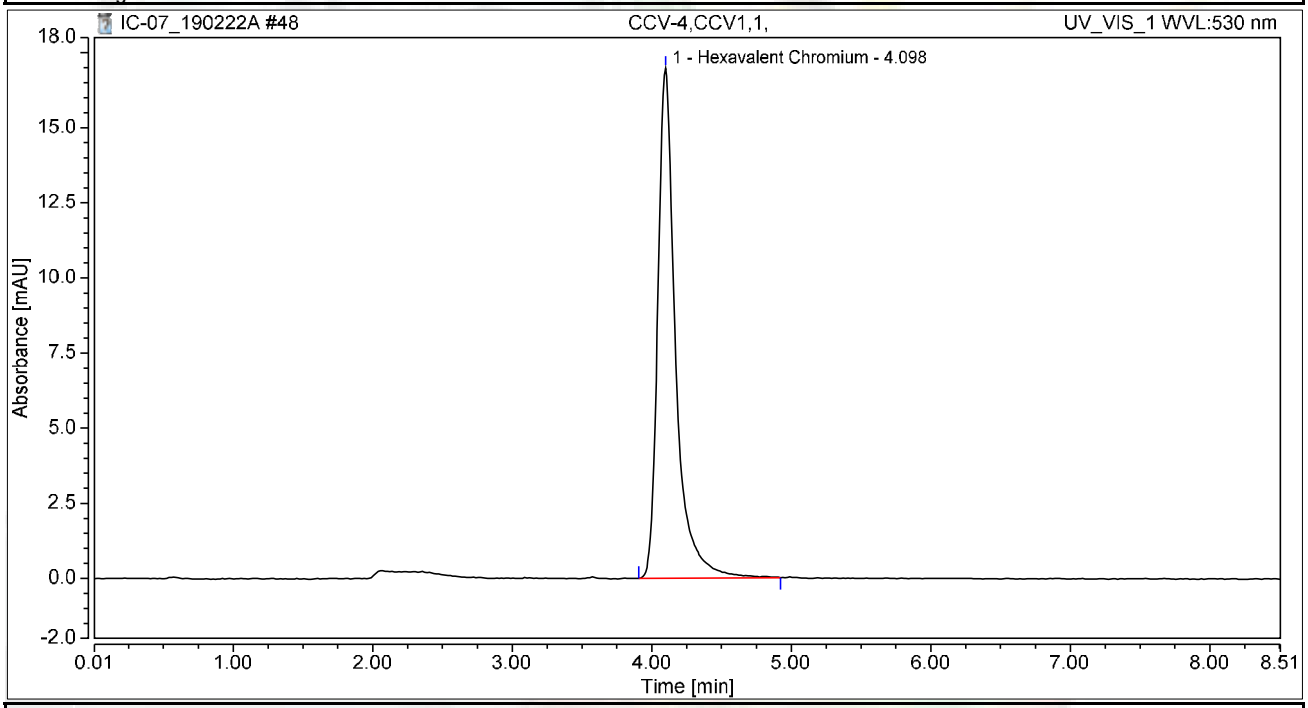
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.534 | 3.564 | 100.00 | 100.00 | 2.1550 |
| **Total:** | | | **0.534** | **3.564** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-4,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **37** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 15:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

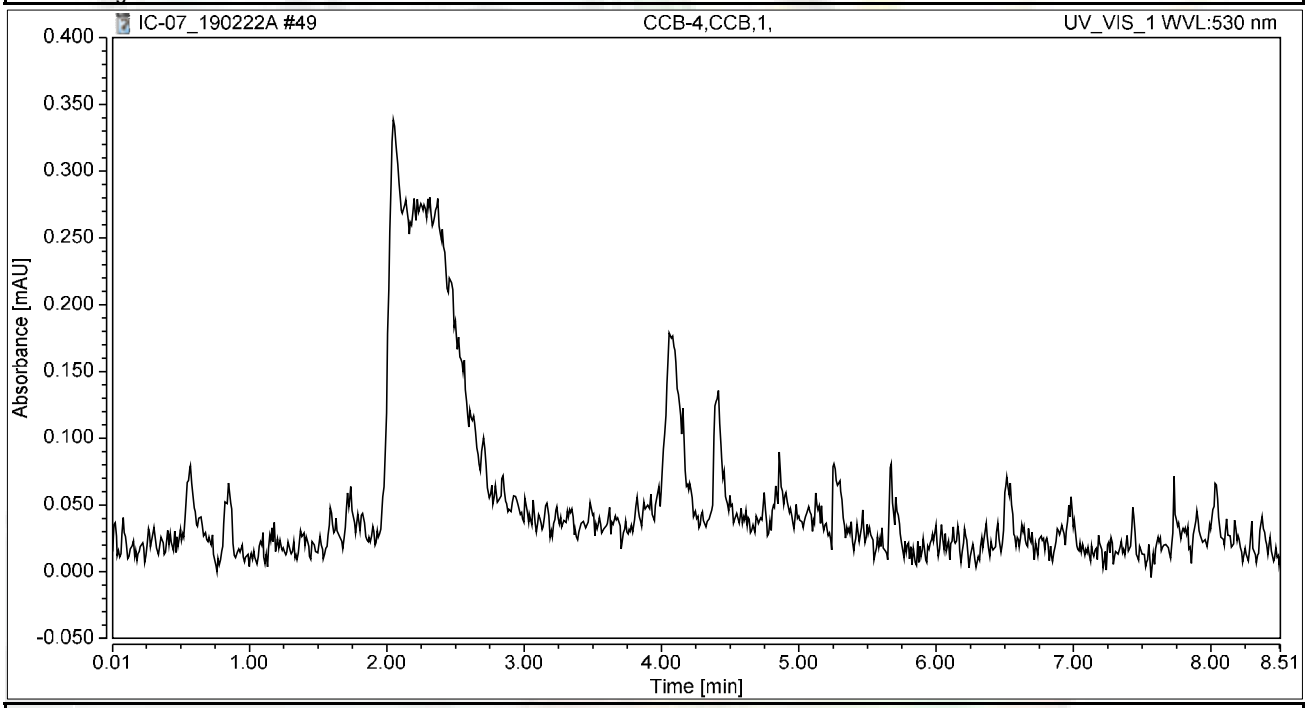
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.501 | 16.969 | 100.00 | 100.00 | 10.0915 |
| **Total:** | | | **2.501** | **16.969** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-4,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **38** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 15:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

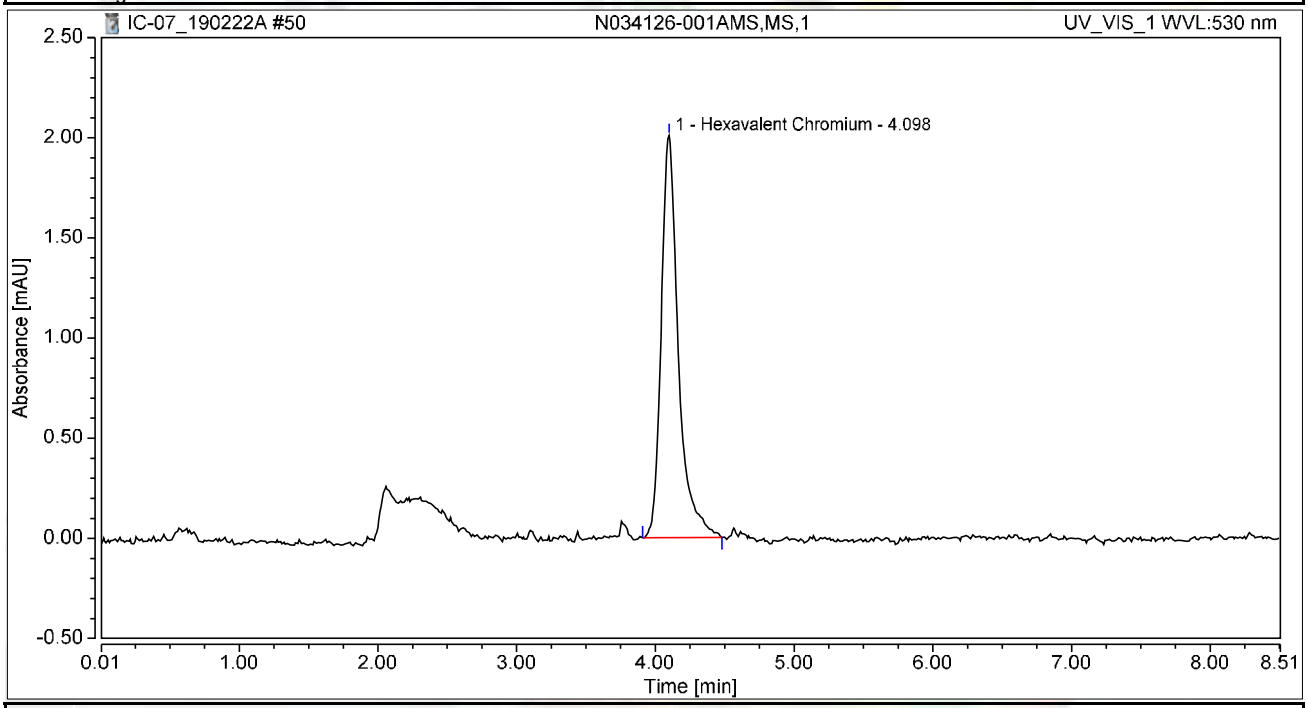
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **40** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 15:55** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

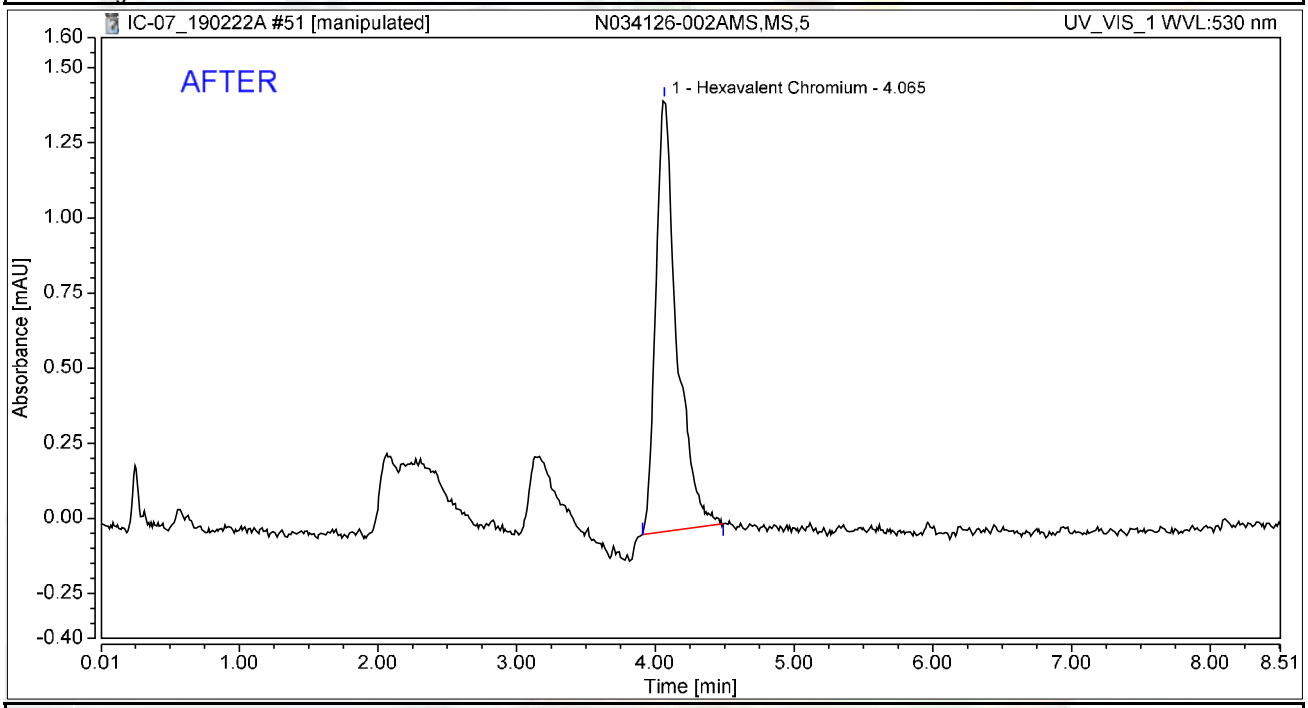
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.288 | 2.008 | 100.00 | 100.00 | 1.1619 |
| **Total:** | | | **0.288** | **2.008** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-002AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **41** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 16:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

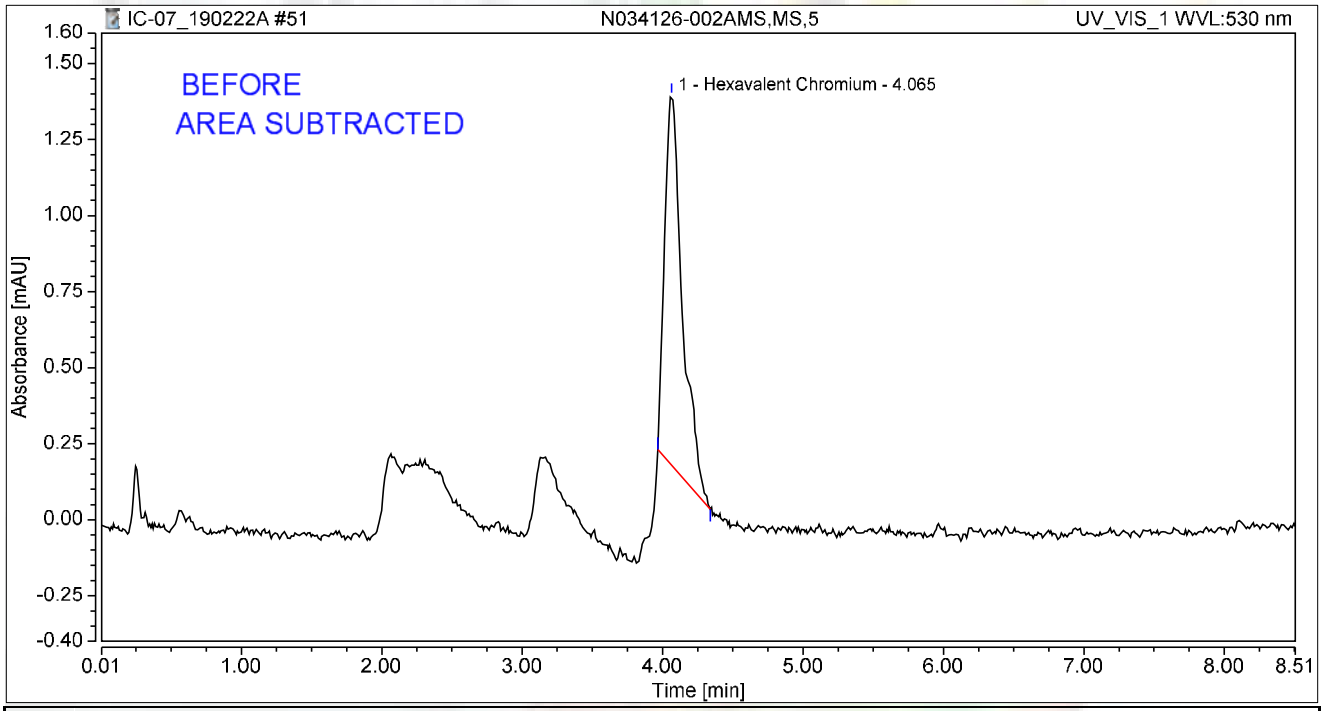
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.065 | 0.253 | 1.439 | 100.00 | 100.00 | 1.0198 |
| **Total:** | | | **0.253** | **1.439** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-002AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **41** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 16:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

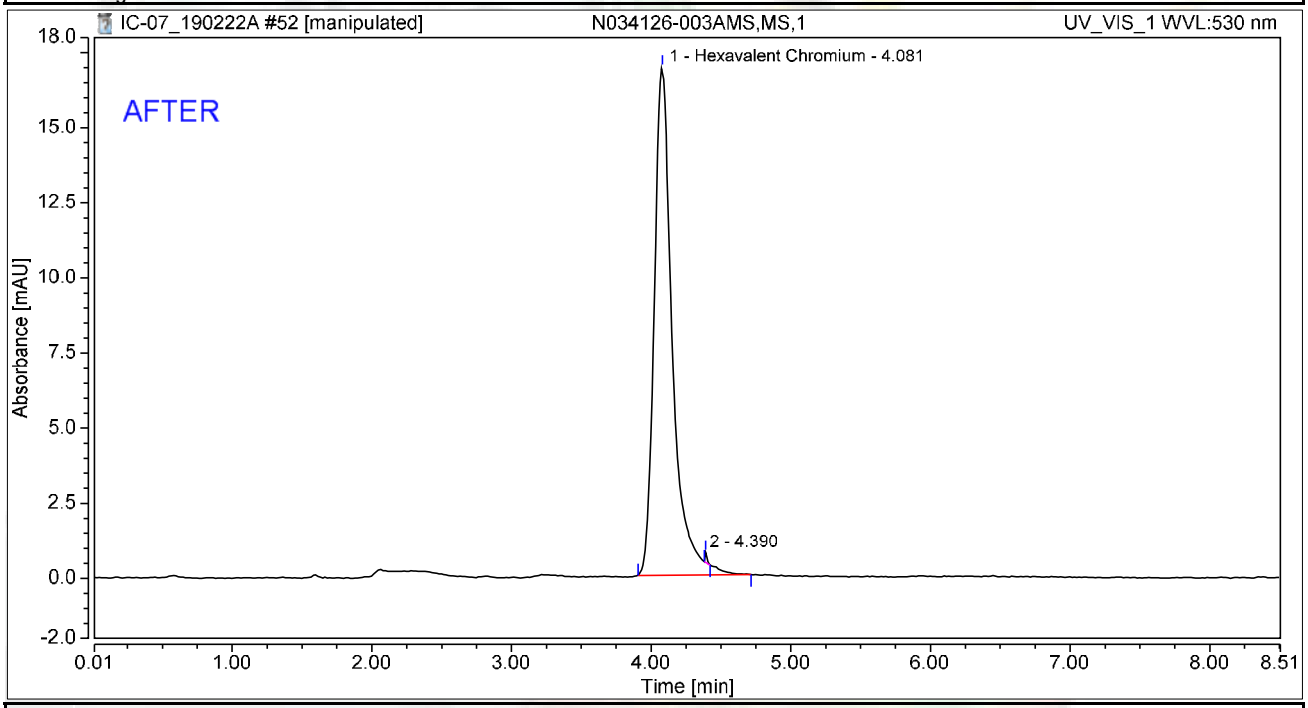
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.065 | 0.179 | 1.217 | 100.00 | 100.00 | 0.7204 |
| **Total:** | | | **0.179** | **1.217** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-003AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **42** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 16:16** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 2.549 | 16.915 | 99.80 | 98.09 | 10.2865 |
| 2 | | 4.390 | 0.005 | 0.329 | 0.20 | 1.91 | n.a. |
| **Total:** | | | **2.554** | **17.244** | **100.00** | **100.00** | |

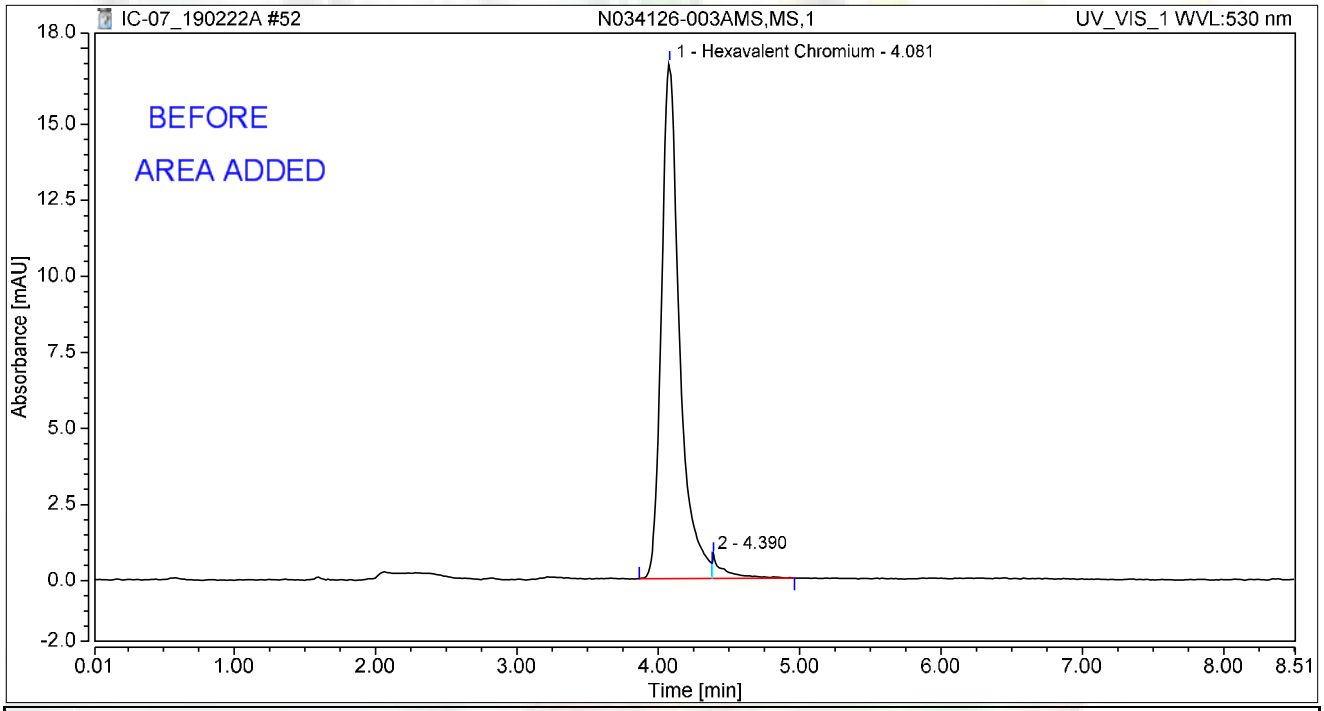
Reviewed by:
Nancy 2/27/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-003AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **42** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 16:16** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

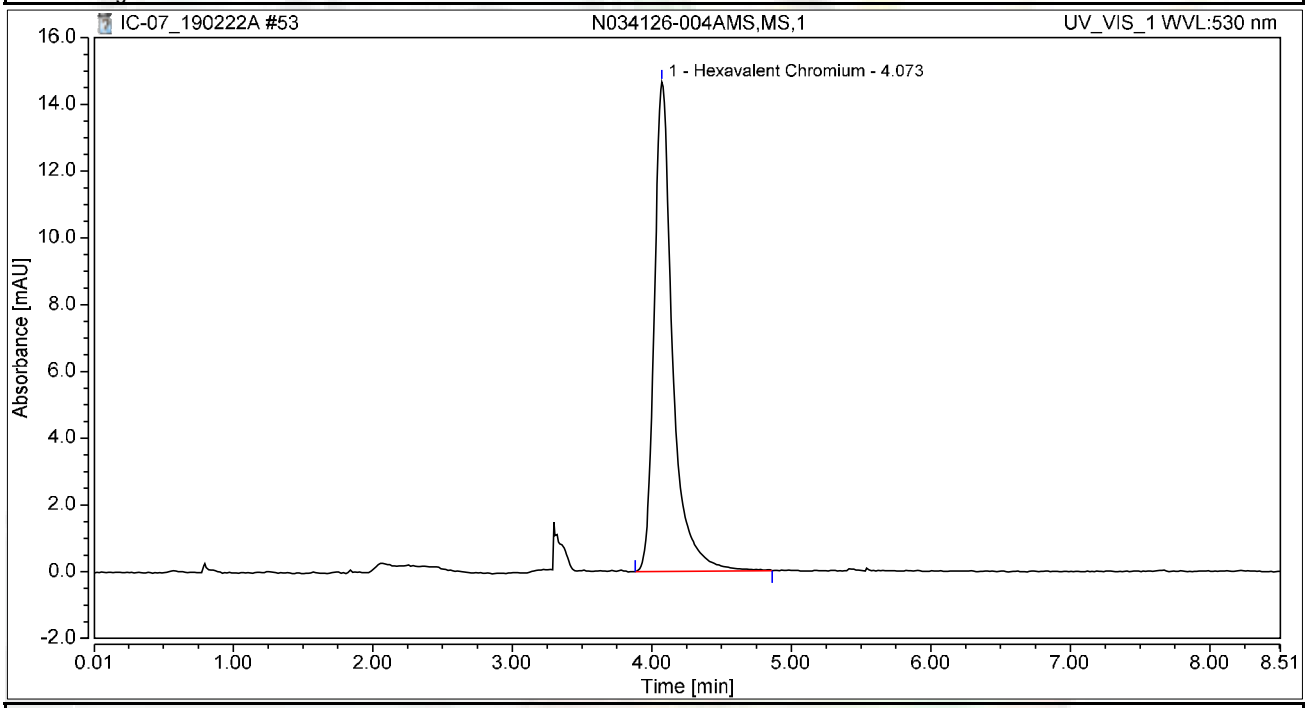
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 2.527 | 16.962 | 97.00 | 95.50 | 10.1967 |
| 2 | | 4.390 | 0.078 | 0.799 | 3.00 | 4.50 | n.a. |
| **Total:** | | | **2.605** | **17.762** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-004AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **43** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 16:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

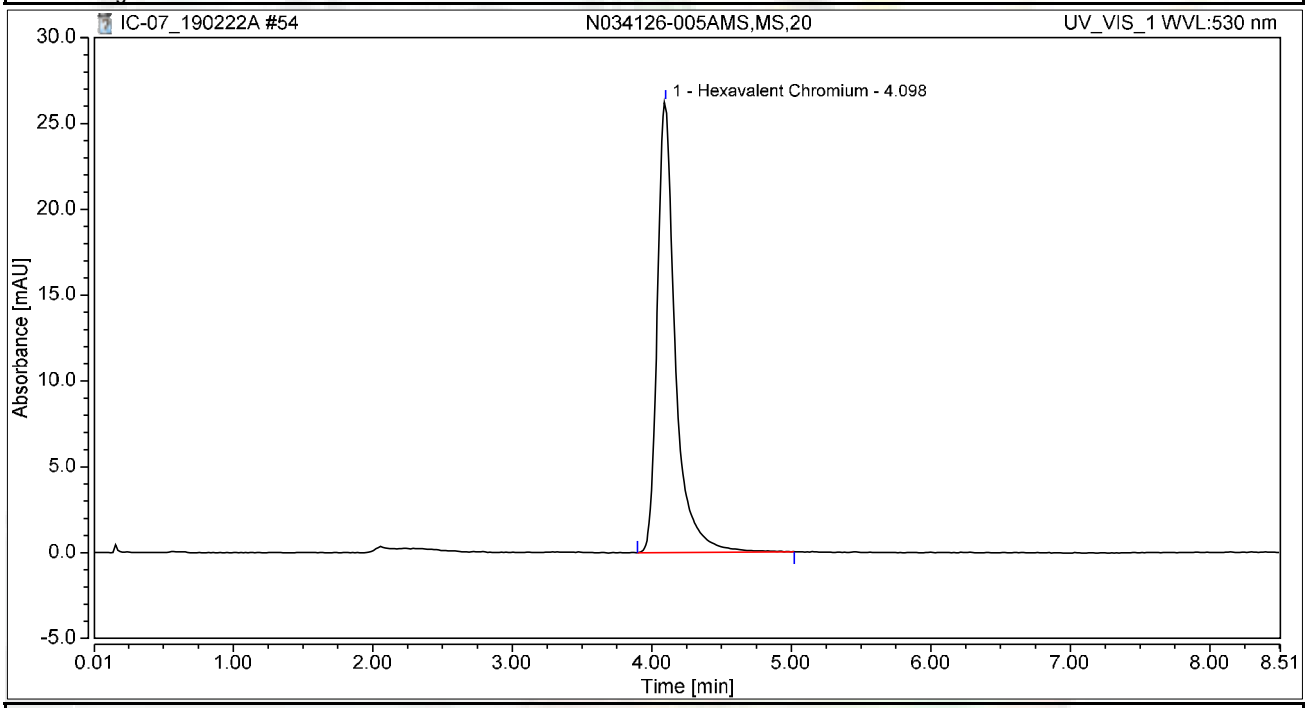
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 2.240 | 14.669 | 100.00 | 100.00 | 9.0394 |
| **Total:** | | | **2.240** | **14.669** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-005AMS,MS,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **44** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 16:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

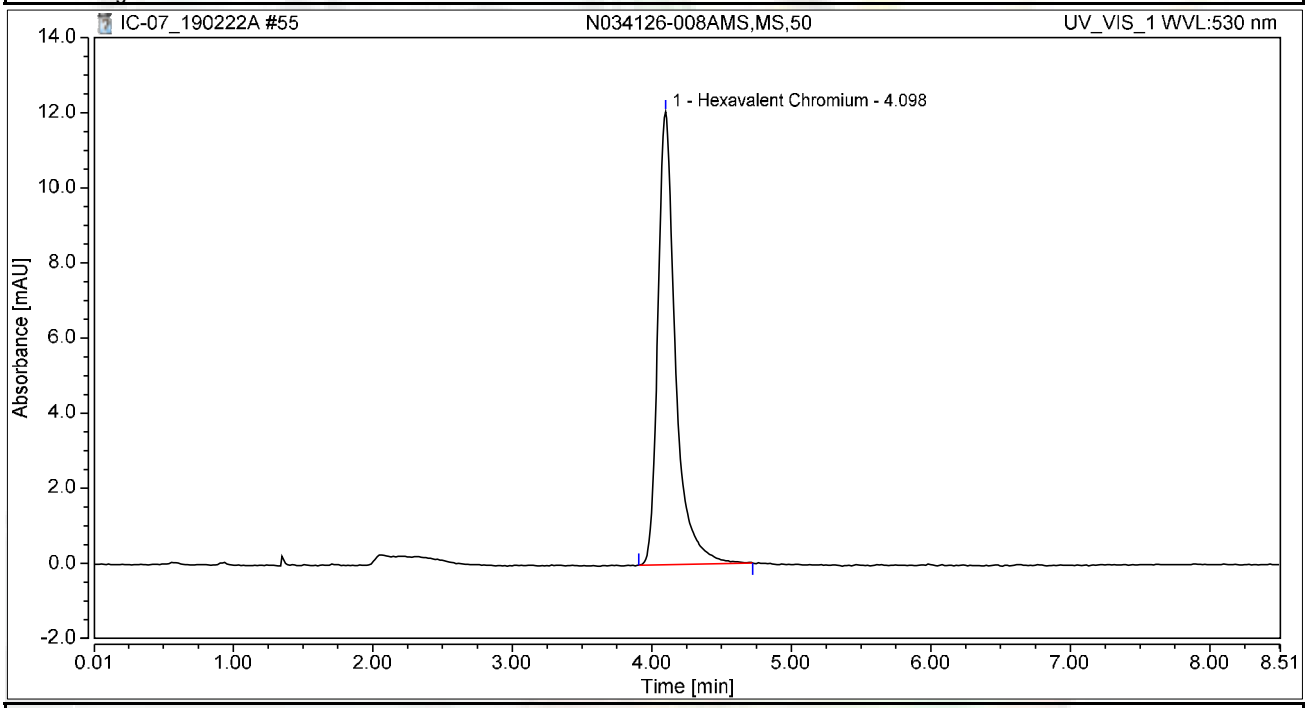
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 3.937 | 26.254 | 100.00 | 100.00 | 15.8850 |
| **Total:** | | | **3.937** | **26.254** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-008AMS,MS,50** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **45** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 16:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

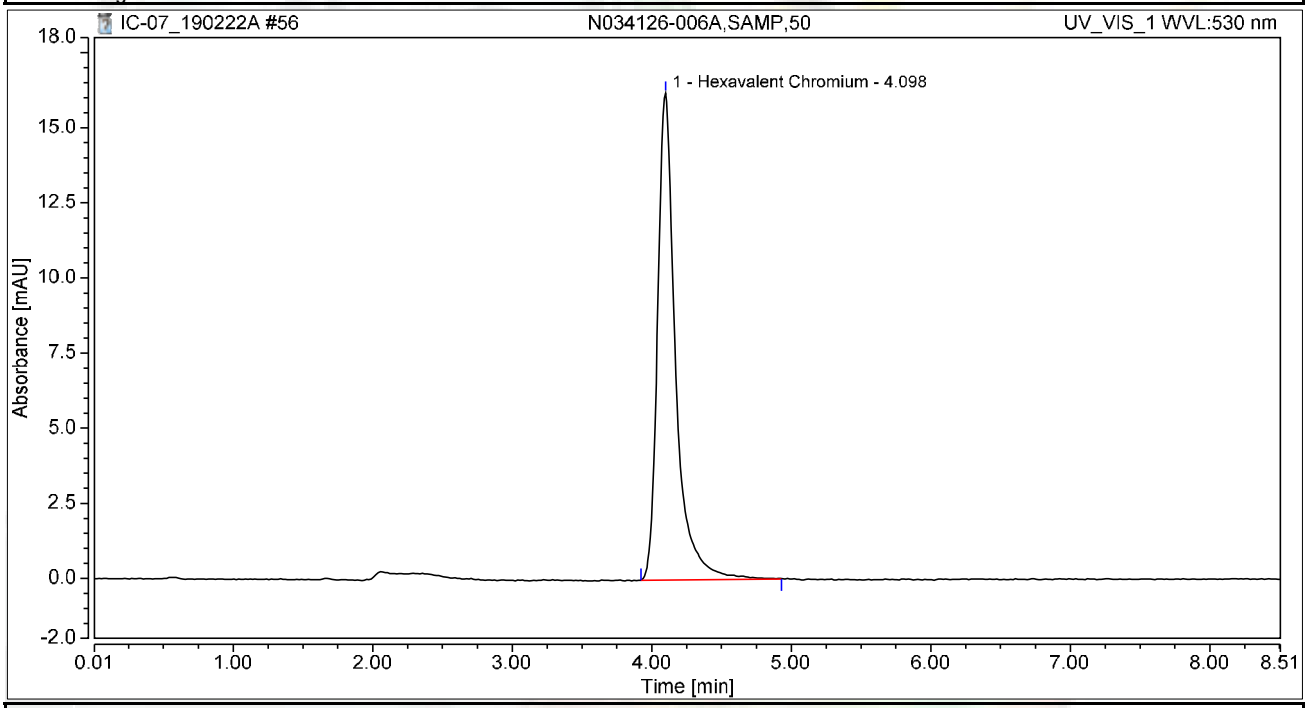
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.762 | 12.064 | 100.00 | 100.00 | 7.1103 |
| **Total:** | | | **1.762** | **12.064** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-006A,SAMP,50** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **46** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 16:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

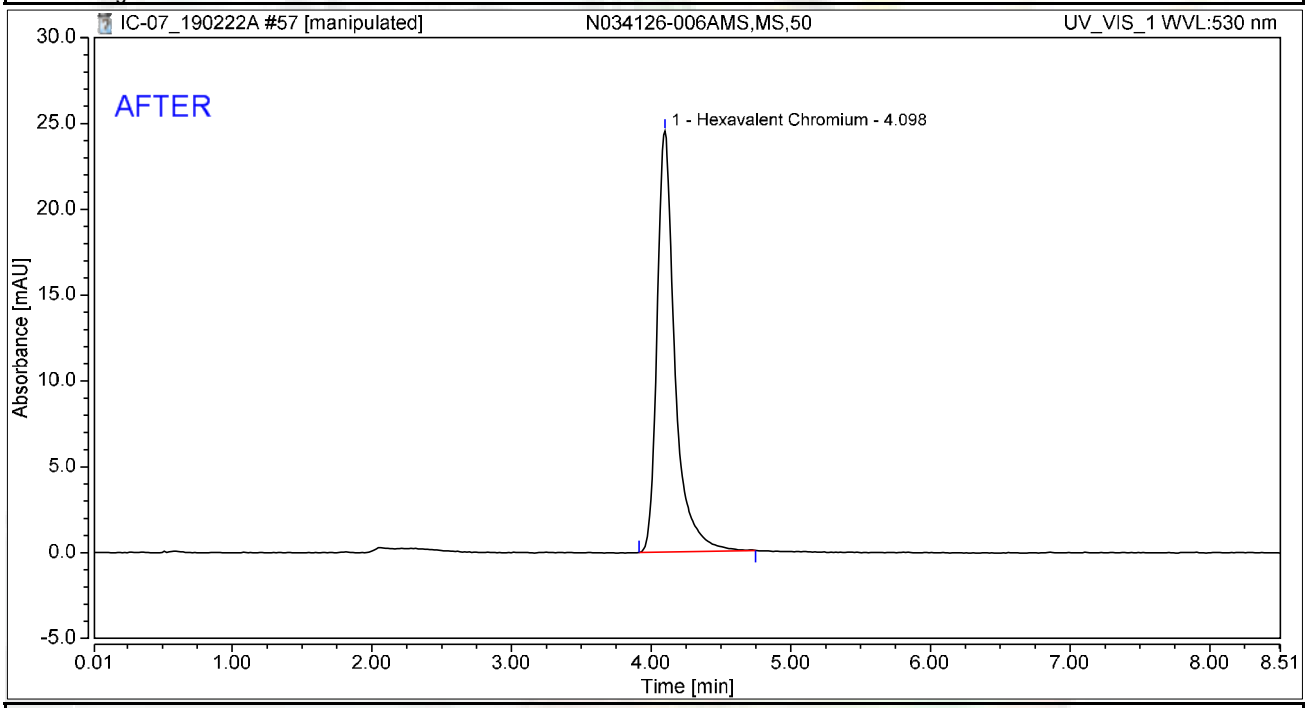
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.423 | 16.206 | 100.00 | 100.00 | 9.7773 |
| **Total:** | | | **2.423** | **16.206** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-006AMS,MS,50** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **47** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 17:03** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 3.631 | 24.536 | 100.00 | 100.00 | 14.6539 |
| **Total:** | | | **3.631** | **24.536** | **100.00** | **100.00** | |

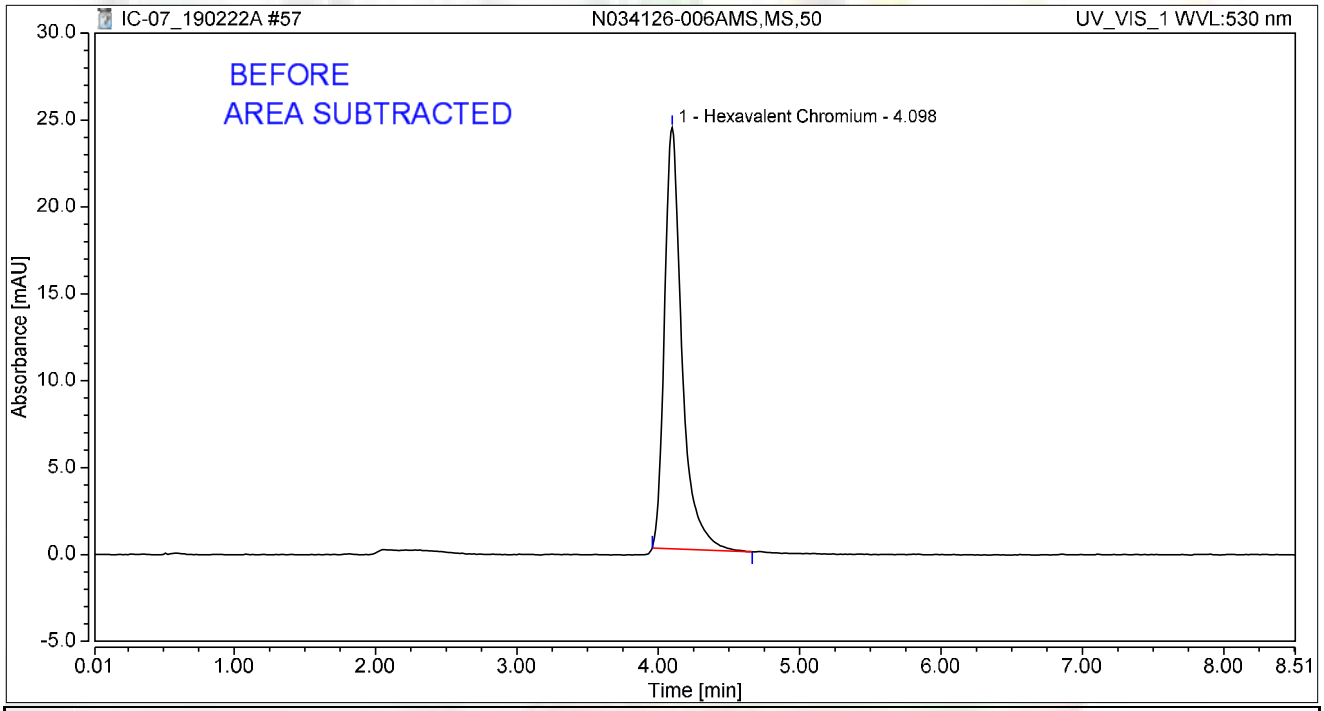
Reviewed by:
Nancy 2/27/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-006AMS,MS,50** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **47** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 17:03** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

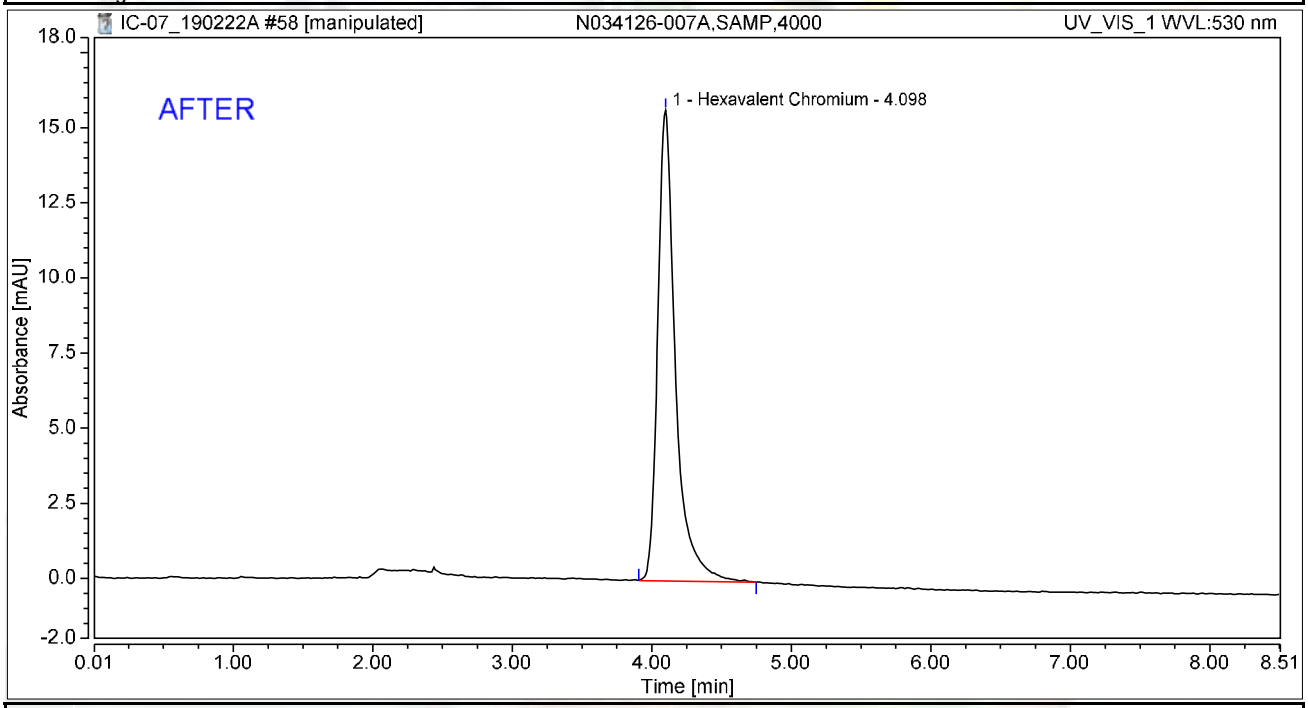
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 3.480 | 24.232 | 100.00 | 100.00 | 14.0442 |
| **Total:** | | | **3.480** | **24.232** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-007A,SAMP,4000** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **48** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 17:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.304 | 15.668 | 100.00 | 100.00 | 9.2966 |
| **Total:** | | | **2.304** | **15.668** | **100.00** | **100.00** | |

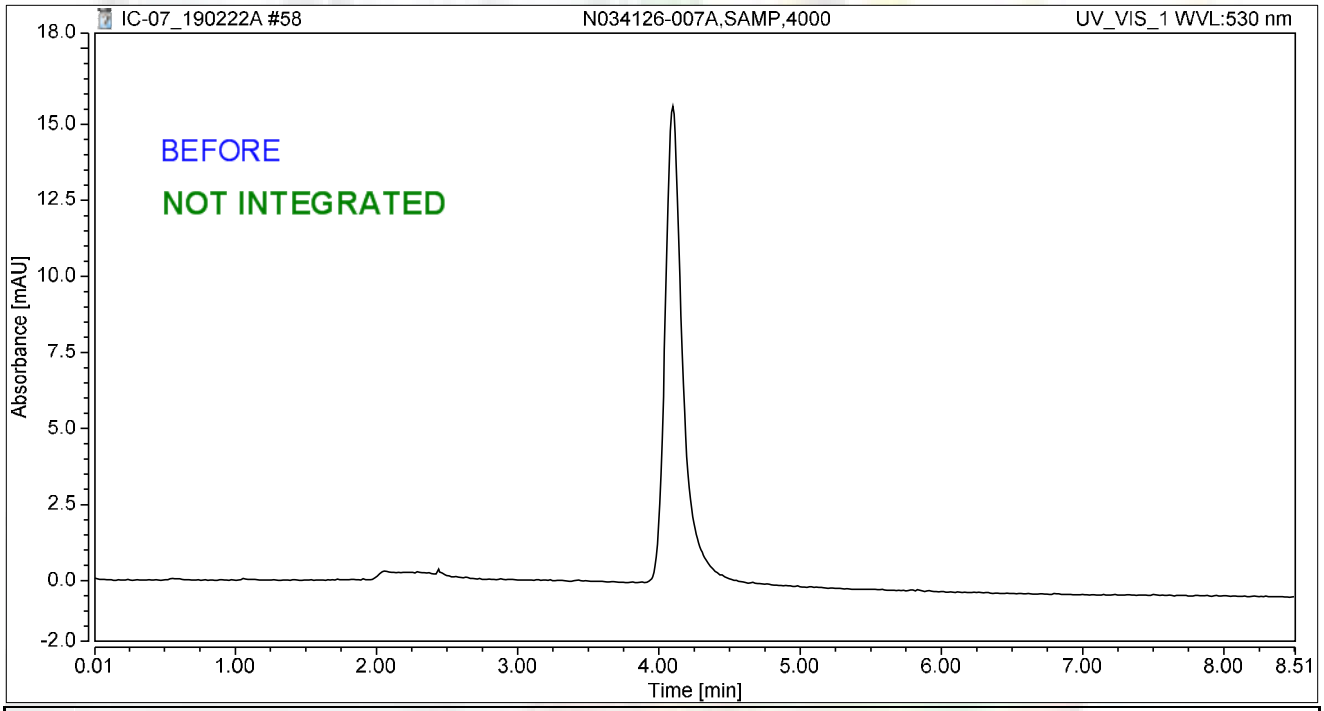
Reviewed by:
Nancy 2/27/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-007A,SAMP,4000** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **48** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 17:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

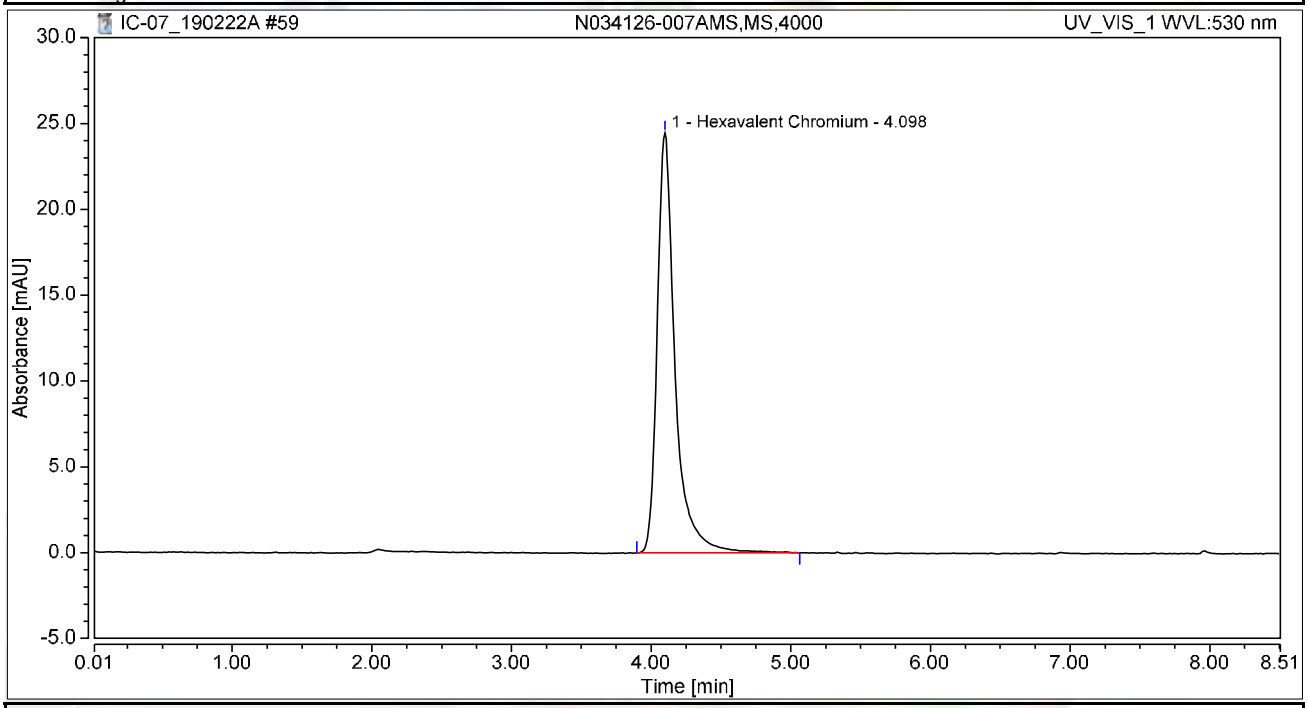
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-007AMS,MS,4000** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **49** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 17:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

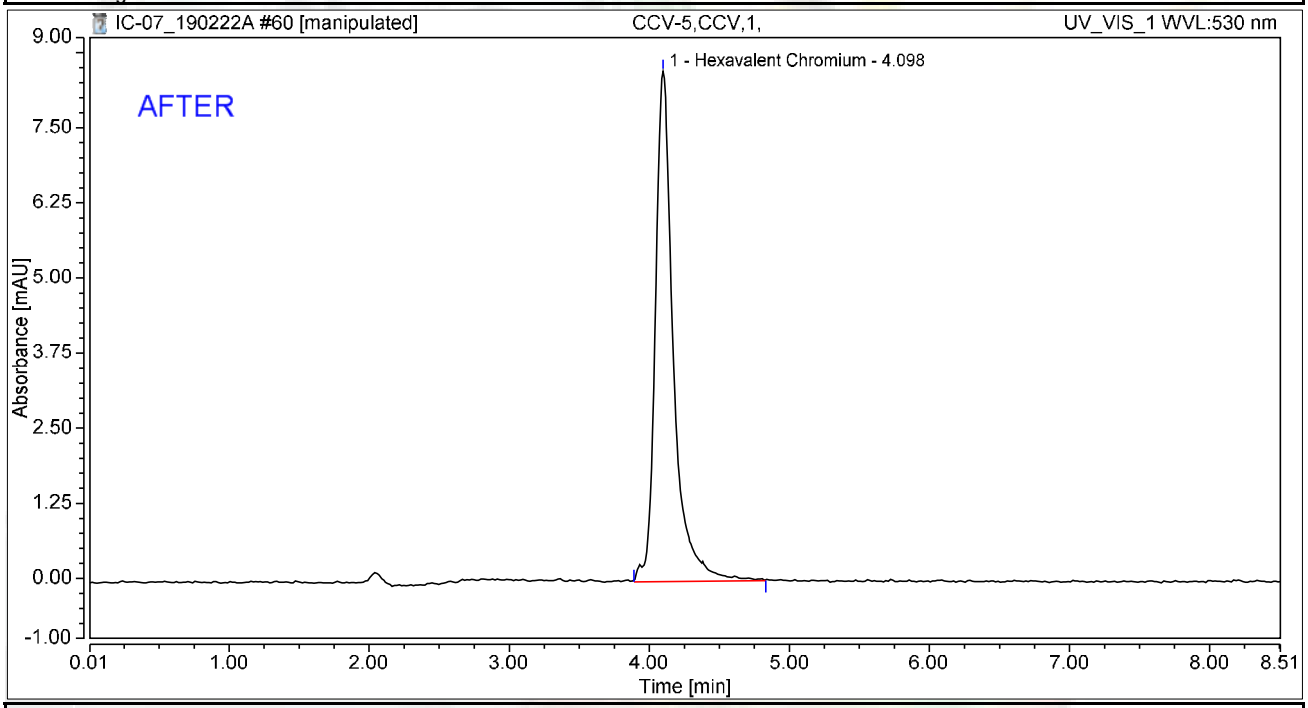
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 3.627 | 24.470 | 100.00 | 100.00 | 14.6369 |
| **Total:** | | | **3.627** | **24.470** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-5,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 17:43** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.272 | 8.487 | 100.00 | 100.00 | 5.1324 |
| **Total:** | | | **1.272** | **8.487** | **100.00** | **100.00** | |

Reviewed by:
Nancy 2/27/2019

My first report/Integration

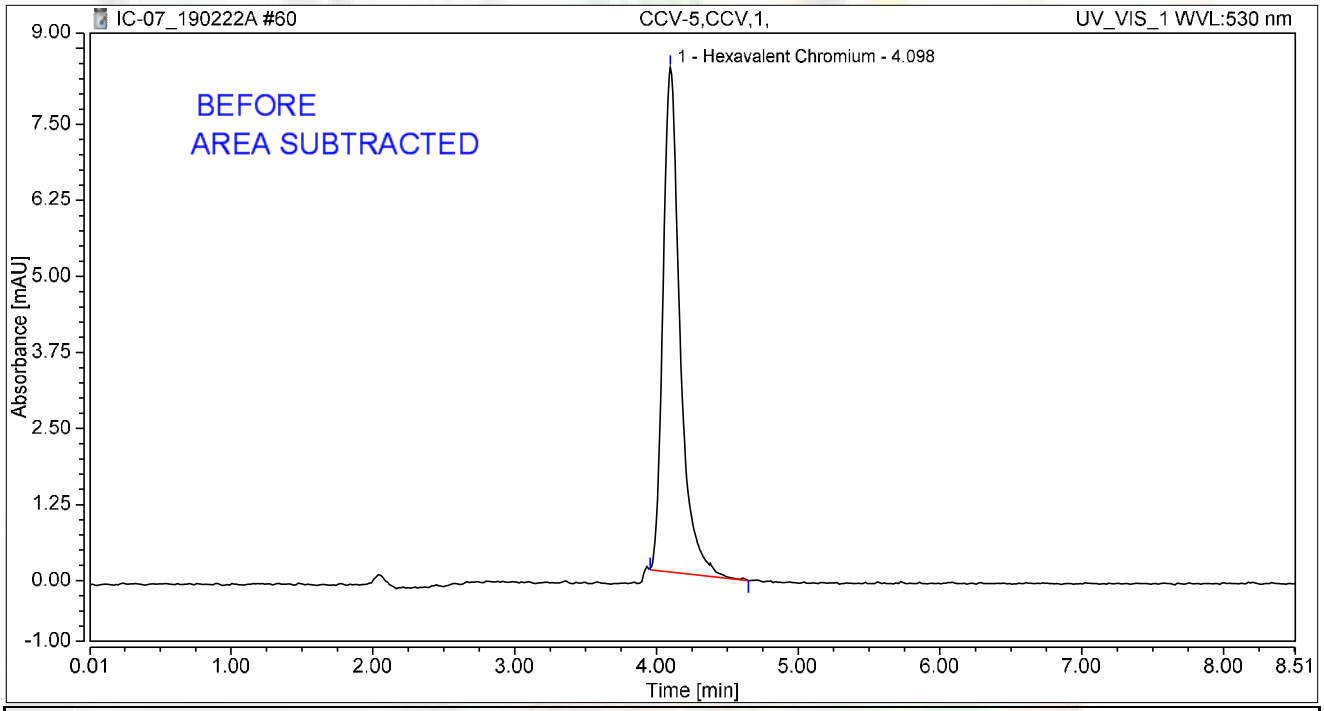
Chromeleon (c) Dionex
Version 7.1.1.1127

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-5,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 17:43** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

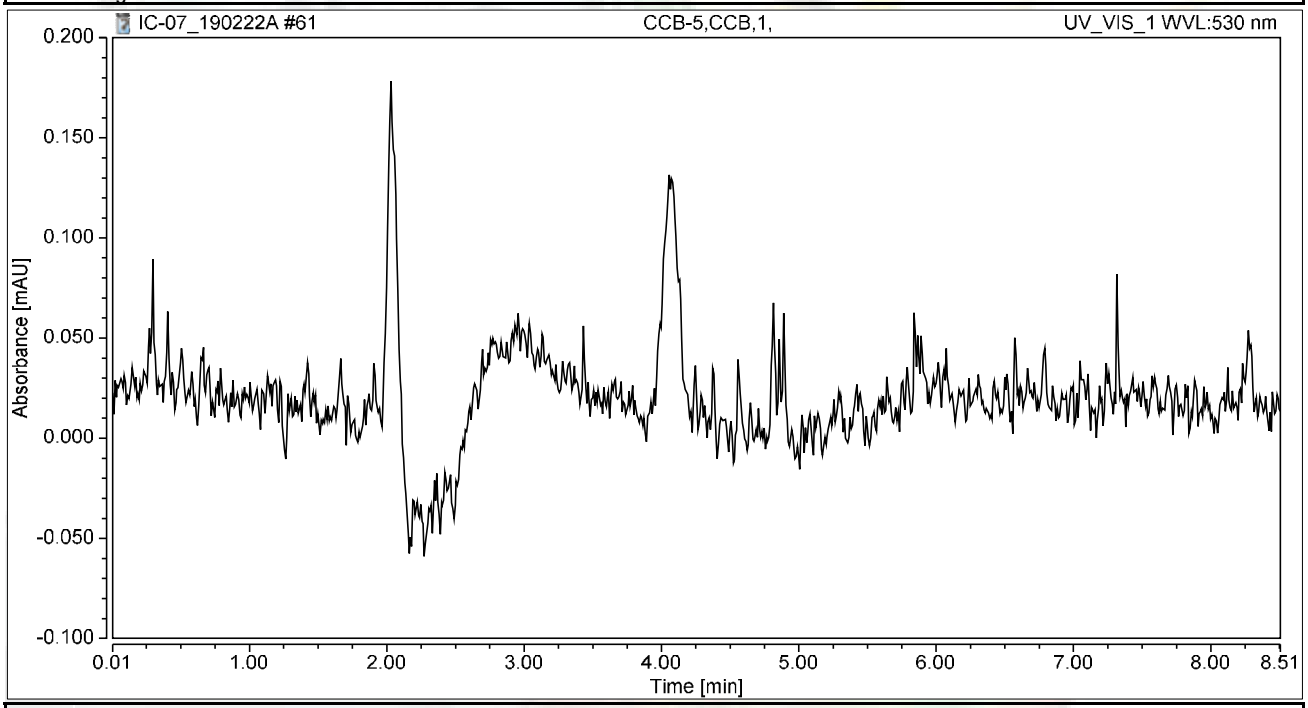
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.161 | 8.296 | 100.00 | 100.00 | 4.6856 |
| **Total:** | | | **1.161** | **8.296** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-5,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 17:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

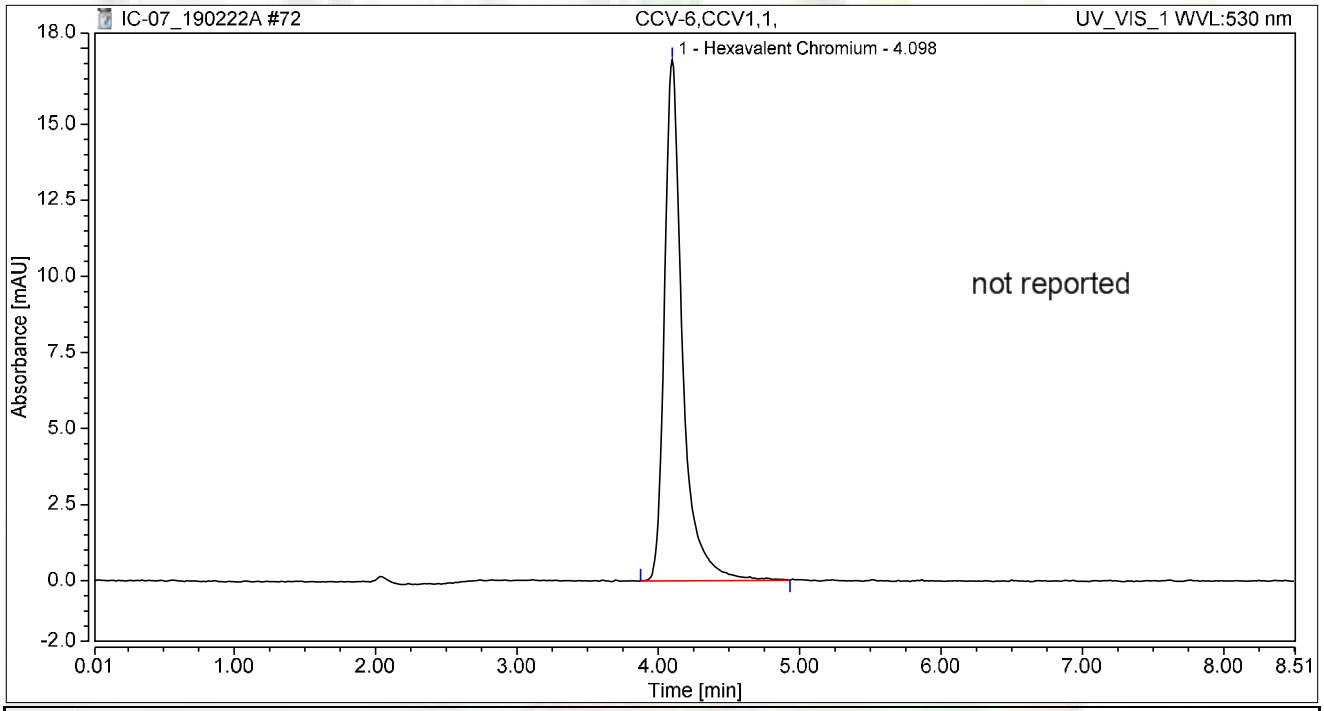
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-6,CCV1,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 19:38** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

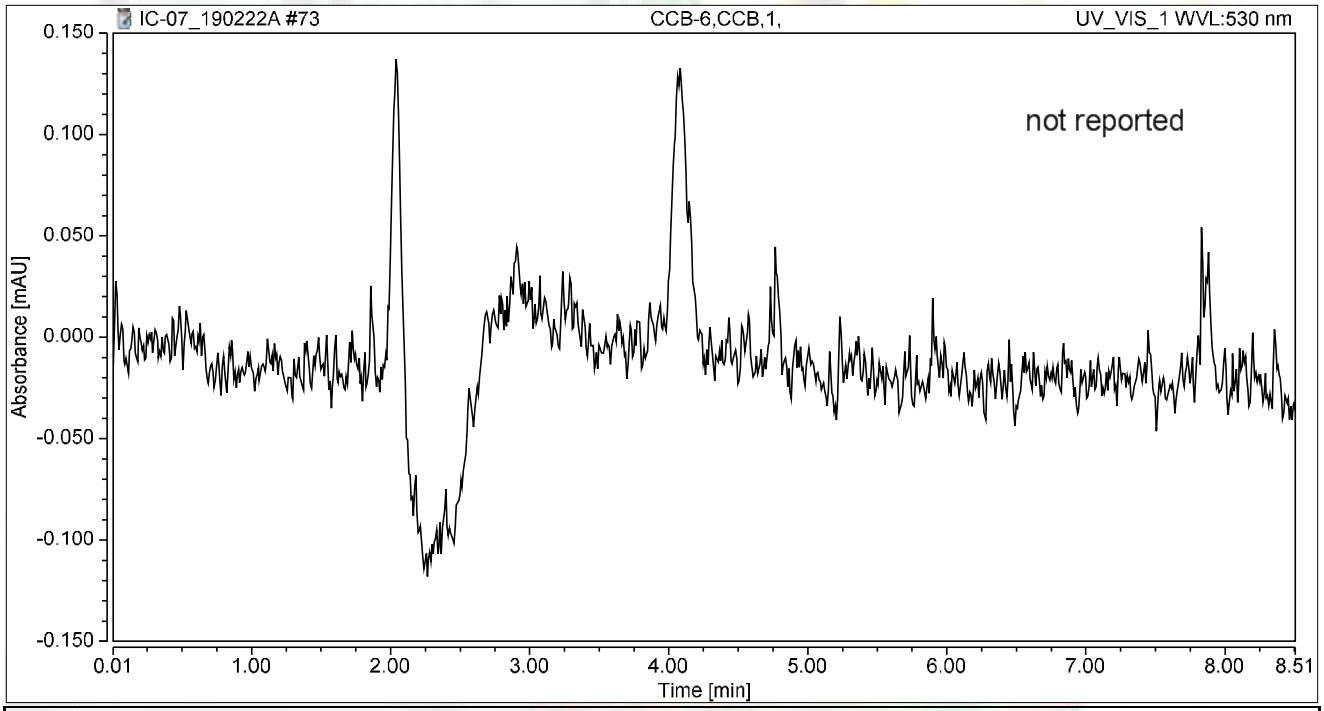
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.540 | 17.132 | 100.00 | 100.00 | 10.2514 |
| **Total:** | | | **2.540** | **17.132** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-6,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 19:47** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

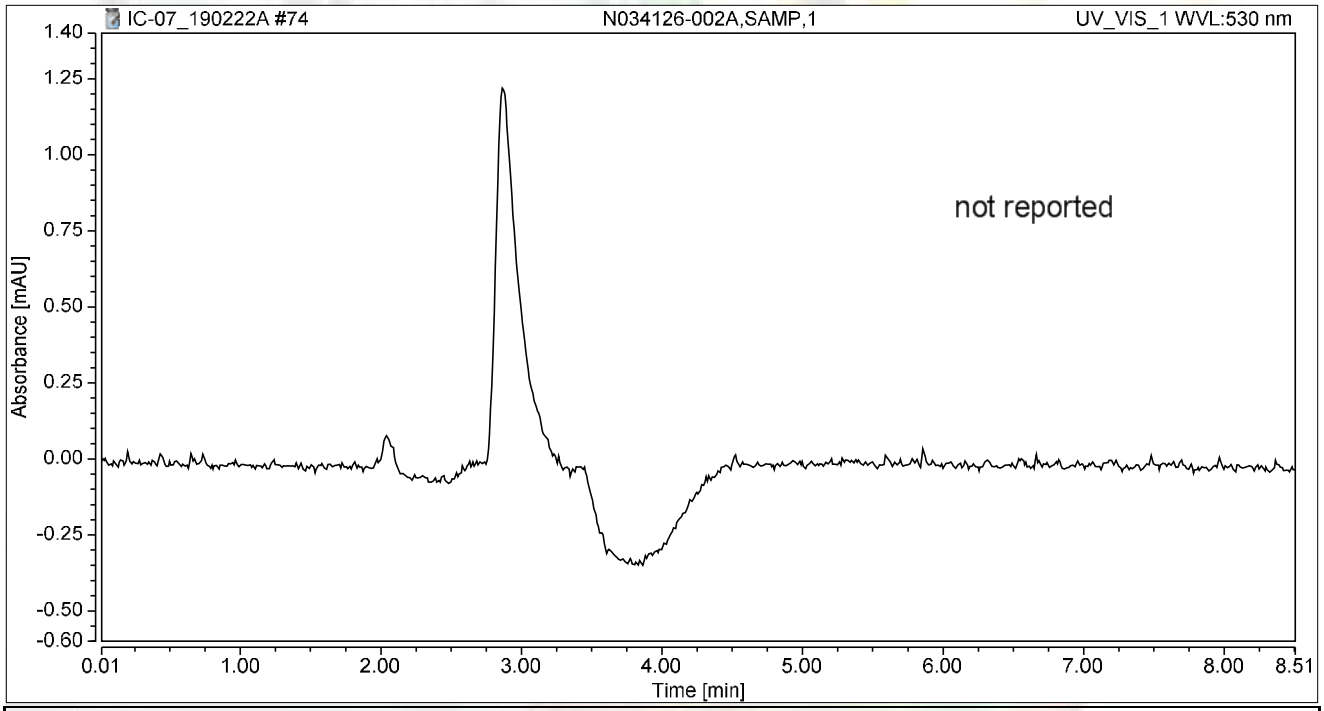
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-002A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 19:57** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

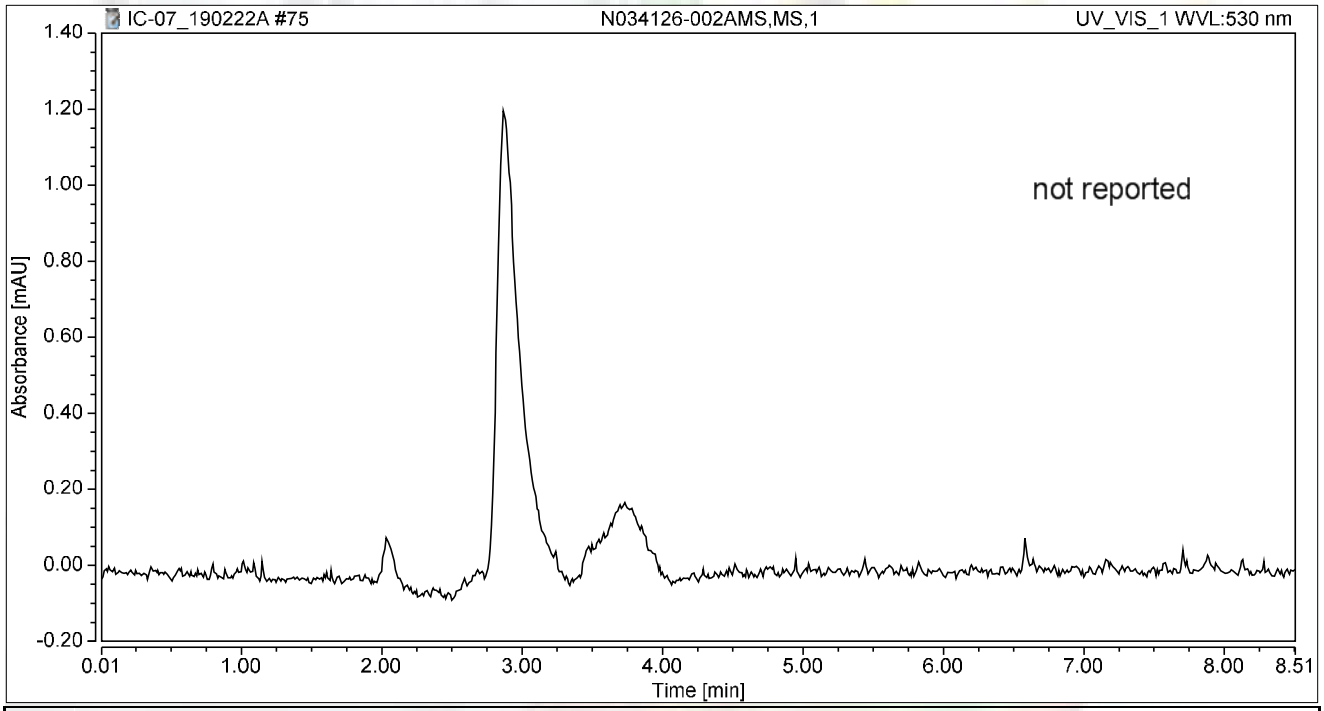
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034126-002AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 20:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

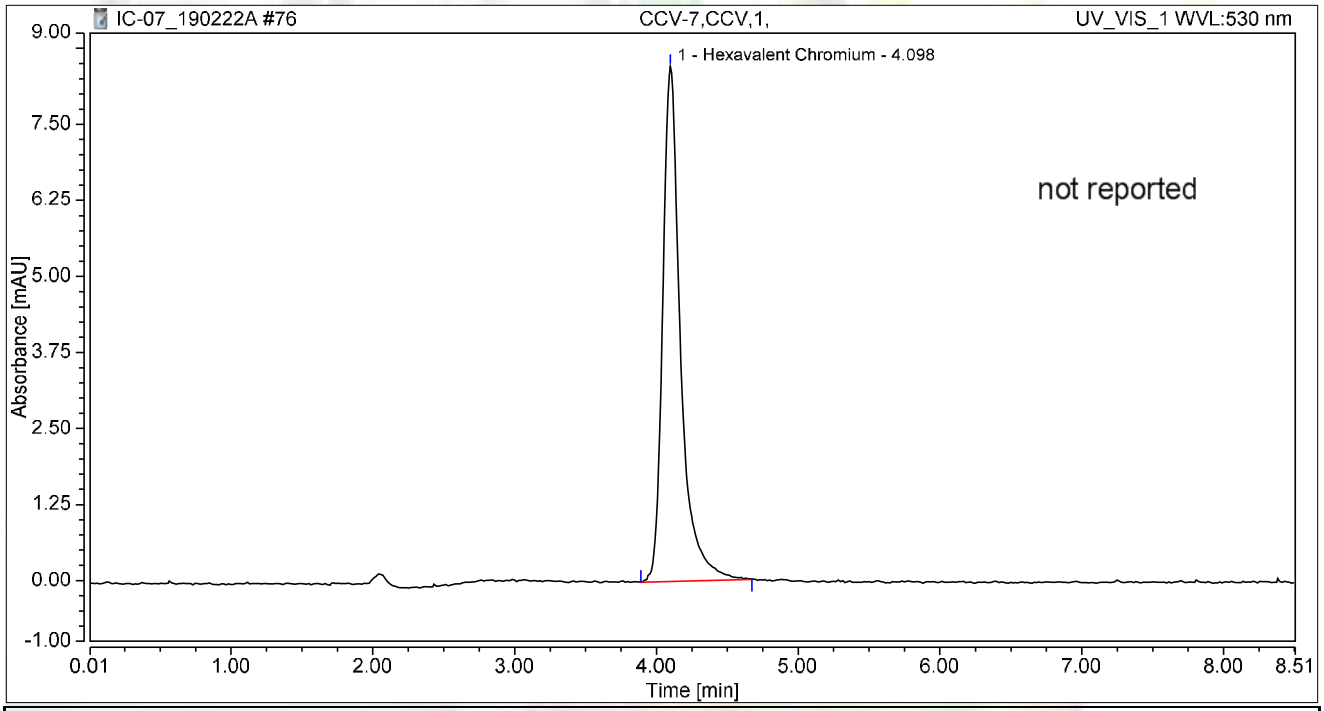
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-7,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 20:16** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

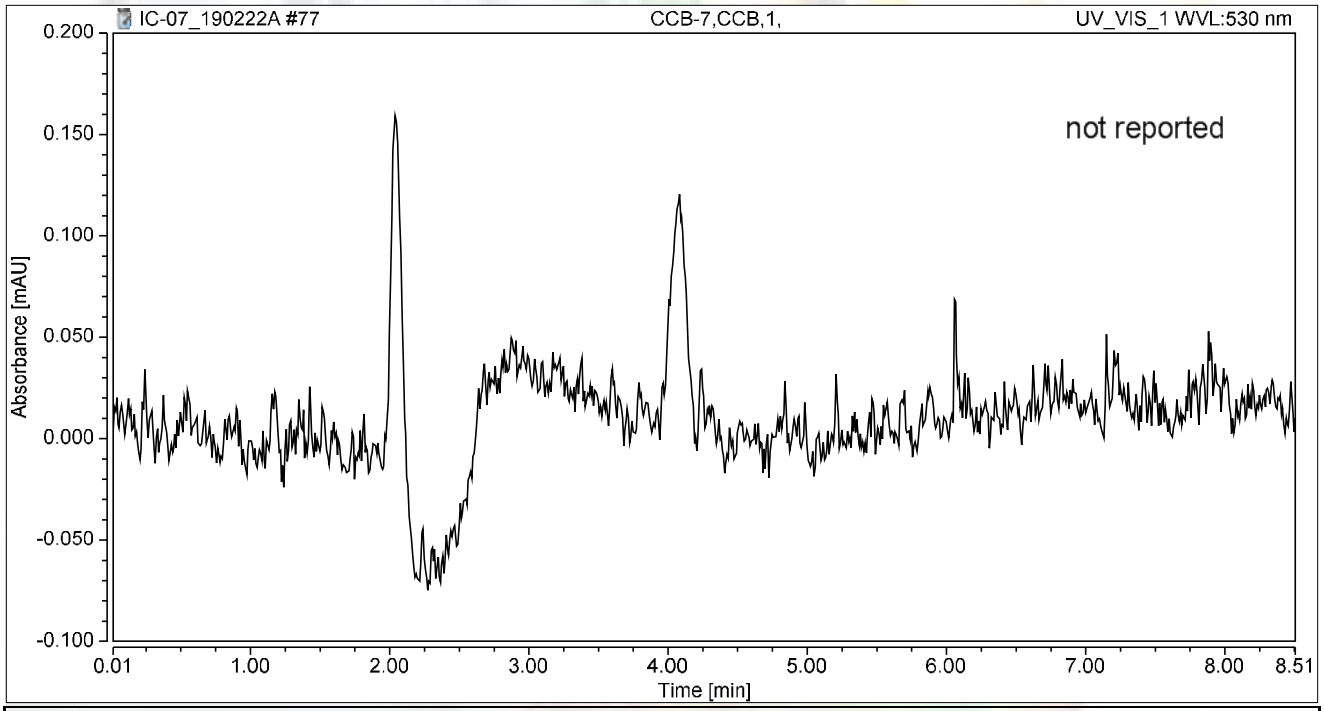
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.239 | 8.468 | 100.00 | 100.00 | 4.9980 |
| **Total:** | | | **1.239** | **8.468** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-7,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **n.a.** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **22/Feb/19 20:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# SM 4500-NO3F

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R132057 **Analyst:** QBM

**ASSET #:** N034122, N034126 **Date Analyzed:** 2/22/2019

**Method:** 4500_N03

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | X | | | X | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 3. ICV within ± 15% of expected value. | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | X | | | X | | |
| 5. CCV within ± 15% of expected value. | X | | | X | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | X | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< PQL) | X | | | X | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | X | | | X | | |
| 9. Are all samples analyzed within hold time. | X | | | X | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 11. LCS compounds within control limits. | X | | | X | | |
| 12. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | X |
| 14. Runlog complete and included in package. | X | | | X | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | X |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | X |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | X | | |
| 18. Are analytical results correct? | X | | | X | | |
| 19. Is the QC summary report present and complete? | X | | | X | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer QBM Date: 2/28/2019

2nd Level Reviewer 2/28/2019 Date: —

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R132167 **Analyst:** QBM

**ASSET #:** N034126, N034177, N034196, N034179 **Date Analyzed:** 2/27/2019

**Method:** 4500_N03

| Initial Calibration | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis or every 24 hrs. | X | | | X | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 3. ICV within ± 15% of expected value. | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | X | | | X | | |
| 5. CCV within ± 15% of expected value. | X | | | X | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | X | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< PQL) | X | | | X | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | X | | | X | | |
| 9. Are all samples analyzed within hold time. | X | | | X | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 11. LCS compounds within control limits. | X | | | X | | |
| 12. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | X |
| 14. Runlog complete and included in package. | X | | | X | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | X |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | X |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | X | | |
| 18. Are analytical results correct? | X | | | X | | |
| 19. Is the QC summary report present and complete? | X | | | X | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer QBM Date: 2/28/2019

2nd Level Reviewer 2/28/2019 Date: —

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 4500N03F
**TEST NAME:** Nitrate/Nitrite-N by Automated Cadmium Reduction
**MATRIX:** Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

**Nitrate/Nitrite-N, mg/L= A * DF**

where:

A = mg/L, instrument calculated concentration
DF = dilution factor ~~BGLE~~

For: **N034126-003D**

The concentration in mg/L is calculated as follows:

| | | | | |
|---|---|---|---|---|
| **Nitrate/Nitrite-N** | = | 0.7683 | * | 5 |
| | = | 3.8415 | mg/L | |

Reporting result in two significant figures,

**Nitrate/Nitrite-N = 3.8 mg/L**

NS 2/28/2019

# INITIAL CALIBRATION DATA SUMMARY

## EPA 353.2 NO3 as N (NO3CD) - Endpoint

### General setup

| | |
|---|---|
| **Measuring unit** | **ppm** |
| **Number of decimals** | 4 |
| **Stabilization time (sec)** | 26 |
| **Measurement time (sec)** | 3 |
| **Sample volume (µl)** | 450 |
| **Filter** | 546 |
| **Reagent prime** | No |
| **CD Reduction** | Yes |

### Limits and dilution

| | |
|---|---|
| **Low level** | **-0.2** |
| **High level** | 4 |
| **Max linearity** | 4 |
| **Blank min** | 0 |
| **Blank max** | 0.049 |
| **Postdilution factor %** | 10 |
| **Factor Calculations** | No |

### Washes

| | |
|---|---|
| **Number of final washes** | 6 |
| **Wash every** | R1, R2 |

### O.D.Corrections

| | |
|---|---|
| **Carry Over** | **No** |
| **Carry Over value** | 0.0000 |
| **Blank** | No |
| **Gain** | No |

### Reagents

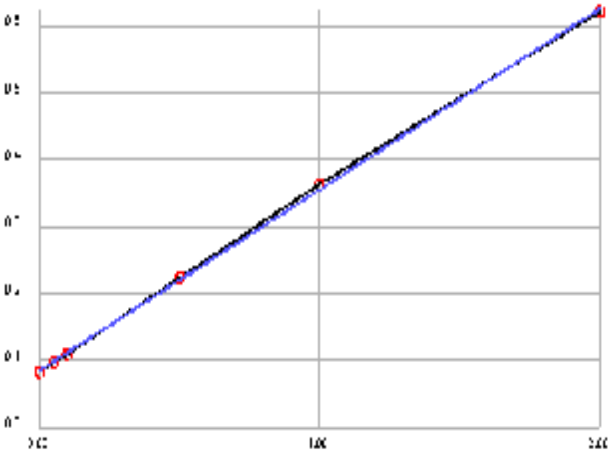
| N. | Volume (µl) | Incubation time (sec) |
|---|---|---|
| **1** | 200 | 102 |
| **2** | 300 | 663 |
| **3** | 0 | 0 |

### QC

| N. | Value | Tolerance |
|---|---|---|
| **1** | 1 | 0.1 |

## Calibration

| | |
|---|---|
| **Curve type** | Linear (Calibrants) |
| **Curve forced to zero** | No |
| **Blank inclusion** | No |



| | |
|---|---|
| **Formula** | y = 0.2695x + 0.0863 |
| **Correlation** | .999759 |

| Calibrant | Energy | Set | Conc |
|---|---|---|---|
| **1** | 0.0844 | 0.0000 | -0.0071 |
| **2** | 0.0987 | 0.0500 | 0.0460 |
| **3** | 0.1102 | 0.1000 | 0.0886 |
| **4** | 0.2235 | 0.5000 | 0.5090 |
| **5** | 0.3640 | 1.0000 | 1.0302 |
| **6** | 0.6209 | 2.0000 | 1.9833 |

**Notes:**

## EPA 353.2 NO3 as N (NO3CD) - Endpoint

### General setup

| | |
|---|---|
| **Measuring unit** | **ppm** |
| **Number of decimals** | 4 |
| **Stabilization time (sec)** | 26 |
| **Measurement time (sec)** | 3 |
| **Sample volume (µl)** | 450 |
| **Filter** | 546 |
| **Reagent prime** | No |
| **CD Reduction** | Yes |

### Limits and dilution

| | |
|---|---|
| **Low level** | **-0.2** |
| **High level** | 4 |
| **Max linearity** | 4 |
| **Blank min** | 0 |
| **Blank max** | 0.049 |
| **Postdilution factor %** | 10 |
| **Factor Calculations** | No |

### Washes

| | |
|---|---|
| **Number of final washes** | 6 |
| **Wash every** | R1, R2 |

### O.D.Corrections

| | |
|---|---|
| **Carry Over** | **No** |
| **Carry Over value** | 0.0000 |
| **Blank** | No |
| **Gain** | No |

### Reagents

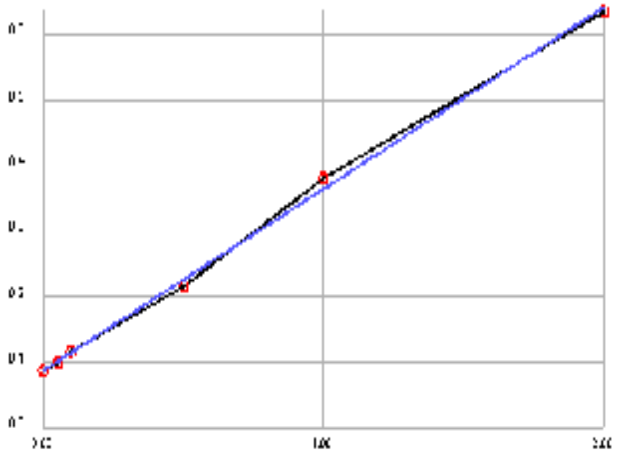
| N. | Volume (µl) | Incubation time (sec) |
|---|---|---|
| **1** | 200 | 102 |
| **2** | 300 | 663 |
| **3** | 0 | 0 |

### QC

| N. | Value | Tolerance |
|---|---|---|
| **1** | 1 | 0.1 |

## Calibration

| | |
|---|---|
| **Curve type** | Linear (Calibrants) |
| **Curve forced to zero** | No |
| **Blank inclusion** | No |



| | |
|---|---|
| **Formula** | y = 0.2767x + 0.0876 |
| **Correlation** | .999021 |

| Calibrant | Energy | Set | Conc |
|---|---|---|---|
| **1** | 0.0864 | 0.0000 | -0.0043 |
| **2** | 0.0999 | 0.0500 | 0.0445 |
| **3** | 0.1172 | 0.1000 | 0.1071 |
| **4** | 0.2154 | 0.5000 | 0.4620 |
| **5** | 0.3816 | 1.0000 | 1.0627 |
| **6** | 0.6348 | 2.0000 | 1.9779 |

**Notes:**

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132057** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132057** | TestNo: **SM4500-NO3** | | Analysis Date: **2/22/2019** | SeqNo: **3299340** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.516 | 0.050 | 0.5000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132057** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132057** | TestNo: **SM4500-NO3** | | Analysis Date: **2/22/2019** | SeqNo: **3299351** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.468 | 0.050 | 0.5000 | 0 | 93.6 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132057** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132057** | TestNo: **SM4500-NO3** | | Analysis Date: **2/22/2019** | SeqNo: **3299362** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.452 | 0.050 | 0.5000 | 0 | 90.4 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132167** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304069** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.526 | 0.050 | 0.5000 | 0 | 105 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132167** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304092** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.481 | 0.050 | 0.5000 | 0 | 96.2 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132167** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304102** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.490 | 0.050 | 0.5000 | 0 | 98.0 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132057** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132057** | TestNo: **SM4500-NO3** | | Analysis Date: **2/22/2019** | SeqNo: **3299341** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132057** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132057** | TestNo: **SM4500-NO3** | | Analysis Date: **2/22/2019** | SeqNo: **3299352** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132057** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132057** | TestNo: **SM4500-NO3** | | Analysis Date: **2/22/2019** | SeqNo: **3299363** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132167** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304070** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132167** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304093** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132167** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304103** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

**Advanced Technology Laboratories, Inc.**

**3151 W. Post Rd.**
**Las Vegas, NV. 89118**
**702-307-2659**
**702-307-2691**
**www.atl-labs.com**

**Time start: 02-22-2019 14:14**
**Time end: 02-22-2019 16:35**

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 1 | <BLANK> | 16:03:30 | -0.0164 | | 0.0819 |
| 2 | <BLANK> | 16:04:25 | -0.0141 | | 0.0825 |
| 3 | <BLANK> | 16:05:25 | -0.0190 | | 0.0812 |
| 4 | <CAL1> | 16:06:20 | -0.0071 | [0] | 0.0844 |
| 5 | <CAL2> | 16:07:16 | 0.0460 | [0.05] | 0.0987 |
| 6 | <CAL3> | 16:08:16 | 0.0886 | [0.1] | 0.1102 |
| 7 | <CAL4> | 16:09:11 | 0.5090 | [0.5] | 0.2235 |
| 8 | <CAL5> | 16:10:13 | 1.0302 | [1] | 0.3640 |
| 9 | <CAL6> | 16:11:08 | 1.9833 | [2] | 0.6209 |
| 10 | ,BLANK,BLANK,1, NOT REPORTED | 16:12:02 | 0.0582 | | 0.1020 |
| 11 | ,ICV,ICV,1, | 16:13:04 | 0.5164 | | 0.2255 |
| 12 | ,ICB,ICB,1, | 16:13:59 | 0.0152 | | 0.0904 |
| 13 | ,MB-H2O,MBLK,1, | 16:14:53 | -0.0097 | | 0.0837 |
| 14 | ,LCS-H2O,LCS,1, | 16:15:55 | 0.4930 | | 0.2192 |
| 15 | ,N034133-002A,SAMP,1, | 16:16:50 | 0.1053 | | 0.1147 |
| 16 | ,N034133-003A,SAMP,5, | 16:17:46 | 0.6640 | | 0.2653 |
| 17 | ~~,N034133-004A,SAMP,5,~~ N034133-003ADUP,DUP,5, | 16:18:46 | 0.6136 | | 0.2517 |
| 18 | ~~,N034133-004ADUP,DUP,5,~~ N034133-004A,SAMP,5, | 16:19:29 | 0.4930 | | 0.2192 |
| 19 | ,N034133-005A,SAMP,5, | 16:20:19 | 0.5249 | | 0.2278 |
| 20 | ,N034133-005AMS,MS,5, | 16:21:01 | 0.9838 | | 0.3515 |
| 21 | ,N034133-005AMSD,MSD,5, | 16:21:50 | 0.9445 | | 0.3409 |
| 22 | ,BLANK, NOT REPORTED | 16:22:32 | 0.0448 | | 0.0984 |
| 23 | ,CCV-1,CCV,1, | 16:23:16 | 0.4678 | | 0.2124 |
| 24 | ,CCB-1,CCB,1, | 16:24:04 | 0.0063 | | 0.0880 |
| 25 | ,N034126-002D,SAMP,1, | 16:24:47 | 0.0103 | | 0.0891 |
| 26 | ,N034122-001B,SAMP,1, | 16:25:36 | 0.0849 | | 0.1092 |

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 27 | ,N034122-002B,SAMP,1, | 16:26:18 | 0.2504 | | 0.1538 |
| 28 | ,N034122-003B,SAMP,1, | 16:27:02 | 0.1936 | | 0.1385 |
| 29 | ,N034122-004B,SAMP,1, | 16:27:50 | 0.2515 | | 0.1541 |
| 30 | ,N034122-005B,SAMP,1, | 16:28:33 | 0.0623 | | 0.1031 |
| 31 | ,N034122-006B,SAMP,10, | 16:29:15 | 0.4656 | | 0.2118 |
| 32 | ,N034126-003D,SAMP,5, | 16:30:05 | 0.7683 | | 0.2934 |
| 33 | ,N034133-006A,SAMP,5, | 16:30:47 | 0.7267 | | 0.2822 |
| 34 | ,BLANK, NOT REPORTED | 16:31:30 | -0.0004 | | 0.0862 |
| 35 | ,CCV-2,CCV,1, | 16:32:19 | 0.4522 | | 0.2082 |
| 36 | ,CCB-2,CCB,1, | 16:33:01 | -0.0023 | | 0.0857 |

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**Time start: 02-27-2019 14:55**
**Time end: 02-27-2019 17:12**

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 1 | <BLANK> | 16:41:58 | -0.0021 | | 0.0870 |
| 2 | <BLANK> | 16:42:58 | -0.0064 | | 0.0858 |
| 3 | <BLANK> | 16:43:52 | -0.0028 | | 0.0868 |
| 4 | <CAL1> | 16:44:48 | -0.0043 | [0] | 0.0864 |
| 5 | <CAL2> | 16:45:49 | 0.0445 | [0.05] | 0.0999 |
| 6 | <CAL3> | 16:46:43 | 0.1071 | [0.1] | 0.1172 |
| 7 | <CAL4> | 16:47:39 | 0.4620 | [0.5] | 0.2154 |
| 8 | <CAL5> | 16:48:40 | 1.0627 | [1] | 0.3816 |
| 9 | <CAL6> | 16:49:36 | 1.9779 | [2] | 0.6348 |
| 10 | ,BLANK,BLANK,1, NOT REPORTED | 16:50:36 | 0.0738 | | 0.1080 |
| 11 | ,ICV,ICV,1, | 16:51:31 | 0.5256 | | 0.2330 |
| 12 | ,ICB,ICB,1, | 16:52:27 | 0.0182 | | 0.0926 |
| 13 | ,MB-H2O,MBLK,1, | 16:53:28 | 0.0022 | | 0.0882 |
| 14 | ,LCS-H2O,LCS,1, | 16:54:22 | 0.4982 | | 0.2254 |
| 15 | ,N034126-004D,SAMP,5, | 16:55:18 | 0.8918 | | 0.3343 |
| 16 | ,N034126-005D,SAMP,20, | 16:56:19 | 0.7743 | | 0.3018 |
| 17 | ,N034126-005DMS,MS,20, | 16:57:01 | 1.2691 | | 0.4387 |
| 18 | ,N034126-005DMSD,MSD,20, | 16:57:51 | 1.2854 | | 0.4432 |
| 19 | ,N034126-006D,SAMP,10, | 16:58:33 | 0.9449 | | 0.3490 |
| 20 | ,N034126-007D,SAMP,50, | 16:59:22 | 0.6666 | | 0.2720 |
| 21 | ,N034126-007DDUP,DUP,50, | 17:00:06 | 0.6413 | | 0.2650 |
| 22 | ,BLANK, NOT REPORTED | 17:00:48 | 0.0290 | | 0.0956 |
| 23 | ,CCV-1,CCV,1, | 17:01:37 | 0.4812 | | 0.2207 |
| 24 | ,CCB-1,CCB,1, | 17:02:19 | 0.0120 | | 0.0909 |
| 25 | ,N034177-001D,SAMP,1, | 17:03:02 | 0.0413 | | 0.0990 |
| 26 | ,N034196-002D,SAMP,1, | 17:03:50 | 0.0622 | | 0.1048 |

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 27 | ,N034177-002D,SAMP,5, | 17:04:34 | 0.5585 | | 0.2421 |
| 28 | ,N034126-008D,SAMP,10, | 17:05:23 | 1.1610 | | 0.4088 |
| 29 | ,N034196-003D,SAMP,1, | 17:06:05 | 1.1741 | | 0.4124 |
| 30 | ,N034196-004D,SAMP,1, | 17:06:48 | 1.1759 | | 0.4129 |
| 31 | ,N034179-008A,SAMP,10, | 17:07:30 | 0.7808 | | 0.3036 |
| 32 | ,N034179-009A,SAMP,10, | 17:08:20 | 0.6774 | | 0.2750 |
| 33 | ,BLANK, NOT REPORTED | 17:09:02 | 0.0156 | | 0.0919 |
| 34 | ,CCV-2,CCV,1, | 17:09:45 | 0.4902 | | 0.2232 |
| 35 | ,CCB-2,CCB,1, | 17:10:33 | 0.0044 | | 0.0888 |

**Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog**

## Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 2/22/2019
Time Analyzed: 2:14 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190221D
Color reagent: R190221E
2% Copper Sulfate: R190221C
Ammonium Hydroxide: CINV-190124B

| Sample ID. | Sample Wt./Vol. | Sample pH | Std Code | Spike Amt Added (mL) | Spike Conc.(PPM) | Final Volume (mL) | Dilution (F/I) | Reading & Calculations (mg/L) | Comments |
|---|---|---|---|---|---|---|---|---|---|
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| | | | | | | | | | |
| N034122-001B | | 8.68 | | | | | | | |
| N034122-002B | | 8.38 | | | | | | | |
| N034122-003B | | 6.48 | | | | | | | |
| N034122-004B | | 8.63 | | | | | | | |
| N034122-005B | | 7.65 | | | | | | | |
| N034122-006B | | 8.51 | | | | | | | |
| N034126-002D | | 7.52 | | | | | | | |
| N034126-003D | | 8.35 | | | | | | | |
| N034133-002A | | 8.5 | | | | | | | |
| N034133-003A | | 8.72 | | | | | | | |
| N034133-004A | | 8.57 | | | | | | | |
| N034133-005A | | 8.88 | | | | | | | |
| N034133-006A | | 7.82 | | | | | | | |
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Advanced Technology Laboratories, Inc.
Book # 1

**Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog**

## Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 2/27/2019
Time Analyzed: 2:55 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190221D
Color reagent: R190221E
2% Copper Sulfate: R190221C
Ammonium Hydroxide: CINV-190124B

| Sample ID. | Sample Wt./Vol. | Sample pH | Std Code | Spike Amt Added (mL) | Spike Conc.(PPM) | Final Volume (mL) | Dilution (F/I) | Reading & Calculations (mg/L) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
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| | | | | | | | | | |
| N034126-004D | | 8.27 | | | | | | | |
| N034126-005D | | 8.5 | | | | | | | |
| N034126-006D | | 7.95 | | | | | | | |
| N034126-007D | | 8.48 | | | | | | | |
| N034126-008D | | 8.11 | | | | | | | |
| N034177-001D | | 7.83 | | | | | | | |
| N034177-002D | | 8.19 | | | | | | | |
| N034179-008A | | 7.74 | | | | | | | |
| N034179-009A | | 7 | | | | | | | |
| N034196-002D | | 7.52 | | | | | | | |
| N034196-003D | | 8.05 | | | | | | | |
| N034196-004D | | 7.21 | | | | | | | |
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Advanced Technology Laboratories, Inc.
Book # 1

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

| Analyte | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Ave | SD | $t_{(n-1)}$ value | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.0573 | 0.0562 | 0.0500 | 0.0730 | 0.0698 | 0.0637 | 0.0564 | 0.0609 | 0.0082 | 3.143 | 0.0259 | 0.05 |
| **Method Blank** | | | | | | | | | | | | |
| Nitrate/Nitrite as N | 0.0160 | 0.0067 | 0.0064 | 0.0204 | 0.0173 | 0.0036 | 0.0083 | 0.0112 | 0.0065 | 3.143 | 0.0317 | 0.05 |

**MDL:** **0.0317** **mg/L**

# EPA 6020
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72497
**ASSET #:** N034126
**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 2/25/2019

**Method:**

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | | X | | | X | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | X | | | X | | |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | X | | | X | | |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | ~~X~~ | | X | ~~X~~ | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

% RSD of Se in N034120-001B PS failed. For rerun.
% Rec of Mn in N034120-001B PS/MS/MSD failed, high bias. However, LCS passed criteria.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: _____

2nd Level Reviewer 2/28/2019 Date: —

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72497
**ASSET #:** N034126

**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 2/27/2019

**Method:**

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | X |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | X |
| 24. LCS compounds within control limits. | X | | | X | | X |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | X |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | X | | X | X | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

Se rerun for N034120-001B-PS

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: _____

2nd Level Reviewer 2/28/2019 Date: _____

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA 6020
**TEST NAME:** Heavy Metals by ICP-MS
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Manganese concentration, in ug/L , in the original sample as follows:

Manganese , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N034126-002B** , the concentration in ug/L is calculated as follows:

Manganese , ug/L = 93.8358 * 10 *(25/25)

Manganese , ug/L = 938.358

Reporting results in two significant figures,

**Manganese , ug/L = 940**

NS 2/28/2019

# % RSD SUMMARY

**PERCENT RSD SUMMARY: 190225A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 52 Cr [2] | | | | 55 Mn [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.12 | 9.96 | 15 | PASS | 0.14 | 6.91 | 15 | PASS |
| Std2-0.5/5 ppb | ICAL | 1 | 0.54 | 4.6 | 15 | PASS | 0.54 | 11.083 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 5.22 | 2.87 | 15 | PASS | 5.22 | 5.77 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.54 | 1.41 | 15 | PASS | 10.28 | 1.56 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.54 | 0.53 | 15 | PASS | 20.62 | 3.3 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.99 | 1.18 | 15 | PASS | 41.081 | 0.97 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.92 | 1.36 | 15 | PASS | 101.13 | 1.24 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.26 | 1.22 | 15 | PASS | 199.14 | 0.55 | 15 | PASS |
| ICV | ICV | 1 | 10.49 | 3.012 | 15 | PASS | 106.62 | 1.8 | 15 | PASS |
| ICB | ICB | 1 | 0.039 | 55.83 | 15 | <PQL | 0.0016 | 562.63 | 15 | <PQL |
| LLICV | CCV1 | 1 | 1.27 | 1.38 | 20 | PASS | 0.56 | 5.76 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 20.31 | 0.63 | 15 | PASS | 16.018 | 2.4 | 15 | PASS |
| LLICV | CCV1 | 1 | 1.04 | 1.49 | 20 | PASS | 0.53 | 12.3 | 20 | PASS |
| MB-72497 | MBLK | 1 | 0.015 | 178.78 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LCS-72497 | LCS | 1 | 9.97 | 1.42 | 15 | PASS | 102.54 | 0.64 | 15 | PASS |
| N034120-001B | SAMP | 1 | 0.4 | 2.18 | 15 | PASS | 178.7 | 0.41 | 15 | PASS |
| N034120-001B | SAMP | 5 | 0.081 | 26.38 | 15 | <PQL | 36.86 | 1.54 | 15 | PASS |
| N034120-001B-PS | PS | 1 | 10.29 | 1.89 | 15 | PASS | 282.47 | 1.0053 | 15 | PASS |
| CCV1 | CCV | 1 | 21.26 | 1.046 | 15 | PASS | 20.88 | 0.88 | 15 | PASS |
| CCB1 | CCB | 1 | 0.036 | 47.44 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034120-001B-MS | MS | 1 | 10.32 | 0.69 | 15 | PASS | 281.011 | 0.49 | 15 | PASS |
| N034120-001B-MSD | MSD | 1 | 10.42 | 2.65 | 15 | PASS | 283.28 | 2.055 | 15 | PASS |
| N034121-001B | SAMP | 1 | 1.79 | 0.65 | 15 | PASS | 2791.4 | 0.36 | 15 | PASS |
| N034121-002B | SAMP | 1 | 9.71 | 2.96 | 15 | PASS | 2987.41 | 1.85 | 15 | PASS |
| N034121-003B | SAMP | 1 | 0.097 | 18.098 | 15 | <PQL | 14.12 | 3.2 | 15 | PASS |
| N034121-004B | SAMP | 1 | 746.55 | 0.83 | 15 | PASS | 15.74 | 0.4 | 15 | PASS |
| N034121-005B | SAMP | 1 | 71.95 | 0.7 | 15 | PASS | 148.52 | 0.93 | 15 | PASS |
| N034121-006B | SAMP | 1 | 8.25 | 0.72 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034121-007B | SAMP | 1 | 210.88 | 0.71 | 15 | PASS | 27.72 | 1.047 | 15 | PASS |
| N034121-008B | SAMP | 1 | 92.51 | 1.47 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV2 | CCV | 1 | 20.23 | 1.89 | 15 | PASS | 20.75 | 2.56 | 15 | PASS |
| CCB2 | CCB | 1 | 0.03 | 62.33 | 15 | <PQL | 0.0017 | 626.95 | 15 | <PQL |
| N034121-009B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 3563.89 | 0.93 | 15 | PASS |
| N034121-010B | SAMP | 1 | 206.9 | 1.18 | 15 | PASS | 25.87 | 2.4 | 15 | PASS |
| N034121-011B | SAMP | 1 | 36.98 | 0.46 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034125-001A | SAMP | 1 | 816.086 | 1.6 | 15 | PASS | 31.59 | 0.78 | 15 | PASS |
| N034126-002B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 890.13 | 0.89 | 15 | PASS |
| N034126-003B | SAMP | 1 | 5.56 | 0.43 | 15 | PASS | 56.98 | 0.83 | 15 | PASS |
| N034126-004B | SAMP | 1 | 3.84 | 1.68 | 15 | PASS | 74.69 | 1.97 | 15 | PASS |

**PERCENT RSD SUMMARY: 190225A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 52 Cr [2] | | | | 55 Mn [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034126-005B | SAMP | 1 | 215.09 | 1.8 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034126-006B | SAMP | 1 | 473.76 | 1.091 | 15 | PASS | 11.79 | 2.22 | 15 | PASS |
| N034121-006B | SAMP | 1 | 8.44 | 2.84 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV3 | CCV | 1 | 20.63 | 1.93 | 15 | PASS | 20.83 | 0.56 | 15 | PASS |
| CCB3 | CCB | 1 | 0.061 | 20.86 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 19.76 | 0.68 | 15 | PASS | 16.58 | 2.11 | 15 | PASS |
| N034121-010B | SAMP | 1 | 216.19 | 1.24 | 15 | PASS | 25.9 | 1.73 | 15 | PASS |
| N034126-007B | SAMP | 250 | 168.11 | 0.76 | 15 | PASS | 0.0087 | 349.86 | 15 | <PQL |
| N034126-007B | SAMP | 1 | 35495.79 | 0.72 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034126-008B | SAMP | 1 | 103.045 | 1.8 | 15 | PASS | 1.034 | 6.75 | 15 | PASS |
| N034120-001B | SAMP | 25 | 2.9 | 4.23 | 15 | PASS | 8.07 | 1.03 | 15 | PASS |
| N034120-001B-PS | PS | 5 | 3.57 | 1.78 | 15 | PASS | 63.2 | 1.12 | 15 | PASS |
| N034120-001B-MS | MS | 5 | 2.98 | 1.65 | 15 | PASS | 62.12 | 0.42 | 15 | PASS |
| N034120-001B-MSD | MSD | 5 | 2.82 | 2.047 | 15 | PASS | 61.98 | 1.6 | 15 | PASS |
| N034121-001B | SAMP | 25 | 0.54 | 6.85 | 15 | PASS | 109.78 | 2.32 | 15 | PASS |
| N034121-002B | SAMP | 25 | 0.76 | 4.7 | 15 | PASS | 113.7 | 1.033 | 15 | PASS |
| CCV4 | CCV | 1 | 20.86 | 1.8 | 15 | PASS | 20.7 | 1.38 | 15 | PASS |
| CCB4 | CCB | 1 | 0.24 | 16.35 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034121-004B | SAMP | 5 | 147.19 | 0.93 | 15 | PASS | 3.55 | 1.78 | 15 | PASS |
| N034121-007B | SAMP | 5 | 44.51 | 1.68 | 15 | PASS | 6.032 | 3.77 | 15 | PASS |
| N034121-009B | SAMP | 25 | 0.22 | 14.46 | 15 | PASS | 141.95 | 1.44 | 15 | PASS |
| N034121-010B | SAMP | 5 | 45.17 | 3.45 | 15 | PASS | 5.27 | 2.76 | 15 | PASS |
| N034125-001A | SAMP | 5 | 157.32 | 0.22 | 15 | PASS | 6.73 | 2.71 | 15 | PASS |
| N034126-002B | SAMP | 10 | 0.16 | 11.46 | 15 | PASS | 93.84 | 0.56 | 15 | PASS |
| N034126-005B | SAMP | 5 | 44.18 | 0.9 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034126-006B | SAMP | 5 | 98.14 | 2.97 | 15 | PASS | 2.5 | 2.89 | 15 | PASS |
| N034106-001B | SAMP | 1 | 5.32 | 2.15 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034106-001B | SAMP | 1 | 5.094 | 5.1 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV5 | CCV | 1 | 20.63 | 1.63 | 15 | PASS | 20.58 | 0.56 | 15 | PASS |
| CCB5 | CCB | 1 | 0.15 | 24.23 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 19.46 | 2.31 | 15 | PASS | 17.13 | 1.83 | 15 | PASS |
| CCV6 | CCV | 1 | 20.28 | 2.043 | 15 | PASS | 20.9 | 2.78 | 15 | PASS |
| CCB6 | CCB | 1 | 0.34 | 5.66 | 15 | PASS | 0.0077 | 259.73 | 15 | <PQL |
| CCV7 | CCV | 1 | 19.92 | 0.79 | 15 | PASS | 20.83 | 1.67 | 15 | PASS |
| CCB7 | CCB | 1 | 0.24 | 14.52 | 15 | PASS | 0.012 | 141.33 | 15 | <PQL |
| CCV8 | CCV | 1 | 20.27 | 2.59 | 15 | PASS | 20.65 | 2.87 | 15 | PASS |
| CCB8 | CCB | 1 | 0.16 | 15.62 | 15 | <PQL | 0.069 | 34.53 | 15 | <PQL |
| CCV9 | CCV | 1 | 20.2 | 0.78 | 15 | PASS | 20.66 | 3.75 | 15 | PASS |
| CCB9 | CCB | 1 | 0.17 | 11.23 | 15 | PASS | 0.031 | 128.63 | 15 | <PQL |

**PERCENT RSD SUMMARY: 190225A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 52 Cr [2] | | | | 55 Mn [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| ICSA4 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 19.18 | 1.4 | 15 | PASS | 17.025 | 1.085 | 15 | PASS |

**PERCENT RSD SUMMARY: 190225A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 75 As [2] | | | | 78 Se [1] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.12 | 24.91 | 15 | NR! | 0.34 | 86.46 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.53 | 8.78 | 15 | PASS | 0.64 | 23.86 | 15 | NR! |
| Std3-5/50 ppb | ICAL | 1 | 5.16 | 0.73 | 15 | PASS | 4.75 | 11 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.05 | 5.63 | 15 | PASS | 9.89 | 6.23 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.86 | 0.48 | 15 | PASS | 19.84 | 1.43 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.28 | 2.27 | 15 | PASS | 39.78 | 1.16 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 99.9 | 3.2 | 15 | PASS | 101.58 | 4.62 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 197.26 | 0.75 | 15 | PASS | 199.28 | 3.31 | 15 | PASS |
| ICV | ICV | 1 | 9.73 | 5.092 | 15 | PASS | 10.68 | 12.85 | 15 | PASS |
| ICB | ICB | 1 | 0.018 | 106.57 | 15 | <PQL | 0.11 | 99.87 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.078 | 56.97 | 20 | <PQL | 0.52 | 35.015 | 20 | NR! |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.026 | 173.21 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 19.58 | 0.31 | 15 | PASS | 16.89 | 7.31 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.092 | 49.026 | 20 | <PQL | 0.71 | 7.06 | 20 | PASS |
| MB-72497 | MBLK | 1 | 0.022 | 128 | 15 | <PQL | 0 | N/A | 15 | <PQL |
| LCS-72497 | LCS | 1 | 9.99 | 3.25 | 15 | PASS | 9.59 | 5.93 | 15 | PASS |
| N034120-001B | SAMP | 1 | 1.37 | 11.22 | 15 | PASS | 0.32 | 32.49 | 15 | <PQL |
| N034120-001B | SAMP | 5 | 0.3 | 27.02 | 15 | NR! | 0.14 | 91.85 | 15 | <PQL |
| N034120-001B-PS | PS | 1 | 11.34 | 3.5 | 15 | PASS | 10.013 | 16.58 | 15 | NR! |
| CCV1 | CCV | 1 | 19.48 | 2.62 | 15 | PASS | 20.62 | 6.47 | 15 | PASS |
| CCB1 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| N034120-001B-MS | MS | 1 | 11.65 | 0.38 | 15 | PASS | 10.31 | 11.98 | 15 | PASS |
| N034120-001B-MSD | MSD | 1 | 11.43 | 1.085 | 15 | PASS | 9.64 | 14.42 | 15 | PASS |
| N034121-001B | SAMP | 1 | 1.66 | 6.93 | 15 | PASS | 0.031 | 173.21 | 15 | <PQL |
| N034121-002B | SAMP | 1 | 2.67 | 9.45 | 15 | PASS | 0.066 | 173.21 | 15 | <PQL |
| N034121-003B | SAMP | 1 | 0.77 | 10.44 | 15 | PASS | 0.062 | 173.21 | 15 | <PQL |
| N034121-004B | SAMP | 1 | 1.15 | 12.43 | 15 | PASS | 0.29 | 68.13 | 15 | <PQL |
| N034121-005B | SAMP | 1 | 2.24 | 2.089 | 15 | PASS | 0.16 | 91.48 | 15 | <PQL |
| N034121-006B | SAMP | 1 | 2.22 | 15.18 | 15 | NR! | 0.43 | 74.21 | 15 | <PQL |
| N034121-007B | SAMP | 1 | 0.81 | 10.19 | 15 | PASS | 0.2 | 47.12 | 15 | <PQL |
| N034121-008B | SAMP | 1 | 1.54 | 2.14 | 15 | PASS | 0.4 | 13.42 | 15 | PASS |
| CCV2 | CCV | 1 | 19.2 | 1.72 | 15 | PASS | 19.54 | 3.76 | 15 | PASS |
| CCB2 | CCB | 1 | 0.039 | 41.49 | 15 | <PQL | 0 | N/A | 15 | <PQL |
| N034121-009B | SAMP | 1 | 8.73 | 3.91 | 15 | PASS | 0.032 | 173.21 | 15 | <PQL |
| N034121-010B | SAMP | 1 | 0.74 | 16.21 | 15 | NR! | 0.36 | 56.6 | 15 | <PQL |
| N034121-011B | SAMP | 1 | 1.26 | 5.84 | 15 | PASS | 0.061 | 86.6 | 15 | <PQL |
| N034125-001A | SAMP | 1 | 1.46 | 10.41 | 15 | PASS | 33.32 | 6.021 | 15 | PASS |
| N034126-002B | SAMP | 1 | 4.13 | 3.83 | 15 | PASS | 0.39 | 81.061 | 15 | <PQL |
| N034126-003B | SAMP | 1 | 6.044 | 3.76 | 15 | PASS | 2.56 | 7.11 | 15 | PASS |
| N034126-004B | SAMP | 1 | 6.31 | 0.15 | 15 | PASS | 3.72 | 8.34 | 15 | PASS |

**PERCENT RSD SUMMARY: 190225A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 75 As [2] | | | | 78 Se [1] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034126-005B | SAMP | 1 | 0.76 | 4.0015 | 15 | PASS | 10.6 | 9.57 | 15 | PASS |
| N034126-006B | SAMP | 1 | 2.2 | 8.25 | 15 | PASS | 8.21 | 4.66 | 15 | PASS |
| N034121-006B | SAMP | 1 | 2.26 | 5.011 | 15 | PASS | 0.56 | 65.83 | 15 | NR! |
| CCV3 | CCV | 1 | 19.95 | 4.23 | 15 | PASS | 19.36 | 6.45 | 15 | PASS |
| CCB3 | CCB | 1 | 0.02 | 152.82 | 15 | <PQL | 0 | N/A | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.16 | 35.33 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 20.46 | 3.26 | 15 | PASS | 18.76 | 13.14 | 15 | PASS |
| N034121-010B | SAMP | 1 | 0.77 | 12.81 | 15 | PASS | 0.33 | 46.59 | 15 | <PQL |
| N034126-007B | SAMP | 250 | 0.043 | 143.62 | 15 | <PQL | 0.17 | 92 | 15 | <PQL |
| N034126-007B | SAMP | 1 | 2.58 | 6.51 | 15 | PASS | 20.79 | 8.94 | 15 | PASS |
| N034126-008B | SAMP | 1 | 2.36 | 13.68 | 15 | PASS | 9.43 | 2.81 | 15 | PASS |
| N034120-001B | SAMP | 25 | 0.024 | 161.24 | 15 | <PQL | 0 | N/A | 15 | <PQL |
| N034120-001B-PS | PS | 5 | 2.3 | 2.52 | 15 | PASS | 2.014 | 12.58 | 15 | PASS |
| N034120-001B-MS | MS | 5 | 2.42 | 2.5 | 15 | PASS | 2.44 | 13.28 | 15 | PASS |
| N034120-001B-MSD | MSD | 5 | 2.33 | 5.23 | 15 | PASS | 1.97 | 16.83 | 15 | NR! |
| N034121-001B | SAMP | 25 | 0.04 | 93.78 | 15 | <PQL | 0 | N/A | 15 | <PQL |
| N034121-002B | SAMP | 25 | 0.077 | 30.68 | 15 | <PQL | 0 | N/A | 15 | <PQL |
| CCV4 | CCV | 1 | 19.65 | 4.85 | 15 | PASS | 18.97 | 5.71 | 15 | PASS |
| CCB4 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| N034121-004B | SAMP | 5 | 0.21 | 38.84 | 15 | NR! | 0.12 | 96.82 | 15 | <PQL |
| N034121-007B | SAMP | 5 | 0.17 | 24.62 | 15 | NR! | 0.04 | 173.21 | 15 | <PQL |
| N034121-009B | SAMP | 25 | 0.35 | 5.083 | 15 | PASS | 0 | N/A | 15 | <PQL |
| N034121-010B | SAMP | 5 | 0.15 | 53.39 | 15 | NR! | 0.2 | 124.036 | 15 | <PQL |
| N034125-001A | SAMP | 5 | 0.29 | 19.48 | 15 | NR! | 6.86 | 7.82 | 15 | PASS |
| N034126-002B | SAMP | 10 | 0.28 | 32.57 | 15 | NR! | 0.038 | 173.21 | 15 | <PQL |
| N034126-005B | SAMP | 5 | 0.14 | 52.056 | 15 | NR! | 1.98 | 16.5 | 15 | NR! |
| N034126-006B | SAMP | 5 | 0.39 | 17.35 | 15 | NR! | 2.091 | 20.3 | 15 | NR! |
| N034106-001B | SAMP | 1 | 0.32 | 28.48 | 15 | NR! | 0.88 | 51.54 | 15 | NR! |
| N034106-001B | SAMP | 1 | 0.35 | 8.067 | 15 | PASS | 1.095 | 25.79 | 15 | NR! |
| CCV5 | CCV | 1 | 19.09 | 4.17 | 15 | PASS | 19.56 | 6.13 | 15 | PASS |
| CCB5 | CCB | 1 | 0.044 | 94.74 | 15 | <PQL | 0.076 | 86.62 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.032 | 173.21 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 19.96 | 1.72 | 15 | PASS | 17.25 | 2.57 | 15 | PASS |
| CCV6 | CCV | 1 | 19.46 | 1.28 | 15 | PASS | 20.12 | 5.013 | 15 | PASS |
| CCB6 | CCB | 1 | 0.012 | 450 | 15 | <PQL | 0.077 | 86.62 | 15 | <PQL |
| CCV7 | CCV | 1 | 20.24 | 1.83 | 15 | PASS | 20.00091 | 8.89 | 15 | PASS |
| CCB7 | CCB | 1 | 0.049 | 212.63 | 15 | <PQL | 0 | N/A | 15 | <PQL |
| CCV8 | CCV | 1 | 20.06 | 2.91 | 15 | PASS | 19.83 | 5.34 | 15 | PASS |
| CCB8 | CCB | 1 | 0.016 | 403.89 | 15 | <PQL | 0.042 | 173.21 | 15 | <PQL |
| CCV9 | CCV | 1 | 19.21 | 5.87 | 15 | PASS | 18.41 | 6.16 | 15 | PASS |
| CCB9 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |

**PERCENT RSD SUMMARY: 190225A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 75 As [2] | | | | 78 Se [1] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| ICSA4 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 19.34 | 1.97 | 15 | PASS | 16.85 | 10.084 | 15 | PASS |

**PERCENT RSD SUMMARY: 190225A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.077 | 41.28 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.34 | 4.22 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 4.54 | 3.54 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 9.34 | 3.17 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.32 | 1.41 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 39.56 | 1.36 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 99.88 | 1.38 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 200.26 | 0.62 | 15 | PASS |
| ICV | ICV | 1 | 9.42 | 2.59 | 15 | PASS |
| ICB | ICB | 1 | 0.15 | 11.87 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.49 | 9.61 | 20 | PASS |
| ICSA1 | ICSA | 1 | 0.089 | 68.52 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 19.29 | 1.68 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.69 | 4.37 | 20 | PASS |
| MB-72497 | MBLK | 1 | 0.037 | 30.53 | 15 | <PQL |
| LCS-72497 | LCS | 1 | 9.54 | 2.57 | 15 | PASS |
| N034120-001B | SAMP | 1 | 3.91 | 2.7 | 15 | PASS |
| N034120-001B | SAMP | 5 | 0.73 | 7.61 | 15 | PASS |
| N034120-001B-PS | PS | 1 | 14.85 | 1.93 | 15 | PASS |
| CCV1 | CCV | 1 | 18.89 | 0.81 | 15 | PASS |
| CCB1 | CCB | 1 | 0.11 | 6.93 | 15 | PASS |
| N034120-001B-MS | MS | 1 | 14.94 | 1.44 | 15 | PASS |
| N034120-001B-MSD | MSD | 1 | 15.044 | 3.6 | 15 | PASS |
| N034121-001B | SAMP | 1 | 2.33 | 4.75 | 15 | PASS |
| N034121-002B | SAMP | 1 | 2.27 | 8.14 | 15 | PASS |
| N034121-003B | SAMP | 1 | 1.32 | 4.77 | 15 | PASS |
| N034121-004B | SAMP | 1 | 1.92 | 6.64 | 15 | PASS |
| N034121-005B | SAMP | 1 | 2.84 | 3.028 | 15 | PASS |
| N034121-006B | SAMP | 1 | 1.0036 | 8.65 | 15 | PASS |
| N034121-007B | SAMP | 1 | 3.36 | 3.015 | 15 | PASS |
| N034121-008B | SAMP | 1 | 1.1 | 9.8 | 15 | PASS |
| CCV2 | CCV | 1 | 18.57 | 2.74 | 15 | PASS |
| CCB2 | CCB | 1 | 0.16 | 33.63 | 15 | <PQL |
| N034121-009B | SAMP | 1 | 25.94 | 0.95 | 15 | PASS |
| N034121-010B | SAMP | 1 | 3.43 | 4.61 | 15 | PASS |
| N034121-011B | SAMP | 1 | 2.63 | 4.94 | 15 | PASS |
| N034125-001A | SAMP | 1 | 33.18 | 0.84 | 15 | PASS |
| N034126-002B | SAMP | 1 | 65.28 | 0.98 | 15 | PASS |
| N034126-003B | SAMP | 1 | 31.54 | 1.16 | 15 | PASS |
| N034126-004B | SAMP | 1 | 30.39 | 1.95 | 15 | PASS |

**PERCENT RSD SUMMARY: 190225A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| N034126-005B | SAMP | 1 | 41.65 | 0.75 | 15 | PASS |
| N034126-006B | SAMP | 1 | 28.088 | 0.86 | 15 | PASS |
| N034121-006B | SAMP | 1 | 1.17 | 2.47 | 15 | PASS |
| CCV3 | CCV | 1 | 19.35 | 1 | 15 | PASS |
| CCB3 | CCB | 1 | 0.038 | 37.58 | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0.062 | 50.13 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 19.79 | 0.95 | 15 | PASS |
| N034121-010B | SAMP | 1 | 3.44 | 2.062 | 15 | PASS |
| N034126-007B | SAMP | 250 | 0.21 | 6.11 | 15 | PASS |
| N034126-007B | SAMP | 1 | 45.85 | 0.97 | 15 | PASS |
| N034126-008B | SAMP | 1 | 70.19 | 1.36 | 15 | PASS |
| N034120-001B | SAMP | 25 | 0.6 | 15.87 | 15 | NR! |
| N034120-001B-PS | PS | 5 | 3.053 | 3.92 | 15 | PASS |
| N034120-001B-MS | MS | 5 | 2.93 | 4.83 | 15 | PASS |
| N034120-001B-MSD | MSD | 5 | 2.83 | 3.76 | 15 | PASS |
| N034121-001B | SAMP | 25 | 0.13 | 29.74 | 15 | <PQL |
| N034121-002B | SAMP | 25 | 0.063 | 37.61 | 15 | <PQL |
| CCV4 | CCV | 1 | 18.58 | 2.46 | 15 | PASS |
| CCB4 | CCB | 1 | <0.000 | N/A | 15 | <PQL |
| N034121-004B | SAMP | 5 | 0.4 | 2.42 | 15 | PASS |
| N034121-007B | SAMP | 5 | 0.58 | 3.84 | 15 | PASS |
| N034121-009B | SAMP | 25 | 0.84 | 1.6 | 15 | PASS |
| N034121-010B | SAMP | 5 | 0.57 | 2.43 | 15 | PASS |
| N034125-001A | SAMP | 5 | 5.91 | 6.027 | 15 | PASS |
| N034126-002B | SAMP | 10 | 5.6 | 4.2 | 15 | PASS |
| N034126-005B | SAMP | 5 | 7.5 | 1.22 | 15 | PASS |
| N034126-006B | SAMP | 5 | 5.3 | 2.2 | 15 | PASS |
| N034106-001B | SAMP | 1 | 0.55 | 8.54 | 15 | PASS |
| N034106-001B | SAMP | 1 | 0.55 | 9.24 | 15 | PASS |
| CCV5 | CCV | 1 | 19.059 | 1.38 | 15 | PASS |
| CCB5 | CCB | 1 | 0.2 | 22.34 | 15 | <PQL |
| ICSA3 | ICSA | 1 | 0.1 | 27.085 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 20.18 | 1.032 | 15 | PASS |
| CCV6 | CCV | 1 | 18.26 | 1.091 | 15 | PASS |
| CCB6 | CCB | 1 | <0.000 | N/A | 15 | <PQL |
| CCV7 | CCV | 1 | 18.89 | 2.18 | 15 | PASS |
| CCB7 | CCB | 1 | <0.000 | N/A | 15 | <PQL |
| CCV8 | CCV | 1 | 18.51 | 2.67 | 15 | PASS |
| CCB8 | CCB | 1 | 0.19 | 6.63 | 15 | PASS |
| CCV9 | CCV | 1 | 18.61 | 1.72 | 15 | PASS |
| CCB9 | CCB | 1 | <0.000 | N/A | 15 | <PQL |

**PERCENT RSD SUMMARY: 190225A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| ICSA4 | ICSA | 1 | 0.1 | 23.28 | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 19.97 | 0.84 | 15 | PASS |

**PERCENT RSD SUMMARY: 190227A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.096 | 173.21 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.29 | 49.77 | 15 | <PQL |
| Std3-5/50 ppb | ICAL | 1 | 4.59 | 14.96 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.15 | 13.19 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 21.03 | 8.2 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 38.27 | 7.12 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 96.3 | 3.0093 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 202.093 | 3.18 | 15 | PASS |
| ICV | ICV | 1 | 9.86 | 6.27 | 15 | PASS |
| ICB | ICB | 1 | 0.053 | 173.21 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.44 | 19.41 | 20 | PASS |
| ICSA1 | ICSA | 1 | 0 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 18.79 | 8.69 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.62 | 46.6 | 20 | NR! |
| N034120-001B-PS | PS | 1 | 10.029 | 9.35 | 15 | PASS |
| CCV1 | CCV | 1 | 19.53 | 10.43 | 15 | PASS |
| CCB1 | CCB | 1 | 0 | N/A | 15 | <PQL |
| CCV2 | CCV | 1 | 17.4 | 12.00001 | 15 | PASS |
| CCB2 | CCB | 1 | 0.23 | 33.15 | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0.046 | 173.21 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 21.36 | 9.49 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190225A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0225001.D | RINSE | RINSE | 1 | 02/25/19 2:06 PM |
| A0225002.D | Cal Blank | IBLK | 1 | 02/25/19 2:12 PM |
| A0225003.D | Std1-0.1/1 ppb | ICAL | 1 | 02/25/19 2:18 PM |
| A0225004.D | Std2-0.5/5 ppb | ICAL | 1 | 02/25/19 2:22 PM |
| A0225005.D | Std3-5/50 ppb | ICAL | 1 | 02/25/19 2:28 PM |
| A0225006.D | Std4-10/100 ppb | ICAL | 1 | 02/25/19 2:35 PM |
| A0225007.D | Std5-20/200 ppb | ICAL | 1 | 02/25/19 2:41 PM |
| A0225008.D | Std6-40/400 ppb | ICAL | 1 | 02/25/19 2:47 PM |
| A0225009.D | Std7-100/1000 ppb | ICAL | 1 | 02/25/19 2:53 PM |
| A0225010.D | Std8-200/2000 ppb | ICAL | 1 | 02/25/19 2:59 PM |
| A0225011.D | ICV | ICV | 1 | 02/25/19 3:06 PM |
| A0225012.D | ICB | ICB | 1 | 02/25/19 3:12 PM |
| A0225013.D | LLICV | CCV1 | 1 | 02/25/19 3:18 PM |
| A0225014.D | ICSA1 | ICSA | 1 | 02/25/19 3:24 PM |
| A0225015.D | ICSAB1 | ICSAB | 1 | 02/25/19 3:30 PM |
| A0225016.D | LLICV | CCV1 | 1 | 02/25/19 3:36 PM |
| A0225017.D | N034091-003B | SAMP | 1 | 02/25/19 4:17 PM |
| A0225018.D | N034104-014C | SAMP | 1 | 02/25/19 4:22 PM |
| A0225019.D | N034104-014C | SAMP | 1 | 02/25/19 4:28 PM |
| A0225020.D | N034106-001B | SAMP | 1 | 02/25/19 4:34 PM |
| A0225021.D | N034106-001B | SAMP | 1 | 02/25/19 4:40 PM |
| A0225022.D | MB-72497 | MBLK | 1 | 02/25/19 4:46 PM |
| A0225023.D | LCS-72497 | LCS | 1 | 02/25/19 4:52 PM |
| A0225024.D | N034120-001B | SAMP | 1 | 02/25/19 4:58 PM |
| A0225025.D | N034120-001B | SAMP | 5 | 02/25/19 5:04 PM |
| A0225026.D | N034120-001B-PS | PS | 1 | 02/25/19 5:10 PM |
| A0225027.D | CCV1 | CCV | 1 | 02/25/19 5:17 PM |
| A0225028.D | CCB1 | CCB | 1 | 02/25/19 5:23 PM |
| A0225029.D | N034120-001B-MS | MS | 1 | 02/25/19 5:29 PM |
| A0225030.D | N034120-001B-MSD | MSD | 1 | 02/25/19 5:35 PM |
| A0225031.D | N034121-001B | SAMP | 1 | 02/25/19 5:41 PM |
| A0225032.D | N034121-002B | SAMP | 1 | 02/25/19 5:47 PM |
| A0225033.D | N034121-003B | SAMP | 1 | 02/25/19 5:53 PM |
| A0225034.D | N034121-004B | SAMP | 1 | 02/25/19 5:59 PM |
| A0225035.D | N034121-005B | SAMP | 1 | 02/25/19 6:04 PM |
| A0225036.D | N034121-006B | SAMP | 1 | 02/25/19 6:10 PM |
| A0225037.D | N034121-007B | SAMP | 1 | 02/25/19 6:16 PM |
| A0225038.D | N034121-008B | SAMP | 1 | 02/25/19 6:22 PM |
| A0225039.D | CCV2 | CCV | 1 | 02/25/19 6:28 PM |
| A0225040.D | CCB2 | CCB | 1 | 02/25/19 6:35 PM |
| A0225041.D | N034121-009B | SAMP | 1 | 02/25/19 6:41 PM |
| A0225042.D | N034121-010B | SAMP | 1 | 02/25/19 6:47 PM |

**INJECTION LOG: 190225A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0225043.D | N034121-011B | SAMP | 1 | 02/25/19 6:53 PM |
| A0225044.D | N034125-001A | SAMP | 1 | 02/25/19 6:58 PM |
| A0225045.D | N034126-002B | SAMP | 1 | 02/25/19 7:04 PM |
| A0225046.D | N034126-003B | SAMP | 1 | 02/25/19 7:10 PM |
| A0225047.D | N034126-004B | SAMP | 1 | 02/25/19 7:16 PM |
| A0225048.D | N034126-005B | SAMP | 1 | 02/25/19 7:22 PM |
| A0225049.D | N034126-006B | SAMP | 1 | 02/25/19 7:28 PM |
| A0225050.D | N034121-006B | SAMP | 1 | 02/25/19 7:33 PM |
| A0225051.D | CCV3 | CCV | 1 | 02/25/19 7:40 PM |
| A0225052.D | CCB3 | CCB | 1 | 02/25/19 7:59 PM |
| A0225053.D | ICSA2 | ICSA | 1 | 02/25/19 8:05 PM |
| A0225054.D | ICSAB2 | ICSAB | 1 | 02/25/19 8:10 PM |
| A0225055.D | N034121-010B | SAMP | 1 | 02/25/19 8:16 PM |
| A0225056.D | N034126-007B | SAMP | 250 | 02/25/19 8:22 PM |
| A0225057.D | N034126-007B | SAMP | 1 | 02/25/19 8:28 PM |
| A0225058.D | N034126-008B | SAMP | 1 | 02/25/19 8:34 PM |
| A0225059.D | N034120-001B | SAMP | 25 | 02/25/19 8:40 PM |
| A0225060.D | N034120-001B-PS | PS | 5 | 02/25/19 8:46 PM |
| A0225061.D | N034120-001B-MS | MS | 5 | 02/25/19 8:52 PM |
| A0225062.D | N034120-001B-MSD | MSD | 5 | 02/25/19 8:58 PM |
| A0225063.D | N034121-001B | SAMP | 25 | 02/25/19 9:04 PM |
| A0225064.D | N034121-002B | SAMP | 25 | 02/25/19 9:09 PM |
| A0225065.D | CCV4 | CCV | 1 | 02/25/19 9:15 PM |
| A0225066.D | CCB4 | CCB | 1 | 02/25/19 9:22 PM |
| A0225067.D | N034121-004B | SAMP | 5 | 02/25/19 9:27 PM |
| A0225068.D | N034121-007B | SAMP | 5 | 02/25/19 9:33 PM |
| A0225069.D | N034121-009B | SAMP | 25 | 02/25/19 9:39 PM |
| A0225070.D | N034121-010B | SAMP | 5 | 02/25/19 9:45 PM |
| A0225071.D | N034125-001A | SAMP | 5 | 02/25/19 9:51 PM |
| A0225072.D | N034126-002B | SAMP | 10 | 02/25/19 9:57 PM |
| A0225073.D | N034126-005B | SAMP | 5 | 02/25/19 10:02 PM |
| A0225074.D | N034126-006B | SAMP | 5 | 02/25/19 10:08 PM |
| A0225075.D | N034106-001B | SAMP | 1 | 02/25/19 10:14 PM |
| A0225076.D | N034106-001B | SAMP | 1 | 02/25/19 10:20 PM |
| A0225077.D | CCV5 | CCV | 1 | 02/25/19 10:26 PM |
| A0225078.D | CCB5 | CCB | 1 | 02/25/19 10:32 PM |
| A0225079.D | ICSA3 | ICSA | 1 | 02/25/19 10:38 PM |
| A0225080.D | ICSAB3 | ICSAB | 1 | 02/25/19 10:44 PM |
| A0225081.D | MB-72498 | MBLK | 1 | 02/25/19 10:50 PM |
| A0225082.D | LCS-72498 | LCS | 1 | 02/25/19 10:56 PM |
| A0225083.D | N034123-001B | SAMP | 1 | 02/25/19 11:01 PM |
| A0225084.D | N034123-001B | SAMP | 5 | 02/25/19 11:07 PM |

**INJECTION LOG: 190225A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0225085.D | N034123-001B-PS | PS | 1 | 02/25/19 11:13 PM |
| A0225086.D | N034123-001B-MS | MS | 1 | 02/25/19 11:19 PM |
| A0225087.D | N034123-001B-MSD | MSD | 1 | 02/25/19 11:25 PM |
| A0225088.D | N034123-002B | SAMP | 1 | 02/25/19 11:31 PM |
| A0225089.D | N034123-003B | SAMP | 1 | 02/25/19 11:37 PM |
| A0225090.D | N034123-004B | SAMP | 1 | 02/25/19 11:43 PM |
| A0225091.D | CCV6 | CCV | 1 | 02/25/19 11:49 PM |
| A0225092.D | CCB6 | CCB | 1 | 02/25/19 11:55 PM |
| A0225093.D | N034123-005B | SAMP | 1 | 02/26/19 12:00 AM |
| A0225094.D | N034123-006B | SAMP | 1 | 02/26/19 12:06 AM |
| A0225095.D | N034123-007B | SAMP | 1 | 02/26/19 12:12 AM |
| A0225096.D | N034123-008B | SAMP | 1 | 02/26/19 12:18 AM |
| A0225097.D | N034123-009B | SAMP | 1 | 02/26/19 12:24 AM |
| A0225098.D | N034123-010B | SAMP | 1 | 02/26/19 12:30 AM |
| A0225099.D | N034123-011B | SAMP | 1 | 02/26/19 12:36 AM |
| A0225100.D | N034123-012B | SAMP | 1 | 02/26/19 12:42 AM |
| A0225101.D | N034123-013B | SAMP | 1 | 02/26/19 12:48 AM |
| A0225102.D | N034123-014B | SAMP | 1 | 02/26/19 12:54 AM |
| A0225103.D | CCV7 | CCV | 1 | 02/26/19 12:59 AM |
| A0225104.D | CCB7 | CCB | 1 | 02/26/19 1:06 AM |
| A0225105.D | N034123-015B | SAMP | 1 | 02/26/19 1:11 AM |
| A0225106.D | N034123-016B | SAMP | 1 | 02/26/19 1:17 AM |
| A0225107.D | N034123-017B | SAMP | 1 | 02/26/19 1:23 AM |
| A0225108.D | N034123-018B | SAMP | 1 | 02/26/19 1:29 AM |
| A0225109.D | N034123-019B | SAMP | 1 | 02/26/19 1:35 AM |
| A0225110.D | N034123-020B | SAMP | 1 | 02/26/19 1:41 AM |
| A0225111.D | N034123-010B | SAMP | 5 | 02/26/19 1:46 AM |
| A0225112.D | N034123-017B | SAMP | 10 | 02/26/19 1:52 AM |
| A0225113.D | N034123-018B | SAMP | 25 | 02/26/19 1:58 AM |
| A0225114.D | N034123-019B | SAMP | 25 | 02/26/19 2:04 AM |
| A0225115.D | CCV8 | CCV | 1 | 02/26/19 2:10 AM |
| A0225116.D | CCB8 | CCB | 1 | 02/26/19 2:16 AM |
| A0225117.D | N034123-020B | SAMP | 25 | 02/26/19 2:22 AM |
| A0225118.D | CCV9 | CCV | 1 | 02/26/19 2:28 AM |
| A0225119.D | CCB9 | CCB | 1 | 02/26/19 2:34 AM |
| A0225120.D | ICSA4 | ICSA | 1 | 02/26/19 2:39 AM |
| A0225121.D | ICSAB4 | ICSAB | 1 | 02/26/19 2:45 AM |

**INJECTION LOG: 190227A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0227001.D | RINSE | RINSE | 1 | 02/27/19 11:16 AM |
| A0227002.D | Cal Blank | IBLK | 1 | 02/27/19 11:23 AM |
| A0227003.D | Std1-0.1/1 ppb | ICAL | 1 | 02/27/19 11:29 AM |
| A0227004.D | Std2-0.5/5 ppb | ICAL | 1 | 02/27/19 11:34 AM |
| A0227005.D | Std3-5/50 ppb | ICAL | 1 | 02/27/19 11:40 AM |
| A0227006.D | Std4-10/100 ppb | ICAL | 1 | 02/27/19 11:45 AM |
| A0227007.D | Std5-20/200 ppb | ICAL | 1 | 02/27/19 11:51 AM |
| A0227008.D | Std6-40/400 ppb | ICAL | 1 | 02/27/19 11:57 AM |
| A0227009.D | Std7-100/1000 ppb | ICAL | 1 | 02/27/19 12:04 PM |
| A0227010.D | Std8-200/2000 ppb | ICAL | 1 | 02/27/19 12:10 PM |
| A0227011.D | ICV | ICV | 1 | 02/27/19 12:17 PM |
| A0227012.D | ICB | ICB | 1 | 02/27/19 12:25 PM |
| A0227013.D | LLICV | CCV1 | 1 | 02/27/19 12:31 PM |
| A0227014.D | ICSA1 | ICSA | 1 | 02/27/19 12:37 PM |
| A0227015.D | ICSAB1 | ICSAB | 1 | 02/27/19 12:41 PM |
| A0227016.D | LLICV | CCV1 | 1 | 02/27/19 12:49 PM |
| A0227017.D | MB-72654 | MBLK | 1 | 02/27/19 1:00 PM |
| A0227018.D | LCS-72654 | LCS | 1 | 02/27/19 1:01 PM |
| A0227019.D | N034295-001A | SAMP | 1 | 02/27/19 1:05 PM |
| A0227020.D | N034295-001A | SAMP | 5 | 02/27/19 1:11 PM |
| A0227021.D | N034295-001A-PS | PS | 1 | 02/27/19 1:17 PM |
| A0227022.D | N034295-001A-MS | MS | 1 | 02/27/19 1:23 PM |
| A0227023.D | N034295-001A-MSD | MSD | 1 | 02/27/19 1:29 PM |
| A0227024.D | N034120-001B-PS | PS | 1 | 02/27/19 1:35 PM |
| A0227025.D | N034191-001B | SAMP | 1 | 02/27/19 1:41 PM |
| A0227026.D | N034121-001B | SAMP | 1 | 02/27/19 1:47 PM |
| A0227027.D | CCV1 | CCV | 1 | 02/27/19 1:53 PM |
| A0227028.D | CCB1 | CCB | 1 | 02/27/19 1:59 PM |
| A0227029.D | N034121-001A | SAMP | 1 | 02/27/19 2:05 PM |
| A0227030.D | N034121-002B | SAMP | 1 | 02/27/19 2:10 PM |
| A0227031.D | N034121-002A | SAMP | 1 | 02/27/19 2:16 PM |
| A0227032.D | N034123-020B | SAMP | 1 | 02/27/19 2:22 PM |
| A0227033.D | N034123-020A | SAMP | 1 | 02/27/19 2:28 PM |
| A0227034.D | N034123-013B | SAMP | 1 | 02/27/19 2:34 PM |
| A0227035.D | N034123-013B | SAMP | 1 | 02/27/19 2:40 PM |
| A0227036.D | CCV2 | CCV | 1 | 02/27/19 2:46 PM |
| A0227037.D | CCB2 | CCB | 1 | 02/27/19 2:52 PM |
| A0227038.D | ICSA2 | ICSA | 1 | 02/27/19 2:58 PM |
| A0227039.D | ICSAB2 | ICSAB | 1 | 02/27/19 3:04 PM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/14/2019 4:00:00 P**
Prep End Date: **2/14/2019 8:30:00 P**
Reviewed/ Date: NS 2/28/2019
Initials/ Date: for

Prep Batch **72497** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.5** | **02-19** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72497 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-72497 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034120-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034120-001B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034120-001B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034121-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034121-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034121-003B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034121-004B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034121-005B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034121-006B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034121-007B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034121-008B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034121-009B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10549 | NITRIC ACID |
| 10553 | HYDROCHLORIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/14/2019 4:00:00 P**
Prep End Date: **2/14/2019 8:30:00 P**
Reviewed/ Date: NS 2/28/2019
Initials/ Date: for

Prep Batch **72497** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.5** | **02-19** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| N034121-010B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034121-011B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034125-001A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034126-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034126-003B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034126-004B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034126-005B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034126-006B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034126-007B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034126-008B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10549 | NITRIC ACID |
| 10553 | HYDROCHLORIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

# INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 25 Feb 2019 01:43:48 pm
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 109756.00 | 0.00 | |
| 24 Mg | 184182.00 | 0.00 | |
| 25 Mg | 23363.20 | 0.00 | |
| 26 Mg | 26834.40 | 0.00 | |
| 59 Co | 129646.00 | 0.00 | |
| 115 In | 150446.00 | 0.00 | |
| 206 Pb | 57419.50 | 0.00 | |
| 207 Pb | 50616.90 | 0.00 | |
| 208 Pb | 125079.00 | 0.00 | |

RSD (%)

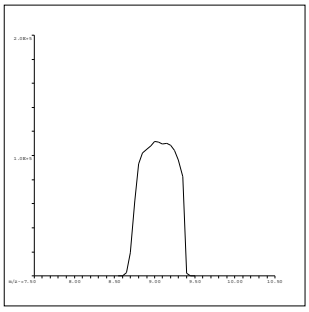
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 0.69 | 5.00 | |
| 24 Mg | 0.96 | 5.00 | |
| 25 Mg | 1.22 | 5.00 | |
| 26 Mg | 2.50 | 5.00 | |
| 59 Co | 0.57 | 5.00 | |
| 115 In | 0.77 | 5.00 | |
| 206 Pb | 1.02 | 5.00 | |
| 207 Pb | 1.15 | 5.00 | |
| 208 Pb | 0.92 | 5.00 | |

Ion Ratio

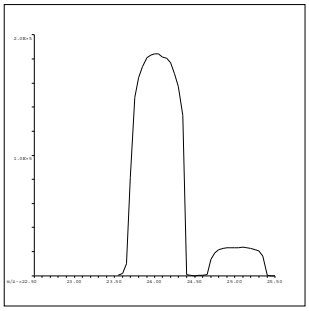
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | | | |
| 24 Mg | | | |
| 25 Mg | | | |
| 26 Mg | | | |
| 59 Co | | | |
| 115 In | | | |
| 206 Pb | | | |
| 207 Pb | | | |
| 208 Pb | | | |

Maximum Bkg. Count(CPS)

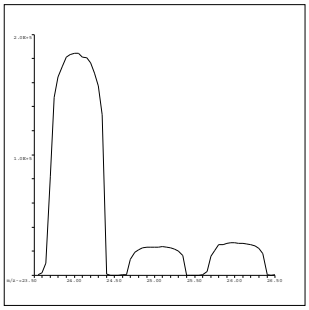
| Element | Actual | Required | Flag |
|---|---|---|---|



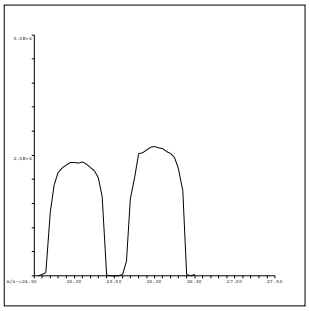
9 Be
Mass Calib.
Actual: 9.10
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



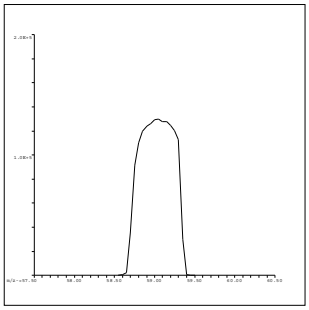
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



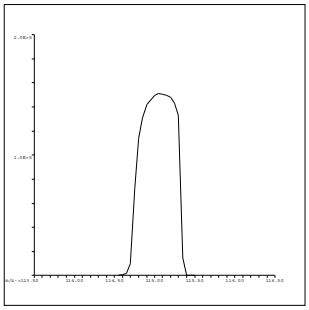
25 Mg
Mass Calib.
Actual: 25.05
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



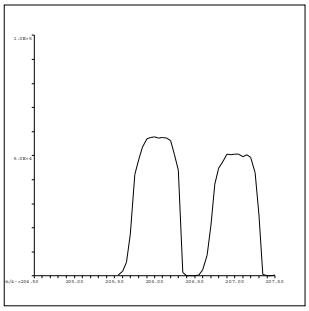
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



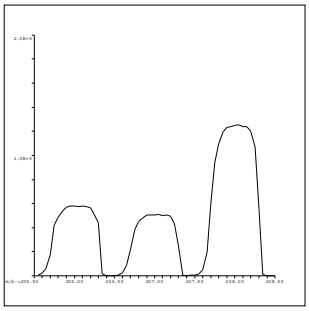
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



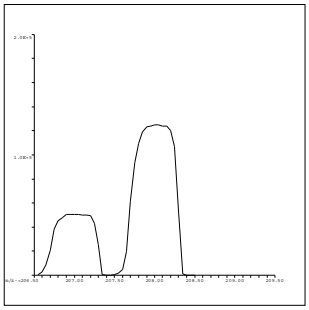
115 In
Mass Calib.
Actual: 115.10
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.05
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 27 Feb 2019 10:06:30 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 113368.00 | 0.00 | |
| 24 Mg | 352498.00 | 0.00 | |
| 25 Mg | 44031.00 | 0.00 | |
| 26 Mg | 50318.30 | 0.00 | |
| 59 Co | 240104.00 | 0.00 | |
| 115 In | 377273.00 | 0.00 | |
| 206 Pb | 142873.00 | 0.00 | |
| 207 Pb | 125778.00 | 0.00 | |
| 208 Pb | 308018.00 | 0.00 | |

RSD (%)

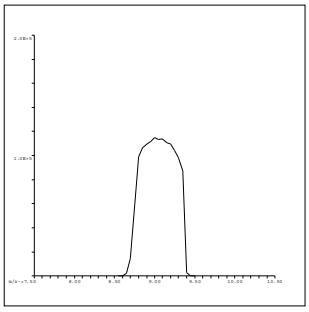
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 1.37 | 5.00 | |
| 24 Mg | 2.05 | 5.00 | |
| 25 Mg | 0.47 | 5.00 | |
| 26 Mg | 0.85 | 5.00 | |
| 59 Co | 0.46 | 5.00 | |
| 115 In | 0.97 | 5.00 | |
| 206 Pb | 1.15 | 5.00 | |
| 207 Pb | 1.26 | 5.00 | |
| 208 Pb | 1.20 | 5.00 | |

Ion Ratio

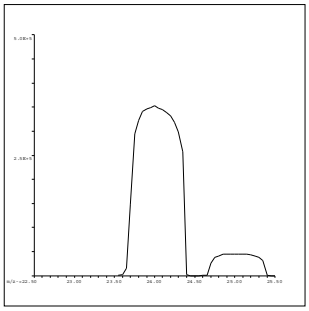
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | | | |
| 24 Mg | | | |
| 25 Mg | | | |
| 26 Mg | | | |
| 59 Co | | | |
| 115 In | | | |
| 206 Pb | | | |
| 207 Pb | | | |
| 208 Pb | | | |

Maximum Bkg. Count(CPS)

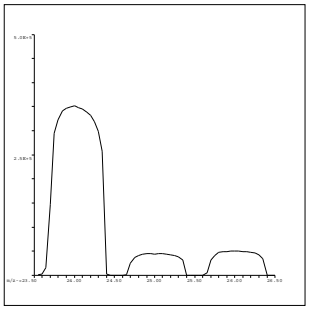
| Element | Actual | Required | Flag |
|---|---|---|---|



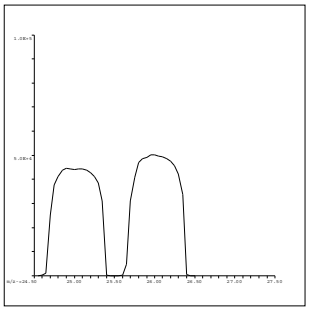
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



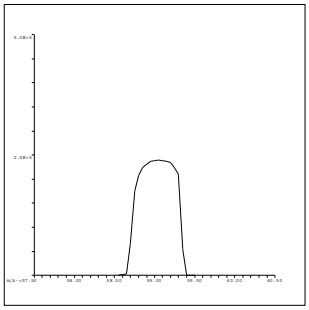
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



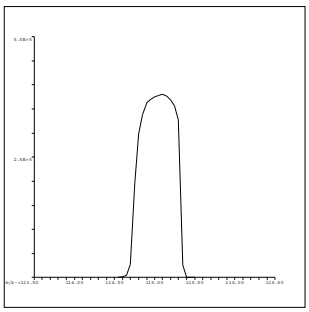
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



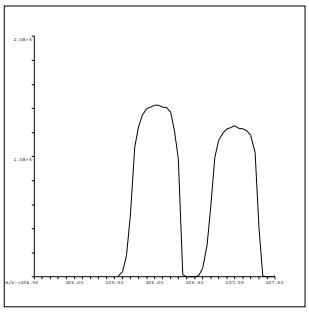
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



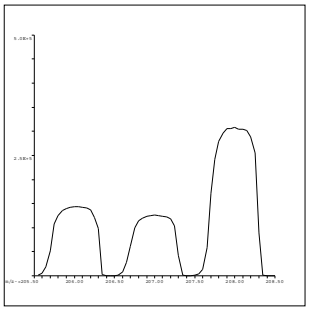
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



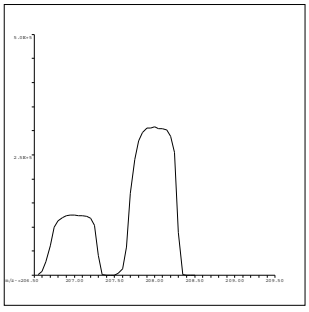
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190225A**

**Instrument ID: ICPMS-02**

| Analyte | Data File | A0225002.D | A0225003.D | A0225004.D | A0225005.D | A0225006.D | A0225007.D | A0225008.D | A0225009.D | A0225010.D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 02/25/2019 02:12 PM | 02/25/2019 02:18 PM | 02/25/2019 02:22 PM | 02/25/2019 02:28 PM | 02/25/2019 02:35 PM | 02/25/2019 02:41 PM | 02/25/2019 02:47 PM | 02/25/2019 02:53 PM | 02/25/2019 02:59 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std1-0.1/1 ppb | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.1/1 ug/L | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 45 Sc ( ISTD ) [ 2 ] | CPS | 28673 | | 30419.6 | 30625.4 | 30624.4 | 29552.3 | 29949.8 | 29155.1 | 28572.9 | |
| 55 Mn [ 2 ] | CPS | 25.2 | | 545.7 | 5034.4 | 9893.3 | 19107.9 | 38569.2 | 92384.8 | 178273.3 | 1.0000 |
| 52 Cr [ 2 ] | CPS | 176.6 | | 1293.4 | 10843.6 | 21723.1 | 40682.7 | 82080.2 | 196462.5 | 380012.6 | 1.0000 |
| 72 Ge ( ISTD ) [ 1 ] | CPS | 10057.8 | | 10067.8 | 9957.8 | 10241.3 | 9835.5 | 9925.5 | 9585.3 | 9622 | |
| 78 Se [ 1 ] | CPS | 0 | | 23.3 | 171.1 | 366.7 | 706.7 | 1430.1 | 3523.8 | 6941.7 | 1.0000 |
| 72 Ge ( ISTD ) [ 2 ] | CPS | 12555.2 | 13582.6 | 13000 | 13115.7 | 12878.7 | 12646.4 | 12659.7 | 12221.6 | 11973.6 | |
| 75 As [ 2 ] | CPS | 17.3 | 39.1 | 104 | 867.6 | 1642.3 | 3171 | 6418.1 | 15337.4 | 29668.9 | 1.0000 |
| 103 Rh ( ISTD ) [ 2 ] | CPS | 325597.4 | | 347798.8 | 348815.8 | 348664.5 | 335284.2 | 341989.8 | 325228.8 | 319709.3 | |
| 95 Mo [ 2 ] | CPS | 77.8 | | 348.9 | 3662.8 | 7450.9 | 14726.1 | 30673.3 | 73529 | 144849 | 1.0000 |

| Standard Code |
|---|
| ICAL: 2MSST-180608B |
| ICAL: 2MSST-180205B |
| ICAL: 2MWST-181001C |
| IS Mix: 2MWST-181126B |

Calibration Acceptance Criteria: > 0.995 Correlation

**INITIAL CALIBRATION SUMMARY: 190227A**

**Instrument ID: ICPMS-02**

| Analyte | Data File | A0226002.D | A0226004.D | A0226005.D | A0226006.D | A0226007.D | A0226008.D | A0226009.D | A0226010.D | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 02/27/2019 11:23 AM | 02/27/2019 11:34 AM | 02/27/2019 11:40 AM | 02/27/2019 11:45 AM | 02/27/2019 11:51 AM | 02/27/2019 11:57 AM | 02/27/2019 12:04 PM | 02/27/2019 12:10 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 72 Ge ( ISTD ) [ 1 ] | CPS | 5514.4 | 6146.9 | 6229.2 | 6055.8 | 5974.6 | 6104.7 | 5383.3 | 5846.8 | |
| 78 Se [ 1 ] | CPS | 0 | 6.7 | 106.7 | 228.9 | 468.9 | 871.2 | 1932.4 | 4404.1 | 0.9997 |

| Standard Code | |
|---|---|
| ICAL: 2MSST-180608B | |
| ICAL: 2MSST-~~170620B~~ | 180205B |
| ICAL: 2MWST-~~180409H~~ | 181001C |
| IS Mix: 2MWST-~~180618C~~ | 181126B |

Calibration Acceptance Criteria: > 0.995 Correlation

NS 2/28/2019
for CEI

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132107**
Client ID: **ICV** Batch ID: **R132107** TestNo: **EPA 6020** Analysis Date: **2/25/2019** SeqNo: **3301516**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.728 | 0.10 | 10.00 | 0 | 97.3 | 90 | 110 | | | | |
| Manganese | 106.620 | 0.50 | 100.0 | 0 | 107 | 90 | 110 | | | | |
| Molybdenum | 9.420 | 0.50 | 10.00 | 0 | 94.2 | 90 | 110 | | | | |
| Selenium | 10.680 | 0.50 | 10.00 | 0 | 107 | 90 | 110 | | | | |

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132107**
Client ID: **ZZZZZZ** Batch ID: **R132107** TestNo: **EPA 6020** Analysis Date: **2/25/2019** SeqNo: **3301518**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 0.557 | 0.50 | 0.5000 | 0 | 111 | 80 | 120 | | | | |
| Molybdenum | 0.491 | 0.50 | 0.5000 | 0 | 98.1 | 80 | 120 | | | | |
| Selenium | 0.519 | 0.50 | 0.5000 | 0 | 104 | 80 | 120 | | | | |

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132107**
Client ID: **ZZZZZZ** Batch ID: **R132107** TestNo: **EPA 6020** Analysis Date: **2/25/2019** SeqNo: **3301521**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.092 | 0.10 | 0.1000 | 0 | 92.0 | 80 | 120 | | | | |

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132107**
Client ID: **CCV** Batch ID: **R132107** TestNo: **EPA 6020** Analysis Date: **2/25/2019** SeqNo: **3301532**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.476 | 0.10 | 20.00 | 0 | 97.4 | 90 | 110 | | | | |
| Manganese | 20.882 | 0.50 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Molybdenum | 18.887 | 0.50 | 20.00 | 0 | 94.4 | 90 | 110 | | | | |
| Selenium | 20.620 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301544** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.199 | 0.10 | 20.00 | 0 | 96.0 | 90 | 110 | | | | |
| Manganese | 20.747 | 0.50 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Molybdenum | 18.573 | 0.50 | 20.00 | 0 | 92.9 | 90 | 110 | | | | |
| Selenium | 19.540 | 0.50 | 20.00 | 0 | 97.7 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301556** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.946 | 0.10 | 20.00 | 0 | 99.7 | 90 | 110 | | | | |
| Manganese | 20.831 | 0.50 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Molybdenum | 19.347 | 0.50 | 20.00 | 0 | 96.7 | 90 | 110 | | | | |
| Selenium | 19.362 | 0.50 | 20.00 | 0 | 96.8 | 90 | 110 | | | | |

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301570** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.647 | 0.10 | 20.00 | 0 | 98.2 | 90 | 110 | | | | |
| Manganese | 20.702 | 0.50 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Molybdenum | 18.576 | 0.50 | 20.00 | 0 | 92.9 | 90 | 110 | | | | |
| Selenium | 18.971 | 0.50 | 20.00 | 0 | 94.9 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301582** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.090 | 0.10 | 20.00 | 0 | 95.4 | 90 | 110 | | | | |
| Manganese | 20.579 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301582** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 19.059 | 0.50 | 20.00 | 0 | 95.3 | 90 | 110 | | | | |
| Selenium | 19.557 | 0.50 | 20.00 | 0 | 97.8 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301596** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.465 | 0.10 | 20.00 | 0 | 97.3 | 90 | 110 | | | | |
| Manganese | 20.900 | 0.50 | 20.00 | 0 | 105 | 90 | 110 | | | | |
| Molybdenum | 18.260 | 0.50 | 20.00 | 0 | 91.3 | 90 | 110 | | | | |
| Selenium | 20.117 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301608** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.236 | 0.10 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Manganese | 20.830 | 0.50 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Molybdenum | 18.895 | 0.50 | 20.00 | 0 | 94.5 | 90 | 110 | | | | |
| Selenium | 20.001 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV8** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301620** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.060 | 0.10 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Manganese | 20.655 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |
| Molybdenum | 18.508 | 0.50 | 20.00 | 0 | 92.5 | 90 | 110 | | | | |
| Selenium | 19.833 | 0.50 | 20.00 | 0 | 99.2 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **CCV9** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132107**
Client ID: **CCV** Batch ID: **R132107** TestNo: **EPA 6020** Analysis Date: **2/26/2019** SeqNo: **3301623**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.208 | 0.10 | 20.00 | 0 | 96.0 | 90 | 110 | | | | |
| Manganese | 20.662 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |
| Molybdenum | 18.612 | 0.50 | 20.00 | 0 | 93.1 | 90 | 110 | | | | |
| Selenium | 18.407 | 0.50 | 20.00 | 0 | 92.0 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132146** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132146** | TestNo: **EPA 6020** | | Analysis Date: **2/27/2019** | SeqNo: **3303925** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 9.858 | 0.50 | 10.00 | 0 | 98.6 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132146** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132146** | TestNo: **EPA 6020** | | Analysis Date: **2/27/2019** | SeqNo: **3303927** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 0.436 | 0.50 | 0.5000 | 0 | 87.3 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132146** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132146** | TestNo: **EPA 6020** | | Analysis Date: **2/27/2019** | SeqNo: **3303941** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 19.535 | 0.50 | 20.00 | 0 | 97.7 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301627** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.490 | 1.0 | 10.00 | 0 | 105 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301632** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 1.040 | 1.0 | 1.000 | 0 | 104 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301643** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 21.258 | 1.0 | 20.00 | 0 | 106 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301655** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.229 | 1.0 | 20.00 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301667** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.631 | 1.0 | 20.00 | 0 | 103 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301681** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.859 | 1.0 | 20.00 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301693** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.626 | 1.0 | 20.00 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301707** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.275 | 1.0 | 20.00 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301719** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.919 | 1.0 | 20.00 | 0 | 99.6 | 90 | 110 | | | | |

| Sample ID **CCV8** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301731** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.272 | 1.0 | 20.00 | 0 | 101 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCV9** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301734** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.200 | 1.0 | 20.00 | 0 | 101 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301517** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301533** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301545** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301557** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301557** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301571** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301583** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301597** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301597** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301609** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301621** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB9** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301624** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132146** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132146** | TestNo: **EPA 6020** | | Analysis Date: **2/27/2019** | SeqNo: **3303926** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132146** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132146** | TestNo: **EPA 6020** | | Analysis Date: **2/27/2019** | SeqNo: **3303942** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301628** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301644** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301656** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301668** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301682** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 0.236 | 1.0 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301694** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 0.152 | 1.0 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301708** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 0.338 | 1.0 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301720** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 0.238 | 1.0 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301732** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 0.160 | 1.0 | | | | | | | | | |

| Sample ID **CCB9** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301735** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 0.173 | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132107**
Client ID: **ICSA** Batch ID: **R132107** TestNo: **EPA 6020** Analysis Date: **2/25/2019** SeqNo: **3301519**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132107**
Client ID: **ICSAB** Batch ID: **R132107** TestNo: **EPA 6020** Analysis Date: **2/25/2019** SeqNo: **3301520**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.581 | 0.10 | 20.00 | 0 | 97.9 | 80 | 120 | | | | |
| Manganese | 16.018 | 0.50 | 20.00 | 0 | 80.1 | 80 | 120 | | | | |
| Molybdenum | 19.294 | 0.50 | 20.00 | 0 | 96.5 | 80 | 120 | | | | |
| Selenium | 16.885 | 0.50 | 20.00 | 0 | 84.4 | 80 | 120 | | | | |

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132107**
Client ID: **ICSA** Batch ID: **R132107** TestNo: **EPA 6020** Analysis Date: **2/25/2019** SeqNo: **3301558**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132107**
Client ID: **ICSAB** Batch ID: **R132107** TestNo: **EPA 6020** Analysis Date: **2/25/2019** SeqNo: **3301559**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.457 | 0.10 | 20.00 | 0 | 102 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301559** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 16.578 | 0.50 | 20.00 | 0 | 82.9 | 80 | 120 | | | | |
| Molybdenum | 19.790 | 0.50 | 20.00 | 0 | 99.0 | 80 | 120 | | | | |
| Selenium | 18.763 | 0.50 | 20.00 | 0 | 93.8 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301584** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301585** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.955 | 0.10 | 20.00 | 0 | 99.8 | 80 | 120 | | | | |
| Manganese | 17.132 | 0.50 | 20.00 | 0 | 85.7 | 80 | 120 | | | | |
| Molybdenum | 20.178 | 0.50 | 20.00 | 0 | 101 | 80 | 120 | | | | |
| Selenium | 17.247 | 0.50 | 20.00 | 0 | 86.2 | 80 | 120 | | | | |

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301625** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301625** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB4** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132107** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132107** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301626** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.344 | 0.10 | 20.00 | 0 | 96.7 | 80 | 120 | | | | |
| Manganese | 17.025 | 0.50 | 20.00 | 0 | 85.1 | 80 | 120 | | | | |
| Molybdenum | 19.969 | 0.50 | 20.00 | 0 | 99.8 | 80 | 120 | | | | |
| Selenium | 16.846 | 0.50 | 20.00 | 0 | 84.2 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132146** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132146** | TestNo: **EPA 6020** | | Analysis Date: **2/27/2019** | SeqNo: **3303928** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132146** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132146** | TestNo: **EPA 6020** | | Analysis Date: **2/27/2019** | SeqNo: **3303929** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 18.793 | 0.50 | 20.00 | 0 | 94.0 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132146** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132146** | TestNo: **EPA 6020** | | Analysis Date: **2/27/2019** | SeqNo: **3303952** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132146** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132146** | TestNo: **EPA 6020** | | Analysis Date: **2/27/2019** | SeqNo: **3304009** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 21.357 | 0.50 | 20.00 | 0 | 107 | 80 | 120 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301630** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301631** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.310 | 1.0 | 20.00 | 0 | 102 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301669** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301670** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.761 | 1.0 | 20.00 | 0 | 98.8 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301695** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/25/2019** | SeqNo: **3301696** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.461 | 1.0 | 20.00 | 0 | 97.3 | 80 | 120 | | | | |

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301736** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB4** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132108** | TestNo: **EPA 6020** | | Analysis Date: **2/26/2019** | SeqNo: **3301737** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.183 | 1.0 | 20.00 | 0 | 95.9 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190225A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 28673 | 28673 | 100 | PASS | 70-125 | 12555.2 | 12555.2 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 31566.2 | 28673 | 110.09 | PASS | 70-125 | 13582.6 | 12555.2 | 108.18 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 30419.6 | 28673 | 106.09 | PASS | 70-125 | 13000 | 12555.2 | 103.54 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 30625.4 | 28673 | 106.81 | PASS | 70-125 | 13115.7 | 12555.2 | 104.46 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 30624.4 | 28673 | 106.81 | PASS | 70-125 | 12878.7 | 12555.2 | 102.58 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 29552.3 | 28673 | 103.07 | PASS | 70-125 | 12646.4 | 12555.2 | 100.73 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 29949.8 | 28673 | 104.45 | PASS | 70-125 | 12659.7 | 12555.2 | 100.83 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 29155.1 | 28673 | 101.68 | PASS | 70-125 | 12221.6 | 12555.2 | 97.34 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 28572.9 | 28673 | 99.65 | PASS | 70-125 | 11973.6 | 12555.2 | 95.37 | PASS | 70-125 |
| ICV | ICV | 1 | 27391 | 28673 | 95.53 | PASS | 70-125 | 11940.3 | 12555.2 | 95.1 | PASS | 70-125 |
| ICB | ICB | 1 | 25298.7 | 28673 | 88.23 | PASS | 70-125 | 10755 | 12555.2 | 85.66 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 26187.8 | 28673 | 91.33 | PASS | 70-125 | 11471 | 12555.2 | 91.36 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 35530.8 | 28673 | 123.92 | PASS | 70-125 | 14486.8 | 12555.2 | 115.38 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 31729.8 | 28673 | 110.66 | PASS | 70-125 | 13314.7 | 12555.2 | 106.05 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 30257 | 28673 | 105.52 | PASS | 70-125 | 13316.9 | 12555.2 | 106.07 | PASS | 70-125 |
| MB-72497 | MBLK | 1 | 29510.1 | 28673 | 102.92 | PASS | 70-125 | 13361.4 | 12555.2 | 106.42 | PASS | 70-125 |
| LCS-72497 | LCS | 1 | 32867.5 | 28673 | 114.63 | PASS | 70-125 | 14472.4 | 12555.2 | 115.27 | PASS | 70-125 |
| N034120-001B | SAMP | 1 | 32275.3 | 28673 | 112.56 | PASS | 70-125 | 14264.5 | 12555.2 | 113.61 | PASS | 70-125 |
| N034120-001B | SAMP | 5 | 32423.3 | 28673 | 113.08 | PASS | 70-125 | 14446.8 | 12555.2 | 115.07 | PASS | 70-125 |
| N034120-001B-PS | PS | 1 | 31183.2 | 28673 | 108.75 | PASS | 70-125 | 13807.3 | 12555.2 | 109.97 | PASS | 70-125 |
| CCV1 | CCV | 1 | 25913 | 28673 | 90.37 | PASS | 70-125 | 11812.4 | 12555.2 | 94.084 | PASS | 70-125 |
| CCB1 | CCB | 1 | 23147.8 | 28673 | 80.73 | PASS | 70-125 | 10262.4 | 12555.2 | 81.74 | PASS | 70-125 |
| N034120-001B-MS | MS | 1 | 28000.9 | 28673 | 97.66 | PASS | 70-125 | 12551.9 | 12555.2 | 99.97 | PASS | 70-125 |
| N034120-001B-MSD | MSD | 1 | 28912.4 | 28673 | 100.83 | PASS | 70-125 | 12970 | 12555.2 | 103.3 | PASS | 70-125 |
| N034121-001B | SAMP | 1 | 29917.5 | 28673 | 104.34 | PASS | 70-125 | 13250.2 | 12555.2 | 105.54 | PASS | 70-125 |
| N034121-002B | SAMP | 1 | 27537.9 | 28673 | 96.041 | PASS | 70-125 | 12502.9 | 12555.2 | 99.58 | PASS | 70-125 |
| N034121-003B | SAMP | 1 | 29619.3 | 28673 | 103.3 | PASS | 70-125 | 13096.7 | 12555.2 | 104.31 | PASS | 70-125 |
| N034121-004B | SAMP | 1 | 30468.5 | 28673 | 106.26 | PASS | 70-125 | 13321.4 | 12555.2 | 106.1 | PASS | 70-125 |
| N034121-005B | SAMP | 1 | 29969.8 | 28673 | 104.52 | PASS | 70-125 | 13016.7 | 12555.2 | 103.68 | PASS | 70-125 |
| N034121-006B | SAMP | 1 | 29069.4 | 28673 | 101.38 | PASS | 70-125 | 12655.3 | 12555.2 | 100.8 | PASS | 70-125 |
| N034121-007B | SAMP | 1 | 29243 | 28673 | 101.99 | PASS | 70-125 | 12961.1 | 12555.2 | 103.23 | PASS | 70-125 |
| N034121-008B | SAMP | 1 | 29720.5 | 28673 | 103.65 | PASS | 70-125 | 13480.4 | 12555.2 | 107.37 | PASS | 70-125 |
| CCV2 | CCV | 1 | 28931.4 | 28673 | 100.9 | PASS | 70-125 | 13308 | 12555.2 | 106 | PASS | 70-125 |
| CCB2 | CCB | 1 | 25392.1 | 28673 | 88.56 | PASS | 70-125 | 11625.6 | 12555.2 | 92.6 | PASS | 70-125 |
| N034121-009B | SAMP | 1 | 28349.1 | 28673 | 98.87 | PASS | 70-125 | 12436.2 | 12555.2 | 99.052 | PASS | 70-125 |
| N034121-010B | SAMP | 1 | 28757.7 | 28673 | 100.3 | PASS | 70-125 | 12559.6 | 12555.2 | 100.04 | PASS | 70-125 |
| N034121-011B | SAMP | 1 | 29813 | 28673 | 103.98 | PASS | 70-125 | 13379.2 | 12555.2 | 106.56 | PASS | 70-125 |
| N034125-001A | SAMP | 1 | 31254.4 | 28673 | 109 | PASS | 70-125 | 13368.1 | 12555.2 | 106.47 | PASS | 70-125 |
| N034126-002B | SAMP | 1 | 34264.8 | 28673 | 119.5 | PASS | 70-125 | 14510.2 | 12555.2 | 115.57 | PASS | 70-125 |
| N034126-003B | SAMP | 1 | 27773.8 | 28673 | 96.86 | PASS | 70-125 | 12510.7 | 12555.2 | 99.65 | PASS | 70-125 |
| N034126-004B | SAMP | 1 | 30149.1 | 28673 | 105.15 | PASS | 70-125 | 13394.8 | 12555.2 | 106.69 | PASS | 70-125 |

**INTERNAL STANDARD: 190225A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| N034126-005B | SAMP | 1 | 30314.8 | 28673 | 105.73 | PASS | 70-125 | 13346.9 | 12555.2 | 106.31 | PASS | 70-125 |
| N034126-006B | SAMP | 1 | 29421 | 28673 | 102.61 | PASS | 70-125 | 12892.1 | 12555.2 | 102.68 | PASS | 70-125 |
| N034121-006B | SAMP | 1 | 33533.3 | 28673 | 116.95 | PASS | 70-125 | 15339.8 | 12555.2 | 122.18 | PASS | 70-125 |
| CCV3 | CCV | 1 | 33230.5 | 28673 | 115.89 | PASS | 70-125 | 15157.4 | 12555.2 | 120.73 | PASS | 70-125 |
| CCB3 | CCB | 1 | 27796.1 | 28673 | 96.94 | PASS | 70-125 | 13046.7 | 12555.2 | 103.91 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 31061.9 | 28673 | 108.33 | PASS | 70-125 | 13996.4 | 12555.2 | 111.48 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 28890.1 | 28673 | 100.76 | PASS | 70-125 | 12841 | 12555.2 | 102.28 | PASS | 70-125 |
| N034121-010B | SAMP | 1 | 29318.7 | 28673 | 102.25 | PASS | 70-125 | 13271.4 | 12555.2 | 105.7 | PASS | 70-125 |
| N034126-007B | SAMP | 250 | 27891.7 | 28673 | 97.28 | PASS | 70-125 | 12878.8 | 12555.2 | 102.58 | PASS | 70-125 |
| N034126-007B | SAMP | 1 | 27091.6 | 28673 | 94.48 | PASS | 70-125 | 12028.1 | 12555.2 | 95.8 | PASS | 70-125 |
| N034126-008B | SAMP | 1 | 28150.1 | 28673 | 98.18 | PASS | 70-125 | 12440.6 | 12555.2 | 99.087 | PASS | 70-125 |
| N034120-001B | SAMP | 25 | 29889.7 | 28673 | 104.24 | PASS | 70-125 | 13747.4 | 12555.2 | 109.5 | PASS | 70-125 |
| N034120-001B-PS | PS | 5 | 27633.7 | 28673 | 96.38 | PASS | 70-125 | 12713.1 | 12555.2 | 101.26 | PASS | 70-125 |
| N034120-001B-MS | MS | 5 | 26378.1 | 28673 | 92 | PASS | 70-125 | 11941.4 | 12555.2 | 95.11 | PASS | 70-125 |
| N034120-001B-MSD | MSD | 5 | 25027.1 | 28673 | 87.28 | PASS | 70-125 | 11596.7 | 12555.2 | 92.37 | PASS | 70-125 |
| N034121-001B | SAMP | 25 | 25068.3 | 28673 | 87.43 | PASS | 70-125 | 11807.9 | 12555.2 | 94.048 | PASS | 70-125 |
| N034121-002B | SAMP | 25 | 24710.1 | 28673 | 86.18 | PASS | 70-125 | 11696.7 | 12555.2 | 93.16 | PASS | 70-125 |
| CCV4 | CCV | 1 | 24711.1 | 28673 | 86.18 | PASS | 70-125 | 11353.2 | 12555.2 | 90.43 | PASS | 70-125 |
| CCB4 | CCB | 1 | 21407.6 | 28673 | 74.66 | PASS | 70-125 | 10140.1 | 12555.2 | 80.76 | PASS | 70-125 |
| N034121-004B | SAMP | 5 | 22746.1 | 28673 | 79.33 | PASS | 70-125 | 10467 | 12555.2 | 83.37 | PASS | 70-125 |
| N034121-007B | SAMP | 5 | 22642.6 | 28673 | 78.97 | PASS | 70-125 | 10304.6 | 12555.2 | 82.074 | PASS | 70-125 |
| N034121-009B | SAMP | 25 | 23052.1 | 28673 | 80.4 | PASS | 70-125 | 10790.6 | 12555.2 | 85.95 | PASS | 70-125 |
| N034121-010B | SAMP | 5 | 22369 | 28673 | 78.014 | PASS | 70-125 | 10494.8 | 12555.2 | 83.59 | PASS | 70-125 |
| N034125-001A | SAMP | 5 | 23488.3 | 28673 | 81.92 | PASS | 70-125 | 10622.7 | 12555.2 | 84.61 | PASS | 70-125 |
| N034126-002B | SAMP | 10 | 24173.6 | 28673 | 84.31 | PASS | 70-125 | 10753.9 | 12555.2 | 85.65 | PASS | 70-125 |
| N034126-005B | SAMP | 5 | 23565 | 28673 | 82.19 | PASS | 70-125 | 10641.6 | 12555.2 | 84.76 | PASS | 70-125 |
| N034126-006B | SAMP | 5 | 24473 | 28673 | 85.35 | PASS | 70-125 | 11088.5 | 12555.2 | 88.32 | PASS | 70-125 |
| N034106-001B | SAMP | 1 | 19495.2 | 28673 | 67.99 | NR! | 70-125 | 9055 | 12555.2 | 72.12 | PASS | 70-125 |
| N034106-001B | SAMP | 1 | 20456.5 | 28673 | 71.34 | PASS | 70-125 | 9732.1 | 12555.2 | 77.51 | PASS | 70-125 |
| CCV5 | CCV | 1 | 24562 | 28673 | 85.66 | PASS | 70-125 | 11504.4 | 12555.2 | 91.63 | PASS | 70-125 |
| CCB5 | CCB | 1 | 22653.8 | 28673 | 79.007 | PASS | 70-125 | 10793.9 | 12555.2 | 85.97 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 27436.5 | 28673 | 95.69 | PASS | 70-125 | 12617.5 | 12555.2 | 100.5 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 25558 | 28673 | 89.14 | PASS | 70-125 | 11511.1 | 12555.2 | 91.68 | PASS | 70-125 |
| CCV6 | CCV | 1 | 24457.4 | 28673 | 85.3 | PASS | 70-125 | 11273.1 | 12555.2 | 89.79 | PASS | 70-125 |
| CCB6 | CCB | 1 | 23050.9 | 28673 | 80.39 | PASS | 70-125 | 10698.3 | 12555.2 | 85.21 | PASS | 70-125 |
| CCV7 | CCV | 1 | 25996.4 | 28673 | 90.67 | PASS | 70-125 | 11703.4 | 12555.2 | 93.22 | PASS | 70-125 |
| CCB7 | CCB | 1 | 20595.4 | 28673 | 71.83 | PASS | 70-125 | 9781 | 12555.2 | 77.9 | PASS | 70-125 |
| CCV8 | CCV | 1 | 22475.7 | 28673 | 78.39 | PASS | 70-125 | 10111.2 | 12555.2 | 80.53 | PASS | 70-125 |
| CCB8 | CCB | 1 | 20770.1 | 28673 | 72.44 | PASS | 70-125 | 9809.9 | 12555.2 | 78.13 | PASS | 70-125 |
| CCV9 | CCV | 1 | 21504.4 | 28673 | 75 | PASS | 70-125 | 10085.6 | 12555.2 | 80.33 | PASS | 70-125 |
| CCB9 | CCB | 1 | 21378.7 | 28673 | 74.56 | PASS | 70-125 | 10194.6 | 12555.2 | 81.2 | PASS | 70-125 |

**INTERNAL STANDARD: 190225A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| ICSA4 | ICSA | 1 | 24289.4 | 28673 | 84.71 | PASS | 70-125 | 11059.6 | 12555.2 | 88.088 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 23434.9 | 28673 | 81.73 | PASS | 70-125 | 10790.5 | 12555.2 | 85.94 | PASS | 70-125 |

**INTERNAL STANDARD: 190225A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 10057.8 | 10057.8 | 100 | PASS | 70-125 | 325597.4 | 325597.4 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 10832.8 | 10057.8 | 107.71 | PASS | 70-125 | 357902 | 325597.4 | 109.92 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 10067.8 | 10057.8 | 100.1 | PASS | 70-125 | 347798.8 | 325597.4 | 106.82 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 9957.8 | 10057.8 | 99.006 | PASS | 70-125 | 348815.8 | 325597.4 | 107.13 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 10241.3 | 10057.8 | 101.82 | PASS | 70-125 | 348664.5 | 325597.4 | 107.09 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 9835.5 | 10057.8 | 97.79 | PASS | 70-125 | 335284.2 | 325597.4 | 102.98 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 9925.5 | 10057.8 | 98.68 | PASS | 70-125 | 341989.8 | 325597.4 | 105.04 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 9585.3 | 10057.8 | 95.3 | PASS | 70-125 | 325228.8 | 325597.4 | 99.89 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 9622 | 10057.8 | 95.67 | PASS | 70-125 | 319709.3 | 325597.4 | 98.19 | PASS | 70-125 |
| ICV | ICV | 1 | 8595.9 | 10057.8 | 85.47 | PASS | 70-125 | 325720 | 325597.4 | 100.04 | PASS | 70-125 |
| ICB | ICB | 1 | 8048.9 | 10057.8 | 80.026 | PASS | 70-125 | 299734.5 | 325597.4 | 92.057 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 8876 | 10057.8 | 88.25 | PASS | 70-125 | 313937.8 | 325597.4 | 96.42 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 11700.1 | 10057.8 | 116.33 | PASS | 70-125 | 360462.5 | 325597.4 | 110.71 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 9886.6 | 10057.8 | 98.3 | PASS | 70-125 | 338327.6 | 325597.4 | 103.91 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 10863.9 | 10057.8 | 108.02 | PASS | 70-125 | 353588.2 | 325597.4 | 108.6 | PASS | 70-125 |
| MB-72497 | MBLK | 1 | 9813.2 | 10057.8 | 97.57 | PASS | 70-125 | 344951.5 | 325597.4 | 105.94 | PASS | 70-125 |
| LCS-72497 | LCS | 1 | 11016.3 | 10057.8 | 109.53 | PASS | 70-125 | 386317.2 | 325597.4 | 118.65 | PASS | 70-125 |
| N034120-001B | SAMP | 1 | 10469.2 | 10057.8 | 104.09 | PASS | 70-125 | 352961.1 | 325597.4 | 108.4 | PASS | 70-125 |
| N034120-001B | SAMP | 5 | 10672.7 | 10057.8 | 106.11 | PASS | 70-125 | 369365.5 | 325597.4 | 113.44 | PASS | 70-125 |
| N034120-001B-PS | PS | 1 | 10130.1 | 10057.8 | 100.72 | PASS | 70-125 | 344203.2 | 325597.4 | 105.71 | PASS | 70-125 |
| CCV1 | CCV | 1 | 8101.2 | 10057.8 | 80.55 | PASS | 70-125 | 319902.1 | 325597.4 | 98.25 | PASS | 70-125 |
| CCB1 | CCB | 1 | 7152.9 | 10057.8 | 71.12 | PASS | 70-125 | 285852.5 | 325597.4 | 87.79 | PASS | 70-125 |
| N034120-001B-MS | MS | 1 | 9149.5 | 10057.8 | 90.97 | PASS | 70-125 | 312239.7 | 325597.4 | 95.9 | PASS | 70-125 |
| N034120-001B-MSD | MSD | 1 | 9312.9 | 10057.8 | 92.59 | PASS | 70-125 | 321826.2 | 325597.4 | 98.84 | PASS | 70-125 |
| N034121-001B | SAMP | 1 | 9745.5 | 10057.8 | 96.89 | PASS | 70-125 | 325389.6 | 325597.4 | 99.94 | PASS | 70-125 |
| N034121-002B | SAMP | 1 | 9338.5 | 10057.8 | 92.85 | PASS | 70-125 | 306803.3 | 325597.4 | 94.23 | PASS | 70-125 |
| N034121-003B | SAMP | 1 | 9935.5 | 10057.8 | 98.78 | PASS | 70-125 | 317398.8 | 325597.4 | 97.48 | PASS | 70-125 |
| N034121-004B | SAMP | 1 | 9653.2 | 10057.8 | 95.98 | PASS | 70-125 | 326377.6 | 325597.4 | 100.24 | PASS | 70-125 |
| N034121-005B | SAMP | 1 | 9650.9 | 10057.8 | 95.95 | PASS | 70-125 | 317812.1 | 325597.4 | 97.61 | PASS | 70-125 |
| N034121-006B | SAMP | 1 | 9276.2 | 10057.8 | 92.23 | PASS | 70-125 | 311011.9 | 325597.4 | 95.52 | PASS | 70-125 |
| N034121-007B | SAMP | 1 | 9217.3 | 10057.8 | 91.64 | PASS | 70-125 | 309668.7 | 325597.4 | 95.11 | PASS | 70-125 |
| N034121-008B | SAMP | 1 | 9858.8 | 10057.8 | 98.021 | PASS | 70-125 | 321388.3 | 325597.4 | 98.71 | PASS | 70-125 |
| CCV2 | CCV | 1 | 9733.2 | 10057.8 | 96.77 | PASS | 70-125 | 337055.3 | 325597.4 | 103.52 | PASS | 70-125 |
| CCB2 | CCB | 1 | 8577 | 10057.8 | 85.28 | PASS | 70-125 | 302884.5 | 325597.4 | 93.024 | PASS | 70-125 |
| N034121-009B | SAMP | 1 | 9453 | 10057.8 | 93.99 | PASS | 70-125 | 306587.9 | 325597.4 | 94.16 | PASS | 70-125 |
| N034121-010B | SAMP | 1 | 9275.1 | 10057.8 | 92.22 | PASS | 70-125 | 308453.1 | 325597.4 | 94.73 | PASS | 70-125 |
| N034121-011B | SAMP | 1 | 10032.3 | 10057.8 | 99.75 | PASS | 70-125 | 324375.7 | 325597.4 | 99.62 | PASS | 70-125 |
| N034125-001A | SAMP | 1 | 9089.5 | 10057.8 | 90.37 | PASS | 70-125 | 321306.1 | 325597.4 | 98.68 | PASS | 70-125 |
| N034126-002B | SAMP | 1 | 8506.9 | 10057.8 | 84.58 | PASS | 70-125 | 332458.2 | 325597.4 | 102.11 | PASS | 70-125 |
| N034126-003B | SAMP | 1 | 8505.8 | 10057.8 | 84.57 | PASS | 70-125 | 307278.4 | 325597.4 | 94.37 | PASS | 70-125 |
| N034126-004B | SAMP | 1 | 9416.3 | 10057.8 | 93.62 | PASS | 70-125 | 327674.2 | 325597.4 | 100.64 | PASS | 70-125 |

**INTERNAL STANDARD: 190225A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| N034126-005B | SAMP | 1 | 9234 | 10057.8 | 91.81 | PASS | 70-125 | 319705.9 | 325597.4 | 98.19 | PASS | 70-125 |
| N034126-006B | SAMP | 1 | 8259 | 10057.8 | 82.12 | PASS | 70-125 | 300836.5 | 325597.4 | 92.4 | PASS | 70-125 |
| N034121-006B | SAMP | 1 | 10517 | 10057.8 | 104.57 | PASS | 70-125 | 372931.6 | 325597.4 | 114.54 | PASS | 70-125 |
| CCV3 | CCV | 1 | 10861.7 | 10057.8 | 107.99 | PASS | 70-125 | 395558 | 325597.4 | 121.49 | PASS | 70-125 |
| CCB3 | CCB | 1 | 8838.2 | 10057.8 | 87.87 | PASS | 70-125 | 346124.5 | 325597.4 | 106.3 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 9757.7 | 10057.8 | 97.016 | PASS | 70-125 | 342245.9 | 325597.4 | 105.11 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 9237.3 | 10057.8 | 91.84 | PASS | 70-125 | 315514.7 | 325597.4 | 96.9 | PASS | 70-125 |
| N034121-010B | SAMP | 1 | 9384.1 | 10057.8 | 93.3 | PASS | 70-125 | 327305.1 | 325597.4 | 100.52 | PASS | 70-125 |
| N034126-007B | SAMP | 250 | 9121.7 | 10057.8 | 90.69 | PASS | 70-125 | 334701.9 | 325597.4 | 102.8 | PASS | 70-125 |
| N034126-007B | SAMP | 1 | 8125.6 | 10057.8 | 80.79 | PASS | 70-125 | 290569 | 325597.4 | 89.24 | PASS | 70-125 |
| N034126-008B | SAMP | 1 | 8914.9 | 10057.8 | 88.64 | PASS | 70-125 | 300605 | 325597.4 | 92.32 | PASS | 70-125 |
| N034120-001B | SAMP | 25 | 10195.7 | 10057.8 | 101.37 | PASS | 70-125 | 352637.7 | 325597.4 | 108.3 | PASS | 70-125 |
| N034120-001B-PS | PS | 5 | 9159.5 | 10057.8 | 91.069 | PASS | 70-125 | 323136.6 | 325597.4 | 99.24 | PASS | 70-125 |
| N034120-001B-MS | MS | 5 | 8431.3 | 10057.8 | 83.83 | PASS | 70-125 | 308746.5 | 325597.4 | 94.82 | PASS | 70-125 |
| N034120-001B-MSD | MSD | 5 | 8118.9 | 10057.8 | 80.72 | PASS | 70-125 | 298559.7 | 325597.4 | 91.7 | PASS | 70-125 |
| N034121-001B | SAMP | 25 | 8424.6 | 10057.8 | 83.76 | PASS | 70-125 | 304064.7 | 325597.4 | 93.39 | PASS | 70-125 |
| N034121-002B | SAMP | 25 | 8444.6 | 10057.8 | 83.96 | PASS | 70-125 | 299928.7 | 325597.4 | 92.12 | PASS | 70-125 |
| CCV4 | CCV | 1 | 8281.3 | 10057.8 | 82.34 | PASS | 70-125 | 301294.8 | 325597.4 | 92.54 | PASS | 70-125 |
| CCB4 | CCB | 1 | 7517.5 | 10057.8 | 74.74 | PASS | 70-125 | 272566.5 | 325597.4 | 83.71 | PASS | 70-125 |
| N034121-004B | SAMP | 5 | 7749.9 | 10057.8 | 77.054 | PASS | 70-125 | 276755.1 | 325597.4 | 85 | PASS | 70-125 |
| N034121-007B | SAMP | 5 | 7504.2 | 10057.8 | 74.61 | PASS | 70-125 | 269003.5 | 325597.4 | 82.62 | PASS | 70-125 |
| N034121-009B | SAMP | 25 | 7749.8 | 10057.8 | 77.053 | PASS | 70-125 | 282935.9 | 325597.4 | 86.9 | PASS | 70-125 |
| N034121-010B | SAMP | 5 | 7615.3 | 10057.8 | 75.72 | PASS | 70-125 | 267331.6 | 325597.4 | 82.1 | PASS | 70-125 |
| N034125-001A | SAMP | 5 | 7470.8 | 10057.8 | 74.28 | PASS | 70-125 | 269965.2 | 325597.4 | 82.91 | PASS | 70-125 |
| N034126-002B | SAMP | 10 | 8056.7 | 10057.8 | 80.1 | PASS | 70-125 | 274265.1 | 325597.4 | 84.23 | PASS | 70-125 |
| N034126-005B | SAMP | 5 | 7748.7 | 10057.8 | 77.042 | PASS | 70-125 | 270283.6 | 325597.4 | 83.012 | PASS | 70-125 |
| N034126-006B | SAMP | 5 | 7791 | 10057.8 | 77.46 | PASS | 70-125 | 272668.1 | 325597.4 | 83.74 | PASS | 70-125 |
| N034106-001B | SAMP | 1 | 6640.4 | 10057.8 | 66.022 | NR! | 70-125 | 228633.5 | 325597.4 | 70.22 | PASS | 70-125 |
| N034106-001B | SAMP | 1 | 7236.3 | 10057.8 | 71.95 | PASS | 70-125 | 234301.2 | 325597.4 | 71.96 | PASS | 70-125 |
| CCV5 | CCV | 1 | 8647 | 10057.8 | 85.97 | PASS | 70-125 | 295464.5 | 325597.4 | 90.75 | PASS | 70-125 |
| CCB5 | CCB | 1 | 8042.2 | 10057.8 | 79.96 | PASS | 70-125 | 279495.7 | 325597.4 | 85.84 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 9175.1 | 10057.8 | 91.22 | PASS | 70-125 | 306488.6 | 325597.4 | 94.13 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 8642.6 | 10057.8 | 85.93 | PASS | 70-125 | 281195.1 | 325597.4 | 86.36 | PASS | 70-125 |
| CCV6 | CCV | 1 | 8498 | 10057.8 | 84.49 | PASS | 70-125 | 292243.9 | 325597.4 | 89.76 | PASS | 70-125 |
| CCB6 | CCB | 1 | 8082.3 | 10057.8 | 80.36 | PASS | 70-125 | 285645.4 | 325597.4 | 87.73 | PASS | 70-125 |
| CCV7 | CCV | 1 | 9149.5 | 10057.8 | 90.97 | PASS | 70-125 | 305753.2 | 325597.4 | 93.91 | PASS | 70-125 |
| CCB7 | CCB | 1 | 7267.4 | 10057.8 | 72.26 | PASS | 70-125 | 261597.2 | 325597.4 | 80.34 | PASS | 70-125 |
| CCV8 | CCV | 1 | 7895.5 | 10057.8 | 78.5 | PASS | 70-125 | 273448.3 | 325597.4 | 83.98 | PASS | 70-125 |
| CCB8 | CCB | 1 | 7318.5 | 10057.8 | 72.76 | PASS | 70-125 | 256456.4 | 325597.4 | 78.76 | PASS | 70-125 |
| CCV9 | CCV | 1 | 7792.1 | 10057.8 | 77.47 | PASS | 70-125 | 262864.8 | 325597.4 | 80.73 | PASS | 70-125 |
| CCB9 | CCB | 1 | 7479.7 | 10057.8 | 74.37 | PASS | 70-125 | 270398.8 | 325597.4 | 83.047 | PASS | 70-125 |

**INTERNAL STANDARD: 190225A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| ICSA4 | ICSA | 1 | 8291.2 | 10057.8 | 82.44 | PASS | 70-125 | 269356.2 | 325597.4 | 82.73 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 8303.5 | 10057.8 | 82.56 | PASS | 70-125 | 257971.7 | 325597.4 | 79.23 | PASS | 70-125 |

**INTERNAL STANDARD: 190227A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 5514.4 | 5514.4 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 6055.8 | 5514.4 | 109.82 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 6146.9 | 5514.4 | 111.47 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 6229.2 | 5514.4 | 112.96 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 6055.8 | 5514.4 | 109.82 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 5974.6 | 5514.4 | 108.35 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 6104.7 | 5514.4 | 110.7 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 5383.3 | 5514.4 | 97.62 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 5846.8 | 5514.4 | 106.03 | PASS | 70-125 |
| ICV | ICV | 1 | 5231 | 5514.4 | 94.86 | PASS | 70-125 |
| ICB | ICB | 1 | 5677.8 | 5514.4 | 102.96 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 5446.6 | 5514.4 | 98.77 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 6113.6 | 5514.4 | 110.87 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 6138 | 5514.4 | 111.31 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 4798.6 | 5514.4 | 87.019 | PASS | 70-125 |
| N034120-001B-PS | PS | 1 | 6837.2 | 5514.4 | 123.99 | PASS | 70-125 |
| CCV1 | CCV | 1 | 6760.5 | 5514.4 | 122.6 | PASS | 70-125 |
| CCB1 | CCB | 1 | 5265.5 | 5514.4 | 95.49 | PASS | 70-125 |
| CCV2 | CCV | 1 | 6820.5 | 5514.4 | 123.69 | PASS | 70-125 |
| CCB2 | CCB | 1 | 6568.2 | 5514.4 | 119.11 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 6441.5 | 5514.4 | 116.81 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 5002 | 5514.4 | 90.71 | PASS | 70-125 |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-MS-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034126
Test Method: EPA 6020
Analysis Date: 2/25/2019 & 2/27/2019

Matrix: Groundwater
Batch No.: 72497

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to several analytes. The calculated concentration is <25RL.

| Sample ID | Analyte | Units | Calc Val | OQual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|
| N034120-001B DT 5X | Arsenic | ug/L | 1.48928 | NA | 1.36828 | 8.84% | 10 |
| N034120-001B DT 5X | Chromium | ug/L | 0 | NA | 0.396731 | 100.00% | 10 |
| N034120-001B DT 25X | Manganese | ug/L | 201.7551 | PASS | 184.3129 | 9.46% | 10 |
| N034120-001B DT 5X | Molybdenum | ug/L | 3.648847 | NA | 3.911534 | 6.72% | 10 |
| N034120-001B DT 5X | Selenium | ug/L | 0 | NA | 0 | | 10 |

Note: NA - Not applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | N034120-001B-PS | SampType: | PS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 132107 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72497 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/25/2019 | SeqNo: | 3301531 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.338 | 0.10 | 10.00 | 1.368 | 99.7 | 80 | 120 | | | | |
| Molybdenum | 14.846 | 0.50 | 10.00 | 3.912 | 109 | 80 | 120 | | | | |

| Sample ID | N034120-001B-PS | SampType: | PS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 132107 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72497 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/25/2019 | SeqNo: | 3301565 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 315.977 | 2.5 | 100.0 | 184.3 | 132 | 80 | 120 | | | | S |

| Sample ID | N034120-001B-PS | SampType: | PS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 132146 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72497 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/27/2019 | SeqNo: | 3303938 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 10.029 | 0.50 | 10.00 | 0 | 100 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034126
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | **N034120-001B-PS** | SampType: **PS** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132108** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **72497** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/25/2019** | SeqNo: **3301642** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.285 | 1.0 | 10.00 | 0.3967 | 98.9 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Amount of Sample:** 25 mL
**Units:** ug/L

| Analyte | AMT SPIKED, ppb | 1 | 2 | 3 | 4 | 5 | 6 | 7 | SD | MDL | LOD | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANTIMONY | 0.50 | 0.525 | 0.514 | 0.473 | 0.500 | 0.492 | 0.486 | 0.530 | 0.0210 | 0.0660 | 0.100 | 0.50 |
| ARSENIC | 0.10 | 0.099 | 0.104 | 0.087 | 0.048 | 0.060 | 0.069 | 0.120 | 0.0259 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 1.00 | 1.041 | 1.059 | 1.052 | 1.011 | 0.967 | 0.957 | 1.023 | 0.0403 | 0.1264 | 0.250 | 1.00 |
| BERYLLIUM | 0.50 | 0.469 | 0.476 | 0.473 | 0.495 | 0.480 | 0.488 | 0.507 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.50 | 0.515 | 0.513 | 0.492 | 0.534 | 0.499 | 0.483 | 0.508 | 0.0168 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 1.00 | 0.979 | 0.986 | 0.940 | 0.990 | 0.946 | 0.978 | 0.977 | 0.0197 | 0.0618 | 0.250 | 1.00 |
| COBALT | 0.50 | 0.499 | 0.489 | 0.486 | 0.488 | 0.465 | 0.502 | 0.505 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| COPPER | 1.00 | 1.110 | 0.667 | 1.039 | 1.060 | 1.006 | 1.099 | 1.075 | 0.1544 | 0.4850 | 0.500 | 1.00 |
| IRON | 10.00 | 10.873 | 10.802 | 10.142 | 9.991 | 9.846 | 9.852 | 10.596 | 0.4463 | 1.4014 | 2.500 | 10.00 |
| LEAD | 1.00 | 0.928 | 0.931 | 0.899 | 0.996 | 0.990 | 0.987 | 0.997 | 0.0406 | 0.1274 | 0.250 | 1.00 |
| MANGANESE | 0.50 | 0.577 | 0.588 | 0.561 | 0.566 | 0.517 | 0.541 | 0.520 | 0.0276 | 0.0866 | 0.100 | 0.50 |
| MOLYBDENUM | 0.50 | 0.514 | 0.504 | 0.467 | 0.478 | 0.456 | 0.433 | 0.527 | 0.0338 | 0.1061 | 0.250 | 0.50 |
| NICKEL | 1.00 | 0.961 | 0.965 | 0.977 | 0.907 | 0.914 | 0.962 | 1.075 | 0.0551 | 0.1731 | 0.250 | 1.00 |
| SELENIUM | 0.50 | 0.450 | 0.478 | 0.419 | 0.693 | 0.707 | 0.495 | 0.555 | 0.1155 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.50 | 0.558 | 0.511 | 0.490 | 0.542 | 0.458 | 0.490 | 0.684 | 0.0745 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.50 | 0.437 | 0.428 | 0.408 | 0.538 | 0.446 | 0.438 | 0.525 | 0.0504 | 0.1583 | 0.250 | 0.50 |
| URANIUM | 0.50 | 0.478 | 0.467 | 0.461 | 0.517 | 0.510 | 0.521 | 0.521 | 0.0267 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 1.00 | 0.950 | 0.969 | 0.900 | 0.844 | 0.829 | 0.848 | 1.053 | 0.0820 | 0.2574 | 0.500 | 1.00 |
| ZINC | 10.00 | 11.259 | 11.279 | 10.915 | 9.620 | 9.849 | 9.745 | 10.241 | 0.7235 | 2.2717 | 2.500 | 10.00 |

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Units:** ug/L

| Analyte | MDLs | MDLb | MDL | LOD | PQL |
|---|---|---|---|---|---|
| ANTIMONY | 0.0660 | 0.1564 | 0.1564 | 0.300 | 0.50 |
| ARSENIC | 0.0813 | 0.0387 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 0.1264 | 0.1497 | 0.1497 | 0.300 | 1.00 |
| BERYLLIUM | 0.0424 | 0.0153 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.0527 | 0.0060 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 0.0618 | 0.1298 | 0.1298 | 0.300 | 1.00 |
| COBALT | 0.0424 | 0.0339 | 0.0424 | 0.100 | 0.50 |
| COPPER | 0.4850 | 0.5459 | 0.5459 | 0.600 | 1.00 |
| IRON | 1.4014 | 4.3484 | 4.3484 | 5.000 | 10.00 |
| LEAD | 0.1274 | 0.1008 | 0.1274 | 0.300 | 1.00 |
| MANGANESE | 0.0866 | 0.2552 | 0.2552 | 0.300 | 0.50 |
| MOLYBDENUM | 0.1061 | 0.2149 | 0.2149 | 0.300 | 0.50 |
| NICKEL | 0.1731 | 0.2606 | 0.2606 | 0.300 | 1.00 |
| SELENIUM | 0.3628 | 0.0953 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.2340 | 0.2023 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.1583 | 0.1924 | 0.1924 | 0.300 | 0.50 |
| URANIUM | 0.0838 | 0.0020 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 0.2574 | 0.2768 | 0.2768 | 0.600 | 1.00 |
| ZINC | 2.2717 | 0.4511 | 2.2717 | 3.000 | 10.00 |

March 05, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034129

RE: PG&E Topock - RMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on February 13, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034129

# CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling;sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 6010B_Total:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron in QC samples N034129-002E-MS and N034129-002E-MSD possibly due to matrix interference. Dilution Test was performed but not applicable since the result is less than 25x the reporting limit (RL). Post Spike was also performed but failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Barium and Manganese in QC samples N034128-001A-MS and N034128-001A-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034129
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034129-001A | AmbientBlank-3-0219 | Groundwater | 2/13/2019 12:50:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-002A | C-CON-D-0219 | Groundwater | 2/13/2019 10:15:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-002B | C-CON-D-0219 | Groundwater | 2/13/2019 10:15:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-002C | C-CON-D-0219 | Groundwater | 2/13/2019 10:15:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-002D | C-CON-D-0219 | Groundwater | 2/13/2019 10:15:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-002E | C-CON-D-0219 | Groundwater | 2/13/2019 10:15:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-003A | C-CON-S-0219 | Groundwater | 2/13/2019 10:30:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-003B | C-CON-S-0219 | Groundwater | 2/13/2019 10:30:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-003C | C-CON-S-0219 | Groundwater | 2/13/2019 10:30:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-003D | C-CON-S-0219 | Groundwater | 2/13/2019 10:30:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-003E | C-CON-S-0219 | Groundwater | 2/13/2019 10:30:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-004A | C-MAR-D-0219 | Groundwater | 2/13/2019 8:15:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-004B | C-MAR-D-0219 | Groundwater | 2/13/2019 8:15:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-004C | C-MAR-D-0219 | Groundwater | 2/13/2019 8:15:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-004D | C-MAR-D-0219 | Groundwater | 2/13/2019 8:15:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-004E | C-MAR-D-0219 | Groundwater | 2/13/2019 8:15:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-005A | C-MAR-S-0219 | Groundwater | 2/13/2019 8:30:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-005B | C-MAR-S-0219 | Groundwater | 2/13/2019 8:30:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-005C | C-MAR-S-0219 | Groundwater | 2/13/2019 8:30:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-005D | C-MAR-S-0219 | Groundwater | 2/13/2019 8:30:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-005E | C-MAR-S-0219 | Groundwater | 2/13/2019 8:30:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-006A | C-NR1-D-0219 | Groundwater | 2/13/2019 10:55:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-006B | C-NR1-D-0219 | Groundwater | 2/13/2019 10:55:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-006C | C-NR1-D-0219 | Groundwater | 2/13/2019 10:55:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-006D | C-NR1-D-0219 | Groundwater | 2/13/2019 10:55:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-006E | C-NR1-D-0219 | Groundwater | 2/13/2019 10:55:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-007A | C-NR1-S-0219 | Groundwater | 2/13/2019 11:10:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-007B | C-NR1-S-0219 | Groundwater | 2/13/2019 11:10:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-007C | C-NR1-S-0219 | Groundwater | 2/13/2019 11:10:00 AM | 2/13/2019 | 3/5/2019 |

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034129
**Contract No:**

# Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034129-007D | C-NR1-S-0219 | Groundwater | 2/13/2019 11:10:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-007E | C-NR1-S-0219 | Groundwater | 2/13/2019 11:10:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-008A | C-NR3-S-0219 | Groundwater | 2/13/2019 11:50:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-008B | C-NR3-S-0219 | Groundwater | 2/13/2019 11:50:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-008C | C-NR3-S-0219 | Groundwater | 2/13/2019 11:50:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-008D | C-NR3-S-0219 | Groundwater | 2/13/2019 11:50:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-008E | C-NR3-S-0219 | Groundwater | 2/13/2019 11:50:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-009A | MW-907-Q119 | Groundwater | 2/13/2019 12:00:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-009B | MW-907-Q119 | Groundwater | 2/13/2019 12:00:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-009C | MW-907-Q119 | Groundwater | 2/13/2019 12:00:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-009D | MW-907-Q119 | Groundwater | 2/13/2019 12:00:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-009E | MW-907-Q119 | Groundwater | 2/13/2019 12:00:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-010A | C-NR4-D-0219 | Groundwater | 2/13/2019 12:30:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-010B | C-NR4-D-0219 | Groundwater | 2/13/2019 12:30:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-010C | C-NR4-D-0219 | Groundwater | 2/13/2019 12:30:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-010D | C-NR4-D-0219 | Groundwater | 2/13/2019 12:30:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-010E | C-NR4-D-0219 | Groundwater | 2/13/2019 12:30:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-011A | C-NR4-S-0219 | Groundwater | 2/13/2019 12:45:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-011B | C-NR4-S-0219 | Groundwater | 2/13/2019 12:45:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-011C | C-NR4-S-0219 | Groundwater | 2/13/2019 12:45:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-011D | C-NR4-S-0219 | Groundwater | 2/13/2019 12:45:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-011E | C-NR4-S-0219 | Groundwater | 2/13/2019 12:45:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-012A | R-19-0219 | Groundwater | 2/13/2019 9:00:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-012B | R-19-0219 | Groundwater | 2/13/2019 9:00:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-012C | R-19-0219 | Groundwater | 2/13/2019 9:00:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-012D | R-19-0219 | Groundwater | 2/13/2019 9:00:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-012E | R-19-0219 | Groundwater | 2/13/2019 9:00:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-013A | RRB-0219 | Groundwater | 2/13/2019 9:45:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-013B | RRB-0219 | Groundwater | 2/13/2019 9:45:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-013C | RRB-0219 | Groundwater | 2/13/2019 9:45:00 AM | 2/13/2019 | 3/5/2019 |

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034129
**Contract No:**

# Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034129-013D | RRB-0219 | Groundwater | 2/13/2019 9:45:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-013E | RRB-0219 | Groundwater | 2/13/2019 9:45:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-014A | C-NR3-D-0219 | Groundwater | 2/13/2019 11:35:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-014B | C-NR3-D-0219 | Groundwater | 2/13/2019 11:35:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-014C | C-NR3-D-0219 | Groundwater | 2/13/2019 11:35:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-014D | C-NR3-D-0219 | Groundwater | 2/13/2019 11:35:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-014E | C-NR3-D-0219 | Groundwater | 2/13/2019 11:35:00 AM | 2/13/2019 | 3/5/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 10:15:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 900 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 10:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 900 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 8:15:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 8:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 900 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 11:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-907-Q119 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 12:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-011

**Client Sample ID:** C-NR4-S-0219
**Collection Date:** 2/13/2019 12:45:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 900 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-19-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 9:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | RRB-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 9:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 930 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-014 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 920 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID | N034126-006CDUP | SampType: | DUP | TestCode: | 120.1_WPGE | Units: | umhos/cm | Prep Date: | | RunNo: | 131845 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131845 | TestNo: | EPA 120.1 | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288956 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 8740.000 | 0.10 | | | | | | 8710 | 0.344 | 2 | |

| Sample ID | N034129-010BDUP | SampType: | DUP | TestCode: | 120.1_WPGE | Units: | umhos/cm | Prep Date: | | RunNo: | 131845 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131845 | TestNo: | EPA 120.1 | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288969 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 909.000 | 0.10 | | | | | | 912.0 | 0.329 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-002

**Client Sample ID:** C-CON-D-0219
**Collection Date:** 2/13/2019 10:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-003

**Client Sample ID:** C-CON-S-0219
**Collection Date:** 2/13/2019 10:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-004

**Client Sample ID:** C-MAR-D-0219
**Collection Date:** 2/13/2019 8:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 8:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-006

**Client Sample ID:** C-NR1-D-0219
**Collection Date:** 2/13/2019 10:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-007

**Client Sample ID:** C-NR1-S-0219
**Collection Date:** 2/13/2019 11:10:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-008

**Client Sample ID:** C-NR3-S-0219
**Collection Date:** 2/13/2019 11:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-907-Q119 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 12:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.8 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-011

**Client Sample ID:** C-NR4-S-0219
**Collection Date:** 2/13/2019 12:45:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-012

**Client Sample ID:** R-19-0219
**Collection Date:** 2/13/2019 9:00:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-013

**Client Sample ID:** RRB-0219
**Collection Date:** 2/13/2019 9:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.6 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-014

**Client Sample ID:** C-NR3-D-0219
**Collection Date:** 2/13/2019 11:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 150.1_4500H+B_W**

Sample ID **N034129-002BUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **131842**
Client ID: **ZZZZZZ** Batch ID: **R131842** TestNo: **SM4500-H+B** Analysis Date: **2/14/2019** SeqNo: **3288903**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 8.270 | 0.10 | | | | | | 8.260 | 0.121 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

Sample ID **N034129-014BDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **131842**
Client ID: **ZZZZZZ** Batch ID: **R131842** TestNo: **SM4500-H+B** Analysis Date: **2/14/2019** SeqNo: **3288916**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 8.260 | 0.10 | | | | | | 8.260 | 0 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 10:15:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214B** QC Batch: **72491** | | | | | PrepDate **2/14/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 10:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214B** QC Batch: **72491** | | | | PrepDate | **2/14/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 8:15:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214B** QC Batch: **72491** | | | | | PrepDate **2/14/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | 30 | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 8:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190214B** | QC Batch: **72491** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214B** | QC Batch: **72491** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214B** QC Batch: **72491** | | | | PrepDate | **2/14/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 11:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214B** QC Batch: **72491** | | | | PrepDate | **2/14/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-907-Q119 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 12:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190218B** | QC Batch: **72541** | | | | PrepDate | **2/18/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/18/2019 08:59 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190218B** | QC Batch: **72541** | | | | PrepDate | **2/18/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/18/2019 08:59 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 12:45:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190218B** QC Batch: **72541** | | | | PrepDate | **2/18/2019** | Analyst: **LR** | |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/18/2019 08:59 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-19-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 9:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190218B** | QC Batch: **72541** | | | | PrepDate | **2/18/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/18/2019 08:59 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | RRB-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 9:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190218B** | QC Batch: **72541** | | | | PrepDate | **2/18/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/18/2019 08:59 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-014 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190218B** QC Batch: **72541** | | | | PrepDate | **2/18/2019** | Analyst: **LR** | |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/18/2019 08:59 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.2_2540D_W**

| Sample ID | LCS-72491 | SampType: | LCS | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/14/2019 | RunNo: | 131840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72491 | TestNo: | SM2540D | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288883 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | 937.000 | 10 | 1000 | 0 | 93.7 | 80 | 120 | | | | |

| Sample ID | MB-72491 | SampType: | MBLK | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/14/2019 | RunNo: | 131840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72491 | TestNo: | SM2540D | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288884 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 10 | | | | | | | | | |

| Sample ID | N034129-002BDUP | SampType: | DUP | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/14/2019 | RunNo: | 131840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72491 | TestNo: | SM2540D | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288889 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 5.0 | | | | | | 0 | 0 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.2_2540D_W**

| Sample ID | LCS-72541 | SampType: | LCS | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/18/2019 | RunNo: | 131892 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72541 | TestNo: | SM2540D | | | Analysis Date: | 2/18/2019 | SeqNo: | 3291728 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | 959.000 | 10 | 1000 | 0 | 95.9 | 80 | 120 | | | | |

| Sample ID | MB-72541 | SampType: | MBLK | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/18/2019 | RunNo: | 131892 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72541 | TestNo: | SM2540D | | | Analysis Date: | 2/18/2019 | SeqNo: | 3291729 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 10 | | | | | | | | | |

| Sample ID | N034129-009BDUP | SampType: | DUP | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/18/2019 | RunNo: | 131892 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72541 | TestNo: | SM2540D | | | Analysis Date: | 2/18/2019 | SeqNo: | 3291731 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 5.0 | | | | | | 0 | 0 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | AmbientBlank-3-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 12:50:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190225A** | QC Batch: **R132081** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/25/2019 01:34 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-002

**Client Sample ID:** C-CON-D-0219
**Collection Date:** 2/13/2019 10:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190225A** QC Batch: **R132081** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/25/2019 01:55 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 05:52 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-003

**Client Sample ID:** C-CON-S-0219
**Collection Date:** 2/13/2019 10:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190225A** QC Batch: **R132081** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/25/2019 02:13 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 05:58 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 8:15:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | **EPA 218.6** | | | | | |
| RunID: **NV00922-IC7_190225A** QC Batch: **R132081** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/25/2019 02:32 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 06:05 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-005

**Client Sample ID:** C-MAR-S-0219
**Collection Date:** 2/13/2019 8:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190225A** QC Batch: **R132081** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/25/2019 02:51 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 06:11 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190225A** | QC Batch: **R132081** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/25/2019 05:29 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190228C** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 06:17 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-007

**Client Sample ID:** C-NR1-S-0219
**Collection Date:** 2/13/2019 11:10:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190225A** QC Batch: **R132081** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/25/2019 05:49 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 06:23 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-008

**Client Sample ID:** C-NR3-S-0219
**Collection Date:** 2/13/2019 11:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226A** QC Batch: **R132121** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/26/2019 03:11 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 06:29 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-009

**Client Sample ID:** MW-907-Q119
**Collection Date:** 2/13/2019 12:00:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190225A** QC Batch: **R132081** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/25/2019 06:27 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 07:12 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-010

**Client Sample ID:** C-NR4-D-0219
**Collection Date:** 2/13/2019 12:30:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190225A** QC Batch: **R132081** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/25/2019 06:46 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 07:24 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-011

**Client Sample ID:** C-NR4-S-0219
**Collection Date:** 2/13/2019 12:45:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226A** QC Batch: **R132121** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/26/2019 03:49 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 07:30 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-012

**Client Sample ID:** R-19-0219
**Collection Date:** 2/13/2019 9:00:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226A** QC Batch: **R132121** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/26/2019 04:08 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 07:36 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-013

**Client Sample ID:** RRB-0219
**Collection Date:** 2/13/2019 9:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226A** QC Batch: **R132121** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/26/2019 04:27 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 07:42 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-014 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | **EPA 218.6** | | | | | |
| RunID: **NV00922-IC7_190226A** | QC Batch: **R132121** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/26/2019 04:46 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190228C** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 07:48 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | **MB-R132081** | SampType: **MBLK** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|---|
| Client ID: | **PBW** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301468** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID | **LCS-R132081** | SampType: **LCS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|---|
| Client ID: | **LCSW** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301469** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.183 | 0.20 | 5.000 | 0 | 104 | 90 | 110 | | | | |

| Sample ID | **N034295-001BMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301471** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 8.883 | 0.20 | 5.000 | 3.464 | 108 | 90 | 110 | | | | |

| Sample ID | **N034295-001BMSD** | SampType: **MSD** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301472** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 8.858 | 0.20 | 5.000 | 3.464 | 108 | 90 | 110 | 8.883 | 0.287 | 20 | |

| Sample ID | **N034125-002AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301474** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.292 | 0.20 | 1.000 | 0.2107 | 108 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034128-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132081 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132081 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301476 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.194 | 0.20 | 1.000 | 0.1721 | 102 | 90 | 110 | | | | |

| Sample ID | N034125-002ADUP | SampType: | DUP | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132081 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132081 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301477 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.228 | 0.20 | | | | | | 0.2107 | 7.89 | 20 | |

| Sample ID | N034129-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132081 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132081 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301481 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.116 | 0.20 | 1.000 | 0.08200 | 103 | 90 | 110 | | | | |

| Sample ID | N034129-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132081 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132081 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301483 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.136 | 0.20 | 1.000 | 0.06900 | 107 | 90 | 110 | | | | |

| Sample ID | N034129-003AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132081 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132081 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301485 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.148 | 0.20 | 1.000 | 0.06560 | 108 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034129-004AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132081 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132081 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301487 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.130 | 0.20 | 1.000 | 0.07490 | 106 | 90 | 110 | | | | |

| Sample ID | N034129-005AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132081 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132081 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301489 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.135 | 0.20 | 1.000 | 0.08270 | 105 | 90 | 110 | | | | |

| Sample ID | N034129-006AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132081 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132081 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301505 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.113 | 0.20 | 1.000 | 0.07360 | 104 | 90 | 110 | | | | |

| Sample ID | N034129-007AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132081 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132081 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301507 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.095 | 0.20 | 1.000 | 0.07350 | 102 | 90 | 110 | | | | |

| Sample ID | N034129-009AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132081 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132081 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301511 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.119 | 0.20 | 1.000 | 0.06430 | 106 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034129-010AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132081 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132081 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301513 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.127 | 0.20 | 1.000 | 0.07790 | 105 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **MB-R132121** | SampType: **MBLK** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3302093** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **LCS-R132121** | SampType: **LCS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3302094** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.191 | 0.20 | 5.000 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **N034238-002BMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3302100** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.217 | 0.20 | 1.000 | 0.1496 | 107 | 90 | 110 | | | | |

| Sample ID **N034238-002BMSD** | SampType: **MSD** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3302101** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.166 | 0.20 | 1.000 | 0.1496 | 102 | 90 | 110 | 1.217 | 4.32 | 20 | |

| Sample ID **N034107-012AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3302103** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 44.856 | 1.0 | 25.00 | 18.76 | 104 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **N034107-012ADUP** | SampType: **DUP** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3302104** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 18.553 | 1.0 | | | | | | 18.76 | 1.09 | 20 | |

| Sample ID **N034107-006AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3302106** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1205.810 | 20 | 500.0 | 687.4 | 104 | 90 | 110 | | | | |

| Sample ID **N034129-008AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3302108** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.203 | 0.20 | 1.000 | 0.1742 | 103 | 90 | 110 | | | | |

| Sample ID **N034129-011AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303207** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.137 | 0.20 | 1.000 | 0.07570 | 106 | 90 | 110 | | | | |

| Sample ID **N034129-012AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303209** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.158 | 0.20 | 1.000 | 0.07390 | 108 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034129-013AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132121 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132121 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303211 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.142 | 0.20 | 1.000 | 0.08200 | 106 | 90 | 110 | | | | |

| Sample ID | N034129-014AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132121 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132121 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303213 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.137 | 0.20 | 1.000 | 0.06480 | 107 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | MB-72499 | SampType: | MBLK | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132224 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72499 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306127 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-72499 | SampType: | LCS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132224 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72499 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306128 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.911 | 1.0 | 10.00 | 0 | 99.1 | 85 | 115 | | | | |

| Sample ID | N034128-001A-MS | SampType: | MS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132224 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72499 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306132 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.428 | 1.0 | 10.00 | 0 | 94.3 | 75 | 125 | | | | |

| Sample ID | N034128-001A-MSD | SampType: | MSD | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132224 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72499 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306133 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.377 | 1.0 | 10.00 | 0 | 93.8 | 75 | 125 | 9.428 | 0.548 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 10:15:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 10:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 7.2 | 0.32 | 0.50 | | mg/L | 10 | 2/26/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 8:15:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.36 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 8:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.37 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.38 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 11:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-907-Q119 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 12:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.41 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 12:45:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.40 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-012

**Client Sample ID:** R-19-0219
**Collection Date:** 2/13/2019 9:00:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | RRB-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 9:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.33 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-014 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.37 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | MB-R132119 | SampType: | MBLK | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132119 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132119 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3302013 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID | LCS-R132119 | SampType: | LCS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132119 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132119 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3302014 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.475 | 0.050 | 0.5000 | 0 | 94.9 | 85 | 115 | | | | |

| Sample ID | N034129-004CDUP | SampType: | DUP | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132119 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132119 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3302018 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.380 | 0.050 | | | | | | 0.3645 | 4.19 | 20 | |

| Sample ID | N034129-005CMS | SampType: | MS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132119 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132119 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3302020 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.846 | 0.050 | 0.5000 | 0.3743 | 94.3 | 75 | 125 | | | | |

| Sample ID | N034129-005CMSD | SampType: | MSD | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132119 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132119 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3302021 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.881 | 0.050 | 0.5000 | 0.3743 | 101 | 75 | 125 | 0.8457 | 4.08 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-002

**Client Sample ID:** C-CON-D-0219
**Collection Date:** 2/13/2019 10:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/19/2019 11:35 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 140 | 18 | 20 | | ug/L | 1 | 2/20/2019 03:51 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-003

**Client Sample ID:** C-CON-S-0219
**Collection Date:** 2/13/2019 10:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190227H** | QC Batch: **72664** | | | PrepDate | **2/26/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/27/2019 10:58 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 36 | 18 | 20 | | ug/L | 1 | 2/20/2019 04:12 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-004

**Client Sample ID:** C-MAR-D-0219
**Collection Date:** 2/13/2019 8:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 57 | 18 | 20 | | ug/L | 1 | 2/20/2019 12:03 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 340 | 18 | 20 | | ug/L | 1 | 2/20/2019 04:16 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-005

**Client Sample ID:** C-MAR-S-0219
**Collection Date:** 2/13/2019 8:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 25 | 18 | 20 | | ug/L | 1 | 2/20/2019 12:07 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 81 | 18 | 20 | | ug/L | 1 | 2/20/2019 04:20 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-006

**Client Sample ID:** C-NR1-D-0219
**Collection Date:** 2/13/2019 10:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 24 | 18 | 20 | | ug/L | 1 | 2/20/2019 12:12 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 170 | 18 | 20 | | ug/L | 1 | 2/20/2019 04:25 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-007

**Client Sample ID:** C-NR1-S-0219
**Collection Date:** 2/13/2019 11:10:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190227H** | QC Batch: **72664** | | | PrepDate | **2/26/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/27/2019 11:03 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/20/2019 04:28 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-008

**Client Sample ID:** C-NR3-S-0219
**Collection Date:** 2/13/2019 11:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/20/2019 12:20 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 22 | 18 | 20 | | ug/L | 1 | 2/20/2019 04:41 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-009

**Client Sample ID:** MW-907-Q119
**Collection Date:** 2/13/2019 12:00:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 26 | 18 | 20 | | ug/L | 1 | 2/20/2019 12:24 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 23 | 18 | 20 | | ug/L | 1 | 2/20/2019 04:44 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-010

**Client Sample ID:** C-NR4-D-0219
**Collection Date:** 2/13/2019 12:30:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/20/2019 12:27 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 22 | 18 | 20 | | ug/L | 1 | 2/20/2019 04:49 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-011

**Client Sample ID:** C-NR4-S-0219
**Collection Date:** 2/13/2019 12:45:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/20/2019 12:31 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/20/2019 04:52 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-012

**Client Sample ID:** R-19-0219
**Collection Date:** 2/13/2019 9:00:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/20/2019 12:36 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 36 | 18 | 20 | | ug/L | 1 | 2/20/2019 04:57 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-013

**Client Sample ID:** RRB-0219
**Collection Date:** 2/13/2019 9:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 22 | 18 | 20 | | ug/L | 1 | 2/20/2019 12:48 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 24 | 18 | 20 | | ug/L | 1 | 2/20/2019 05:01 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-014

**Client Sample ID:** C-NR3-D-0219
**Collection Date:** 2/13/2019 11:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/20/2019 12:53 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 37 | 18 | 20 | | ug/L | 1 | 2/20/2019 05:05 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **MB-72482** | SampType: **MBLK** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **2/14/2019** | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72482** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **2/19/2019** | SeqNo: **3296768** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID **LCS-72482** | SampType: **LCS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **2/14/2019** | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72482** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **2/19/2019** | SeqNo: **3296769** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 105.256 | 20 | 100.0 | 0 | 105 | 85 | 115 | | | | |

| Sample ID **N034123-013B-MS** | SampType: **MS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **2/14/2019** | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72482** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **2/19/2019** | SeqNo: **3296775** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 111.397 | 20 | 100.0 | 0 | 111 | 75 | 125 | | | | |

| Sample ID **N034123-013B-MSD** | SampType: **MSD** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **2/14/2019** | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72482** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **2/19/2019** | SeqNo: **3296776** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 111.556 | 20 | 100.0 | 0 | 112 | 75 | 125 | 111.4 | 0.143 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID | MB-72664 | SampType: | MBLK | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 2/26/2019 | RunNo: | 132152 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72664 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/27/2019 | SeqNo: | 3303589 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID | LCS-72664 | SampType: | LCS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 2/26/2019 | RunNo: | 132152 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72664 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/27/2019 | SeqNo: | 3303590 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 107.628 | 20 | 100.0 | 0 | 108 | 85 | 115 | | | | |

| Sample ID | N034104-006C-MS | SampType: | MS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 2/26/2019 | RunNo: | 132152 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72664 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/27/2019 | SeqNo: | 3303594 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 97.095 | 20 | 100.0 | 0 | 97.1 | 75 | 125 | | | | |

| Sample ID | N034104-006C-MSD | SampType: | MSD | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 2/26/2019 | RunNo: | 132152 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72664 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/27/2019 | SeqNo: | 3303595 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 99.844 | 20 | 100.0 | 0 | 99.8 | 75 | 125 | 97.09 | 2.79 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID | MB-72479 | SampType: | MBLK | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 2/14/2019 | RunNo: | 132001 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72479 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/20/2019 | SeqNo: | 3296964 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID | LCS-72479 | SampType: | LCS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 2/14/2019 | RunNo: | 132001 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72479 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/20/2019 | SeqNo: | 3296965 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 106.594 | 20 | 100.0 | 0 | 107 | 85 | 115 | | | | |

| Sample ID | N034129-002E-MS | SampType: | MS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 2/14/2019 | RunNo: | 132001 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72479 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/20/2019 | SeqNo: | 3296973 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 137.194 | 20 | 100.0 | 144.4 | -7.23 | 75 | 125 | | | | S |

| Sample ID | N034129-002E-MSD | SampType: | MSD | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 2/14/2019 | RunNo: | 132001 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72479 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/20/2019 | SeqNo: | 3296974 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 136.495 | 20 | 100.0 | 144.4 | -7.93 | 75 | 125 | 137.2 | 0.511 | 20 | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-002

**Client Sample ID:** C-CON-D-0219
**Collection Date:** 2/13/2019 10:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 05:52 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 05:52 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 05:52 PM |
| Molybdenum | 4.5 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 05:52 PM |
| Selenium | 1.7 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 07:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-003

**Client Sample ID:** C-CON-S-0219
**Collection Date:** 2/13/2019 10:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 05:58 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 05:58 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 05:58 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 05:58 PM |
| Selenium | 1.8 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 05:58 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-004

**Client Sample ID:** C-MAR-D-0219
**Collection Date:** 2/13/2019 8:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.3 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 06:05 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 06:05 PM |
| Manganese | 2.9 | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 06:05 PM |
| Molybdenum | 4.9 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 06:05 PM |
| Selenium | 2.0 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 06:05 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-005

**Client Sample ID:** C-MAR-S-0219
**Collection Date:** 2/13/2019 8:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.3 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 06:11 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 06:11 PM |
| Manganese | 1.8 | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 06:11 PM |
| Molybdenum | 5.2 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 06:11 PM |
| Selenium | 1.7 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 06:11 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-006

**Client Sample ID:** C-NR1-D-0219
**Collection Date:** 2/13/2019 10:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 06:17 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 06:17 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 06:17 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 06:17 PM |
| Selenium | 1.7 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 06:17 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-007

**Client Sample ID:** C-NR1-S-0219
**Collection Date:** 2/13/2019 11:10:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 06:23 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 06:23 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 06:23 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 06:23 PM |
| Selenium | 1.8 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 07:18 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-008

**Client Sample ID:** C-NR3-S-0219
**Collection Date:** 2/13/2019 11:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 06:29 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 06:29 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 06:29 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 06:29 PM |
| Selenium | 1.7 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 06:29 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-907-Q119 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 12:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | | PrepDate | **2/14/2019** | Analyst: **CEI** |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 07:12 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 07:12 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 07:12 PM |
| Molybdenum | 5.1 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 07:12 PM |
| Selenium | 1.5 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 07:12 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-010

**Client Sample ID:** C-NR4-D-0219
**Collection Date:** 2/13/2019 12:30:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.0 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 07:24 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 07:24 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 07:24 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 07:24 PM |
| Selenium | 1.5 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 07:24 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-011

**Client Sample ID:** C-NR4-S-0219
**Collection Date:** 2/13/2019 12:45:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 07:30 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 07:30 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 07:30 PM |
| Molybdenum | 4.7 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 07:30 PM |
| Selenium | 1.6 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 07:30 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-012

**Client Sample ID:** R-19-0219
**Collection Date:** 2/13/2019 9:00:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 07:36 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 07:36 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 07:36 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 07:36 PM |
| Selenium | 1.8 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 07:36 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-013

**Client Sample ID:** RRB-0219
**Collection Date:** 2/13/2019 9:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 07:42 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 07:42 PM |
| Manganese | 1.9 | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 07:42 PM |
| Molybdenum | 5.3 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 07:42 PM |
| Selenium | 1.8 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 09:27 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-014

**Client Sample ID:** C-NR3-D-0219
**Collection Date:** 2/13/2019 11:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 07:48 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 07:48 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 07:48 PM |
| Molybdenum | 4.8 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 07:48 PM |
| Selenium | 1.7 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 08:18 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **MB-72499** | SampType: **MBLK** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/14/2019** | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72499** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/28/2019** | SeqNo: **3305661** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **LCS-72499** | SampType: **LCS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/14/2019** | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72499** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/28/2019** | SeqNo: **3305662** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 10.196 | 0.10 | 10.00 | 0 | 102 | 85 | 115 | | | | |
| Barium | 10.676 | 1.0 | 10.00 | 0 | 107 | 85 | 115 | | | | |
| Manganese | 103.574 | 0.50 | 100.0 | 0 | 104 | 85 | 115 | | | | |
| Molybdenum | 9.176 | 0.50 | 10.00 | 0 | 91.8 | 85 | 115 | | | | |
| Selenium | 9.943 | 0.50 | 10.00 | 0 | 99.4 | 85 | 115 | | | | |

| Sample ID **N034128-001A-MS** | SampType: **MS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/14/2019** | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72499** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/28/2019** | SeqNo: **3305666** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.594 | 0.10 | 10.00 | 0.6767 | 109 | 75 | 125 | | | | |
| Barium | 121.955 | 1.0 | 10.00 | 115.9 | 60.8 | 75 | 125 | | | | S |
| Molybdenum | 63.227 | 0.50 | 10.00 | 53.35 | 98.8 | 75 | 125 | | | | |
| Selenium | 11.956 | 0.50 | 10.00 | 0.7041 | 113 | 75 | 125 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | N034128-001A-MSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72499 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3305667 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.322 | 0.10 | 10.00 | 0.6767 | 106 | 75 | 125 | 11.59 | 2.38 | 20 | |
| Barium | 120.389 | 1.0 | 10.00 | 115.9 | 45.2 | 75 | 125 | 122.0 | 1.29 | 20 | S |
| Molybdenum | 64.096 | 0.50 | 10.00 | 53.35 | 107 | 75 | 125 | 63.23 | 1.37 | 20 | |
| Selenium | 11.093 | 0.50 | 10.00 | 0.7041 | 104 | 75 | 125 | 11.96 | 7.49 | 20 | |

| Sample ID | N034128-001A-MS | SampType: | MS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72499 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3305999 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 1094.095 | 5.0 | 100.0 | 965.0 | 129 | 75 | 125 | | | | S |

| Sample ID | N034128-001A-MSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72499 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306000 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 1125.810 | 5.0 | 100.0 | 965.0 | 161 | 75 | 125 | 1094 | 2.86 | 20 | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD

Page 1 of 1

| | | |

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 2/13/2019 | Workorder: | N034129 |
| Rep sample Temp (Deg C): | 2.8 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | NA | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☐ | No ☑ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☑ | No ☐ | NA ☐ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments: Samples for pH were ~~p;ast~~ past holding time upon receipt.

Checklist Completed By: YR 2/18/2019

Reviewed By: LG 021919

## Mary Ann Balilu (maryann.balilu@assetlaboratoriesph.com)

**From:** Madsen, Laura <Laura.Madsen@arcadis.com>
**Sent:** Thursday, February 14, 2019 12:08 PM
**To:** Yoandra Rodriguez
**Cc:** maryann.balilu@assetlaboratoriesph.com; 'Andreafe. Gallardo'; 'Sonny. Lorenzo'; Gatel, Joe
**Subject:** RE: PG&E Topock - RMP, RC000753.801D (Asset Labs N034104 and N034129)

Hi,
"As" is the correct analyte and please use the historic method 6020.

Thanks,
Laura

---

**From:** Yoandra Rodriguez <yoandra@assetlaboratories.com>
**Sent:** Thursday, February 14, 2019 1:58 PM
**To:** Madsen, Laura <Laura.Madsen@arcadis.com>
**Cc:** maryann.balilu@assetlaboratoriesph.com; 'Andreafe. Gallardo' <andrea.gallardo@assetlaboratories.com>; 'Sonny. Lorenzo' <sonny.lorenzo@assetlaboratories.com>
**Subject:** PG&E Topock - RMP, RC000753.801D (Asset Labs N034104 and N034129)

Hi Laura,

I'd like to confirm the analysis for Mn and Mo on the attached COCs. You are requesting 6010, but per history we do it by 6020.

Please also note there's a mistake on "RMP" COCs, Ar is written instead of As. So we assume it should be As.

--
**Thanks,**

**Yoandra Rodriguez**
Sample Control Officer
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436

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# ASSET Laboratories

## WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034129

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-001A | AmbientBlank-3-0219 | 2/13/2019 12:50:00 PM | 2/27/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-002A | C-CON-D-0219 | 2/13/2019 10:15:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-002B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-002C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-002D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-002E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-003A | C-CON-S-0219 | 2/13/2019 10:30:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-003B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-003C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-003D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034129

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-003D | C-CON-S-0219 | 2/13/2019 10:30:00 AM | 2/27/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-003E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-004A | C-MAR-D-0219 | 2/13/2019 8:15:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-004B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-004C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-004D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-004E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-005A | C-MAR-S-0219 | 2/13/2019 8:30:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-005B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034129

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-005B | C-MAR-S-0219 | 2/13/2019 8:30:00 AM | 2/27/2019 | Groundwater | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-005C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-005D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-005E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-006A | C-NR1-D-0219 | 2/13/2019 10:55:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-006B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-006C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-006D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034129

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-006E | C-NR1-D-0219 | 2/13/2019 10:55:00 AM | 2/27/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-007A | C-NR1-S-0219 | 2/13/2019 11:10:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-007B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-007C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-007D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-007E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-008A | C-NR3-S-0219 | 2/13/2019 11:50:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-008B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-008C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034129

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-008D | C-NR3-S-0219 | 2/13/2019 11:50:00 AM | 2/27/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-008E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-009A | MW-907-Q119 | 2/13/2019 12:00:00 PM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-009B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-009C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-009D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-009E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-010A | C-NR4-D-0219 | 2/13/2019 12:30:00 PM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-010B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034129

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-010B | C-NR4-D-0219 | 2/13/2019 12:30:00 PM | 2/27/2019 | Groundwater | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-010C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-010D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-010E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-011A | C-NR4-S-0219 | 2/13/2019 12:45:00 PM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-011B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-011C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-011D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034129

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-011D | C-NR4-S-0219 | 2/13/2019 12:45:00 PM | 2/27/2019 | Groundwater | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-011E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-012A | R-19-0219 | 2/13/2019 9:00:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-012B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-012C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-012D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-012E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-013A | RRB-0219 | 2/13/2019 9:45:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-013B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034129

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-013C | RRB-0219 | 2/13/2019 9:45:00 AM | 2/27/2019 | Groundwater | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-013D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-013E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-014A | C-NR3-D-0219 | 2/13/2019 11:35:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-014B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-014C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-014D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-014E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034129

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-015A | FOLDER | 2/27/2019 | 2/27/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 2/27/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# *ARCADIS*

Project: PG&E Topock - RMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N034129

## *ANALYTICAL and QC RESULTS*
## *SAMPLE RECEIVING ITEMS*

*PRIVILEGED AND CONFIDENTIAL*

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## ASSET Laboratories Work Order: N034129


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March 05, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034129

RE: PG&E Topock - RMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on February 13, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034129

# CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling;sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 6010B_Total:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron in QC samples N034129-002E-MS and N034129-002E-MSD possibly due to matrix interference. Dilution Test was performed but not applicable since the result is less than 25x the reporting limit (RL). Post Spike was also performed but failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Barium and Manganese in QC samples N034128-001A-MS and N034128-001A-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

## ASSET Laboratories

**Date:** *05-Mar-19*

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034129
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034129-001A | AmbientBlank-3-0219 | Groundwater | 2/13/2019 12:50:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-002A | C-CON-D-0219 | Groundwater | 2/13/2019 10:15:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-002B | C-CON-D-0219 | Groundwater | 2/13/2019 10:15:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-002C | C-CON-D-0219 | Groundwater | 2/13/2019 10:15:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-002D | C-CON-D-0219 | Groundwater | 2/13/2019 10:15:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-002E | C-CON-D-0219 | Groundwater | 2/13/2019 10:15:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-003A | C-CON-S-0219 | Groundwater | 2/13/2019 10:30:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-003B | C-CON-S-0219 | Groundwater | 2/13/2019 10:30:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-003C | C-CON-S-0219 | Groundwater | 2/13/2019 10:30:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-003D | C-CON-S-0219 | Groundwater | 2/13/2019 10:30:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-003E | C-CON-S-0219 | Groundwater | 2/13/2019 10:30:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-004A | C-MAR-D-0219 | Groundwater | 2/13/2019 8:15:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-004B | C-MAR-D-0219 | Groundwater | 2/13/2019 8:15:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-004C | C-MAR-D-0219 | Groundwater | 2/13/2019 8:15:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-004D | C-MAR-D-0219 | Groundwater | 2/13/2019 8:15:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-004E | C-MAR-D-0219 | Groundwater | 2/13/2019 8:15:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-005A | C-MAR-S-0219 | Groundwater | 2/13/2019 8:30:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-005B | C-MAR-S-0219 | Groundwater | 2/13/2019 8:30:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-005C | C-MAR-S-0219 | Groundwater | 2/13/2019 8:30:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-005D | C-MAR-S-0219 | Groundwater | 2/13/2019 8:30:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-005E | C-MAR-S-0219 | Groundwater | 2/13/2019 8:30:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-006A | C-NR1-D-0219 | Groundwater | 2/13/2019 10:55:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-006B | C-NR1-D-0219 | Groundwater | 2/13/2019 10:55:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-006C | C-NR1-D-0219 | Groundwater | 2/13/2019 10:55:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-006D | C-NR1-D-0219 | Groundwater | 2/13/2019 10:55:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-006E | C-NR1-D-0219 | Groundwater | 2/13/2019 10:55:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-007A | C-NR1-S-0219 | Groundwater | 2/13/2019 11:10:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-007B | C-NR1-S-0219 | Groundwater | 2/13/2019 11:10:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-007C | C-NR1-S-0219 | Groundwater | 2/13/2019 11:10:00 AM | 2/13/2019 | 3/5/2019 |

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034129
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034129-007D | C-NR1-S-0219 | Groundwater | 2/13/2019 11:10:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-007E | C-NR1-S-0219 | Groundwater | 2/13/2019 11:10:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-008A | C-NR3-S-0219 | Groundwater | 2/13/2019 11:50:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-008B | C-NR3-S-0219 | Groundwater | 2/13/2019 11:50:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-008C | C-NR3-S-0219 | Groundwater | 2/13/2019 11:50:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-008D | C-NR3-S-0219 | Groundwater | 2/13/2019 11:50:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-008E | C-NR3-S-0219 | Groundwater | 2/13/2019 11:50:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-009A | MW-907-Q119 | Groundwater | 2/13/2019 12:00:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-009B | MW-907-Q119 | Groundwater | 2/13/2019 12:00:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-009C | MW-907-Q119 | Groundwater | 2/13/2019 12:00:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-009D | MW-907-Q119 | Groundwater | 2/13/2019 12:00:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-009E | MW-907-Q119 | Groundwater | 2/13/2019 12:00:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-010A | C-NR4-D-0219 | Groundwater | 2/13/2019 12:30:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-010B | C-NR4-D-0219 | Groundwater | 2/13/2019 12:30:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-010C | C-NR4-D-0219 | Groundwater | 2/13/2019 12:30:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-010D | C-NR4-D-0219 | Groundwater | 2/13/2019 12:30:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-010E | C-NR4-D-0219 | Groundwater | 2/13/2019 12:30:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-011A | C-NR4-S-0219 | Groundwater | 2/13/2019 12:45:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-011B | C-NR4-S-0219 | Groundwater | 2/13/2019 12:45:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-011C | C-NR4-S-0219 | Groundwater | 2/13/2019 12:45:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-011D | C-NR4-S-0219 | Groundwater | 2/13/2019 12:45:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-011E | C-NR4-S-0219 | Groundwater | 2/13/2019 12:45:00 PM | 2/13/2019 | 3/5/2019 |
| N034129-012A | R-19-0219 | Groundwater | 2/13/2019 9:00:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-012B | R-19-0219 | Groundwater | 2/13/2019 9:00:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-012C | R-19-0219 | Groundwater | 2/13/2019 9:00:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-012D | R-19-0219 | Groundwater | 2/13/2019 9:00:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-012E | R-19-0219 | Groundwater | 2/13/2019 9:00:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-013A | RRB-0219 | Groundwater | 2/13/2019 9:45:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-013B | RRB-0219 | Groundwater | 2/13/2019 9:45:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-013C | RRB-0219 | Groundwater | 2/13/2019 9:45:00 AM | 2/13/2019 | 3/5/2019 |

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034129
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034129-013D | RRB-0219 | Groundwater | 2/13/2019 9:45:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-013E | RRB-0219 | Groundwater | 2/13/2019 9:45:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-014A | C-NR3-D-0219 | Groundwater | 2/13/2019 11:35:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-014B | C-NR3-D-0219 | Groundwater | 2/13/2019 11:35:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-014C | C-NR3-D-0219 | Groundwater | 2/13/2019 11:35:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-014D | C-NR3-D-0219 | Groundwater | 2/13/2019 11:35:00 AM | 2/13/2019 | 3/5/2019 |
| N034129-014E | C-NR3-D-0219 | Groundwater | 2/13/2019 11:35:00 AM | 2/13/2019 | 3/5/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 10:15:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 900 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-003

**Client Sample ID:** C-CON-S-0219
**Collection Date:** 2/13/2019 10:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 900 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 8:15:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-005

**Client Sample ID:** C-MAR-S-0219
**Collection Date:** 2/13/2019 8:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-006

**Client Sample ID:** C-NR1-D-0219
**Collection Date:** 2/13/2019 10:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 900 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-007

**Client Sample ID:** C-NR1-S-0219
**Collection Date:** 2/13/2019 11:10:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-008

**Client Sample ID:** C-NR3-S-0219
**Collection Date:** 2/13/2019 11:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-907-Q119 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 12:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-010

**Client Sample ID:** C-NR4-D-0219
**Collection Date:** 2/13/2019 12:30:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-011

**Client Sample ID:** C-NR4-S-0219
**Collection Date:** 2/13/2019 12:45:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 900 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-012

**Client Sample ID:** R-19-0219
**Collection Date:** 2/13/2019 9:00:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-013

**Client Sample ID:** RRB-0219
**Collection Date:** 2/13/2019 9:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 930 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-014

**Client Sample ID:** C-NR3-D-0219
**Collection Date:** 2/13/2019 11:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190214E** | QC Batch: **R131845** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 920 | 0.10 | 0.10 | | umhos/cm | 1 | 2/14/2019 02:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID | N034126-006CDUP | SampType: | DUP | TestCode: | 120.1_WPGE | Units: | umhos/cm | Prep Date: | | RunNo: | 131845 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131845 | TestNo: | EPA 120.1 | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288956 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 8740.000 | 0.10 | | | | | | 8710 | 0.344 | 2 | |

| Sample ID | N034129-010BDUP | SampType: | DUP | TestCode: | 120.1_WPGE | Units: | umhos/cm | Prep Date: | | RunNo: | 131845 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131845 | TestNo: | EPA 120.1 | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288969 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 909.000 | 0.10 | | | | | | 912.0 | 0.329 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 10:15:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-003

**Client Sample ID:** C-CON-S-0219
**Collection Date:** 2/13/2019 10:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-004

**Client Sample ID:** C-MAR-D-0219
**Collection Date:** 2/13/2019 8:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-005

**Client Sample ID:** C-MAR-S-0219
**Collection Date:** 2/13/2019 8:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-007

**Client Sample ID:** C-NR1-S-0219
**Collection Date:** 2/13/2019 11:10:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-008

**Client Sample ID:** C-NR3-S-0219
**Collection Date:** 2/13/2019 11:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-009

**Client Sample ID:** MW-907-Q119
**Collection Date:** 2/13/2019 12:00:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-010

**Client Sample ID:** C-NR4-D-0219
**Collection Date:** 2/13/2019 12:30:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.8 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-011

**Client Sample ID:** C-NR4-S-0219
**Collection Date:** 2/13/2019 12:45:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-012

**Client Sample ID:** R-19-0219
**Collection Date:** 2/13/2019 9:00:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-013

**Client Sample ID:** RRB-0219
**Collection Date:** 2/13/2019 9:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.6 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-014

**Client Sample ID:** C-NR3-D-0219
**Collection Date:** 2/13/2019 11:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190214D** | QC Batch: **R131842** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/14/2019 11:15 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/14/2019 11:15 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 150.1_4500H+B_W**

Sample ID **N034129-002BUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **131842**
Client ID: **ZZZZZZ** Batch ID: **R131842** TestNo: **SM4500-H+B** Analysis Date: **2/14/2019** SeqNo: **3288903**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 8.270 | 0.10 | | | | | | 8.260 | 0.121 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

Sample ID **N034129-014BDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **131842**
Client ID: **ZZZZZZ** Batch ID: **R131842** TestNo: **SM4500-H+B** Analysis Date: **2/14/2019** SeqNo: **3288916**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 8.260 | 0.10 | | | | | | 8.260 | 0 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 10:15:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190214B** | QC Batch: **72491** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-003

**Client Sample ID:** C-CON-S-0219
**Collection Date:** 2/13/2019 10:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190214B** | QC Batch: **72491** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 8:15:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190214B** QC Batch: **72491** | | | | PrepDate | **2/14/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | 30 | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-005

**Client Sample ID:** C-MAR-S-0219
**Collection Date:** 2/13/2019 8:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190214B** | QC Batch: **72491** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214B** | QC Batch: **72491** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214B** | QC Batch: **72491** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 11:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190214B** | QC Batch: **72491** | | | | PrepDate | **2/14/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/14/2019 09:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-907-Q119 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 12:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190218B** | QC Batch: **72541** | | | | PrepDate | **2/18/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/18/2019 08:59 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190218B** | QC Batch: **72541** | | | | PrepDate | **2/18/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/18/2019 08:59 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 12:45:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190218B** QC Batch: **72541** | | | | PrepDate | **2/18/2019** | Analyst: **LR** | |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/18/2019 08:59 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-19-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 9:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190218B** QC Batch: **72541** | | | | PrepDate | **2/18/2019** | Analyst: **LR** | |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/18/2019 08:59 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | RRB-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 9:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190218B** | QC Batch: **72541** | | | | PrepDate | **2/18/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/18/2019 08:59 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-014 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190218B** QC Batch: **72541** | | | | PrepDate | **2/18/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 2/18/2019 08:59 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.2_2540D_W**

| Sample ID | LCS-72491 | SampType: | LCS | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/14/2019 | RunNo: | 131840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72491 | TestNo: | SM2540D | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288883 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | 937.000 | 10 | 1000 | 0 | 93.7 | 80 | 120 | | | | |

| Sample ID | MB-72491 | SampType: | MBLK | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/14/2019 | RunNo: | 131840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72491 | TestNo: | SM2540D | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288884 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 10 | | | | | | | | | |

| Sample ID | N034129-002BDUP | SampType: | DUP | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/14/2019 | RunNo: | 131840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72491 | TestNo: | SM2540D | | | Analysis Date: | 2/14/2019 | SeqNo: | 3288889 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 5.0 | | | | | | 0 | 0 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.2_2540D_W**

| Sample ID | LCS-72541 | SampType: | LCS | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/18/2019 | RunNo: | 131892 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72541 | TestNo: | SM2540D | | | Analysis Date: | 2/18/2019 | SeqNo: | 3291728 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | 959.000 | 10 | 1000 | 0 | 95.9 | 80 | 120 | | | | |

| Sample ID | MB-72541 | SampType: | MBLK | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/18/2019 | RunNo: | 131892 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72541 | TestNo: | SM2540D | | | Analysis Date: | 2/18/2019 | SeqNo: | 3291729 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 10 | | | | | | | | | |

| Sample ID | N034129-009BDUP | SampType: | DUP | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 2/18/2019 | RunNo: | 131892 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72541 | TestNo: | SM2540D | | | Analysis Date: | 2/18/2019 | SeqNo: | 3291731 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 5.0 | | | | | | 0 | 0 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | AmbientBlank-3-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 12:50:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190225A** | QC Batch: **R132081** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/25/2019 01:34 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-002

**Client Sample ID:** C-CON-D-0219
**Collection Date:** 2/13/2019 10:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190225A** QC Batch: **R132081** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/25/2019 01:55 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 05:52 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-003

**Client Sample ID:** C-CON-S-0219
**Collection Date:** 2/13/2019 10:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190225A** QC Batch: **R132081** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/25/2019 02:13 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 05:58 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-004

**Client Sample ID:** C-MAR-D-0219
**Collection Date:** 2/13/2019 8:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190225A** QC Batch: **R132081** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/25/2019 02:32 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 06:05 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-005

**Client Sample ID:** C-MAR-S-0219
**Collection Date:** 2/13/2019 8:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190225A** QC Batch: **R132081** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/25/2019 02:51 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 06:11 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-006

**Client Sample ID:** C-NR1-D-0219
**Collection Date:** 2/13/2019 10:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190225A** QC Batch: **R132081** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/25/2019 05:29 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 06:17 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-007

**Client Sample ID:** C-NR1-S-0219
**Collection Date:** 2/13/2019 11:10:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190225A** QC Batch: **R132081** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/25/2019 05:49 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 06:23 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 11:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | **EPA 218.6** | | | | | |
| RunID: **NV00922-IC7_190226A** QC Batch: **R132121** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/26/2019 03:11 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 06:29 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-009

**Client Sample ID:** MW-907-Q119
**Collection Date:** 2/13/2019 12:00:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190225A** QC Batch: **R132081** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/25/2019 06:27 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 07:12 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-010

**Client Sample ID:** C-NR4-D-0219
**Collection Date:** 2/13/2019 12:30:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190225A** QC Batch: **R132081** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/25/2019 06:46 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 07:24 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-011

**Client Sample ID:** C-NR4-S-0219
**Collection Date:** 2/13/2019 12:45:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226A** QC Batch: **R132121** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/26/2019 03:49 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 07:30 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-012

**Client Sample ID:** R-19-0219
**Collection Date:** 2/13/2019 9:00:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226A** QC Batch: **R132121** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/26/2019 04:08 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 07:36 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-013

**Client Sample ID:** RRB-0219
**Collection Date:** 2/13/2019 9:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226A** QC Batch: **R132121** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/26/2019 04:27 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 07:42 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-014 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | **EPA 218.6** | | | | | |
| RunID: **NV00922-IC7_190226A** QC Batch: **R132121** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/26/2019 04:46 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72499** | | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 07:48 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | **MB-R132081** | SampType: **MBLK** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|---|
| Client ID: | **PBW** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301468** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID | **LCS-R132081** | SampType: **LCS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|---|
| Client ID: | **LCSW** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301469** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.183 | 0.20 | 5.000 | 0 | 104 | 90 | 110 | | | | |

| Sample ID | **N034295-001BMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301471** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 8.883 | 0.20 | 5.000 | 3.464 | 108 | 90 | 110 | | | | |

| Sample ID | **N034295-001BMSD** | SampType: **MSD** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301472** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 8.858 | 0.20 | 5.000 | 3.464 | 108 | 90 | 110 | 8.883 | 0.287 | 20 | |

| Sample ID | **N034125-002AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301474** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.292 | 0.20 | 1.000 | 0.2107 | 108 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **N034128-002AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301476** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.194 | 0.20 | 1.000 | 0.1721 | 102 | 90 | 110 | | | | |

| Sample ID **N034125-002ADUP** | SampType: **DUP** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301477** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.228 | 0.20 | | | | | | 0.2107 | 7.89 | 20 | |

| Sample ID **N034129-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301481** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.116 | 0.20 | 1.000 | 0.08200 | 103 | 90 | 110 | | | | |

| Sample ID **N034129-002AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301483** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.136 | 0.20 | 1.000 | 0.06900 | 107 | 90 | 110 | | | | |

| Sample ID **N034129-003AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301485** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.148 | 0.20 | 1.000 | 0.06560 | 108 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **N034129-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132081**
Client ID: **ZZZZZZ** Batch ID: **R132081** TestNo: **EPA 218.6** Analysis Date: **2/25/2019** SeqNo: **3301487**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.130 | 0.20 | 1.000 | 0.07490 | 106 | 90 | 110 | | | | |

Sample ID **N034129-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132081**
Client ID: **ZZZZZZ** Batch ID: **R132081** TestNo: **EPA 218.6** Analysis Date: **2/25/2019** SeqNo: **3301489**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.135 | 0.20 | 1.000 | 0.08270 | 105 | 90 | 110 | | | | |

Sample ID **N034129-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132081**
Client ID: **ZZZZZZ** Batch ID: **R132081** TestNo: **EPA 218.6** Analysis Date: **2/25/2019** SeqNo: **3301505**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.113 | 0.20 | 1.000 | 0.07360 | 104 | 90 | 110 | | | | |

Sample ID **N034129-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132081**
Client ID: **ZZZZZZ** Batch ID: **R132081** TestNo: **EPA 218.6** Analysis Date: **2/25/2019** SeqNo: **3301507**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.095 | 0.20 | 1.000 | 0.07350 | 102 | 90 | 110 | | | | |

Sample ID **N034129-009AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132081**
Client ID: **ZZZZZZ** Batch ID: **R132081** TestNo: **EPA 218.6** Analysis Date: **2/25/2019** SeqNo: **3301511**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.119 | 0.20 | 1.000 | 0.06430 | 106 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034129-010AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132081 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132081 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301513 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.127 | 0.20 | 1.000 | 0.07790 | 105 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | MB-R132121 | SampType: | MBLK | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132121 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132121 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3302093 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID | LCS-R132121 | SampType: | LCS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132121 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132121 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3302094 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.191 | 0.20 | 5.000 | 0 | 104 | 90 | 110 | | | | |

| Sample ID | N034238-002BMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132121 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132121 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3302100 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.217 | 0.20 | 1.000 | 0.1496 | 107 | 90 | 110 | | | | |

| Sample ID | N034238-002BMSD | SampType: | MSD | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132121 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132121 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3302101 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.166 | 0.20 | 1.000 | 0.1496 | 102 | 90 | 110 | 1.217 | 4.32 | 20 | |

| Sample ID | N034107-012AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132121 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132121 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3302103 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 44.856 | 1.0 | 25.00 | 18.76 | 104 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **N034107-012ADUP** | SampType: **DUP** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | | | | RunNo: **132121** | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | | | | SeqNo: **3302104** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Hexavalent Chromium | 18.553 | 1.0 | | | | | | 18.76 | 1.09 | 20 | |

| Sample ID **N034107-006AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | | | | RunNo: **132121** | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | | | | SeqNo: **3302106** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Hexavalent Chromium | 1205.810 | 20 | 500.0 | 687.4 | 104 | 90 | 110 | | | | |

| Sample ID **N034129-008AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | | | | RunNo: **132121** | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | | | | SeqNo: **3302108** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Hexavalent Chromium | 1.203 | 0.20 | 1.000 | 0.1742 | 103 | 90 | 110 | | | | |

| Sample ID **N034129-011AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | | | | RunNo: **132121** | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | | | | SeqNo: **3303207** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Hexavalent Chromium | 1.137 | 0.20 | 1.000 | 0.07570 | 106 | 90 | 110 | | | | |

| Sample ID **N034129-012AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | | | | RunNo: **132121** | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | | | | SeqNo: **3303209** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Hexavalent Chromium | 1.158 | 0.20 | 1.000 | 0.07390 | 108 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034129-013AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132121 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132121 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303211 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.142 | 0.20 | 1.000 | 0.08200 | 106 | 90 | 110 | | | | |

| Sample ID | N034129-014AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132121 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132121 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303213 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.137 | 0.20 | 1.000 | 0.06480 | 107 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | MB-72499 | SampType: | MBLK | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132224 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72499 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306127 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-72499 | SampType: | LCS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132224 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72499 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306128 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.911 | 1.0 | 10.00 | 0 | 99.1 | 85 | 115 | | | | |

| Sample ID | N034128-001A-MS | SampType: | MS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132224 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72499 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306132 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.428 | 1.0 | 10.00 | 0 | 94.3 | 75 | 125 | | | | |

| Sample ID | N034128-001A-MSD | SampType: | MSD | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132224 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72499 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306133 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.377 | 1.0 | 10.00 | 0 | 93.8 | 75 | 125 | 9.428 | 0.548 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 10:15:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 10:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 7.2 | 0.32 | 0.50 | | mg/L | 10 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 8:15:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.36 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-005

**Client Sample ID:** C-MAR-S-0219
**Collection Date:** 2/13/2019 8:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.37 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.38 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 11:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-907-Q119 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 12:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.41 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 12:45:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.40 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-012

**Client Sample ID:** R-19-0219
**Collection Date:** 2/13/2019 9:00:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | RRB-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 9:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.33 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-D-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-014 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190226B** | QC Batch: **R132119** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.37 | 0.032 | 0.050 | | mg/L | 1 | 2/26/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **MB-R132119** | **MBLK** | **4500N03F_W** | **mg/L** | | **132119** |
| Client ID: **PBW** | Batch ID: **R132119** | TestNo: **SM4500-NO3** | | Analysis Date: **2/26/2019** | SeqNo: **3302013** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **LCS-R132119** | **LCS** | **4500N03F_W** | **mg/L** | | **132119** |
| Client ID: **LCSW** | Batch ID: **R132119** | TestNo: **SM4500-NO3** | | Analysis Date: **2/26/2019** | SeqNo: **3302014** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.475 | 0.050 | 0.5000 | 0 | 94.9 | 85 | 115 | | | | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **N034129-004CDUP** | **DUP** | **4500N03F_W** | **mg/L** | | **132119** |
| Client ID: **ZZZZZZ** | Batch ID: **R132119** | TestNo: **SM4500-NO3** | | Analysis Date: **2/26/2019** | SeqNo: **3302018** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.380 | 0.050 | | | | | | 0.3645 | 4.19 | 20 | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **N034129-005CMS** | **MS** | **4500N03F_W** | **mg/L** | | **132119** |
| Client ID: **ZZZZZZ** | Batch ID: **R132119** | TestNo: **SM4500-NO3** | | Analysis Date: **2/26/2019** | SeqNo: **3302020** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.846 | 0.050 | 0.5000 | 0.3743 | 94.3 | 75 | 125 | | | | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **N034129-005CMSD** | **MSD** | **4500N03F_W** | **mg/L** | | **132119** |
| Client ID: **ZZZZZZ** | Batch ID: **R132119** | TestNo: **SM4500-NO3** | | Analysis Date: **2/26/2019** | SeqNo: **3302021** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.881 | 0.050 | 0.5000 | 0.3743 | 101 | 75 | 125 | 0.8457 | 4.08 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-002

**Client Sample ID:** C-CON-D-0219
**Collection Date:** 2/13/2019 10:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/19/2019 11:35 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 140 | 18 | 20 | | ug/L | 1 | 2/20/2019 03:51 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-003

**Client Sample ID:** C-CON-S-0219
**Collection Date:** 2/13/2019 10:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190227H** | QC Batch: **72664** | | | PrepDate | **2/26/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/27/2019 10:58 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 36 | 18 | 20 | | ug/L | 1 | 2/20/2019 04:12 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-004

**Client Sample ID:** C-MAR-D-0219
**Collection Date:** 2/13/2019 8:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 57 | 18 | 20 | | ug/L | 1 | 2/20/2019 12:03 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 340 | 18 | 20 | | ug/L | 1 | 2/20/2019 04:16 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-005

**Client Sample ID:** C-MAR-S-0219
**Collection Date:** 2/13/2019 8:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 25 | 18 | 20 | | ug/L | 1 | 2/20/2019 12:07 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 81 | 18 | 20 | | ug/L | 1 | 2/20/2019 04:20 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-006

**Client Sample ID:** C-NR1-D-0219
**Collection Date:** 2/13/2019 10:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 24 | 18 | 20 | | ug/L | 1 | 2/20/2019 12:12 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 170 | 18 | 20 | | ug/L | 1 | 2/20/2019 04:25 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-007

**Client Sample ID:** C-NR1-S-0219
**Collection Date:** 2/13/2019 11:10:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190227H** | QC Batch: **72664** | | | PrepDate | **2/26/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/27/2019 11:03 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/20/2019 04:28 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-008

**Client Sample ID:** C-NR3-S-0219
**Collection Date:** 2/13/2019 11:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/20/2019 12:20 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 22 | 18 | 20 | | ug/L | 1 | 2/20/2019 04:41 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-009

**Client Sample ID:** MW-907-Q119
**Collection Date:** 2/13/2019 12:00:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 26 | 18 | 20 | | ug/L | 1 | 2/20/2019 12:24 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 23 | 18 | 20 | | ug/L | 1 | 2/20/2019 04:44 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-010

**Client Sample ID:** C-NR4-D-0219
**Collection Date:** 2/13/2019 12:30:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/20/2019 12:27 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 22 | 18 | 20 | | ug/L | 1 | 2/20/2019 04:49 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-011

**Client Sample ID:** C-NR4-S-0219
**Collection Date:** 2/13/2019 12:45:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/20/2019 12:31 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/20/2019 04:52 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-012

**Client Sample ID:** R-19-0219
**Collection Date:** 2/13/2019 9:00:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6010B** | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | | PrepDate | **2/14/2019** | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/20/2019 12:36 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6010B** | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | | PrepDate | **2/14/2019** | Analyst: **CEI** |
| Iron | 36 | 18 | 20 | | ug/L | 1 | 2/20/2019 04:57 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-013

**Client Sample ID:** RRB-0219
**Collection Date:** 2/13/2019 9:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 22 | 18 | 20 | | ug/L | 1 | 2/20/2019 12:48 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 24 | 18 | 20 | | ug/L | 1 | 2/20/2019 05:01 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-014

**Client Sample ID:** C-NR3-D-0219
**Collection Date:** 2/13/2019 11:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219G** | QC Batch: **72482** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 2/20/2019 12:53 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190219H** | QC Batch: **72479** | | | PrepDate | **2/14/2019** | | Analyst: **CEI** |
| Iron | 37 | 18 | 20 | | ug/L | 1 | 2/20/2019 05:05 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **MB-72482** | SampType: **MBLK** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **2/14/2019** | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72482** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **2/19/2019** | SeqNo: **3296768** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID **LCS-72482** | SampType: **LCS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **2/14/2019** | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72482** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **2/19/2019** | SeqNo: **3296769** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 105.256 | 20 | 100.0 | 0 | 105 | 85 | 115 | | | | |

| Sample ID **N034123-013B-MS** | SampType: **MS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **2/14/2019** | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72482** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **2/19/2019** | SeqNo: **3296775** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 111.397 | 20 | 100.0 | 0 | 111 | 75 | 125 | | | | |

| Sample ID **N034123-013B-MSD** | SampType: **MSD** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **2/14/2019** | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72482** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **2/19/2019** | SeqNo: **3296776** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 111.556 | 20 | 100.0 | 0 | 112 | 75 | 125 | 111.4 | 0.143 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID | MB-72664 | SampType: | MBLK | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 2/26/2019 | RunNo: | 132152 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72664 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/27/2019 | SeqNo: | 3303589 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID | LCS-72664 | SampType: | LCS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 2/26/2019 | RunNo: | 132152 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72664 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/27/2019 | SeqNo: | 3303590 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 107.628 | 20 | 100.0 | 0 | 108 | 85 | 115 | | | | |

| Sample ID | N034104-006C-MS | SampType: | MS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 2/26/2019 | RunNo: | 132152 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72664 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/27/2019 | SeqNo: | 3303594 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 97.095 | 20 | 100.0 | 0 | 97.1 | 75 | 125 | | | | |

| Sample ID | N034104-006C-MSD | SampType: | MSD | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 2/26/2019 | RunNo: | 132152 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72664 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/27/2019 | SeqNo: | 3303595 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 99.844 | 20 | 100.0 | 0 | 99.8 | 75 | 125 | 97.09 | 2.79 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID | MB-72479 | SampType: | MBLK | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 2/14/2019 | RunNo: | 132001 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72479 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/20/2019 | SeqNo: | 3296964 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID | LCS-72479 | SampType: | LCS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 2/14/2019 | RunNo: | 132001 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72479 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/20/2019 | SeqNo: | 3296965 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 106.594 | 20 | 100.0 | 0 | 107 | 85 | 115 | | | | |

| Sample ID | N034129-002E-MS | SampType: | MS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 2/14/2019 | RunNo: | 132001 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72479 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/20/2019 | SeqNo: | 3296973 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 137.194 | 20 | 100.0 | 144.4 | -7.23 | 75 | 125 | | | | S |

| Sample ID | N034129-002E-MSD | SampType: | MSD | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 2/14/2019 | RunNo: | 132001 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72479 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/20/2019 | SeqNo: | 3296974 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 136.495 | 20 | 100.0 | 144.4 | -7.93 | 75 | 125 | 137.2 | 0.511 | 20 | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-002

**Client Sample ID:** C-CON-D-0219
**Collection Date:** 2/13/2019 10:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 05:52 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 05:52 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 05:52 PM |
| Molybdenum | 4.5 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 05:52 PM |
| Selenium | 1.7 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 07:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-003

**Client Sample ID:** C-CON-S-0219
**Collection Date:** 2/13/2019 10:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 05:58 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 05:58 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 05:58 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 05:58 PM |
| Selenium | 1.8 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 05:58 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-004

**Client Sample ID:** C-MAR-D-0219
**Collection Date:** 2/13/2019 8:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.3 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 06:05 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 06:05 PM |
| Manganese | 2.9 | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 06:05 PM |
| Molybdenum | 4.9 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 06:05 PM |
| Selenium | 2.0 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 06:05 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-005

**Client Sample ID:** C-MAR-S-0219
**Collection Date:** 2/13/2019 8:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.3 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 06:11 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 06:11 PM |
| Manganese | 1.8 | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 06:11 PM |
| Molybdenum | 5.2 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 06:11 PM |
| Selenium | 1.7 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 06:11 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-006

**Client Sample ID:** C-NR1-D-0219
**Collection Date:** 2/13/2019 10:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 06:17 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 06:17 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 06:17 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 06:17 PM |
| Selenium | 1.7 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 06:17 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | | PrepDate | **2/14/2019** | Analyst: **CEI** |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 06:23 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 06:23 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 06:23 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 06:23 PM |
| Selenium | 1.8 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 07:18 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**ASSET Laboratories**

# ANALYTICAL RESULTS

**Print Date:** *05-Mar-19*

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-S-0219 |
| **Lab Order:** | N034129 | **Collection Date:** | 2/13/2019 11:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034129-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 06:29 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 06:29 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 06:29 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 06:29 PM |
| Selenium | 1.7 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 06:29 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-009

**Client Sample ID:** MW-907-Q119
**Collection Date:** 2/13/2019 12:00:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 07:12 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 07:12 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 07:12 PM |
| Molybdenum | 5.1 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 07:12 PM |
| Selenium | 1.5 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 07:12 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-010

**Client Sample ID:** C-NR4-D-0219
**Collection Date:** 2/13/2019 12:30:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.0 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 07:24 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 07:24 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 07:24 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 07:24 PM |
| Selenium | 1.5 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 07:24 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-011

**Client Sample ID:** C-NR4-S-0219
**Collection Date:** 2/13/2019 12:45:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 07:30 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 07:30 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 07:30 PM |
| Molybdenum | 4.7 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 07:30 PM |
| Selenium | 1.6 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 07:30 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-012

**Client Sample ID:** R-19-0219
**Collection Date:** 2/13/2019 9:00:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 07:36 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 07:36 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 07:36 PM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 07:36 PM |
| Selenium | 1.8 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 07:36 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-013

**Client Sample ID:** RRB-0219
**Collection Date:** 2/13/2019 9:45:00 AM
**Matrix:** GROUNDWATER

## DISSOLVED METALS BY ICP-MS

**EPA 3010A** **EPA 6020**

RunID: **NV00922-ICP7_190228B** QC Batch: **72499** PrepDate **2/14/2019** Analyst: **CEI**

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 07:42 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 07:42 PM |
| Manganese | 1.9 | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 07:42 PM |
| Molybdenum | 5.3 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 07:42 PM |
| Selenium | 1.8 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 09:27 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034129-014

**Client Sample ID:** C-NR3-D-0219
**Collection Date:** 2/13/2019 11:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72499** | | | PrepDate | **2/14/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 07:48 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 2/28/2019 07:48 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 07:48 PM |
| Molybdenum | 4.8 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 07:48 PM |
| Selenium | 1.7 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 08:18 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **MB-72499** | SampType: **MBLK** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/14/2019** | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72499** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/28/2019** | SeqNo: **3305661** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **LCS-72499** | SampType: **LCS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/14/2019** | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72499** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/28/2019** | SeqNo: **3305662** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 10.196 | 0.10 | 10.00 | 0 | 102 | 85 | 115 | | | | |
| Barium | 10.676 | 1.0 | 10.00 | 0 | 107 | 85 | 115 | | | | |
| Manganese | 103.574 | 0.50 | 100.0 | 0 | 104 | 85 | 115 | | | | |
| Molybdenum | 9.176 | 0.50 | 10.00 | 0 | 91.8 | 85 | 115 | | | | |
| Selenium | 9.943 | 0.50 | 10.00 | 0 | 99.4 | 85 | 115 | | | | |

| Sample ID **N034128-001A-MS** | SampType: **MS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/14/2019** | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72499** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/28/2019** | SeqNo: **3305666** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.594 | 0.10 | 10.00 | 0.6767 | 109 | 75 | 125 | | | | |
| Barium | 121.955 | 1.0 | 10.00 | 115.9 | 60.8 | 75 | 125 | | | | S |
| Molybdenum | 63.227 | 0.50 | 10.00 | 53.35 | 98.8 | 75 | 125 | | | | |
| Selenium | 11.956 | 0.50 | 10.00 | 0.7041 | 113 | 75 | 125 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | N034128-001A-MSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72499 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3305667 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.322 | 0.10 | 10.00 | 0.6767 | 106 | 75 | 125 | 11.59 | 2.38 | 20 | |
| Barium | 120.389 | 1.0 | 10.00 | 115.9 | 45.2 | 75 | 125 | 122.0 | 1.29 | 20 | S |
| Molybdenum | 64.096 | 0.50 | 10.00 | 53.35 | 107 | 75 | 125 | 63.23 | 1.37 | 20 | |
| Selenium | 11.093 | 0.50 | 10.00 | 0.7041 | 104 | 75 | 125 | 11.96 | 7.49 | 20 | |

| Sample ID | N034128-001A-MS | SampType: | MS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72499 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3305999 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 1094.095 | 5.0 | 100.0 | 965.0 | 129 | 75 | 125 | | | | S |

| Sample ID | N034128-001A-MSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/14/2019 | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72499 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306000 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 1125.810 | 5.0 | 100.0 | 965.0 | 161 | 75 | 125 | 1094 | 2.86 | 20 | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD



| | | | | | |
|---|---|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement | QA/QC | Sample Receipt Condition |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | Excel EDD | RTNE | Y N |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: | Geotracker | RWQCB ✓ | 1. Chilled |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@pivox.com P.O.# SWA-ASSET-C9817-057 | Labspec | CalTrans | 2. Headspace |
| Submitted By: Joe Gatel | | Phone: 949-727-1400, ext 200 Fax: | Others ✓ | LEVEL III | 3. Container Intact |
| Title: Scientist 1 | Phone: 916-786-3302 Fax: | | Specify: RWQCB | LEVEL IV | 4. Seal Present |
| | | | Global ID: | Regulatory | 5. IR number |
| | | | | Specify State: | 6. Method of Cooling: ICE |
| | | | | | Sample Temp: 2.8°C |

Signature: Date: 2/13/2019
*I hereby authorize ASSET Labs to perform the tests indicated below.*

Sampled By: Jason Nolan
*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for*

Signature: Date: 2/13/2019

Project Name: PG&E Topock - RMP

Project Number: RC000753.801D

Matrix: Ground x | Potable | NPDES | Surface; Sediment | Soil | Other Solid

Courier:

Tracking No.:

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly) | Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly) | pH (SM4500-HB) (1 liter poly) | Specific Conductance (E120.1) (1 liter poly) | TSS (SM2540 D) (1 liter poly) | Dissolved metals (SW6020) FF; HNO3 Ar,Ba, (500mL poly) | Dissolved metals (SW6010B) FF; HNO3 Fe, Mn, Mo (500mL poly) | Dissolved metals (SW6020A) FF; HNO3 Se (500mL poly) | Dissolved metals (SW6020) FF; HNO3 Cr (500mL poly) | Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 (125 mL poly) | Total metals (SW6010B); HNO3 Fe (500 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034129 - 01 | AmbientBlank-3-0219 | 2/13/2019 | 12:50 | | | X | | | | | | | | | | E | 1 | P | B | |
| 2 | - 02 | C-CON-D-0219 | 2/13/2019 | 10:15 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 3 | - 03 | C-CON-S-0219 | 2/13/2019 | 10:30 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 4 | - 04 | C-MAR-D-0219 | 2/13/2019 | 0815 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 5 | - 05 | C-MAR-S-0219 | 2/13/2019 | 08:30 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 6 | - 06 | C-NR1-D-0219 | 2/13/2019 | 10:55 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 7 | - 07 | C-NR1-S-0219 | 2/13/2019 | 11:10 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 8 | - 08 | C-NR3-S-0219 | 2/13/2019 | 11:50 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 9 | - 09 | MW-907-Q119 | 2/13/2019 | 12:00 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 10 | -10 | C-NR4-D-0219 | 2/13/2019 | 12:30 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 11 | - 11 | C-NR4-S-0219 | 2/13/2019 | 12:45 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 12 | - 12 | R-19-0219 | 2/13/2019 | 9:00 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 13 | - 13 | RRB-0219 | 2/13/2019 | 9:45 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |
| 14 | - 14 | C-NR3-D-0219 | 2/13/2019 | 11:35 | | X | | X | X | X | X | X | X | X | X | X | E | 7 | P | BNS | |

Relinquished by (Signature and Printed Name): Date/Time: 2/13/19 1615

Relinquished by (Signature and Printed Name): Joe Gatel Date/Time: 2-13-19 1615

Relinquished by (Signature and Printed Name): Joe Gatel Date/Time: 2-13-19 1945

Relinquished by (Signature and Printed Name): Joe Gatel Date/Time: 2-13-19 1945

Turn Around Time (TAT)

- [ ] A = 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary

| Preservatives: | | | | Container Type: | | |
|---|---|---|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C | T=Tube | V=VOA | P=Pint |
| Z=Zn(AC)$_2$ | O=NaOH | T=$Na_2S_2O_3$ | | J=Jar | B=Tedlar | G=Glass |
| Others/Specify: | B (NH4)2SO4/NH4OH | | | M=Metal | M=Metal | C=Can |

White=Laboratory Copy

Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 2/13/2019 | Workorder: | N034129 |
| Rep sample Temp (Deg C): | 2.8 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | NA | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☐ | No ☑ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☑ | No ☐ | NA ☐ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments: Samples for pH were ~~p;ast~~ holding time upon receipt.
past

Checklist Completed By: YR 2/18/2019

Reviewed By: LG 021919

## Mary Ann Balilu (maryann.balilu@assetlaboratoriesph.com)

**From:** Madsen, Laura <Laura.Madsen@arcadis.com>
**Sent:** Thursday, February 14, 2019 12:08 PM
**To:** Yoandra Rodriguez
**Cc:** maryann.balilu@assetlaboratoriesph.com; 'Andreafe. Gallardo'; 'Sonny. Lorenzo'; Gatel, Joe
**Subject:** RE: PG&E Topock - RMP, RC000753.801D (Asset Labs N034104 and N034129)

Hi,
"As" is the correct analyte and please use the historic method 6020.

Thanks,
Laura

---

**From:** Yoandra Rodriguez <yoandra@assetlaboratories.com>
**Sent:** Thursday, February 14, 2019 1:58 PM
**To:** Madsen, Laura <Laura.Madsen@arcadis.com>
**Cc:** maryann.balilu@assetlaboratoriesph.com; 'Andreafe. Gallardo' <andrea.gallardo@assetlaboratories.com>; 'Sonny. Lorenzo' <sonny.lorenzo@assetlaboratories.com>
**Subject:** PG&E Topock - RMP, RC000753.801D (Asset Labs N034104 and N034129)

Hi Laura,

I'd like to confirm the analysis for Mn and Mo on the attached COCs. You are requesting 6010, but per history we do it by 6020.

Please also note there's a mistake on "RMP" COCs, Ar is written instead of As. So we assume it should be As.

--
**Thanks,**

**Yoandra Rodriguez**
Sample Control Officer
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436

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# ASSET Laboratories

## WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034129

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-001A | AmbientBlank-3-0219 | 2/13/2019 12:50:00 PM | 2/27/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-002A | C-CON-D-0219 | 2/13/2019 10:15:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-002B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-002C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-002D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-002E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-003A | C-CON-S-0219 | 2/13/2019 10:30:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-003B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-003C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-003D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034129

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-003D | C-CON-S-0219 | 2/13/2019 10:30:00 AM | 2/27/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-003E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-004A | C-MAR-D-0219 | 2/13/2019 8:15:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-004B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-004C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-004D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-004E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-005A | C-MAR-S-0219 | 2/13/2019 8:30:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-005B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |

## WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034129

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-005B | C-MAR-S-0219 | 2/13/2019 8:30:00 AM | 2/27/2019 | Groundwater | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-005C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-005D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-005E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-006A | C-NR1-D-0219 | 2/13/2019 10:55:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-006B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-006C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-006D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034129

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-006E | C-NR1-D-0219 | 2/13/2019 10:55:00 AM | 2/27/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-007A | C-NR1-S-0219 | 2/13/2019 11:10:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-007B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-007C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-007D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-007E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-008A | C-NR3-S-0219 | 2/13/2019 11:50:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-008B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-008C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034129

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-008D | C-NR3-S-0219 | 2/13/2019 11:50:00 AM | 2/27/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-008E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-009A | MW-907-Q119 | 2/13/2019 12:00:00 PM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-009B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-009C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-009D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-009E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-010A | C-NR4-D-0219 | 2/13/2019 12:30:00 PM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-010B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034129

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-010B | C-NR4-D-0219 | 2/13/2019 12:30:00 PM | 2/27/2019 | Groundwater | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-010C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-010D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-010E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-011A | C-NR4-S-0219 | 2/13/2019 12:45:00 PM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-011B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-011C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-011D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034129

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-011D | C-NR4-S-0219 | 2/13/2019 12:45:00 PM | 2/27/2019 | Groundwater | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-011E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-012A | R-19-0219 | 2/13/2019 9:00:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-012B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-012C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-012D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-012E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-013A | RRB-0219 | 2/13/2019 9:45:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-013B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |

## WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034129

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-013C | RRB-0219 | 2/13/2019 9:45:00 AM | 2/27/2019 | Groundwater | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-013D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-013E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034129-014A | C-NR3-D-0219 | 2/13/2019 11:35:00 AM | 2/27/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034129-014B | | | 2/27/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034129-014C | | | 2/27/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034129-014D | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034129-014E | | | 2/27/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/27/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |

## WORK ORDER Summary

*14-Feb-19*

**WorkOrder:** N034129

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/13/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-015A | FOLDER | 2/27/2019 | 2/27/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 2/27/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# List of Analysts

## ASSET Laboratories Work Order: N034129

| NAME | TEST METHOD |
|---|---|
| Quennie Manimtim | SM 4500-NO3F |
| Claire Ignacio | EPA 6010B_Dissolved, EPA 6010B, EPA 6020_Dissolved |
| Lilia Ramit | EPA 120.1, SM 4500-H+B, SM 2540D |
| Hanah Glodoviza | EPA 218.6 |

# EPA 120.1

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R131845 **Analyst:** LSR

**ASSET #:** N034129 **Date Analyzed:** 14-Feb

**Method:** EPA 120.1

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | | | X | | | |
| 11. LCS compounds within control limits. | | | X | | | |
| 12. MS/MSD RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 2/25/2019

2nd Level Reviewer: 2/28/2019 Date: —

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

# Conductivity Logbook

**Date:** 2/14/19 1410

**Analyst:** DSR

| Standard | Std ID | Reading | Comments |
|---|---|---|---|
| 11.26 µS/cm | CNW-181011A | 11.28 @17.8C | % Rec: (90-110%) |
| 1410 | 1901070 | 1421 @18.1C | |
| 9988 | 180731E | 9950 @18.2C | |
| 99661 | 181121B | 99300 @18.2C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | NDS4126-002C | H2O | 13060 @17.9C | |
| 2 | 3C | | 1572 @17.7C | |
| 3 | 4C | | 1558 @17.4C | |
| 4 | 5C | | 3830 @17.3C | |
| 5 | 6C | | 8710 @17.4C | |
| 6 | 6COUP | | 8740 @17.1C | |
| 7 | 7C | | 5090 @17.4C | |
| 8 | 8C | | 2810 @17.5C | |
| 9 | NDS4129-002B | | 903 @17.5C | |
| 10 | 3B | | 900 @17.4C | |
| Dup | 4B | | 912 @17.4C | Accept: 10% water, 20% soil |
| | Std Chk: | | | % Rec: (90-110%) |

Julia Ramit 2/25/2019

**Date:**

**Analyst:** CONTD

| Standard | Std ID | Reading | Comments |
|---|---|---|---|
| 1413 µS/cm | CNW-181022A | 1437 @17.9C | % Rec: (90-110%) |
| 10000 | B | 9810 @18.2C | |
| 99922 | C | 97900 @18.2C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | NDS4129-005B | H2O | 908 @17.6C | |
| 2 | 6B | | 904 @17.6C | STD CHECK |
| 3 | 7B | | 909 @17.7C | 1413 CNW181022A |
| 4 | 8B | | 906 @17.6C | = 1424 @ 18.8C |
| 5 | 9B | | 907 @17.6C | 10000 CNW181022B |
| 6 | 10B | | 912 @17.5C | = 9860 @ 18.8C |
| 7 | 10B DUP | | 909 @17.3C | 99922 CNW181022C |
| 8 | 11B | | 902 @17.3C | = 97700 @ 18.7C |
| 9 | 12B | | 914 @17.4C | |
| 10 | 13B | | 934 @17.6C | |
| Dup | 14B | | 915 @17.7C | Accept: 10% water, 20% soil |
| | Std Chk: | | | % Rec: (90-110%) |



ASSET LABORATORIES
CALIFORNIA | P:562.219.7435 F:562.219.7436
11110 Artesia Blvd., Ste B, Cerritos, CA 90703
NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118

# SM 4500-H+B

# pH Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R131842 **Instrument ID:** pH meter

**ASSET #:** N034129 **Analyst:** LSR

**Date Analyzed:** 14-Feb

**Method:** EPA 150.1

| pH Meter Calibration | 1st Level Review Y | 1st Level Review N | 1st Level Review N/A | 2nd Level Review Y | 2nd Level Review N | 2nd Level Review N/A |
|---|---|---|---|---|---|---|
| 1. Was the meter calibrated using 3 buffers (4,7 and 10)? | X | | | | | |
| 2. Was a closing buffer used at the end of analysis? | X | | | | | |
| 3. Was the meter checked every 10 samples? | X | | | | | |
| **Sample Information** | | | | | | |
| 4. Are all samples analyzed within hold time. | | X | | | | |
| **QC Items** | | | | | | |
| 5. Was a duplicate sample analyzed? | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 6. Are Non-Conformances documented | | | X | | | |
| 7. Runlog complete and included in package. | X | | | | | |
| **Preliminary Report** | | | | | | |
| 8. Does the raw data match the preliminary report? | X | | | | | |
| 9. Are analytical results correct? | X | | | | | |
| 10. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer Julia Ramit Date: 2/26/2019

2nd Level Reviewer 2/28/2019 Date: —

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

# pH Logbook

**Date:** 2/14/19 1115
**Analyst:** LSR

| Standard | Std ID | pH | Comments |
|---|---|---|---|
| Buffer 7 | CIW-190107A | 7.02 @25C | |
| Buffer 4 | ↓ B | 4.05 @25C | |
| Buffer 10 | CIW-190111G | 10.02 @25C | |
| Slope | | 96.9% | Acceptance Criteria: 95%-105% |

| | Sample ID | Matrix | pH | Comments |
|---|---|---|---|---|
| 1 | N034129-002B | H2O | 8.26 @25C | |
| 2 | 2BDUP | | 8.27 @25C | |
| 3 | 3B | | 8.25 @25C | |
| 4 | 4B | | 8.32 @25C | |
| 5 | 5B | | 8.34 @25C | |
| 6 | 6B | | 8.24 @25C | |
| 7 | 7B | | 8.25 @25C | |
| 8 | 8B | | 8.24 @25C | |
| 9 | 9B | | 8.26 @25C | |
| 10 | 10B | | 7.75 @25C | |
| ~~Dup~~ | 11B | | 8.23 @25C | Accept: 10% water, 20% soil |
| | Buffer 7, 4, 10 (Circle one) | CIW-180914C | 7.01 @25C | Accept: +/-0.05 pH units from expected value |

**Date:** _____ Julia Ramit 2/26/2019
**Analyst:** _____

| Standard | Std ID | pH | Comments |
|---|---|---|---|
| Buffer 7 | | | |
| Buffer 4 | CONTD | | |
| Buffer 10 | | | |
| Slope | | | Acceptance Criteria: 95%-105% |

| | Sample ID | Matrix | pH | Comments |
|---|---|---|---|---|
| 1 | N034129-012B | H2O | 8.30 @25C | |
| 2 | 13B | | 7.58 @25C | |
| 3 | 14B | | 8.26 @25C | |
| 4 | 14BDUP | | 8.24 @25C | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | Buffer 7 CIW 180914C |
| 9 | | | | =7.02 @25C |
| 10 | | | | |
| Dup | | | | Accept: 10% water, 20% soil |
| Buffer 7, 4, 10 | | | | Accept: +/-0.05 pH units from expected value |

# SM 2540D

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72491/72541 **Analyst:** LSR

**ASSET #:** N034129 **Date Analyzed:** 2/14,2/18/19

**Method:** EPA 160.2 / SM 2540D

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | | | |
| 11. LCS compounds within control limits. | X | | | | | |
| 12. MS/MSD: RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 2/21/2019

2nd Level Reviewer: 2/28/2019 Date: —

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** SM 2540D
**TEST NAME:** Total Non-Filterable Residue
**MATRIX:** Water

FORMULA:

Calculate TSS concentration in mg/L, in the original sample as follows:

$$\text{TSS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N034129-002B,** TSS concentration in mg/L is calculated as follows:

$$\text{TSS, mg/L} = \frac{(1.3982 - 1.3976) *1000000}{200}$$

= 3 mg/L

Since reporting limit is 10 mg/L, therefore:

TSS = ND mg/L

Silvia Ramit 2/21/2019

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/14/2019 9:29:45 A**
Prep End Date: **2/14/2019 3:00:00 P**

Reviewed/ Date: 2/28/2019

Initials/ Date: Lilia Ramit 2/21/2019

Prep Batch **72491** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Temp. (°C): **105**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72491 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-72491 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034104-011B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034104-012B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034104-015B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-002B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-002B-DU | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-003B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-004B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-005B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-006B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-007B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-008B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10403 | Glass Fiber Filter, 47mm |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| IWST190107D | 1000 ppm Talc | LCS | 100 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/14/2019 9:29:45 A**
Prep End Date:

Reviewed/ Date: _____

Initials/ Date: Lilia Ramit 2/21/2019

Prep Batch **72491** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: mL / mL

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72491 | Water | IWST190107D | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-72491 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034104-011B | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034104-012B | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034104-015B | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-002B | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-002B-DU | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-003B | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-004B | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-005B | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-006B | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-007B | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-008B | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10403

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/18/2019 8:59:26 A**
Prep End Date: **2/18/2019 2:00:00 P**

Reviewed/ Date: 2/28/2019
Initials/ Date: Lilia Ramit 2/21/2019

Prep Batch **72541** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Temp. (°C): **105**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72541 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-72541 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-009B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-009B-DU | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-010B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-011B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-012B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-013B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034129-014B | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034148-002A | NPDES Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034148-005A | NPDES Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034148-008A | NPDES Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034148-011A | NPDES Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10404 | Glass Fiber Filter, 47mm |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| IWST190107D | 1000 ppm Talc | LCS | 100 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/18/2019 8:59:26 A**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Julia Ramit 2/21/2019

Prep Batch **72541** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: mL / mL

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72541 | Water | WST 090107D | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-72541 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-009B | Groundwater | | 100 / 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-009B-DU | Groundwater | | 100 / 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-010B | Groundwater | | 100 / 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-011B | Groundwater | | 100 / 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-012B | Groundwater | | 100 / 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-013B | Groundwater | | 100 / 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034129-014B | Groundwater | | 100 / 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034148-002A | NPDES Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034148-005A | NPDES Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034148-008A | NPDES Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034148-011A | NPDES Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10404

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

## SOLIDS RAW DATA

TEST (TSS/ TDS/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 2/14/19 929 | MB 72491 | 100 | 1.4029 1.4029 | 1.4027 1.4028 | |
| | LCS 72491 | 100 | 1.4078 1.4077 | 1.5014 1.5014 | |
| 11 | NO34104-011B | 200 | 1.3940 1.3939 | 1.3941 1.3940 | |
| 12 | 12B | 200 | 1.4003 1.4001 | 1.4003 1.4005 | |
| extra TB | 15B | 200 | 2/21/19 1.4059 1.3893 1.4059 1.3892 | 1.3955 1.3954 | |
| 14 | NO34129-002B | 200 | 1.3977 1.3976 | 1.3982 1.3982 | |
| DUP2 | 2B DUP | 200 | ~~1.4024~~ 1.4119 1.4117 2/21/19 | 1.4121 1.4122 | |
| 15 | 3B | 200 | 1.4024 1.4024 | 1.4027 1.4026 | |
| 16 | 4B | 200 | 1.4105 1.4103 | 1.4164 1.4164 | |
| 17 | 5B | 200 | 1.4158 1.4158 | 1.4169 1.4168 | |

Julia Ramit 2/21/2019



ASSET LABORATORIES
CALIFORNIA | P:562.219.7435 F:562.219.7436
11110 Artesia Blvd., Ste B, Cerritos, CA 90703
ELAP Cert 2921
NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00

## SOLIDS RAW DATA

TEST (TSS/ TDS/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 2/14/19 18 | N034129-006B | 200 | 1.4055<br>1.4053 | 1.4058<br>1.4058 | |
| 19 | 117B | 200 | 1.3951<br>1.3950 | 1.3955<br>1.3954 | |
| 20 | 8B | 200 | 1.4068<br>1.4067 | 1.4072<br>1.4071 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | Julia Ramit | | 2/21/2019 | | |
| | 0.9999 | (2) | 1500 2/14/19 LKN | | |

ASSET Laboratories

Logbook#14

# TOTAL SUSPENDED SOLIDS, TSS

## TSS, mg/L = (A-B) * 10000*PF

**where:**

**A =** weight in g of aluminum dish + filter disc + residue after drying
**B =** weight in g of aluminum dish + filter disc
**PF =** 100/volume of sample used in mL

| Date: | vol of sample (mL) | weight in g of aluminum dish + filter disc (B) | weight in g of aluminum dish + filter disc + residue after drying (A) | A-B*10000 | Prep Fact (PF) | TSS, mg/L | Sample Type |
|---|---|---|---|---|---|---|---|
| 2/14/2019 | | | | | | | |
| MB-72491 | 100 | 1.4029 | 1.4028 | -1.0000 | 1.00 | -1 | MBLK |
| LCS-72491 | 100 | 1.4077 | 1.5014 | 937.0000 | 1.00 | 937 | LCS |
| N034104-011B | 200 | 1.3939 | 1.394 | 1.0000 | 0.50 | 0.5 | SAMP |
| N034104-012B | 200 | 1.4001 | 1.4005 | 4.0000 | 0.50 | 2 | SAMP |
| N034104-015B | 200 | 1.3892 | 1.3954 | 62.0000 | 0.50 | 31 | SAMP |
| N034129-002B | 200 | 1.3976 | 1.3982 | 6.0000 | 0.50 | 3 | SAMP |
| N034129-002BDUP | 200 | 1.4117 | 1.4122 | 5.0000 | 0.50 | 2.5 | DUP |
| N034129-003B | 200 | 1.4024 | 1.4026 | 2.0000 | 0.50 | 1 | SAMP |
| N034129-004B | 200 | 1.4103 | 1.4164 | 61.0000 | 0.50 | 30.5 | SAMP |
| N034129-005B | 200 | 1.4158 | 1.4168 | 10.0000 | 0.50 | 5 | SAMP |
| N034129-006B | 200 | 1.4053 | 1.4058 | 5.0000 | 0.50 | 2.5 | SAMP |
| N034129-007B | 200 | 1.395 | 1.3954 | 4.0000 | 0.50 | 2 | SAMP |
| N034129-008B | 200 | 1.4067 | 1.4071 | 4.0000 | 0.50 | 2 | SAMP |

Julia Ramit 2/21/2019

## SOLIDS RAW DATA

TEST: TSS/ TDS/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 2/18/19 859 | MB 72541 | 100 | 1.3951<br>1.3954 | 1.3954<br>1.3953 | |
| | LCS 72541 | 100 | 1.4006<br>1.4009 | 1.4967<br>1.4968 | |
| 1 | NO34129-009B | 200 | 1.4038<br>1.4042 | 1.4048<br>1.4048 | |
| DUP | 9B DUP | 200 | 1.3917<br>1.3915 | 1.3920<br>1.3921 | |
| 2 | 10B | 200 | 1.4061<br>1.4064 | 1.4069<br>1.4069 | |
| 3 | 11B | 200 | 1.4088<br>1.4089 | 1.4089<br>1.4091 | |
| 4 | 12B | 200 | 1.4023<br>1.4025 | 1.4033<br>1.4034 | |
| 5 | 13B | 200 | 1.4174<br>1.4177 | 1.4179<br>1.4179 | |
| 6 | 14B | 200 | 1.4143<br>1.4142 | 1.4149<br>1.4148 | |
| 7 | NO34148-002A | 100 | 1.4026<br>1.4027 | 1.4046<br>1.4047 | |

ASSET Laboratories

Logbook#14

Silvia Ramit 2/21/2019

## SOLIDS RAW DATA

TEST (TSS) TDS/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 2/18/19 8 | NO34148.005A | 100 | 1.3946 1.3946 | 1.3960 1.3958 | |
| 9 | 8A | 100 | 1.3801 1.3798 | 1.3807 1.3806 | |
| 10 | 11A | 100 | 1.3930 1.3928 | 1.4014 1.4012 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | Silica Ramit | | 2/21/2019 | | |
| | 0.9998 @ 1410 | | 2/18/19 LSK | | |

ASSET Laboratories

Logbook#14

# TOTAL SUSPENDED SOLIDS, TSS

## TSS, mg/L = (A-B) * 10000*PF

**where:**

**A =** weight in g of aluminum dish + filter disc + residue after drying
**B =** weight in g of aluminum dish + filter disc
**PF =** 100/volume of sample used in mL

| Date: | vol of sample (mL) | weight in g of aluminum dish + filter disc (B) | weight in g of aluminum dish + filter disc + residue after drying (A) | A-B*10000 | Prep Fact (PF) | TSS, mg/L | Sample Type |
|---|---|---|---|---|---|---|---|
| 2/18/2019 | | | | | | | |
| MB-72541 | 100 | 1.3954 | 1.3953 | -1.0000 | 1.00 | -1 | MBLK |
| LCS-72541 | 100 | 1.4009 | 1.4968 | 959.0000 | 1.00 | 959 | LCS |
| N034129-009B | 200 | 1.4042 | 1.4048 | 6.0000 | 0.50 | 3 | SAMP |
| N034129-009BDUP | 200 | 1.3915 | 1.3921 | 6.0000 | 0.50 | 3 | DUP |
| N034129-010B | 200 | 1.4064 | 1.4069 | 5.0000 | 0.50 | 2.5 | SAMP |
| N034129-011B | 200 | 1.4089 | 1.4091 | 2.0000 | 0.50 | 1 | SAMP |
| N034129-012B | 200 | 1.4025 | 1.4034 | 9.0000 | 0.50 | 4.5 | SAMP |
| N034129-013B | 200 | 1.4177 | 1.4179 | 2.0000 | 0.50 | 1 | SAMP |
| N034129-014B | 200 | 1.4142 | 1.4148 | 6.0000 | 0.50 | 3 | SAMP |
| N034148-002A | 100 | 1.4027 | 1.4047 | 20.0000 | 1.00 | 20 | SAMP |
| N034148-005A | 100 | 1.3946 | 1.3958 | 12.0000 | 1.00 | 12 | SAMP |
| N034148-008A | 100 | 1.3798 | 1.3806 | 8.0000 | 1.00 | 8 | SAMP |
| N034148-011A | 100 | 1.3928 | 1.4012 | 84.0000 | 1.00 | 84 | SAMP |

Silvia Ramit 2/21/2019

# EPA 218.6

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R132081
**ASSET #:** N034129

**Instrument ID:** IC-07
**Analyst:** HSG
**Date Analyzed:** 2/25/2019

**Method:**

- [ ] EPA 300.0
- [ ] EPA 7199
- [x] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | x | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | x | | |
| 3. ICV within ± 10% of expected value. | X | | | x | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | x | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | x | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | x | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | X | | | x | | |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | x | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | X | | | x | | |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | x | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | X | | | x | | |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | x |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | X | | | X | | |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | X |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | X | | | X | | |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | X |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | X | | | X | | |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | x |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | x | | |
| 21. Are all samples analyzed within hold time? | X | | | x | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | x |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | x | | |
| 24. LCS compounds are within control limits. | X | | | x | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | x | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | x |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | x | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | x |
| 29. All manual integrations initialed, date and reasons included. | X | | | x | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | x | | |
| 31. All samples and QC raw data present in package. | X | | | x | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | x | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | x | | |
| 34 Is the QC summary report present and complete? | X | | | x | | |

Comments:

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer HSG Date: 2/27/2019

2nd Level Reviewer 2/27/2019 Date: _____

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R132121
**ASSET #:** N034129

**Instrument ID:** IC-07
**Analyst:** HSG
**Date Analyzed:** 2/26/2019

**Method:**

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | x | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | x | | |
| 3. ICV within ± 10% of expected value. | X | | | x | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | x | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | x | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | x | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | X | | | x | | |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | x | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | X | | | x | | |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | x | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | X | | | x | | |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | x |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | X | | | x | | |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | X |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | X | | | X | | |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | X |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | X | | | x | | |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | x |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | x | | |
| 21. Are all samples analyzed within hold time? | X | | | x | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | x |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | x | | |
| 24. LCS compounds are within control limits. | X | | | x | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | x | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | x |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | x | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | x |
| 29. All manual integrations initialed, date and reasons included. | X | | | x | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | x | | |
| 31. All samples and QC raw data present in package. | X | | | x | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | x | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | x | | |
| 34 Is the QC summary report present and complete? | X | | | x | | |

Comments:

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer HSG Date: 2/27/2019

2nd Level Reviewer 2/27/2019 Date: –

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 218.6
**TEST NAME:** HEXAVALENT CHROMIUM BY IC
**MATRIX:** Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N034129-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.0820 * 1$$

$$Cr^{+6}, \mu g/L = 0.0820$$

Since PQL is 0.2 µg/L,

$$\mathbf{Cr^{+6}, \mu g/L = ND}$$

# ANALYSIS RUN LOG

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 1:17 PM | Not Reported |
| 10 | ICV | ICV | 1 | Hexavalent Chromium | 02/21/19 1:28 PM | Reported |
| 11 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/21/19 1:37 PM | Reported |
| 12 | ICB | ICB | 1 | Hexavalent Chromium | 02/21/19 1:47 PM | Reported |
| 13 | MB-R132043 | MBLK | 1 | Hexavalent Chromium | 02/21/19 1:56 PM | Reported |
| 14 | LCS-R132043 | LCS | 1 | Hexavalent Chromium | 02/21/19 2:06 PM | Reported |
| 15 | N034269-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:18 PM | Not Reported |
| 16 | N034271-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:30 PM | Not Reported |
| 17 | N034271-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:39 PM | Not Reported |
| 18 | N034104-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:49 PM | Reported |
| 19 | N034107-018A | SAMP | 5 | Hexavalent Chromium | 02/21/19 2:58 PM | Reported |
| 20 | N034269-001AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:08 PM | Not Reported |
| 21 | N034271-002AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:17 PM | Not Reported |
| 22 | N034271-001A | SAMP | 100 | Hexavalent Chromium | 02/21/19 3:27 PM | Reported |
| 23 | CCV-1 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 3:36 PM | Reported |
| 24 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/21/19 3:46 PM | Reported |
| 25 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 3:55 PM | Not Reported |
| 26 | N034269-001A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:03 PM | Reported |
| 27 | N034269-001AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:14 PM | Reported |
| 28 | N034271-002A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:24 PM | Not Reported |
| 29 | N034271-002AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:33 PM | Not Reported |
| 30 | N034104-009AMS | MS | 1 | Hexavalent Chromium | 02/21/19 4:43 PM | Reported |
| 31 | N034104-009AMSD | MSD | 1 | Hexavalent Chromium | 02/21/19 4:52 PM | Reported |
| 32 | N034107-018ADUP | DUP | 5 | Hexavalent Chromium | 02/21/19 5:02 PM | Reported |
| 33 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 5:11 PM | Reported |
| 34 | N034271-002A | SAMP | 10 | Hexavalent Chromium | 02/21/19 5:20 PM | Not Reported |
| 35 | CCV-2 | CCV | 1 | Hexavalent Chromium | 02/21/19 5:30 PM | Reported |
| 36 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/21/19 5:39 PM | Reported |
| 37 | N034271-002AMS | MS | 10 | Hexavalent Chromium | 02/21/19 5:52 PM | Not Reported |
| 38 | N034121-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:03 PM | Reported |
| 39 | N034121-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:13 PM | Reported |
| 40 | N034121-003A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:22 PM | Reported |
| 41 | N034121-004A | SAMP | 50 | Hexavalent Chromium | 02/21/19 6:32 PM | Reported |
| 42 | N034121-005A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:41 PM | Reported |

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034121-006A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:50 PM | Reported |
| 44 | N034121-007A | SAMP | 20 | Hexavalent Chromium | 02/21/19 7:00 PM | Reported |
| 45 | N034121-008A | SAMP | 5 | Hexavalent Chromium | 02/21/19 7:09 PM | Not Reported |
| 46 | N034121-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:19 PM | Reported |
| 47 | CCV-3 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 7:28 PM | Reported |
| 48 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/21/19 7:38 PM | Reported |
| 49 | N034121-010A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:47 PM | Not Reported |
| 50 | N034121-011A | SAMP | 10 | Hexavalent Chromium | 02/21/19 7:57 PM | Reported |
| 51 | N034121-008A | SAMP | 10 | Hexavalent Chromium | 02/21/19 8:06 PM | Reported |
| 52 | N034121-011A | SAMP | 20 | Hexavalent Chromium | 02/21/19 8:16 PM | Not Reported |
| 53 | CCV-4 | CCV | 1 | Hexavalent Chromium | 02/21/19 8:25 PM | Reported |
| 54 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/21/19 8:35 PM | Reported |
| 55 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 8:44 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190221B** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **22/Feb/19 08:53:05** |
| *No. of Injections:* | **58** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 9 | 1000 | Unknown | | 02/21/2019 13:17 | Finished | BLANK |
| 10 | ICV,ICV,1, | 10 | 1000 | Unknown | | 02/21/2019 13:28 | Finished | ICV @5ppb, IWST-190221B |
| 11 | PQL@0.2ppb,CCV2, | 11 | 1000 | Unknown | | 02/21/2019 13:37 | Finished | PQL @ 0.2ppb |
| 12 | ICB,ICB,1, | 12 | 1000 | Unknown | | 02/21/2019 13:47 | Finished | ICB R190115A |
| 13 | MB-H2O,MBLK,1, | 13 | 1000 | Unknown | | 02/21/2019 13:56 | Finished | MB R190115A |
| 14 | LCS-H2O,LCS,1, | 14 | 1000 | Unknown | | 02/21/2019 14:06 | Finished | LCS @5ppb, IWST-190221B |
| 15 | N034269-001A,SAMP | 16 | 1000 | Unknown | | 02/21/2019 14:18 | Finished | SAMP,10mL |
| 16 | N034271-001A,SAMP | 17 | 1000 | Unknown | | 02/21/2019 14:30 | Finished | SAMP,10mL |
| 17 | N034271-002A,SAMP | 18 | 1000 | Unknown | | 02/21/2019 14:39 | Finished | SAMP,10mL |
| 18 | N034104-009A,SAMP | 19 | 1000 | Unknown | | 02/21/2019 14:49 | Finished | SAMP,10mL |
| 19 | N034107-018A,SAMP | 20 | 1000 | Unknown | | 02/21/2019 14:58 | Finished | SAMP,2>10mL |
| 20 | N034269-001AMS,MS | 21 | 1000 | Unknown | | 02/21/2019 15:08 | Finished | SAMP,10mL |
| 21 | N034271-002AMS,MS | 22 | 1000 | Unknown | | 02/21/2019 15:17 | Finished | SAMP,10mL |
| 22 | N034271-001A,SAMP | 23 | 1000 | Unknown | | 02/21/2019 15:27 | Finished | SAMP,10mL |
| 23 | CCV-1,CCV1,1, | 24 | 1000 | Unknown | | 02/21/2019 15:36 | Finished | CCV @10ppb, IWST-190221A |
| 24 | CCB-1,CCB,1, | 25 | 1000 | Unknown | | 02/21/2019 15:46 | Finished | CCB R190115A |
| 25 | N034271-001AMS,MS | 26 | 1000 | Unknown | | 02/21/2019 15:55 | Interrupted | SAMP,2>10mL |
| 26 | N034269-001A,SAMP | 27 | 1000 | Unknown | | 02/21/2019 16:03 | Finished | SAMP,2>10mL |
| 27 | N034269-001AMS,MS | 28 | 1000 | Unknown | | 02/21/2019 16:14 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 28 | N034271-002A,SAMP | 29 | 1000 | Unknown | | 02/21/2019 16:24 | Finished | SAMP,2>10mL |
| 29 | N034271-002AMS,MS | 30 | 1000 | Unknown | | 02/21/2019 16:33 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 30 | N034104-009AMS,MS | 31 | 1000 | Unknown | | 02/21/2019 16:43 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034104-009AMSD,M | 32 | 1000 | Unknown | | 02/21/2019 16:52 | Finished | MSD (1ppb), IWST-190221B,10 |
| 32 | N034107-018ADUP,D | 33 | 1000 | Unknown | | 02/21/2019 17:02 | Finished | DUP,10mL |
| 33 | N034271-001AMS,MS | 34 | 1000 | Unknown | | 02/21/2019 17:11 | Finished | SAMP,10mL |
| 34 | N034271-002A,SAMP | 35 | 1000 | Unknown | | 02/21/2019 17:20 | Finished | SAMP,1>10mL |
| 35 | CCV-2,CCV,1, | 36 | 1000 | Unknown | | 02/21/2019 17:30 | Finished | CCV @5ppb, IWST-190221A |
| 36 | CCB-2,CCB,1, | 37 | 1000 | Unknown | | 02/21/2019 17:39 | Finished | CCB R190115A |
| 37 | N034271-002AMS,MS | 1 | 1000 | Unknown | | 02/21/2019 17:52 | Finished | MS (1ppb), IWST-190221B,1>1 |
| 38 | N034121-001A,SAMP | 2 | 1000 | Unknown | | 02/21/2019 18:03 | Finished | SAMP,10mL |
| 39 | N034121-002A,SAMP | 3 | 1000 | Unknown | | 02/21/2019 18:13 | Finished | SAMP,10mL |
| 40 | N034121-003A,SAMP | 4 | 1000 | Unknown | | 02/21/2019 18:22 | Finished | SAMP,10mL |
| 41 | N034121-004A,SAMP | 5 | 1000 | Unknown | | 02/21/2019 18:32 | Finished | SAMP,10mL |
| 42 | N034121-005A,SAMP | 6 | 1000 | Unknown | | 02/21/2019 18:41 | Finished | SAMP,10mL |
| 43 | N034121-006A,SAMP | 7 | 1000 | Unknown | | 02/21/2019 18:50 | Finished | SAMP,10mL |
| 44 | N034121-007A,SAMP | 8 | 1000 | Unknown | | 02/21/2019 19:00 | Finished | SAMP,10mL |
| 45 | N034121-008A,SAMP | 9 | 1000 | Unknown | | 02/21/2019 19:09 | Finished | SAMP,10mL |
| 46 | N034121-009A,SAMP | 10 | 1000 | Unknown | | 02/21/2019 19:19 | Finished | SAMP,10mL |
| 47 | CCV-3,CCV1,1, | 11 | 1000 | Unknown | | 02/21/2019 19:28 | Finished | CCV @10ppb, IWST-190221A |
| 48 | CCB-3,CCB,1, | 12 | 1000 | Unknown | | 02/21/2019 19:38 | Finished | CCB R190115A |
| 49 | N034121-010A,SAMP | 13 | 1000 | Unknown | | 02/21/2019 19:47 | Finished | SAMP,10mL |
| 50 | N034121-011A,SAMP | 14 | 1000 | Unknown | | 02/21/2019 19:57 | Finished | SAMP,10mL |
| 51 | N034121-008A,SAMP | 15 | 1000 | Unknown | | 02/21/2019 20:06 | Finished | SAMP,1>10mL |
| 52 | N034121-011A,SAMP | 16 | 1000 | Unknown | | 02/21/2019 20:16 | Finished | SAMP,1>10mL |
| 53 | CCV-4,CCV,1, | 17 | 1000 | Unknown | | 02/21/2019 20:25 | Finished | CCV @5ppb, IWST-190221A |
| 54 | CCB-4,CCB,1, | 18 | 1000 | Unknown | | 02/21/2019 20:35 | Finished | CCB R190115A |
| 55 | BLANK | 19 | 1000 | Unknown | | 02/21/2019 20:44 | Finished | BLANK |
| 56 | SHUTDOWN | 20 | 1000 | Unknown | | 02/21/2019 20:53 | Finished | |
| 57 | Eluent: R190219B | 21 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 58 | PCR: R190220A | 22 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

**INJECTION LOG: 190225A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/25/19 9:28 AM | Not Reported |
| 10 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/25/19 9:55 AM | Not Reported |
| 11 | CCV-1 | CCV | 1 | Hexavalent Chromium | 02/25/19 10:11 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/25/19 10:22 AM | Reported |
| 13 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/25/19 10:32 AM | Reported |
| 14 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/25/19 10:54 AM | Reported |
| 15 | MB-R132081 | MBLK | 1 | Hexavalent Chromium | 02/25/19 11:19 AM | Reported |
| 16 | LCS-R132081 | LCS | 1 | Hexavalent Chromium | 02/25/19 11:30 AM | Reported |
| 17 | N034295-001B | SAMP | 1 | Hexavalent Chromium | 02/25/19 11:49 AM | Reported |
| 18 | N034295-001BMS | MS | 1 | Hexavalent Chromium | 02/25/19 12:01 PM | Reported |
| 19 | N034295-001BMSD | MSD | 1 | Hexavalent Chromium | 02/25/19 12:10 PM | Reported |
| 20 | N034125-002A | SAMP | 1 | Hexavalent Chromium | 02/25/19 12:23 PM | Reported |
| 21 | N034125-002AMS | MS | 1 | Hexavalent Chromium | 02/25/19 12:34 PM | Reported |
| 22 | N034128-002A | SAMP | 1 | Hexavalent Chromium | 02/25/19 12:44 PM | Reported |
| 23 | N034128-002AMS | MS | 1 | Hexavalent Chromium | 02/25/19 12:53 PM | Reported |
| 24 | N034125-002ADUP | DUP | 1 | Hexavalent Chromium | 02/25/19 1:03 PM | Reported |
| 25 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 02/25/19 1:12 PM | Reported |
| 26 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/25/19 1:22 PM | Reported |
| 27 | N034129-001A | SAMP | 1 | Hexavalent Chromium | 02/25/19 1:34 PM | Reported |
| 28 | N034129-001AMS | MS | 1 | Hexavalent Chromium | 02/25/19 1:45 PM | Reported |
| 29 | N034129-002A | SAMP | 1 | Hexavalent Chromium | 02/25/19 1:55 PM | Reported |
| 30 | N034129-002AMS | MS | 1 | Hexavalent Chromium | 02/25/19 2:04 PM | Reported |
| 31 | N034129-003A | SAMP | 1 | Hexavalent Chromium | 02/25/19 2:13 PM | Reported |
| 32 | N034129-003AMS | MS | 1 | Hexavalent Chromium | 02/25/19 2:23 PM | Reported |
| 33 | N034129-004A | SAMP | 1 | Hexavalent Chromium | 02/25/19 2:32 PM | Reported |
| 34 | N034129-004AMS | MS | 1 | Hexavalent Chromium | 02/25/19 2:42 PM | Reported |
| 35 | N034129-005A | SAMP | 1 | Hexavalent Chromium | 02/25/19 2:51 PM | Reported |
| 36 | N034129-005AMS | MS | 1 | Hexavalent Chromium | 02/25/19 3:01 PM | Reported |
| 37 | CCV-3 | CCV | 1 | Hexavalent Chromium | 02/25/19 3:10 PM | Reported |
| 38 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/25/19 3:20 PM | Reported |
| 39 | N034089-005A | SAMP | 1 | Hexavalent Chromium | 02/25/19 3:32 PM | Not Reported |
| 40 | N034089-004AMS | MS | 1 | Hexavalent Chromium | 02/25/19 3:43 PM | Not Reported |
| 41 | N034090-006A | SAMP | 1 | Hexavalent Chromium | 02/25/19 3:52 PM | Not Reported |
| 42 | N034090-006AMS | MS | 1 | Hexavalent Chromium | 02/25/19 4:02 PM | Not Reported |

**INJECTION LOG: 190225A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034090-007A | SAMP | 1 | Hexavalent Chromium | 02/25/19 4:11 PM | Not Reported |
| 44 | N034090-007AMS | MS | 1 | Hexavalent Chromium | 02/25/19 4:21 PM | Not Reported |
| 45 | N034090-009A | SAMP | 1 | Hexavalent Chromium | 02/25/19 4:30 PM | Not Reported |
| 46 | N034090-009AMS | MS | 1 | Hexavalent Chromium | 02/25/19 4:40 PM | Not Reported |
| 47 | N034090-011A | SAMP | 1 | Hexavalent Chromium | 02/25/19 4:49 PM | Not Reported |
| 48 | N034090-011AMS | MS | 1 | Hexavalent Chromium | 02/25/19 4:58 PM | Not Reported |
| 49 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/25/19 5:08 PM | Reported |
| 50 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/25/19 5:17 PM | Reported |
| 51 | N034129-006A | SAMP | 1 | Hexavalent Chromium | 02/25/19 5:29 PM | Reported |
| 52 | N034129-006AMS | MS | 1 | Hexavalent Chromium | 02/25/19 5:39 PM | Reported |
| 53 | N034129-007A | SAMP | 1 | Hexavalent Chromium | 02/25/19 5:49 PM | Reported |
| 54 | N034129-007AMS | MS | 1 | Hexavalent Chromium | 02/25/19 5:58 PM | Reported |
| 55 | N034129-008A | SAMP | 1 | Hexavalent Chromium | 02/25/19 6:08 PM | Not Reported |
| 56 | N034129-008AMS | MS | 1 | Hexavalent Chromium | 02/25/19 6:17 PM | Not Reported |
| 57 | N034129-009A | SAMP | 1 | Hexavalent Chromium | 02/25/19 6:27 PM | Reported |
| 58 | N034129-009AMS | MS | 1 | Hexavalent Chromium | 02/25/19 6:36 PM | Reported |
| 59 | N034129-010A | SAMP | 1 | Hexavalent Chromium | 02/25/19 6:46 PM | Reported |
| 60 | N034129-010AMS | MS | 1 | Hexavalent Chromium | 02/25/19 6:55 PM | Reported |
| 61 | CCV-5 | CCV | 1 | Hexavalent Chromium | 02/25/19 7:05 PM | Reported |
| 62 | CCB-5 | CCB | 1 | Hexavalent Chromium | 02/25/19 7:14 PM | Reported |
| 63 | MB-H2O | MBLK | 1 | Hexavalent Chromium | 02/25/19 7:23 PM | Not Reported |
| 64 | LCS-H2O | LCS | 1 | Hexavalent Chromium | 02/25/19 7:33 PM | Not Reported |
| 65 | N034129-011A | SAMP | 1 | Hexavalent Chromium | 02/25/19 7:42 PM | Not Reported |
| 66 | N034129-011AMS | MS | 1 | Hexavalent Chromium | 02/25/19 7:52 PM | Not Reported |
| 67 | N034129-012A | SAMP | 1 | Hexavalent Chromium | 02/25/19 8:01 PM | Not Reported |
| 68 | N034129-012AMS | MS | 1 | Hexavalent Chromium | 02/25/19 8:11 PM | Not Reported |
| 69 | N034129-011ADUP | DUP | 1 | Hexavalent Chromium | 02/25/19 8:20 PM | Not Reported |
| 70 | N034129-011AMSD | MSD | 1 | Hexavalent Chromium | 02/25/19 8:30 PM | Not Reported |
| 71 | N034129-013A | SAMP | 1 | Hexavalent Chromium | 02/25/19 8:39 PM | Not Reported |
| 72 | N034129-013AMS | MS | 1 | Hexavalent Chromium | 02/25/19 8:49 PM | Not Reported |
| 73 | CCV-6 | CCV1 | 1 | Hexavalent Chromium | 02/25/19 8:58 PM | Not Reported |
| 74 | CCB-6 | CCB | 1 | Hexavalent Chromium | 02/25/19 9:08 PM | Not Reported |
| 75 | N034129-014A | SAMP | 1 | Hexavalent Chromium | 02/25/19 9:17 PM | Not Reported |
| 76 | N034129-014AMS | MS | 1 | Hexavalent Chromium | 02/25/19 9:26 PM | Not Reported |
| 77 | N034102-002A | SAMP | 1 | Hexavalent Chromium | 02/25/19 9:36 PM | Not Reported |
| 78 | N034102-002AMS | MS | 1 | Hexavalent Chromium | 02/25/19 9:45 PM | Not Reported |
| 79 | N034105-004A | SAMP | 1 | Hexavalent Chromium | 02/25/19 9:55 PM | Not Reported |
| 80 | N034105-004AMS | MS | 1 | Hexavalent Chromium | 02/25/19 10:04 PM | Not Reported |
| 81 | N034107-003A | SAMP | 1 | Hexavalent Chromium | 02/25/19 10:04 PM | Not Reported |
| 82 | N034107-003AMS | MS | 1 | Hexavalent Chromium | 02/25/19 10:04 PM | Not Reported |
| 83 | N034107-006A | SAMP | 1 | Hexavalent Chromium | 02/25/19 10:05 PM | Not Reported |
| 84 | N034107-006AMS | MS | 1 | Hexavalent Chromium | 02/25/19 10:05 PM | Not Reported |

**INJECTION LOG: 190225A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 85 | CCV-7 | CCV | 1 | Hexavalent Chromium | 02/25/19 10:05 PM | Not Reported |
| 86 | CCB-7 | CCB | 1 | Hexavalent Chromium | 02/25/19 10:05 PM | Not Reported |
| 87 | N034107-012A | SAMP | 1 | Hexavalent Chromium | 02/25/19 10:05 PM | Not Reported |
| 88 | N034107-012AMS | MS | 1 | Hexavalent Chromium | 02/25/19 10:05 PM | Not Reported |
| 89 | N034107-013A | SAMP | 1 | Hexavalent Chromium | 02/25/19 10:05 PM | Not Reported |
| 90 | N034107-013AMS | MS | 1 | Hexavalent Chromium | 02/25/19 10:05 PM | Not Reported |
| 91 | N034107-016A | SAMP | 1 | Hexavalent Chromium | 02/25/19 10:05 PM | Not Reported |
| 92 | N034107-016AMS | MS | 1 | Hexavalent Chromium | 02/25/19 10:05 PM | Not Reported |
| 93 | N034107-017A | SAMP | 1 | Hexavalent Chromium | 02/25/19 10:16 PM | Not Reported |
| 94 | N034107-017AMS | MS | 1 | Hexavalent Chromium | 02/25/19 10:26 PM | Not Reported |
| 95 | CCV-8 | CCV1 | 1 | Hexavalent Chromium | 02/25/19 10:35 PM | Not Reported |
| 96 | CCB-8 | CCB | 1 | Hexavalent Chromium | 02/25/19 10:45 PM | Not Reported |
| 97 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/25/19 10:54 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190225A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **26/Feb/19 10:21:40** |
| *No. of Injections:* | **100** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 1 | 1000 | Unknown | | 02/25/2019 09:28 | Finished | BLANK |
| 10 | BLANK | 1 | 1000 | Unknown | | 02/25/2019 09:55 | Finished | BLANK |
| 11 | CCV-1,CCV,1, | 2 | 1000 | Unknown | | 02/25/2019 10:11 | Finished | CCV @5ppb, IWST-190221B |
| 12 | PQL@0.2ppb,CCV2,1 | 3 | 1000 | Unknown | | 02/25/2019 10:22 | Finished | PQL @ 0.2ppb |
| 13 | CCB-1,CCB,1, | 4 | 1000 | Unknown | | 02/25/2019 10:32 | Finished | CCB R190115A |
| 14 | PQL@0.2ppb,CCV2,1 | 5 | 1000 | Unknown | | 02/25/2019 10:54 | Finished | PQL @ 0.2ppb |
| 15 | MB-H2O,MBLK,1, | 6 | 1000 | Unknown | | 02/25/2019 11:19 | Finished | MB R190115A |
| 16 | LCS-H2O,LCS,1, | 7 | 1000 | Unknown | | 02/25/2019 11:30 | Finished | LCS @5ppb, IWST-190221B |
| 17 | N034295-001B,SAMF | 8 | 1000 | Unknown | | 02/25/2019 11:49 | Finished | SAMP,10mL |
| 18 | N034295-001BMS,MS | 9 | 1000 | Unknown | | 02/25/2019 12:01 | Finished | MS (5ppb), IWST-190221B,10 |
| 19 | N034295-001BMSD,M | 10 | 1000 | Unknown | | 02/25/2019 12:10 | Finished | MSD (5ppb), IWST-190221B,1 |
| 20 | N034125-002A,SAMF | 11 | 1000 | Unknown | | 02/25/2019 12:23 | Finished | SAMP,10mL |
| 21 | N034125-002AMS,MS | 12 | 1000 | Unknown | | 02/25/2019 12:34 | Finished | SAMP,10mL |
| 22 | N034128-002A,SAMF | 13 | 1000 | Unknown | | 02/25/2019 12:44 | Finished | SAMP,1>10mL |
| 23 | N034128-002AMS,MS | 14 | 1000 | Unknown | | 02/25/2019 12:53 | Finished | DUP,1>10mL |
| 24 | N034125-002ADUP,D | 15 | 1000 | Unknown | | 02/25/2019 13:03 | Finished | MSD (1ppb), IWST-190221B,1 |
| 25 | CCV-2,CCV1,1, | 16 | 1000 | Unknown | | 02/25/2019 13:12 | Finished | CCV @10ppb, IWST-190221A |
| 26 | CCB-2,CCB,1, | 17 | 1000 | Unknown | | 02/25/2019 13:22 | Finished | CCB R190115A |
| 27 | N034129-001A,SAMF | 18 | 1000 | Unknown | | 02/25/2019 13:34 | Finished | SAMP,0.5>10mL |
| 28 | N034129-001AMS,MS | 19 | 1000 | Unknown | | 02/25/2019 13:45 | Finished | DUP,0.5>10mL |
| 29 | N034129-002A,SAMF | 20 | 1000 | Unknown | | 02/25/2019 13:55 | Finished | SAMP,0.2>10mL |
| 30 | N034129-002AMS,MS | 21 | 1000 | Unknown | | 02/25/2019 14:04 | Finished | MS (1ppb), IWST-190221B,0.2 |
| 31 | N034129-003A,SAMF | 22 | 1000 | Unknown | | 02/25/2019 14:13 | Finished | MS (1ppb), IWST-190221B,10 |
| 32 | N034129-003AMS,MS | 23 | 1000 | Unknown | | 02/25/2019 14:23 | Finished | MS (1ppb), IWST-190221B,10 |
| 33 | N034129-004A,SAMF | 24 | 1000 | Unknown | | 02/25/2019 14:32 | Finished | SAMP,2>10mL |
| 34 | N034129-004AMS,MS | 25 | 1000 | Unknown | | 02/25/2019 14:42 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 35 | N034129-005A,SAMF | 26 | 1000 | Unknown | | 02/25/2019 14:51 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 36 | N034129-005AMS,MS | 27 | 1000 | Unknown | | 02/25/2019 15:01 | Finished | SAMP,2>10mL |
| 37 | CCV-3,CCV,1, | 28 | 1000 | Unknown | | 02/25/2019 15:10 | Finished | CCV @5ppb, IWST-190221A |
| 38 | CCB-3,CCB,1, | 29 | 1000 | Unknown | | 02/25/2019 15:20 | Finished | CCB R190115A |
| 39 | N034089-005A,SAMF | 30 | 1000 | Unknown | | 02/25/2019 15:32 | Finished | SAMP,1>10mL |
| 40 | N034089-004AMS,MS | 31 | 1000 | Unknown | | 02/25/2019 15:43 | Finished | MS (1ppb), IWST-190221B,10 |
| 41 | N034090-006A,SAMF | 32 | 1000 | Unknown | | 02/25/2019 15:52 | Finished | SAMP,10mL |
| 42 | N034090-006AMS,MS | 33 | 1000 | Unknown | | 02/25/2019 16:02 | Finished | SAMP,2>10mL |
| 43 | N034090-007A,SAMF | 34 | 1000 | Unknown | | 02/25/2019 16:11 | Finished | SAMP,10mL |
| 44 | N034090-007AMS,MS | 35 | 1000 | Unknown | | 02/25/2019 16:21 | Finished | SAMP,10mL |
| 45 | N034090-009A,SAMF | 36 | 1000 | Unknown | | 02/25/2019 16:30 | Finished | SAMP,0.5>10mL |
| 46 | N034090-009AMS,MS | 37 | 1000 | Unknown | | 02/25/2019 16:40 | Finished | SAMP,0.5>10mL |
| 47 | N034090-011A,SAMF | 38 | 1000 | Unknown | | 02/25/2019 16:49 | Finished | SAMP,0.005>10mL |
| 48 | N034090-011AMS,MS | 39 | 1000 | Unknown | | 02/25/2019 16:58 | Finished | SAMP,0.2>10mL |
| 49 | CCV-4,CCV1,1, | 40 | 1000 | Unknown | | 02/25/2019 17:08 | Finished | CCV @10ppb, IWST-190221A |
| 50 | CCB-4,CCB,1, | 41 | 1000 | Unknown | | 02/25/2019 17:17 | Finished | CCB R190115A |
| 51 | N034129-006A,SAMF | 1 | 1000 | Unknown | | 02/25/2019 17:29 | Finished | MS (1ppb), IWST-190221B,10 |
| 52 | N034129-006AMS,MS | 2 | 1000 | Unknown | | 02/25/2019 17:39 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 53 | N034129-007A,SAMF | 3 | 1000 | Unknown | | 02/25/2019 17:49 | Finished | MS (5ppb), IWST-190221B,10 |
| 54 | N034129-007AMS,MS | 4 | 1000 | Unknown | | 02/25/2019 17:58 | Finished | MS (5ppb), IWST-190221B,10 |
| 55 | N034129-008A,SAMF | 5 | 1000 | Unknown | | 02/25/2019 18:08 | Finished | MS (5ppb), IWST-190221B,0.5 |
| 56 | N034129-008AMS,MS | 6 | 1000 | Unknown | | 02/25/2019 18:17 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 57 | N034129-009A,SAMF | 7 | 1000 | Unknown | | 02/25/2019 18:27 | Finished | SAMP,0.2>10mL |
| 58 | N034129-009AMS,MS | 8 | 1000 | Unknown | | 02/25/2019 18:36 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 59 | N034129-010A,SAMF | 9 | 1000 | Unknown | | 02/25/2019 18:46 | Finished | SAMP,0.0025>10mL |
| 60 | N034129-010AMS,MS | 10 | 1000 | Unknown | | 02/25/2019 18:55 | Finished | SAMP,10mL |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | CCV-5,CCV,1, | 11 | 1000 | Unknown | | 02/25/2019 19:05 | Finished | CCV @5ppb, IWST-190221A |
| 62 | CCB-5,CCB,1, | 12 | 1000 | Unknown | | 02/25/2019 19:14 | Finished | CCB R190115A |
| 63 | MB-H2O,MBLK,1, | 13 | 1000 | Unknown | | 02/25/2019 19:23 | Finished | SAMP,10mL |
| 64 | LCS-H2O,LCS,1, | 14 | 1000 | Unknown | | 02/25/2019 19:33 | Finished | MS (1ppb), IWST-190221B,10 |
| 65 | N034129-011A,SAMF | 15 | 1000 | Unknown | | 02/25/2019 19:42 | Finished | SAMP,10mL |
| 66 | N034129-011AMS,MS | 16 | 1000 | Unknown | | 02/25/2019 19:52 | Finished | MS (1ppb), IWST-190221B,10 |
| 67 | N034129-012A,SAMF | 17 | 1000 | Unknown | | 02/25/2019 20:01 | Finished | SAMP,10mL |
| 68 | N034129-012AMS,MS | 18 | 1000 | Unknown | | 02/25/2019 20:11 | Finished | MS (1ppb), IWST-190221B,10 |
| 69 | N034129-011ADUP,D | 19 | 1000 | Unknown | | 02/25/2019 20:20 | Finished | SAMP,10mL |
| 70 | N034129-011AMSD,M | 20 | 1000 | Unknown | | 02/25/2019 20:30 | Finished | MS (1ppb), IWST-190221B,10 |
| 71 | N034129-013A,SAMF | 21 | 1000 | Unknown | | 02/25/2019 20:39 | Finished | SAMP,10mL |
| 72 | N034129-013AMS,MS | 22 | 1000 | Unknown | | 02/25/2019 20:49 | Finished | MS (1ppb), IWST-190221B,10 |
| 73 | CCV-6,CCV1,1, | 23 | 1000 | Unknown | | 02/25/2019 20:58 | Finished | CCV @10ppb, IWST-190221A |
| 74 | CCB-6,CCB,1, | 24 | 1000 | Unknown | | 02/25/2019 21:08 | Finished | CCB R190115A |
| 75 | N034129-014A,SAMF | 25 | 1000 | Unknown | | 02/25/2019 21:17 | Finished | SAMP,10mL |
| 76 | N034129-014AMS,MS | 26 | 1000 | Unknown | | 02/25/2019 21:26 | Finished | MS (1ppb), IWST-190221B,10 |
| 77 | N034102-002A,SAMF | 27 | 1000 | Unknown | | 02/25/2019 21:36 | Finished | SAMP,10mL |
| 78 | N034102-002AMS,MS | 28 | 1000 | Unknown | | 02/25/2019 21:45 | Finished | MS (1ppb), IWST-190221B,10 |
| 79 | N034105-004A,SAMF | 29 | 1000 | Unknown | | 02/25/2019 21:55 | Finished | SAMP,10mL |
| 80 | N034105-004AMS,MS | 30 | 1000 | Unknown | | 02/25/2019 22:04 | Interrupted | MS (1ppb), IWST-190221B,10 |
| 81 | N034107-003A,SAMF | 31 | 1000 | Unknown | | 02/25/2019 22:04 | Interrupted | SAMP,10mL |
| 82 | N034107-003AMS,MS | 32 | 1000 | Unknown | | 02/25/2019 22:04 | Interrupted | MS (1ppb), IWST-190221B,10 |
| 83 | N034107-006A,SAMF | 33 | 1000 | Unknown | | 02/25/2019 22:05 | Interrupted | SAMP,10mL |
| 84 | N034107-006AMS,MS | 34 | 1000 | Unknown | | 02/25/2019 22:05 | Interrupted | MS (1ppb), IWST-190221B,10 |
| 85 | CCV-7,CCV,1, | 35 | 1000 | Unknown | | 02/25/2019 22:05 | Interrupted | CCV @5ppb, IWST-190221A |
| 86 | CCB-7,CCB,1, | 36 | 1000 | Unknown | | 02/25/2019 22:05 | Interrupted | CCB R190115A |
| 87 | N034107-012A,SAMF | 37 | 1000 | Unknown | | 02/25/2019 22:05 | Interrupted | SAMP,10mL |
| 88 | N034107-012AMS,MS | 38 | 1000 | Unknown | | 02/25/2019 22:05 | Interrupted | MS (1ppb), IWST-190221B,10 |
| 89 | N034107-013A,SAMF | 39 | 1000 | Unknown | | 02/25/2019 22:05 | Interrupted | SAMP,10mL |
| 90 | N034107-013AMS,MS | 40 | 1000 | Unknown | | 02/25/2019 22:05 | Interrupted | MS (1ppb), IWST-190221B,10 |
| 91 | N034107-016A,SAMF | 41 | 1000 | Unknown | | 02/25/2019 22:05 | Interrupted | SAMP,10mL |
| 92 | N034107-016AMS,MS | 42 | 1000 | Unknown | | 02/25/2019 22:05 | Finished | MS (1ppb), IWST-190221B,10 |
| 93 | N034107-017A,SAMF | 43 | 1000 | Unknown | | 02/25/2019 22:16 | Finished | SAMP,10mL |
| 94 | N034107-017AMS,MS | 44 | 1000 | Unknown | | 02/25/2019 22:26 | Finished | MS (1ppb), IWST-190221B,10 |
| 95 | CCV-8,CCV1,1, | 45 | 1000 | Unknown | | 02/25/2019 22:35 | Finished | CCV @10ppb, IWST-190221A |
| 96 | CCB-8,CCB,1, | 46 | 1000 | Unknown | | 02/25/2019 22:45 | Finished | CCB R190115A |
| 97 | BLANK | 47 | 1000 | Unknown | | 02/25/2019 22:54 | Finished | BLANK |
| 98 | SHUTDOWN | 48 | 1000 | Unknown | | 02/25/2019 23:04 | Finished | |
| 99 | Eluent: R190219B | 49 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 100 | PCR: R190220A | 50 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

**INJECTION LOG: 190226A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/26/19 8:52 AM | Not Reported |
| 10 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/26/19 9:13 AM | Not Reported |
| 11 | CCV-1 | CCV | 1 | Hexavalent Chromium | 02/26/19 9:23 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/26/19 9:33 AM | Reported |
| 13 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/26/19 9:42 AM | Reported |
| 14 | MB-R132121 | MBLK | 1 | Hexavalent Chromium | 02/26/19 9:59 AM | Reported |
| 15 | LCS-R132121 | LCS | 1 | Hexavalent Chromium | 02/26/19 10:10 AM | Reported |
| 16 | N034102-002A | SAMP | 5 | Hexavalent Chromium | 02/26/19 10:23 AM | Not Reported |
| 17 | N034102-002AMS | MS | 5 | Hexavalent Chromium | 02/26/19 10:34 AM | Not Reported |
| 18 | N034105-004A | SAMP | 1 | Hexavalent Chromium | 02/26/19 10:44 AM | Not Reported |
| 19 | N034105-004AMS | MS | 1 | Hexavalent Chromium | 02/26/19 10:53 AM | Not Reported |
| 20 | N034107-003A | SAMP | 50 | Hexavalent Chromium | 02/26/19 11:02 AM | Not Reported |
| 21 | N034107-003AMS | MS | 50 | Hexavalent Chromium | 02/26/19 11:12 AM | Not Reported |
| 22 | N034107-006A | SAMP | 50 | Hexavalent Chromium | 02/26/19 11:21 AM | Not Reported |
| 23 | N034107-006AMS | MS | 50 | Hexavalent Chromium | 02/26/19 11:31 AM | Not Reported |
| 24 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 02/26/19 11:40 AM | Reported |
| 25 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/26/19 11:50 AM | Reported |
| 26 | N034107-012A | SAMP | 1 | Hexavalent Chromium | 02/26/19 12:00 PM | Not Reported |
| 27 | N034107-012AMS | MS | 1 | Hexavalent Chromium | 02/26/19 12:11 PM | Not Reported |
| 28 | N034107-013A | SAMP | 1 | Hexavalent Chromium | 02/26/19 12:21 PM | Not Reported |
| 29 | N034107-013AMS | MS | 1 | Hexavalent Chromium | 02/26/19 12:30 PM | Not Reported |
| 30 | N034107-016A | SAMP | 1 | Hexavalent Chromium | 02/26/19 12:40 PM | Not Reported |
| 31 | N034107-016AMS | MS | 1 | Hexavalent Chromium | 02/26/19 12:49 PM | Not Reported |
| 32 | N034107-017A | SAMP | 1 | Hexavalent Chromium | 02/26/19 12:59 PM | Not Reported |
| 33 | N034107-017AMS | MS | 1 | Hexavalent Chromium | 02/26/19 1:08 PM | Not Reported |
| 34 | N034102-002AMS | MS | 5 | Hexavalent Chromium | 02/26/19 1:17 PM | Not Reported |
| 35 | N034105-004AMS | MS | 1 | Hexavalent Chromium | 02/26/19 1:27 PM | Not Reported |
| 36 | CCV-3 | CCV | 1 | Hexavalent Chromium | 02/26/19 1:36 PM | Reported |
| 37 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/26/19 1:46 PM | Reported |
| 38 | N034238-002B | SAMP | 1 | Hexavalent Chromium | 02/26/19 1:55 PM | Reported |
| 39 | N034238-002BMS | MS | 1 | Hexavalent Chromium | 02/26/19 2:05 PM | Reported |
| 40 | N034238-002BMSD | MSD | 1 | Hexavalent Chromium | 02/26/19 2:14 PM | Reported |
| 41 | N034107-012A | SAMP | 5 | Hexavalent Chromium | 02/26/19 2:24 PM | Reported |
| 42 | N034107-012AMS | MS | 5 | Hexavalent Chromium | 02/26/19 2:33 PM | Reported |

**INJECTION LOG: 190226A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034107-012ADUP | DUP | 5 | Hexavalent Chromium | 02/26/19 2:43 PM | Reported |
| 44 | N034107-006A | SAMP | 100 | Hexavalent Chromium | 02/26/19 2:52 PM | Reported |
| 45 | N034107-006AMS | MS | 100 | Hexavalent Chromium | 02/26/19 3:02 PM | Reported |
| 46 | N034129-008A | SAMP | 1 | Hexavalent Chromium | 02/26/19 3:11 PM | Reported |
| 47 | N034129-008AMS | MS | 1 | Hexavalent Chromium | 02/26/19 3:20 PM | Reported |
| 48 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/26/19 3:30 PM | Reported |
| 49 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/26/19 3:39 PM | Reported |
| 50 | N034129-011A | SAMP | 1 | Hexavalent Chromium | 02/26/19 3:49 PM | Reported |
| 51 | N034129-011AMS | MS | 1 | Hexavalent Chromium | 02/26/19 3:58 PM | Reported |
| 52 | N034129-012A | SAMP | 1 | Hexavalent Chromium | 02/26/19 4:08 PM | Reported |
| 53 | N034129-012AMS | MS | 1 | Hexavalent Chromium | 02/26/19 4:17 PM | Reported |
| 54 | N034129-013A | SAMP | 1 | Hexavalent Chromium | 02/26/19 4:27 PM | Reported |
| 55 | N034129-013AMS | MS | 1 | Hexavalent Chromium | 02/26/19 4:36 PM | Reported |
| 56 | N034129-014A | SAMP | 1 | Hexavalent Chromium | 02/26/19 4:46 PM | Reported |
| 57 | N034129-014AMS | MS | 1 | Hexavalent Chromium | 02/26/19 4:55 PM | Reported |
| 58 | N034121-006A | SAMP | 1 | Hexavalent Chromium | 02/26/19 5:05 PM | Reported |
| 59 | LCS-R132145 | LCS | 1 | Hexavalent Chromium | 02/26/19 5:14 PM | Reported |
| 60 | CCV-5 | CCV | 1 | Hexavalent Chromium | 02/26/19 5:25 PM | Reported |
| 61 | CCB-5 | CCB | 1 | Hexavalent Chromium | 02/26/19 5:36 PM | Reported |
| 62 | MB-R132145 | MBLK | 1 | Hexavalent Chromium | 02/26/19 5:46 PM | Reported |
| 63 | N034178-001A | SAMP | 1 | Hexavalent Chromium | 02/26/19 5:58 PM | Reported |
| 64 | N034178-001AMS | MS | 1 | Hexavalent Chromium | 02/26/19 6:07 PM | Reported |
| 65 | N034178-002A | SAMP | 1 | Hexavalent Chromium | 02/26/19 6:16 PM | Reported |
| 66 | N034178-002AMS | MS | 1 | Hexavalent Chromium | 02/26/19 6:26 PM | Reported |
| 67 | N034178-003A | SAMP | 1 | Hexavalent Chromium | 02/26/19 6:35 PM | Reported |
| 68 | N034178-003AMS | MS | 1 | Hexavalent Chromium | 02/26/19 6:45 PM | Reported |
| 69 | N034178-004A | SAMP | 1 | Hexavalent Chromium | 02/26/19 6:54 PM | Reported |
| 70 | N034178-004AMS | MS | 1 | Hexavalent Chromium | 02/26/19 7:04 PM | Reported |
| 71 | N034178-003AMSD | MSD | 1 | Hexavalent Chromium | 02/26/19 7:13 PM | Reported |
| 72 | CCV-6 | CCV1 | 1 | Hexavalent Chromium | 02/26/19 7:23 PM | Reported |
| 73 | CCB-6 | CCB | 1 | Hexavalent Chromium | 02/26/19 7:32 PM | Reported |
| 74 | N034178-005A | SAMP | 1 | Hexavalent Chromium | 02/26/19 7:42 PM | Reported |
| 75 | N034178-005AMS | MS | 1 | Hexavalent Chromium | 02/26/19 7:51 PM | Reported |
| 76 | N034178-006A | SAMP | 1 | Hexavalent Chromium | 02/26/19 8:01 PM | Reported |
| 77 | N034178-006AMS | MS | 1 | Hexavalent Chromium | 02/26/19 8:10 PM | Reported |
| 78 | N034178-007A | SAMP | 1 | Hexavalent Chromium | 02/26/19 8:19 PM | Reported |
| 79 | N034178-007AMS | MS | 1 | Hexavalent Chromium | 02/26/19 8:29 PM | Reported |
| 80 | N034178-008A | SAMP | 1 | Hexavalent Chromium | 02/26/19 8:38 PM | Reported |
| 81 | N034178-008AMS | MS | 1 | Hexavalent Chromium | 02/26/19 8:48 PM | Reported |
| 82 | N034178-006ADUP | DUP | 1 | Hexavalent Chromium | 02/26/19 8:57 PM | Reported |
| 83 | N034178-009A | SAMP | 1 | Hexavalent Chromium | 02/26/19 9:07 PM | Reported |
| 84 | CCV-7 | CCV | 1 | Hexavalent Chromium | 02/26/19 9:16 PM | Reported |

**INJECTION LOG: 190226A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 85 | CCB-7 | CCB | 1 | Hexavalent Chromium | 02/26/19 9:26 PM | Reported |
| 86 | N034178-009AMS | MS | 1 | Hexavalent Chromium | 02/26/19 9:35 PM | Reported |
| 87 | N034178-010A | SAMP | 1 | Hexavalent Chromium | 02/26/19 9:45 PM | Not Reported |
| 88 | N034178-010AMS | MS | 1 | Hexavalent Chromium | 02/26/19 9:54 PM | Not Reported |
| 89 | N034178-011A | SAMP | 5 | Hexavalent Chromium | 02/26/19 10:04 PM | Reported |
| 90 | N034178-011AMS | MS | 5 | Hexavalent Chromium | 02/26/19 10:13 PM | Reported |
| 91 | N034178-011A | SAMP | 1 | Hexavalent Chromium | 02/26/19 10:22 PM | Not Reported |
| 92 | N034178-011AMS | MS | 1 | Hexavalent Chromium | 02/26/19 10:32 PM | Not Reported |
| 93 | CCV-8 | CCV1 | 1 | Hexavalent Chromium | 02/26/19 10:41 PM | Reported |
| 94 | CCB-8 | CCB | 1 | Hexavalent Chromium | 02/26/19 10:51 PM | Reported |
| 95 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/26/19 11:00 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190226A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **27/Feb/19 00:09:44** |
| *No. of Injections:* | **98** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 1 | 1000 | Unknown | | 02/26/2019 08:52 | Finished | BLANK |
| 10 | BLANK | 1 | 1000 | Unknown | | 02/26/2019 09:13 | Finished | BLANK |
| 11 | CCV-1,CCV,1, | 2 | 1000 | Unknown | | 02/26/2019 09:23 | Finished | CCV @5ppb, IWST-190221B |
| 12 | PQL@0.2ppb,CCV2,1 | 3 | 1000 | Unknown | | 02/26/2019 09:33 | Finished | PQL @ 0.2ppb |
| 13 | CCB-1,CCB,1, | 4 | 1000 | Unknown | | 02/26/2019 09:42 | Finished | CCB R190115A |
| 14 | MB-H2O,MBLK,1, | 5 | 1000 | Unknown | | 02/26/2019 09:59 | Finished | MB R190115A |
| 15 | LCS-H2O,LCS,1, | 6 | 1000 | Unknown | | 02/26/2019 10:10 | Finished | LCS @5ppb, IWST-190221B |
| 16 | N034102-002A,SAMP | 7 | 1000 | Unknown | | 02/26/2019 10:23 | Finished | SAMP,2>10mL |
| 17 | N034102-002AMS,MS | 8 | 1000 | Unknown | | 02/26/2019 10:34 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 18 | N034105-004A,SAMP | 9 | 1000 | Unknown | | 02/26/2019 10:44 | Finished | SAMP,10mL |
| 19 | N034105-004AMS,MS | 10 | 1000 | Unknown | | 02/26/2019 10:53 | Finished | MS (5ppb), IWST-190221B,10 |
| 20 | N034107-003A,SAMP | 11 | 1000 | Unknown | | 02/26/2019 11:02 | Finished | SAMP,0.2>10mL |
| 21 | N034107-003AMS,MS | 12 | 1000 | Unknown | | 02/26/2019 11:12 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 22 | N034107-006A,SAMP | 13 | 1000 | Unknown | | 02/26/2019 11:21 | Finished | SAMP,0.2>10mL |
| 23 | N034107-006AMS,MS | 14 | 1000 | Unknown | | 02/26/2019 11:31 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 24 | CCV-2,CCV1,1, | 15 | 1000 | Unknown | | 02/26/2019 11:40 | Finished | CCV @10ppb, IWST-190221A |
| 25 | CCB-2,CCB,1, | 16 | 1000 | Unknown | | 02/26/2019 11:50 | Finished | CCB R190115A |
| 26 | N034107-012A,SAMP | 17 | 1000 | Unknown | | 02/26/2019 12:00 | Finished | SAMP,10mL |
| 27 | N034107-012AMS,MS | 18 | 1000 | Unknown | | 02/26/2019 12:11 | Finished | MS (5ppb), IWST-190221B,10 |
| 28 | N034107-013A,SAMP | 19 | 1000 | Unknown | | 02/26/2019 12:21 | Finished | SAMP,10mL |
| 29 | N034107-013AMS,MS | 20 | 1000 | Unknown | | 02/26/2019 12:30 | Finished | MS (5ppb), IWST-190221B,10 |
| 30 | N034107-016A,SAMP | 21 | 1000 | Unknown | | 02/26/2019 12:40 | Finished | SAMP,10mL |
| 31 | N034107-016AMS,MS | 22 | 1000 | Unknown | | 02/26/2019 12:49 | Finished | MS (5ppb), IWST-190221B,10 |
| 32 | N034107-017A,SAMP | 23 | 1000 | Unknown | | 02/26/2019 12:59 | Finished | SAMP,10mL |
| 33 | N034107-017AMS,MS | 24 | 1000 | Unknown | | 02/26/2019 13:08 | Finished | MS (5ppb), IWST-190221B,10 |
| 34 | N034102-002AMS,MS | 25 | 1000 | Unknown | | 02/26/2019 13:17 | Finished | SAMP,10mL |
| 35 | N034105-004AMS,MS | 26 | 1000 | Unknown | | 02/26/2019 13:27 | Finished | MS (5ppb), IWST-190221B,10 |
| 36 | CCV-3,CCV,1, | 27 | 1000 | Unknown | | 02/26/2019 13:36 | Finished | CCV @5ppb, IWST-190221A |
| 37 | CCB-3,CCB,1, | 28 | 1000 | Unknown | | 02/26/2019 13:46 | Finished | CCB R190115A |
| 38 | N034238-002B,SAMP | 29 | 1000 | Unknown | | 02/26/2019 13:55 | Finished | SAMP,1>10mL |
| 39 | N034238-002BMS,MS | 30 | 1000 | Unknown | | 02/26/2019 14:05 | Finished | MS (1ppb), IWST-190221B,10 |
| 40 | N034238-002BMSD,M | 31 | 1000 | Unknown | | 02/26/2019 14:14 | Finished | SAMP,10mL |
| 41 | N034107-012A,SAMP | 32 | 1000 | Unknown | | 02/26/2019 14:24 | Finished | SAMP,2>10mL |
| 42 | N034107-012AMS,MS | 33 | 1000 | Unknown | | 02/26/2019 14:33 | Finished | SAMP,10mL |
| 43 | N034107-012ADUP,D | 34 | 1000 | Unknown | | 02/26/2019 14:43 | Finished | SAMP,10mL |
| 44 | N034107-006A,SAMP | 35 | 1000 | Unknown | | 02/26/2019 14:52 | Finished | SAMP,0.5>10mL |
| 45 | N034107-006AMS,MS | 36 | 1000 | Unknown | | 02/26/2019 15:02 | Finished | SAMP,0.5>10mL |
| 46 | N034129-008A,SAMP | 37 | 1000 | Unknown | | 02/26/2019 15:11 | Finished | SAMP,0.005>10mL |
| 47 | N034129-008AMS,MS | 38 | 1000 | Unknown | | 02/26/2019 15:20 | Finished | SAMP,0.2>10mL |
| 48 | CCV-4,CCV1,1, | 39 | 1000 | Unknown | | 02/26/2019 15:30 | Finished | CCV @10ppb, IWST-190221A |
| 49 | CCB-4,CCB,1, | 40 | 1000 | Unknown | | 02/26/2019 15:39 | Finished | CCB R190115A |
| 50 | N034129-011A,SAMP | 41 | 1000 | Unknown | | 02/26/2019 15:49 | Finished | MS (1ppb), IWST-190221B,10 |
| 51 | N034129-011AMS,MS | 42 | 1000 | Unknown | | 02/26/2019 15:58 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 52 | N034129-012A,SAMP | 43 | 1000 | Unknown | | 02/26/2019 16:08 | Finished | MS (5ppb), IWST-190221B,10 |
| 53 | N034129-012AMS,MS | 44 | 1000 | Unknown | | 02/26/2019 16:17 | Finished | MS (5ppb), IWST-190221B,10 |
| 54 | N034129-013A,SAMP | 45 | 1000 | Unknown | | 02/26/2019 16:27 | Finished | MS (5ppb), IWST-190221B,0.5 |
| 55 | N034129-013AMS,MS | 46 | 1000 | Unknown | | 02/26/2019 16:36 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 56 | N034129-014A,SAMP | 47 | 1000 | Unknown | | 02/26/2019 16:46 | Finished | SAMP,0.2>10mL |
| 57 | N034129-014AMS,MS | 48 | 1000 | Unknown | | 02/26/2019 16:55 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 58 | N034121-006A,SAMP | 49 | 1000 | Unknown | | 02/26/2019 17:05 | Finished | SAMP,0.0025>10mL |
| 59 | LCS-H2O,LCS,1, | 50 | 1000 | Unknown | | 02/26/2019 17:14 | Finished | SAMP,10mL |
| 60 | CCV-5,CCV,1, | 1 | 1000 | Unknown | | 02/26/2019 17:25 | Finished | CCV @5ppb, IWST-190221A |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | CCB-5,CCB,1, | 2 | 1000 | Unknown | | 02/26/2019 17:36 | Finished | CCB R190115A |
| 62 | MB-H2O,MBLK,1, | 3 | 1000 | Unknown | | 02/26/2019 17:46 | Finished | SAMP,10mL |
| 63 | N034178-001A,SAMF | 4 | 1000 | Unknown | | 02/26/2019 17:58 | Finished | MS (1ppb), IWST-190221B,10 |
| 64 | N034178-001AMS,MS | 5 | 1000 | Unknown | | 02/26/2019 18:07 | Finished | SAMP,10mL |
| 65 | N034178-002A,SAMF | 6 | 1000 | Unknown | | 02/26/2019 18:16 | Finished | MS (1ppb), IWST-190221B,10 |
| 66 | N034178-002AMS,MS | 7 | 1000 | Unknown | | 02/26/2019 18:26 | Finished | SAMP,10mL |
| 67 | N034178-003A,SAMF | 8 | 1000 | Unknown | | 02/26/2019 18:35 | Finished | MS (1ppb), IWST-190221B,10 |
| 68 | N034178-003AMS,MS | 9 | 1000 | Unknown | | 02/26/2019 18:45 | Finished | SAMP,10mL |
| 69 | N034178-004A,SAMF | 10 | 1000 | Unknown | | 02/26/2019 18:54 | Finished | MS (1ppb), IWST-190221B,10 |
| 70 | N034178-004AMS,MS | 11 | 1000 | Unknown | | 02/26/2019 19:04 | Finished | SAMP,10mL |
| 71 | N034178-003AMSD,M | 12 | 1000 | Unknown | | 02/26/2019 19:13 | Finished | MS (1ppb), IWST-190221B,10 |
| 72 | CCV-6,CCV1,1, | 13 | 1000 | Unknown | | 02/26/2019 19:23 | Finished | CCV @10ppb, IWST-190221A |
| 73 | CCB-6,CCB,1, | 14 | 1000 | Unknown | | 02/26/2019 19:32 | Finished | CCB R190115A |
| 74 | N034178-005A,SAMF | 15 | 1000 | Unknown | | 02/26/2019 19:42 | Finished | SAMP,10mL |
| 75 | N034178-005AMS,MS | 16 | 1000 | Unknown | | 02/26/2019 19:51 | Finished | MS (1ppb), IWST-190221B,10 |
| 76 | N034178-006A,SAMF | 17 | 1000 | Unknown | | 02/26/2019 20:01 | Finished | SAMP,10mL |
| 77 | N034178-006AMS,MS | 18 | 1000 | Unknown | | 02/26/2019 20:10 | Finished | MS (1ppb), IWST-190221B,10 |
| 78 | N034178-007A,SAMF | 19 | 1000 | Unknown | | 02/26/2019 20:19 | Finished | SAMP,10mL |
| 79 | N034178-007AMS,MS | 20 | 1000 | Unknown | | 02/26/2019 20:29 | Finished | MS (1ppb), IWST-190221B,10 |
| 80 | N034178-008A,SAMF | 21 | 1000 | Unknown | | 02/26/2019 20:38 | Finished | SAMP,10mL |
| 81 | N034178-008AMS,MS | 22 | 1000 | Unknown | | 02/26/2019 20:48 | Finished | MS (1ppb), IWST-190221B,10 |
| 82 | N034178-006ADUP,D | 23 | 1000 | Unknown | | 02/26/2019 20:57 | Finished | SAMP,10mL |
| 83 | N034178-009A,SAMF | 24 | 1000 | Unknown | | 02/26/2019 21:07 | Finished | MS (1ppb), IWST-190221B,10 |
| 84 | CCV-7,CCV,1, | 25 | 1000 | Unknown | | 02/26/2019 21:16 | Finished | CCV @5ppb, IWST-190221A |
| 85 | CCB-7,CCB,1, | 26 | 1000 | Unknown | | 02/26/2019 21:26 | Finished | CCB R190115A |
| 86 | N034178-009AMS,MS | 27 | 1000 | Unknown | | 02/26/2019 21:35 | Finished | SAMP,10mL |
| 87 | N034178-010A,SAMF | 28 | 1000 | Unknown | | 02/26/2019 21:45 | Finished | MS (1ppb), IWST-190221B,10 |
| 88 | N034178-010AMS,MS | 29 | 1000 | Unknown | | 02/26/2019 21:54 | Finished | SAMP,10mL |
| 89 | N034178-011A,SAMF | 30 | 1000 | Unknown | | 02/26/2019 22:04 | Finished | MS (1ppb), IWST-190221B,10 |
| 90 | N034178-011AMS,MS | 31 | 1000 | Unknown | | 02/26/2019 22:13 | Finished | SAMP,10mL |
| 91 | N034178-011A,SAMF | 32 | 1000 | Unknown | | 02/26/2019 22:22 | Finished | SAMP,10mL |
| 92 | N034178-011AMS,MS | 33 | 1000 | Unknown | | 02/26/2019 22:32 | Finished | SAMP,10mL |
| 93 | CCV-8,CCV1,1, | 34 | 1000 | Unknown | | 02/26/2019 22:41 | Finished | CCV @10ppb, IWST-190221A |
| 94 | CCB-8,CCB,1, | 35 | 1000 | Unknown | | 02/26/2019 22:51 | Finished | CCB R190115A |
| 95 | BLANK | 36 | 1000 | Unknown | | 02/26/2019 23:00 | Finished | BLANK |
| 96 | SHUTDOWN | 37 | 1000 | Unknown | | 02/26/2019 23:10 | Finished | |
| 97 | Eluent: R190226B | 38 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 98 | PCR: R190226A | 39 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# SAMPLE PREPARATION LOG

# Hexavalent Chromium Preparation and Runlog

## Sample Preparation

Date Prepared: 2/14/19
Time Prepared: 1300
Prepared By: MG

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CINV-181102A
NH4OH + NH4SO4 eluent: R190223A
NH4OH + NH4SO4 buffer: R190115A

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | 1034129-1A | | | ~250mL | ~250mL | | |
| 2) | 2A | 9.60 | - | | | | |
| 3) | 2A | 9.53 | - | | | | |
| 4) | 2A | 9.55 | - | | | | |
| 5) | 3A | 9.56 | - | | | | |
| 6) | 3A | 9.61 | - | | | | |
| 7) | 3A | 9.57 | - | | | | |
| 8) | 4A | 9.57 | - | | | | |
| 9) | 4A | 9.58 | - | | | | |
| 10) | 4A | 9.55 | - | | | | |
| 11) | 5A | 9.58 | - | | | | |
| 12) | 5A | 9.59 | - | | | | |
| 13) | 5A | 9.59 | - | | | | |
| 14) | 6A | 9.55 | - | | | | |
| 15) | 6A | 9.60 | - | | | | |
| | 6A | 9.58 | - | - | - | | |

## Sample Preparation

Date Prepared: 2/14/19
Time Prepared: 1300
Prepared By: MG

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CINV-181102A
NH4OH + NH4SO4 eluent: R190223A
NH4OH + NH4SO4 buffer: R190115A

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | 1034129-7A | 9.57 | - | ~250mL | ~250mL | | |
| 2) | 7A | 9.55 | - | | | | |
| 3) | 7A | 9.55 | - | | | | |
| 4) | 8A | 9.48 | - | | | | |
| 5) | 8A | 9.58 | - | | | | |
| 6) | 8A | 9.54 | - | | | | |
| 7) | 9A | 9.53 | - | | | | |
| 8) | 9A | 9.48 | - | | | | |
| 9) | 9A | 9.55 | - | | | | |
| 10) | 10A | 9.57 | - | | | | |
| 11) | 10A | 9.54 | - | | | | |
| 12) | 10A | 9.48 | - | | | | |
| 13) | 11A | 9.55 | - | | | | |
| 14) | 11A | 9.53 | - | | | | |
| 15) | 11A | 9.58 | - | | | | |
| | 12A | 9.57 | - | - | - | | |

Logbook No. 15

# Hexavalent Chromium Preparation and Runlog

## Sample Preparation

Date Prepared: 2/14/19
Time Prepared: 1300
Prepared By: MG

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CNV-181102A
NH4OH + NH4SO4 eluent: R190223A
NH4OH + NH4SO4 buffer: R190115A

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | N034129 - 12A | 9.58 | - | ~250mL | ~250mL | | |
| 2) | 12A | 9.53 | - | | | | |
| 3) | 13A | 9.50 | - | | | | |
| 4) | 13A | 9.56 | - | | | | |
| 5) | 13A | 9.55 | - | | | | |
| 6) | 14A | 9.53 | - | | | | |
| 7) | 14A | 9.54 | - | | | | |
| 8) | 14A | 9.47 | - | | | | |
| 9) | | | | | | | |
| 10) | | | | | | | |
| 11) | | | | | | | |
| 12) | | | | | | | |
| 13) | | | | | | | |
| 14) | | | | | | | |
| 15) | | | | | | | |

## Sample Preparation

Date Prepared: 2/15/19
Time Prepared: 0900
Prepared By: HSG

Slope: 96.3%
pH4: 3.99
7: 7.04
10: 10.02

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CNV-181102A
NH4OH + NH4SO4 eluent: R190213A
NH4OH + NH4SO4 buffer: R190115A

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | N034159 - 001A | 9.65 | - | ~290mL | ~250mL | | |
| 2) | N034161 - 001A | 9.53 | - | | | | |
| 3) | N034162 - 002A | 9.52 | - | | | | |
| 4) | 3A | 9.54 | - | | | | |
| 5) | N034163 - 1A | 9.45 | - | | | | |
| 6) | N034164 - 2A | 9.65 | - | | | | |
| 7) | N034180 - 1A | 9.64 | - | | | | |
| 8) | 2A | 9.61 | - | | | | |
| 9) | 3A | 9.59 | - | | | | |
| 10) | 4A | 9.60 | - | | | | |
| 11) | 5A | 9.56 | - | | | | |
| 12) | 6A | 9.63 | - | | | | |
| 13) | N034181 - 1A | 9.38 | - | | | | |
| 14) | | | | | | | |
| 15) | | | | | | | |

Logbook No. 15

# INITIAL CALIBRATION DATA SUMMARY

**(EPA 218.6) - INITIAL CALIBRATION**

Instrument ID: IC-07
Date Calibrated: 2/21/2019

Initial Calibration:

| Hexavalent Chromium | STD1 | STD2 | STD3 | STD4 | STD5 | STD6 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0.2 | 1 | 5 | 10 | 15 | 20 | $R^2$ |
| Area,mAU*min | 0.0556 | 0.2392 | 1.2310 | 2.4655 | 3.7365 | 4.9505 | 1.0000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock | Working |
|---|---|---|
| Standard Concentration: | 1,000,000 PPB | 1,000 PPB |
| Standard ID: | ISST-170814H | IWST~~-181022C~~ |

190221A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

NS 2/27/2019
for HSG

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301465** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.015 | 0.20 | 5.000 | 0 | 100 | 95 | 105 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301467** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.223 | 0.20 | 0.2000 | 0 | 112 | 80 | 120 | | | | |

| Sample ID **CCV-2** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301478** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.182 | 0.20 | 10.00 | 0 | 102 | 95 | 105 | | | | |

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301490** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.089 | 0.20 | 5.000 | 0 | 102 | 95 | 105 | | | | |

| Sample ID **CCV-4** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301502** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.104 | 0.20 | 10.00 | 0 | 101 | 95 | 105 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCV-5** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301514** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.103 | 0.20 | 5.000 | 0 | 102 | 95 | 105 | | | | |

| Sample ID **ICV** | SampType: **ICV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3302084** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.126 | 0.20 | 5.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3302085** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.232 | 0.20 | 0.2000 | 0 | 116 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3302087** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.126 | 0.20 | 5.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3302088** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.232 | 0.20 | 0.2000 | 0 | 116 | 80 | 120 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3302090** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.994 | 0.20 | 5.000 | 0 | 99.9 | 95 | 105 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3302091** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.214 | 0.20 | 0.2000 | 0 | 107 | 80 | 120 | | | | |

| Sample ID **CCV-2** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3302095** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.193 | 0.20 | 10.00 | 0 | 102 | 95 | 105 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3302097** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.972 | 0.20 | 5.000 | 0 | 99.4 | 95 | 105 | | | | |

| Sample ID **CCV-4** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3302109** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 9.591 | 0.20 | 10.00 | 0 | 95.9 | 95 | 105 | | | | |

| Sample ID **CCV-5** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303216** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.955 | 0.20 | 5.000 | 0 | 99.1 | 95 | 105 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301466** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301479** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301491** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301503** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-5** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/25/2019** | SeqNo: **3301515** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132081** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132081** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3302086** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3302089** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3302092** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3302096** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3302098** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3302110** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCB-5** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132121** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132121** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303217** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# RETENTION TIME SUMMARY

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/25/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.106 | |
| CCV-1 | 4.090 | |
| CCV-2 | 4.098 | |
| CCV-3 | 4.098 | |
| CCV-4 | 4.098 | |
| CCV-5 | 4.098 | |

| | |
|---|---|
| **Average** | 4.096 |
| **Actual RT Window** | 4.016 - 4.176 |
| **Applied RT Window** | 3.896 - 4.296 |

| | | |
|---|---|---|
| MB-R132081 | N.A. | N.A. |
| LCS-R132081 | 4.098 | PASS |
| N034295-001B | 4.048 | PASS |
| N034295-001BMS | 4.048 | PASS |
| N034295-001BMSD | 4.048 | PASS |
| N034125-002A | 4.073 | PASS |
| N034125-002AMS | 4.098 | PASS |
| N034128-002A | 4.115 | PASS |
| N034128-002AMS | 4.098 | PASS |
| N034125-002ADUP | 4.098 | PASS |
| N034129-001A | 4.106 | PASS |
| N034129-001AMS | 4.106 | PASS |
| N034129-002A | 4.098 | PASS |
| N034129-002AMS | 4.090 | PASS |
| N034129-003A | 4.090 | PASS |
| N034129-003AMS | 4.090 | PASS |
| N034129-004A | 4.081 | PASS |
| N034129-004AMS | 4.098 | PASS |
| N034129-005A | 4.081 | PASS |
| N034129-005AMS | 4.090 | PASS |
| N034089-005A | 4.090 | PASS |
| N034089-004AMS | 4.090 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/25/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.106 | |
| CCV-1 | 4.090 | |
| CCV-2 | 4.098 | |
| CCV-3 | 4.098 | |
| CCV-4 | 4.098 | |
| CCV-5 | 4.098 | |
| **Average** | 4.096 | |
| **Actual RT Window** | 4.016 - 4.176 | |
| **Applied RT Window** | 3.896 - 4.296 | |
| N034090-006A | N.A. | N.A. |
| N034090-006AMS | 4.098 | PASS |
| N034090-007A | 4.073 | PASS |
| N034090-007AMS | 4.081 | PASS |
| N034090-009A | 4.090 | PASS |
| N034090-009AMS | 4.081 | PASS |
| N034090-011A | 4.098 | PASS |
| N034090-011AMS | 4.098 | PASS |
| N034129-006A | 4.090 | PASS |
| N034129-006AMS | 4.090 | PASS |
| N034129-007A | 4.090 | PASS |
| N034129-007AMS | 4.090 | PASS |
| N034129-008A | 4.090 | PASS |
| N034129-008AMS | 4.090 | PASS |
| N034129-009A | 4.081 | PASS |
| N034129-009AMS | 4.090 | PASS |
| N034129-010A | 4.081 | PASS |
| N034129-010AMS | 4.090 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/26/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.106 | |
| CCV-1 | 4.098 | |
| CCV-2 | 4.098 | |
| CCV-3 | 4.106 | |
| CCV-4 | 4.115 | |
| CCV-5 | 4.106 | |
| CCV-6 | 4.123 | |
| CCV-7 | 4.098 | |
| CCV-8 | 4.115 | |

| | |
|---|---|
| **Average** | 4.107 |
| **Actual RT Window** | 4.027 - 4.187 |
| **Applied RT Window** | 3.907 - 4.307 |

| | | |
|---|---|---|
| MB-R132121 | N.A. | N.A. |
| LCS-R132121 | 4.090 | PASS |
| N034102-002A | N.A. | N.A. |
| N034102-002AMS | 4.040 | PASS |
| N034105-004A | 4.056 | PASS |
| N034105-004AMS | 4.056 | PASS |
| N034107-003A | 4.098 | PASS |
| N034107-003AMS | 4.098 | PASS |
| N034107-006A | 4.098 | PASS |
| N034107-006AMS | 4.098 | PASS |
| N034107-012A | 4.090 | PASS |
| N034107-012AMS | 4.090 | PASS |
| N034107-013A | 4.073 | PASS |
| N034107-013AMS | 4.090 | PASS |
| N034107-016A | 4.090 | PASS |
| N034107-016AMS | 4.090 | PASS |
| N034107-017A | 4.090 | PASS |
| N034107-017AMS | 4.090 | PASS |
| N034102-002AMS | 4.048 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/26/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.106 | |
| CCV-1 | 4.098 | |
| CCV-2 | 4.098 | |
| CCV-3 | 4.106 | |
| CCV-4 | 4.115 | |
| CCV-5 | 4.106 | |
| CCV-6 | 4.123 | |
| CCV-7 | 4.098 | |
| CCV-8 | 4.115 | |
| **Average** | 4.107 | |
| **Actual RT Window** | 4.027 - 4.187 | |
| **Applied RT Window** | 3.907 - 4.307 | |
| N034105-004AMS | 4.065 | PASS |
| N034238-002B | 4.090 | PASS |
| N034238-002BMS | 4.098 | PASS |
| N034238-002BMSD | 4.098 | PASS |
| N034107-012A | 4.106 | PASS |
| N034107-012AMS | 4.106 | PASS |
| N034107-012ADUP | 4.098 | PASS |
| N034107-006A | 4.090 | PASS |
| N034107-006AMS | 4.115 | PASS |
| N034129-008A | 4.081 | PASS |
| N034129-008AMS | 4.090 | PASS |
| N034129-011A | 4.081 | PASS |
| N034129-011AMS | 4.090 | PASS |
| N034129-012A | 4.081 | PASS |
| N034129-012AMS | 4.090 | PASS |
| N034129-013A | 4.098 | PASS |
| N034129-013AMS | 4.090 | PASS |
| N034129-014A | 4.073 | PASS |
| N034129-014AMS | 4.090 | PASS |
| N034121-006A | 4.081 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/26/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.106 | |
| CCV-1 | 4.098 | |
| CCV-2 | 4.098 | |
| CCV-3 | 4.106 | |
| CCV-4 | 4.115 | |
| CCV-5 | 4.106 | |
| CCV-6 | 4.123 | |
| CCV-7 | 4.098 | |
| CCV-8 | 4.115 | |
| **Average** | 4.107 | |
| **Actual RT Window** | 4.027 - 4.187 | |
| **Applied RT Window** | 3.907 - 4.307 | |
| LCS-R132145 | 4.098 | PASS |
| MB-R132145 | N.A. | N.A. |
| N034178-001A | 4.098 | PASS |
| N034178-001AMS | 4.098 | PASS |
| N034178-002A | 4.081 | PASS |
| N034178-002AMS | 4.098 | PASS |
| N034178-003A | 4.040 | PASS |
| N034178-003AMS | 4.031 | PASS |
| N034178-004A | 4.031 | PASS |
| N034178-004AMS | 4.031 | PASS |
| N034178-003AMSD | 4.031 | PASS |
| N034178-005A | 4.073 | PASS |
| N034178-005AMS | 4.065 | PASS |
| N034178-006A | 3.981 | PASS |
| N034178-006AMS | 3.990 | PASS |
| N034178-007A | 4.023 | PASS |
| N034178-007AMS | 4.023 | PASS |
| N034178-008A | 4.106 | PASS |
| N034178-008AMS | 4.098 | PASS |
| N034178-006ADUP | 3.990 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/26/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.106 | |
| CCV-1 | 4.098 | |
| CCV-2 | 4.098 | |
| CCV-3 | 4.106 | |
| CCV-4 | 4.115 | |
| CCV-5 | 4.106 | |
| CCV-6 | 4.123 | |
| CCV-7 | 4.098 | |
| CCV-8 | 4.115 | |
| **Average** | 4.107 | |
| **Actual RT Window** | 4.027 - 4.187 | |
| **Applied RT Window** | 3.907 - 4.307 | |
| N034178-009A | 4.106 | PASS |
| N034178-009AMS | 4.090 | PASS |
| N034178-010A | N.A. | N.A. |
| N034178-010AMS | N.A. | N.A. |
| N034178-011A | N.A. | N.A. |
| N034178-011AMS | 4.073 | PASS |
| N034178-011A | N.A. | N.A. |
| N034178-011AMS | N.A. | N.A. |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

| Datafile | 170505 | 170508 | 170509 | 170510 | 170511 | 170512 | 170515 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte** | **#1** | **#2** | **#3** | **#4** | **#5** | **#6** | **#7** | **Spike Conc., mg/L** | **SD** | **$t_{(n-1)}$ value** | **MDL** | **PQL** | **Remarks** |
| Hexavalent Chromium | 0.1949 | 0.2135 | 0.1840 | 0.1828 | 0.2011 | 0.1936 | 0.1911 | 0.20 | 0.0105 | 3.143 | **0.0331** | **0.20** | OK,meets criteria |

Students' **t** Values at 99% CL

| # | $t_{(n-1)}$ |
|---|---|
| 10 | 2.821 |
| 9 | 2.896 |
| 8 | 2.998 |
| 7 | 3.143 |

## LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

| Compound | MDL | LOD Spike Conc., µg/L | LOD actual Conc., µg/L |
|---|---|---|---|
| Hexavalent Chromium | 0.0331 | 0.100 | 0.116 |

| Compound | PQL | PQL Spike Conc., µg/L | PQL actual Conc., µg/L | % Recovery |
|---|---|---|---|---|
| Hexavalent Chromium | 0.200 | 0.200 | 0.201 | **100** |

# RAW DATA

# INITIAL CALIBRATION

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 1:17 PM | Not Reported |
| 10 | ICV | ICV | 1 | Hexavalent Chromium | 02/21/19 1:28 PM | Reported |
| 11 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/21/19 1:37 PM | Reported |
| 12 | ICB | ICB | 1 | Hexavalent Chromium | 02/21/19 1:47 PM | Reported |
| 13 | MB-R132043 | MBLK | 1 | Hexavalent Chromium | 02/21/19 1:56 PM | Reported |
| 14 | LCS-R132043 | LCS | 1 | Hexavalent Chromium | 02/21/19 2:06 PM | Reported |
| 15 | N034269-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:18 PM | Not Reported |
| 16 | N034271-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:30 PM | Not Reported |
| 17 | N034271-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:39 PM | Not Reported |
| 18 | N034104-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:49 PM | Reported |
| 19 | N034107-018A | SAMP | 5 | Hexavalent Chromium | 02/21/19 2:58 PM | Reported |
| 20 | N034269-001AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:08 PM | Not Reported |
| 21 | N034271-002AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:17 PM | Not Reported |
| 22 | N034271-001A | SAMP | 100 | Hexavalent Chromium | 02/21/19 3:27 PM | Reported |
| 23 | CCV-1 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 3:36 PM | Reported |
| 24 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/21/19 3:46 PM | Reported |
| 25 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 3:55 PM | Not Reported |
| 26 | N034269-001A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:03 PM | Reported |
| 27 | N034269-001AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:14 PM | Reported |
| 28 | N034271-002A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:24 PM | Not Reported |
| 29 | N034271-002AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:33 PM | Not Reported |
| 30 | N034104-009AMS | MS | 1 | Hexavalent Chromium | 02/21/19 4:43 PM | Reported |
| 31 | N034104-009AMSD | MSD | 1 | Hexavalent Chromium | 02/21/19 4:52 PM | Reported |
| 32 | N034107-018ADUP | DUP | 5 | Hexavalent Chromium | 02/21/19 5:02 PM | Reported |
| 33 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 5:11 PM | Reported |
| 34 | N034271-002A | SAMP | 10 | Hexavalent Chromium | 02/21/19 5:20 PM | Not Reported |
| 35 | CCV-2 | CCV | 1 | Hexavalent Chromium | 02/21/19 5:30 PM | Reported |
| 36 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/21/19 5:39 PM | Reported |
| 37 | N034271-002AMS | MS | 10 | Hexavalent Chromium | 02/21/19 5:52 PM | Not Reported |
| 38 | N034121-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:03 PM | Reported |
| 39 | N034121-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:13 PM | Reported |
| 40 | N034121-003A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:22 PM | Reported |
| 41 | N034121-004A | SAMP | 50 | Hexavalent Chromium | 02/21/19 6:32 PM | Reported |
| 42 | N034121-005A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:41 PM | Reported |

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034121-006A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:50 PM | Reported |
| 44 | N034121-007A | SAMP | 20 | Hexavalent Chromium | 02/21/19 7:00 PM | Reported |
| 45 | N034121-008A | SAMP | 5 | Hexavalent Chromium | 02/21/19 7:09 PM | Not Reported |
| 46 | N034121-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:19 PM | Reported |
| 47 | CCV-3 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 7:28 PM | Reported |
| 48 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/21/19 7:38 PM | Reported |
| 49 | N034121-010A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:47 PM | Not Reported |
| 50 | N034121-011A | SAMP | 10 | Hexavalent Chromium | 02/21/19 7:57 PM | Reported |
| 51 | N034121-008A | SAMP | 10 | Hexavalent Chromium | 02/21/19 8:06 PM | Reported |
| 52 | N034121-011A | SAMP | 20 | Hexavalent Chromium | 02/21/19 8:16 PM | Not Reported |
| 53 | CCV-4 | CCV | 1 | Hexavalent Chromium | 02/21/19 8:25 PM | Reported |
| 54 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/21/19 8:35 PM | Reported |
| 55 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 8:44 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190221B** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **22/Feb/19 08:53:05** |
| *No. of Injections:* | **58** | *Updated By:* | **ics 5000** |

## Injection Details

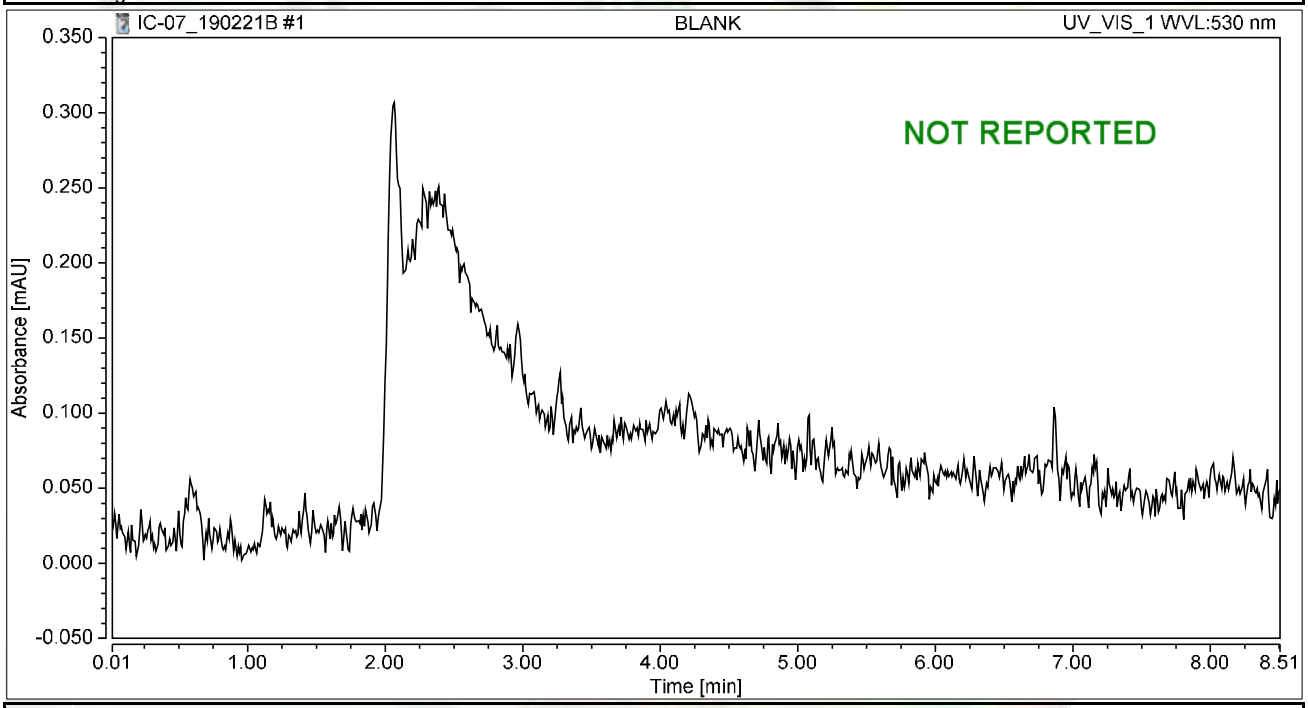
| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 9 | 1000 | Unknown | | 02/21/2019 13:17 | Finished | BLANK |
| 10 | ICV,ICV,1, | 10 | 1000 | Unknown | | 02/21/2019 13:28 | Finished | ICV @5ppb, IWST-190221B |
| 11 | PQL@0.2ppb,CCV2,1 | 11 | 1000 | Unknown | | 02/21/2019 13:37 | Finished | PQL @ 0.2ppb |
| 12 | ICB,ICB,1, | 12 | 1000 | Unknown | | 02/21/2019 13:47 | Finished | ICB R190115A |
| 13 | MB-H2O,MBLK,1, | 13 | 1000 | Unknown | | 02/21/2019 13:56 | Finished | MB R190115A |
| 14 | LCS-H2O,LCS,1, | 14 | 1000 | Unknown | | 02/21/2019 14:06 | Finished | LCS @5ppb, IWST-190221B |
| 15 | N034269-001A,SAMF | 16 | 1000 | Unknown | | 02/21/2019 14:18 | Finished | SAMP,10mL |
| 16 | N034271-001A,SAMF | 17 | 1000 | Unknown | | 02/21/2019 14:30 | Finished | SAMP,10mL |
| 17 | N034271-002A,SAMF | 18 | 1000 | Unknown | | 02/21/2019 14:39 | Finished | SAMP,10mL |
| 18 | N034104-009A,SAMF | 19 | 1000 | Unknown | | 02/21/2019 14:49 | Finished | SAMP,10mL |
| 19 | N034107-018A,SAMF | 20 | 1000 | Unknown | | 02/21/2019 14:58 | Finished | SAMP,2>10mL |
| 20 | N034269-001AMS,MS | 21 | 1000 | Unknown | | 02/21/2019 15:08 | Finished | SAMP,10mL |
| 21 | N034271-002AMS,MS | 22 | 1000 | Unknown | | 02/21/2019 15:17 | Finished | SAMP,10mL |
| 22 | N034271-001A,SAMF | 23 | 1000 | Unknown | | 02/21/2019 15:27 | Finished | SAMP,10mL |
| 23 | CCV-1,CCV1,1, | 24 | 1000 | Unknown | | 02/21/2019 15:36 | Finished | CCV @10ppb, IWST-190221A |
| 24 | CCB-1,CCB,1, | 25 | 1000 | Unknown | | 02/21/2019 15:46 | Finished | CCB R190115A |
| 25 | N034271-001AMS,MS | 26 | 1000 | Unknown | | 02/21/2019 15:55 | Interrupted | SAMP,2>10mL |
| 26 | N034269-001A,SAMF | 27 | 1000 | Unknown | | 02/21/2019 16:03 | Finished | SAMP,2>10mL |
| 27 | N034269-001AMS,MS | 28 | 1000 | Unknown | | 02/21/2019 16:14 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 28 | N034271-002A,SAMF | 29 | 1000 | Unknown | | 02/21/2019 16:24 | Finished | SAMP,2>10mL |
| 29 | N034271-002AMS,MS | 30 | 1000 | Unknown | | 02/21/2019 16:33 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 30 | N034104-009AMS,MS | 31 | 1000 | Unknown | | 02/21/2019 16:43 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034104-009AMSD,M | 32 | 1000 | Unknown | | 02/21/2019 16:52 | Finished | MSD (1ppb), IWST-190221B,10 |
| 32 | N034107-018ADUP,D | 33 | 1000 | Unknown | | 02/21/2019 17:02 | Finished | DUP,10mL |
| 33 | N034271-001AMS,MS | 34 | 1000 | Unknown | | 02/21/2019 17:11 | Finished | SAMP,10mL |
| 34 | N034271-002A,SAMF | 35 | 1000 | Unknown | | 02/21/2019 17:20 | Finished | SAMP,1>10mL |
| 35 | CCV-2,CCV,1, | 36 | 1000 | Unknown | | 02/21/2019 17:30 | Finished | CCV @5ppb, IWST-190221A |
| 36 | CCB-2,CCB,1, | 37 | 1000 | Unknown | | 02/21/2019 17:39 | Finished | CCB R190115A |
| 37 | N034271-002AMS,MS | 1 | 1000 | Unknown | | 02/21/2019 17:52 | Finished | MS (1ppb), IWST-190221B,1>1 |
| 38 | N034121-001A,SAMF | 2 | 1000 | Unknown | | 02/21/2019 18:03 | Finished | SAMP,10mL |
| 39 | N034121-002A,SAMF | 3 | 1000 | Unknown | | 02/21/2019 18:13 | Finished | SAMP,10mL |
| 40 | N034121-003A,SAMF | 4 | 1000 | Unknown | | 02/21/2019 18:22 | Finished | SAMP,10mL |
| 41 | N034121-004A,SAMF | 5 | 1000 | Unknown | | 02/21/2019 18:32 | Finished | SAMP,10mL |
| 42 | N034121-005A,SAMF | 6 | 1000 | Unknown | | 02/21/2019 18:41 | Finished | SAMP,10mL |
| 43 | N034121-006A,SAMF | 7 | 1000 | Unknown | | 02/21/2019 18:50 | Finished | SAMP,10mL |
| 44 | N034121-007A,SAMF | 8 | 1000 | Unknown | | 02/21/2019 19:00 | Finished | SAMP,10mL |
| 45 | N034121-008A,SAMF | 9 | 1000 | Unknown | | 02/21/2019 19:09 | Finished | SAMP,10mL |
| 46 | N034121-009A,SAMF | 10 | 1000 | Unknown | | 02/21/2019 19:19 | Finished | SAMP,10mL |
| 47 | CCV-3,CCV1,1, | 11 | 1000 | Unknown | | 02/21/2019 19:28 | Finished | CCV @10ppb, IWST-190221A |
| 48 | CCB-3,CCB,1, | 12 | 1000 | Unknown | | 02/21/2019 19:38 | Finished | CCB R190115A |
| 49 | N034121-010A,SAMF | 13 | 1000 | Unknown | | 02/21/2019 19:47 | Finished | SAMP,10mL |
| 50 | N034121-011A,SAMF | 14 | 1000 | Unknown | | 02/21/2019 19:57 | Finished | SAMP,10mL |
| 51 | N034121-008A,SAMF | 15 | 1000 | Unknown | | 02/21/2019 20:06 | Finished | SAMP,1>10mL |
| 52 | N034121-011A,SAMF | 16 | 1000 | Unknown | | 02/21/2019 20:16 | Finished | SAMP,1>10mL |
| 53 | CCV-4,CCV,1, | 17 | 1000 | Unknown | | 02/21/2019 20:25 | Finished | CCV @5ppb, IWST-190221A |
| 54 | CCB-4,CCB,1, | 18 | 1000 | Unknown | | 02/21/2019 20:35 | Finished | CCB R190115A |
| 55 | BLANK | 19 | 1000 | Unknown | | 02/21/2019 20:44 | Finished | BLANK |
| 56 | SHUTDOWN | 20 | 1000 | Unknown | | 02/21/2019 20:53 | Finished | |
| 57 | Eluent: R190219B | 21 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 58 | PCR: R190220A | 22 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 11:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

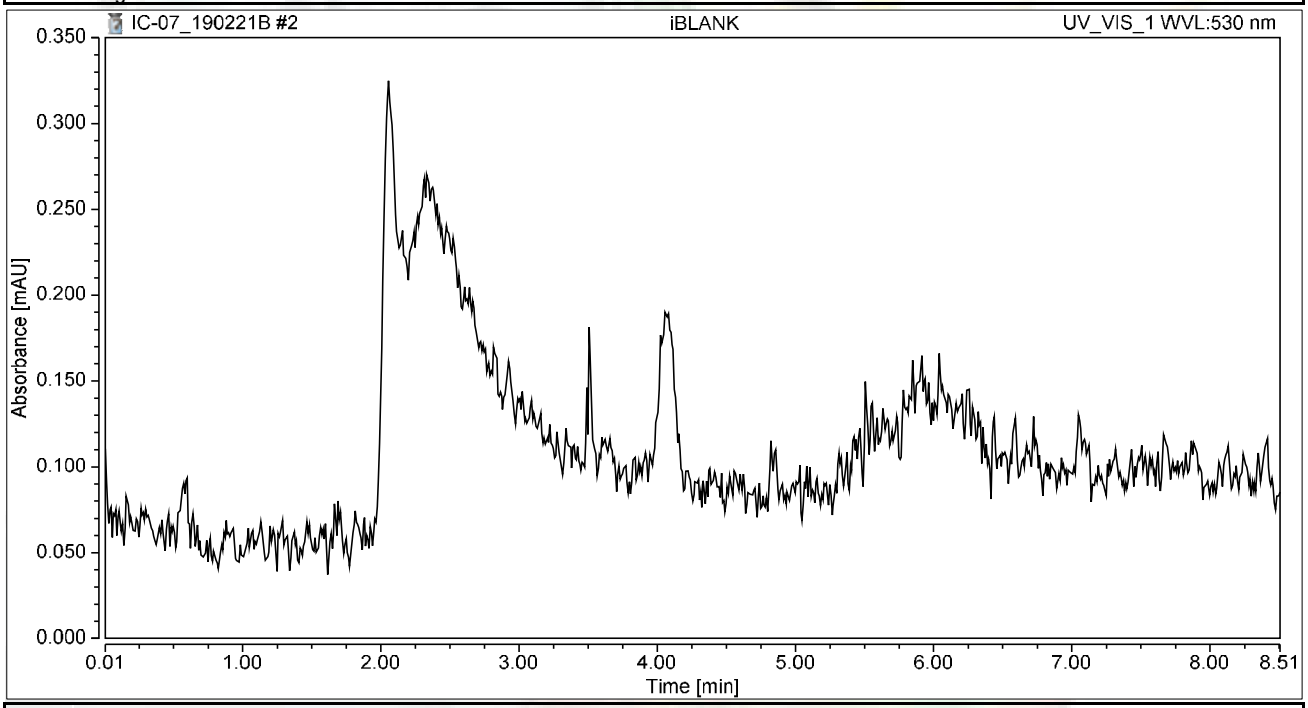
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **iBLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:04** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

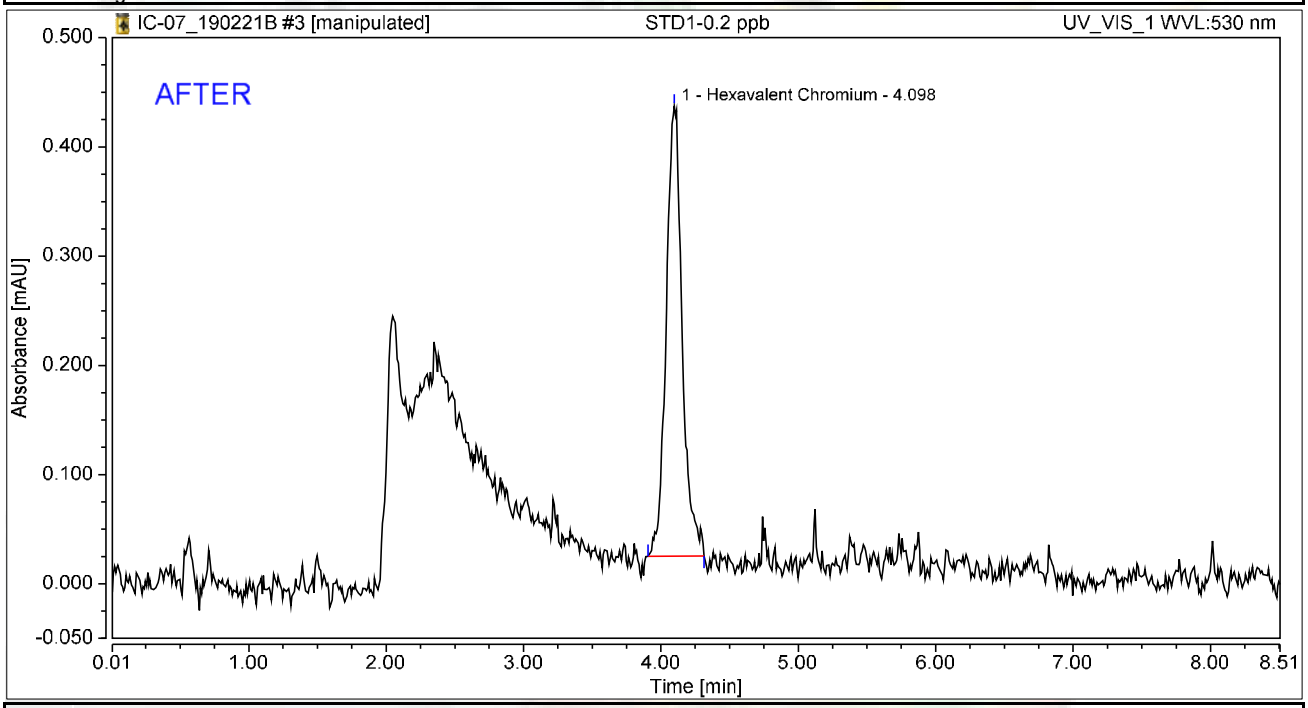
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD1-0.2 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **01** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.056 | 0.412 | 100.00 | 100.00 | 0.2243 |
| **Total:** | | | **0.056** | **0.412** | **100.00** | **100.00** | |

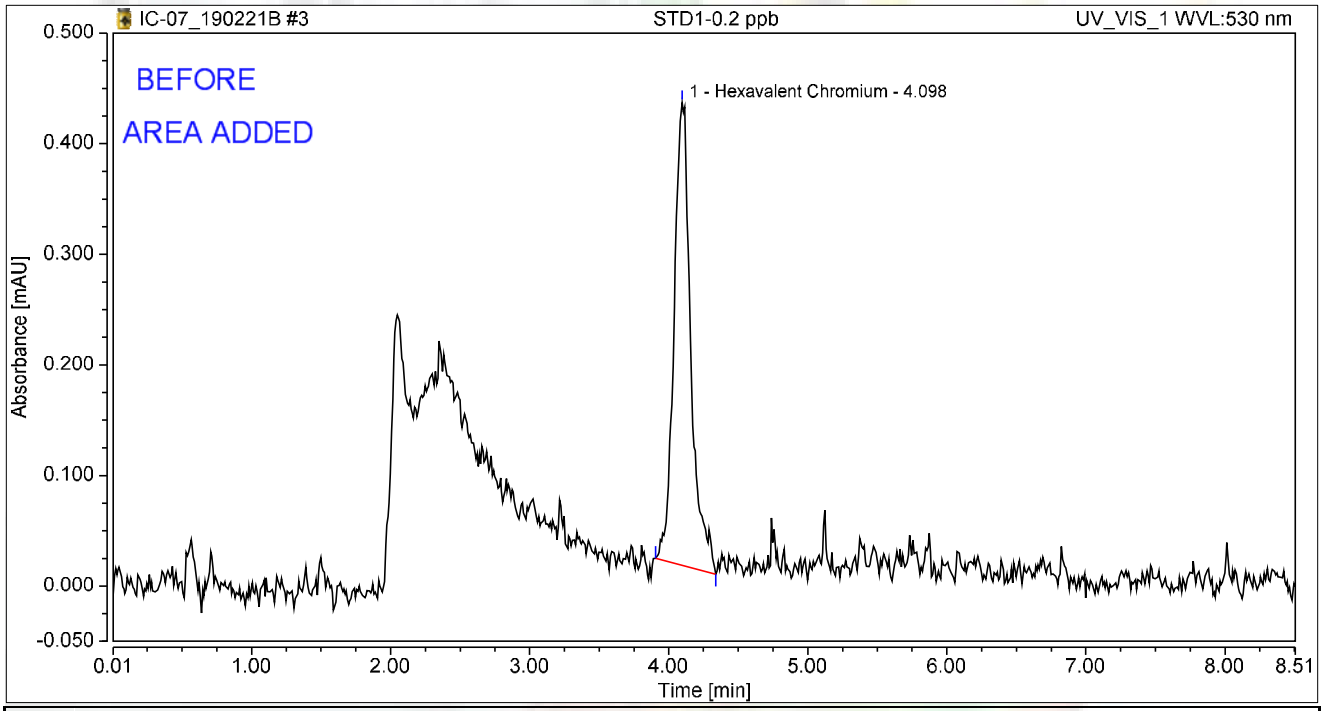
Reviewed by:
Nancy 2/28/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD1-0.2 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **01** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

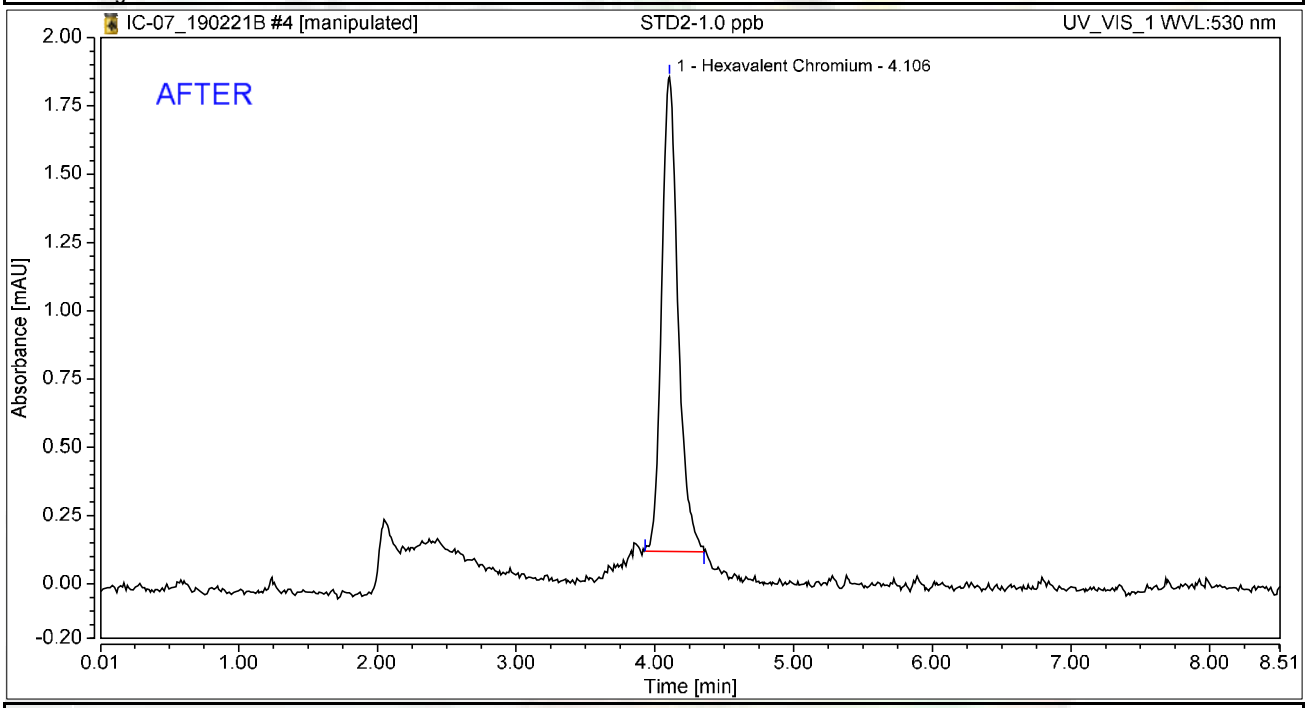
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.059 | 0.418 | 100.00 | 100.00 | 0.2356 |
| **Total:** | | | **0.059** | **0.418** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

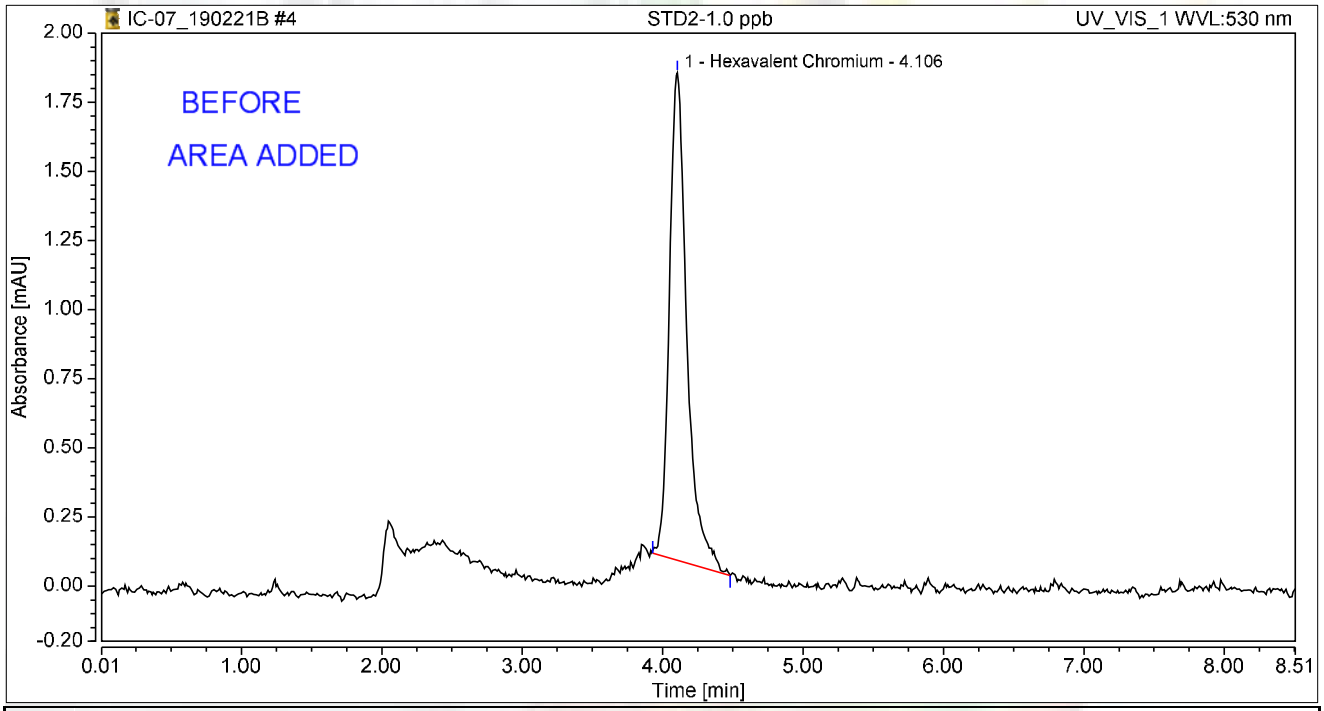
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.239 | 1.738 | 100.00 | 100.00 | 0.9651 |
| **Total:** | | | **0.239** | **1.738** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

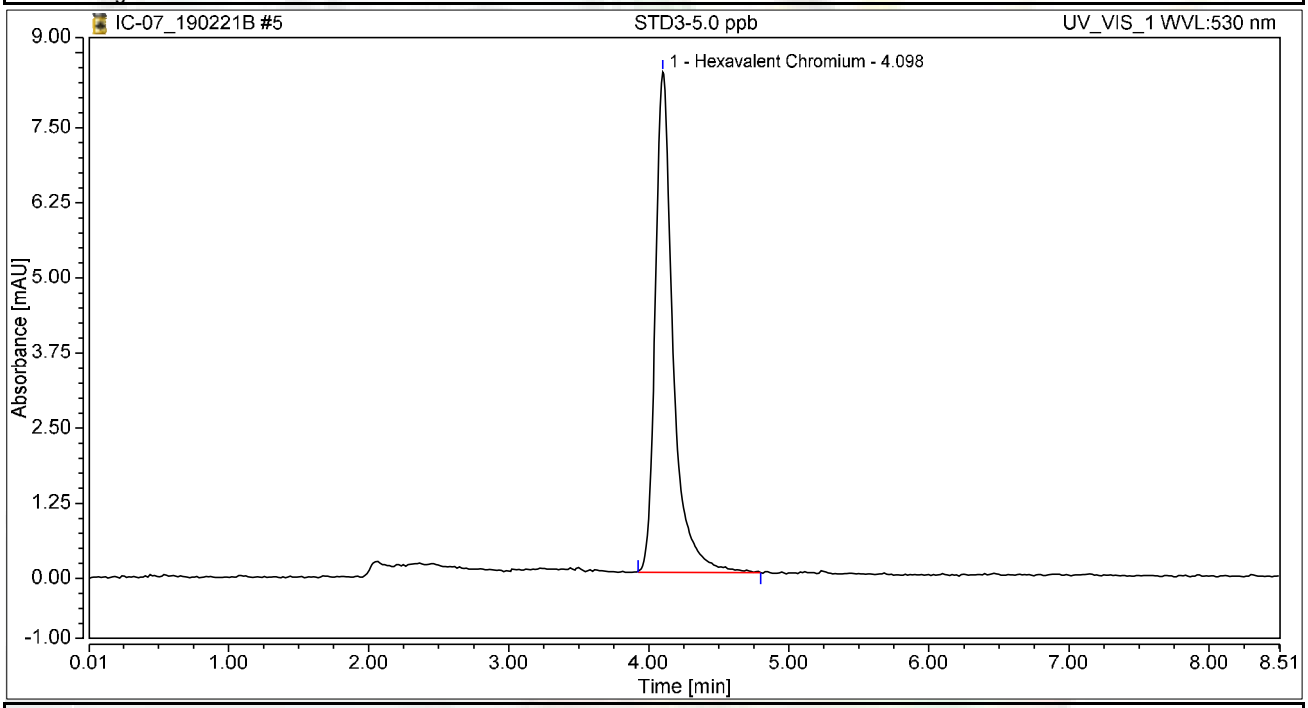
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.255 | 1.763 | 100.00 | 100.00 | 1.0261 |
| **Total:** | | | **0.255** | **1.763** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD3-5.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **03** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

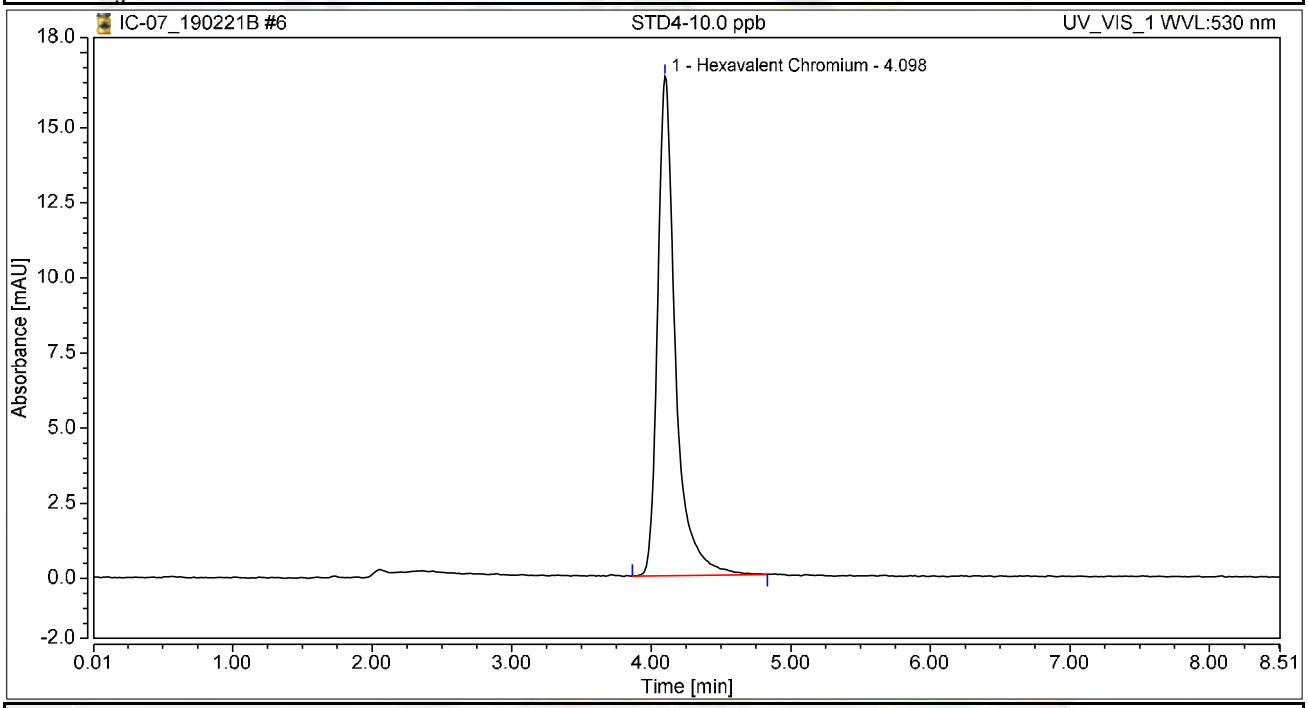
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.231 | 8.323 | 100.00 | 100.00 | 4.9676 |
| **Total:** | | | **1.231** | **8.323** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD4-10.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **04** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

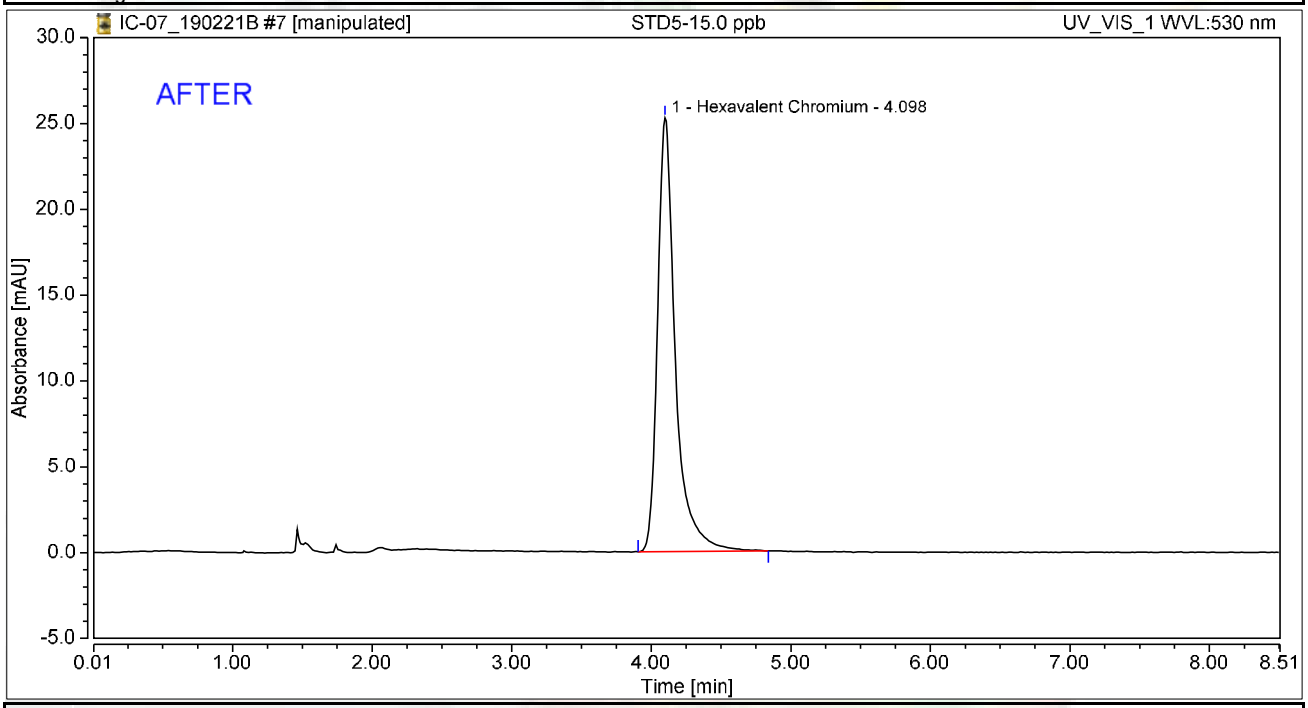
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.466 | 16.618 | 100.00 | 100.00 | 9.9491 |
| **Total:** | | | **2.466** | **16.618** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

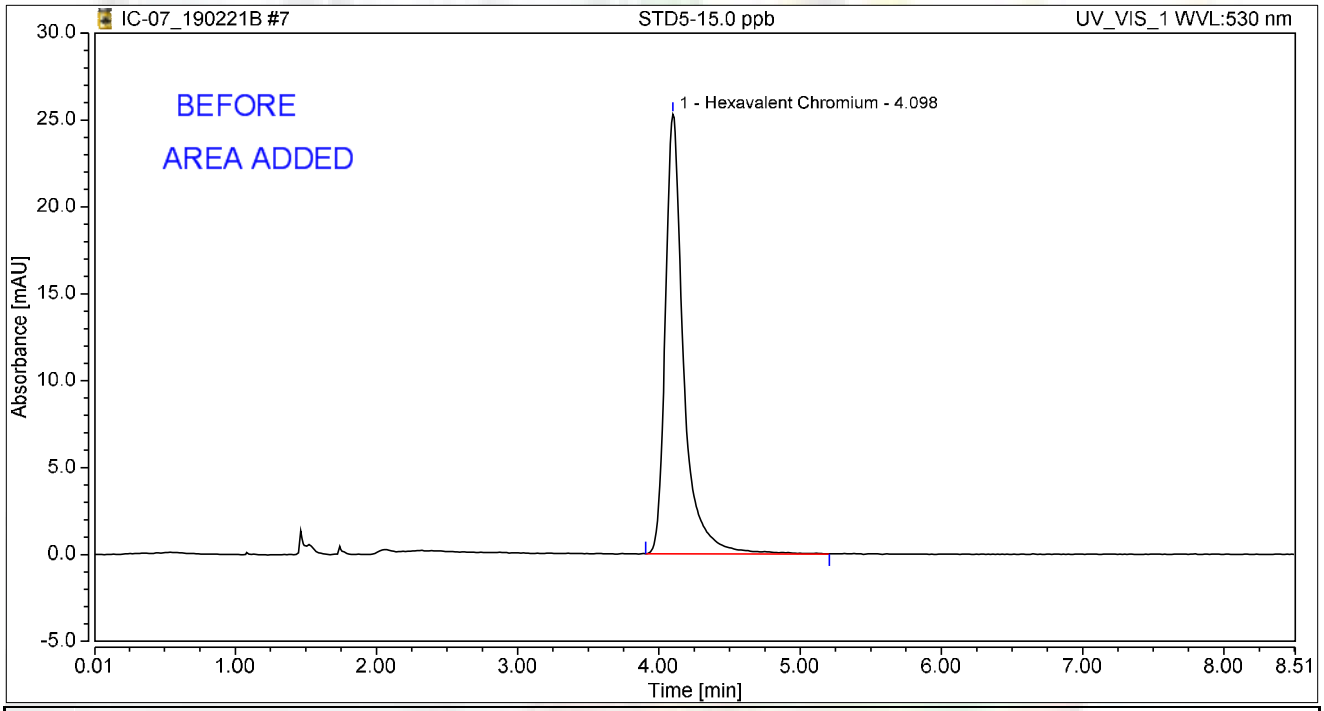
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 3.736 | 25.276 | 100.00 | 100.00 | 15.0777 |
| **Total:** | | | **3.736** | **25.276** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

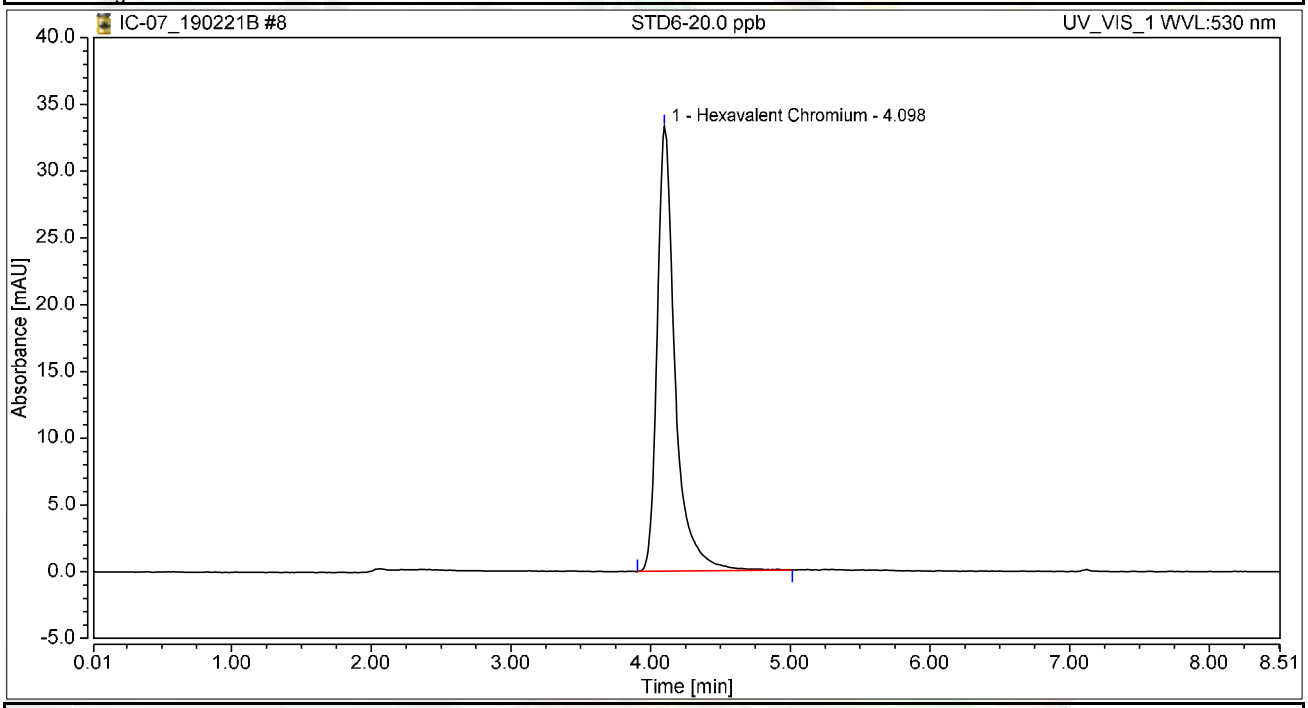
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 3.784 | 25.291 | 100.00 | 100.00 | 15.2098 |
| **Total:** | | | **3.784** | **25.291** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD6-20.0 ppb** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **06** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:03** | *Sample Weight:* | **1.0000** |

## Chromatogram



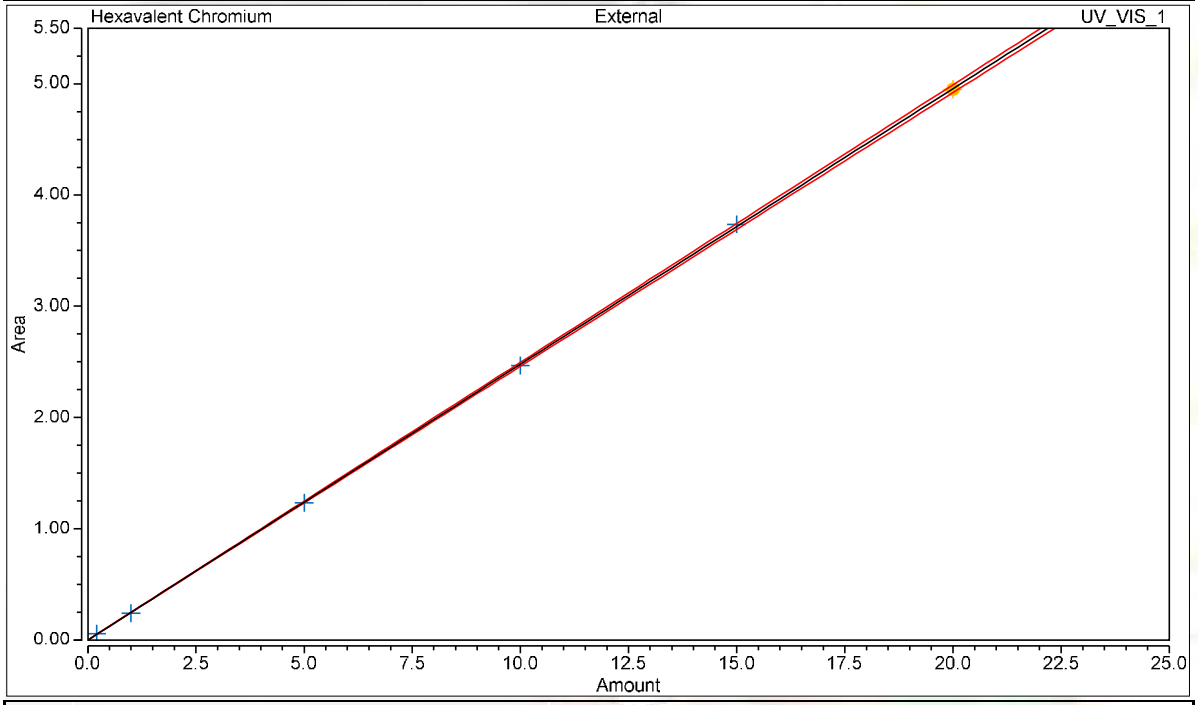

## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 4.951 | 33.317 | 100.00 | 100.00 | 19.9768 |
| **Total:** | | | **4.951** | **33.317** | **100.00** | **100.00** | |

# Initial Calibration Summary

| Calibration Details | Hexavalent Chromium | | |
|---|---|---|---|
| *Calibration Type* | Lin | *Offset (C0)* | 0.0000 |
| *Evaluation Type* | Area | *Slope (C1)* | 0.2478 |
| *Number of Calibration Points* | 6 | *Curve (C2)* | 0.0000 |
| *Number of disabled Calibration Points* | 0 | *R-Square* | 0.99996 |

Calibration Plot Hexavalent Chromium




Calibration Results Hexavalent Chromium

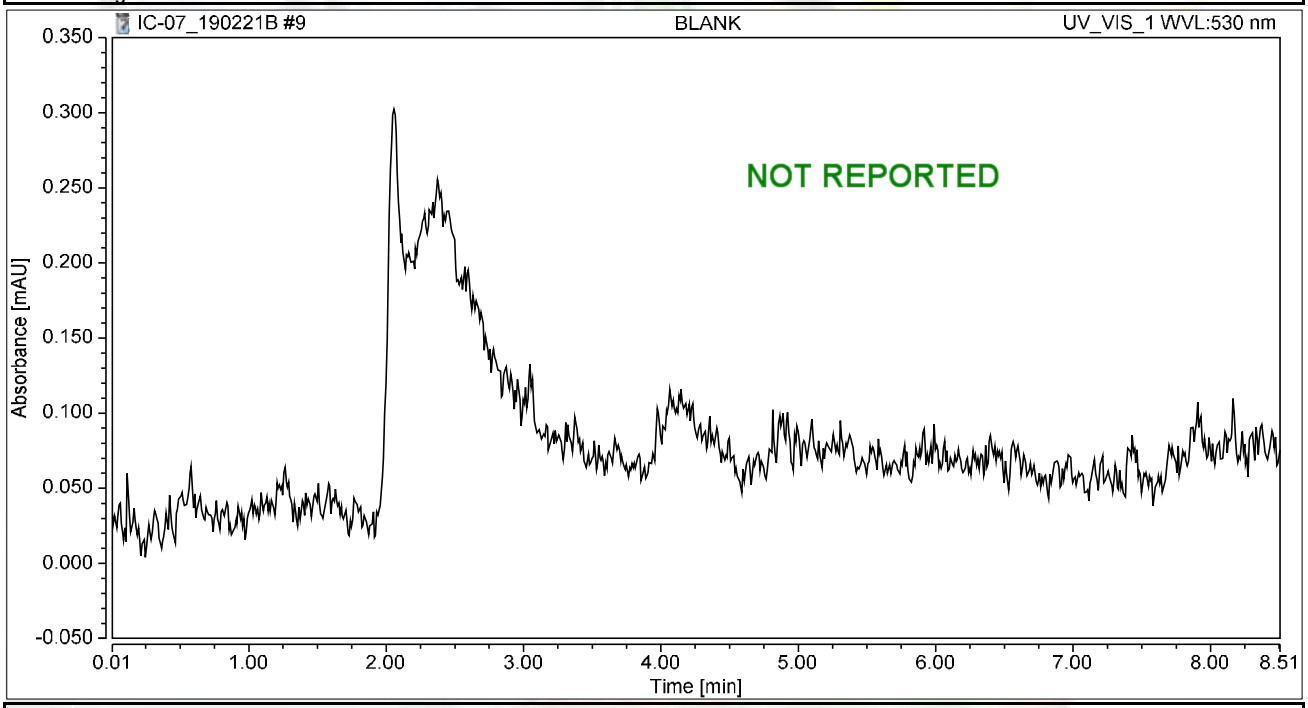
| No. | Injection Name | Calibration Level | X Value | Y Value | Area mAU*min | Height mAU |
|---|---|---|---|---|---|---|
| 3 | STD1-0.2 ppb | 01 | 0.2000 | 0.0556 | 0.056 | 0.412 |
| 4 | STD2-1.0 ppb | 02 | 1.0000 | 0.2392 | 0.239 | 1.738 |
| 5 | STD3-5.0 ppb | 03 | 5.0000 | 1.2310 | 1.231 | 8.323 |
| 6 | STD4-10.0 ppb | 04 | 10.0000 | 2.4655 | 2.466 | 16.618 |
| 7 | STD5-15.0 ppb | 05 | 15.0000 | 3.7365 | 3.736 | 25.276 |
| 8 | STD6-20.0 ppb | 06 | 20.0000 | 4.9505 | 4.951 | 33.317 |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

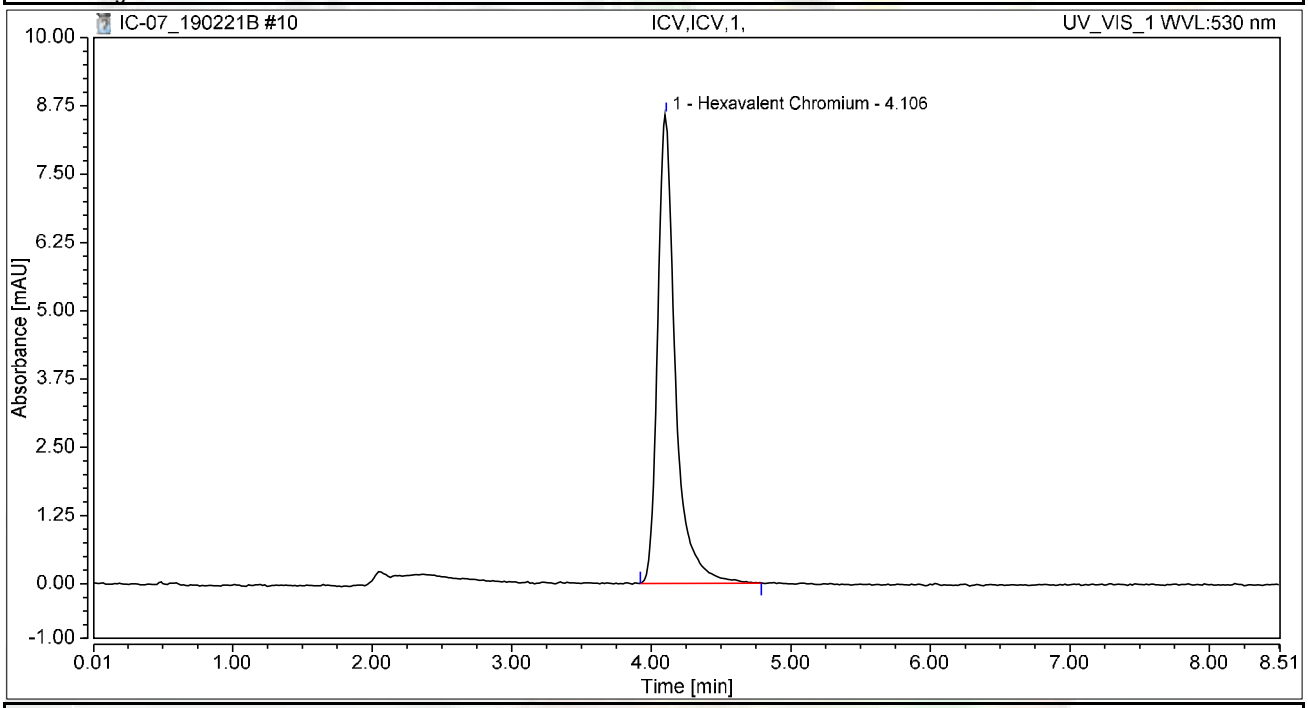
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICV,ICV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:28** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

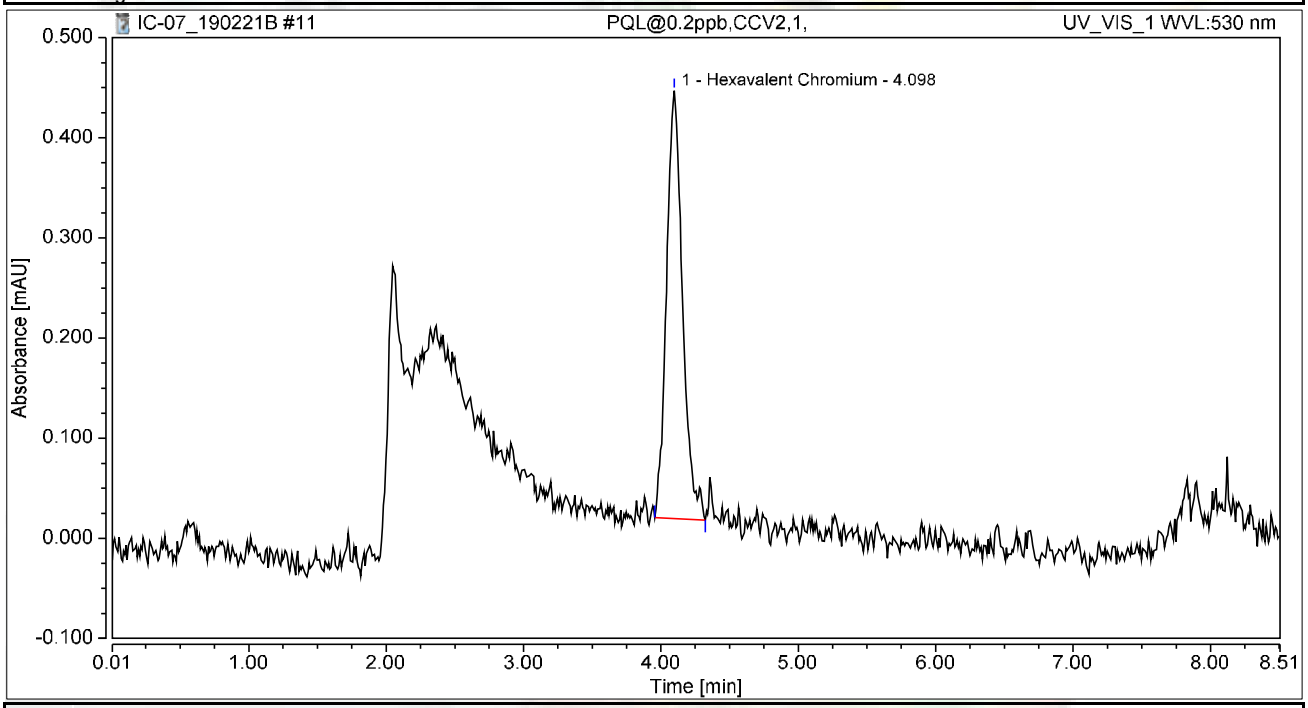
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.270 | 8.585 | 100.00 | 100.00 | 5.1256 |
| **Total:** | | | **1.270** | **8.585** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:37** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

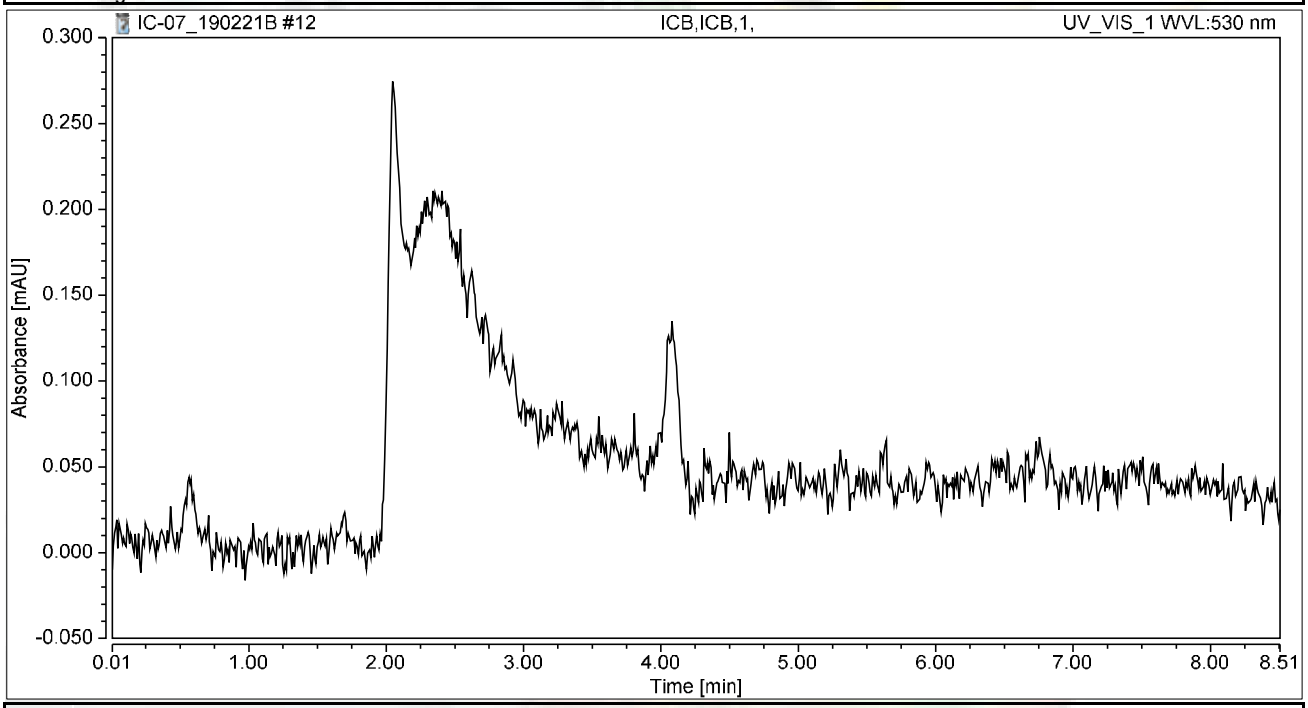
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.058 | 0.427 | 100.00 | 100.00 | 0.2324 |
| **Total:** | | | **0.058** | **0.427** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICB,ICB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:47** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# RAW DATA

**INJECTION LOG: 190225A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/25/19 9:28 AM | Not Reported |
| 10 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/25/19 9:55 AM | Not Reported |
| 11 | CCV-1 | CCV | 1 | Hexavalent Chromium | 02/25/19 10:11 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/25/19 10:22 AM | Not Reported |
| 13 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/25/19 10:32 AM | Reported |
| 14 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/25/19 10:54 AM | Reported |
| 15 | MB-R132081 | MBLK | 1 | Hexavalent Chromium | 02/25/19 11:19 AM | Reported |
| 16 | LCS-R132081 | LCS | 1 | Hexavalent Chromium | 02/25/19 11:30 AM | Reported |
| 17 | N034295-001B | SAMP | 1 | Hexavalent Chromium | 02/25/19 11:49 AM | Reported |
| 18 | N034295-001BMS | MS | 1 | Hexavalent Chromium | 02/25/19 12:01 PM | Reported |
| 19 | N034295-001BMSD | MSD | 1 | Hexavalent Chromium | 02/25/19 12:10 PM | Reported |
| 20 | N034125-002A | SAMP | 1 | Hexavalent Chromium | 02/25/19 12:23 PM | Reported |
| 21 | N034125-002AMS | MS | 1 | Hexavalent Chromium | 02/25/19 12:34 PM | Reported |
| 22 | N034128-002A | SAMP | 1 | Hexavalent Chromium | 02/25/19 12:44 PM | Reported |
| 23 | N034128-002AMS | MS | 1 | Hexavalent Chromium | 02/25/19 12:53 PM | Reported |
| 24 | N034125-002ADUP | DUP | 1 | Hexavalent Chromium | 02/25/19 1:03 PM | Reported |
| 25 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 02/25/19 1:12 PM | Reported |
| 26 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/25/19 1:22 PM | Reported |
| 27 | N034129-001A | SAMP | 1 | Hexavalent Chromium | 02/25/19 1:34 PM | Reported |
| 28 | N034129-001AMS | MS | 1 | Hexavalent Chromium | 02/25/19 1:45 PM | Reported |
| 29 | N034129-002A | SAMP | 1 | Hexavalent Chromium | 02/25/19 1:55 PM | Reported |
| 30 | N034129-002AMS | MS | 1 | Hexavalent Chromium | 02/25/19 2:04 PM | Reported |
| 31 | N034129-003A | SAMP | 1 | Hexavalent Chromium | 02/25/19 2:13 PM | Reported |
| 32 | N034129-003AMS | MS | 1 | Hexavalent Chromium | 02/25/19 2:23 PM | Reported |
| 33 | N034129-004A | SAMP | 1 | Hexavalent Chromium | 02/25/19 2:32 PM | Reported |
| 34 | N034129-004AMS | MS | 1 | Hexavalent Chromium | 02/25/19 2:42 PM | Reported |
| 35 | N034129-005A | SAMP | 1 | Hexavalent Chromium | 02/25/19 2:51 PM | Reported |
| 36 | N034129-005AMS | MS | 1 | Hexavalent Chromium | 02/25/19 3:01 PM | Reported |
| 37 | CCV-3 | CCV | 1 | Hexavalent Chromium | 02/25/19 3:10 PM | Reported |
| 38 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/25/19 3:20 PM | Reported |
| 39 | N034089-005A | SAMP | 1 | Hexavalent Chromium | 02/25/19 3:32 PM | Not Reported |
| 40 | N034089-004AMS | MS | 1 | Hexavalent Chromium | 02/25/19 3:43 PM | Not Reported |
| 41 | N034090-006A | SAMP | 1 | Hexavalent Chromium | 02/25/19 3:52 PM | Not Reported |
| 42 | N034090-006AMS | MS | 1 | Hexavalent Chromium | 02/25/19 4:02 PM | Not Reported |

**INJECTION LOG: 190225A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034090-007A | SAMP | 1 | Hexavalent Chromium | 02/25/19 4:11 PM | Not Reported |
| 44 | N034090-007AMS | MS | 1 | Hexavalent Chromium | 02/25/19 4:21 PM | Not Reported |
| 45 | N034090-009A | SAMP | 1 | Hexavalent Chromium | 02/25/19 4:30 PM | Not Reported |
| 46 | N034090-009AMS | MS | 1 | Hexavalent Chromium | 02/25/19 4:40 PM | Not Reported |
| 47 | N034090-011A | SAMP | 1 | Hexavalent Chromium | 02/25/19 4:49 PM | Not Reported |
| 48 | N034090-011AMS | MS | 1 | Hexavalent Chromium | 02/25/19 4:58 PM | Not Reported |
| 49 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/25/19 5:08 PM | Reported |
| 50 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/25/19 5:17 PM | Reported |
| 51 | N034129-006A | SAMP | 1 | Hexavalent Chromium | 02/25/19 5:29 PM | Reported |
| 52 | N034129-006AMS | MS | 1 | Hexavalent Chromium | 02/25/19 5:39 PM | Reported |
| 53 | N034129-007A | SAMP | 1 | Hexavalent Chromium | 02/25/19 5:49 PM | Reported |
| 54 | N034129-007AMS | MS | 1 | Hexavalent Chromium | 02/25/19 5:58 PM | Reported |
| 55 | N034129-008A | SAMP | 1 | Hexavalent Chromium | 02/25/19 6:08 PM | Not Reported |
| 56 | N034129-008AMS | MS | 1 | Hexavalent Chromium | 02/25/19 6:17 PM | Not Reported |
| 57 | N034129-009A | SAMP | 1 | Hexavalent Chromium | 02/25/19 6:27 PM | Reported |
| 58 | N034129-009AMS | MS | 1 | Hexavalent Chromium | 02/25/19 6:36 PM | Reported |
| 59 | N034129-010A | SAMP | 1 | Hexavalent Chromium | 02/25/19 6:46 PM | Reported |
| 60 | N034129-010AMS | MS | 1 | Hexavalent Chromium | 02/25/19 6:55 PM | Reported |
| 61 | CCV-5 | CCV | 1 | Hexavalent Chromium | 02/25/19 7:05 PM | Reported |
| 62 | CCB-5 | CCB | 1 | Hexavalent Chromium | 02/25/19 7:14 PM | Reported |
| 63 | MB-H2O | MBLK | 1 | Hexavalent Chromium | 02/25/19 7:23 PM | Not Reported |
| 64 | LCS-H2O | LCS | 1 | Hexavalent Chromium | 02/25/19 7:33 PM | Not Reported |
| 65 | N034129-011A | SAMP | 1 | Hexavalent Chromium | 02/25/19 7:42 PM | Not Reported |
| 66 | N034129-011AMS | MS | 1 | Hexavalent Chromium | 02/25/19 7:52 PM | Not Reported |
| 67 | N034129-012A | SAMP | 1 | Hexavalent Chromium | 02/25/19 8:01 PM | Not Reported |
| 68 | N034129-012AMS | MS | 1 | Hexavalent Chromium | 02/25/19 8:11 PM | Not Reported |
| 69 | N034129-011ADUP | DUP | 1 | Hexavalent Chromium | 02/25/19 8:20 PM | Not Reported |
| 70 | N034129-011AMSD | MSD | 1 | Hexavalent Chromium | 02/25/19 8:30 PM | Not Reported |
| 71 | N034129-013A | SAMP | 1 | Hexavalent Chromium | 02/25/19 8:39 PM | Not Reported |
| 72 | N034129-013AMS | MS | 1 | Hexavalent Chromium | 02/25/19 8:49 PM | Not Reported |
| 73 | CCV-6 | CCV1 | 1 | Hexavalent Chromium | 02/25/19 8:58 PM | Not Reported |
| 74 | CCB-6 | CCB | 1 | Hexavalent Chromium | 02/25/19 9:08 PM | Not Reported |
| 75 | N034129-014A | SAMP | 1 | Hexavalent Chromium | 02/25/19 9:17 PM | Not Reported |
| 76 | N034129-014AMS | MS | 1 | Hexavalent Chromium | 02/25/19 9:26 PM | Not Reported |
| 77 | N034102-002A | SAMP | 1 | Hexavalent Chromium | 02/25/19 9:36 PM | Not Reported |
| 78 | N034102-002AMS | MS | 1 | Hexavalent Chromium | 02/25/19 9:45 PM | Not Reported |
| 79 | N034105-004A | SAMP | 1 | Hexavalent Chromium | 02/25/19 9:55 PM | Not Reported |
| 80 | N034105-004AMS | MS | 1 | Hexavalent Chromium | 02/25/19 10:04 PM | Not Reported |
| 81 | N034107-003A | SAMP | 1 | Hexavalent Chromium | 02/25/19 10:04 PM | Not Reported |
| 82 | N034107-003AMS | MS | 1 | Hexavalent Chromium | 02/25/19 10:04 PM | Not Reported |
| 83 | N034107-006A | SAMP | 1 | Hexavalent Chromium | 02/25/19 10:05 PM | Not Reported |
| 84 | N034107-006AMS | MS | 1 | Hexavalent Chromium | 02/25/19 10:05 PM | Not Reported |

**INJECTION LOG: 190225A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 85 | CCV-7 | CCV | 1 | Hexavalent Chromium | 02/25/19 10:05 PM | Not Reported |
| 86 | CCB-7 | CCB | 1 | Hexavalent Chromium | 02/25/19 10:05 PM | Not Reported |
| 87 | N034107-012A | SAMP | 1 | Hexavalent Chromium | 02/25/19 10:05 PM | Not Reported |
| 88 | N034107-012AMS | MS | 1 | Hexavalent Chromium | 02/25/19 10:05 PM | Not Reported |
| 89 | N034107-013A | SAMP | 1 | Hexavalent Chromium | 02/25/19 10:05 PM | Not Reported |
| 90 | N034107-013AMS | MS | 1 | Hexavalent Chromium | 02/25/19 10:05 PM | Not Reported |
| 91 | N034107-016A | SAMP | 1 | Hexavalent Chromium | 02/25/19 10:05 PM | Not Reported |
| 92 | N034107-016AMS | MS | 1 | Hexavalent Chromium | 02/25/19 10:05 PM | Not Reported |
| 93 | N034107-017A | SAMP | 1 | Hexavalent Chromium | 02/25/19 10:16 PM | Not Reported |
| 94 | N034107-017AMS | MS | 1 | Hexavalent Chromium | 02/25/19 10:26 PM | Not Reported |
| 95 | CCV-8 | CCV1 | 1 | Hexavalent Chromium | 02/25/19 10:35 PM | Not Reported |
| 96 | CCB-8 | CCB | 1 | Hexavalent Chromium | 02/25/19 10:45 PM | Not Reported |
| 97 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/25/19 10:54 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190225A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **26/Feb/19 10:21:40** |
| *No. of Injections:* | **100** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 1 | 1000 | Unknown | | 02/25/2019 09:28 | Finished | BLANK |
| 10 | BLANK | 1 | 1000 | Unknown | | 02/25/2019 09:55 | Finished | BLANK |
| 11 | CCV-1,CCV,1, | 2 | 1000 | Unknown | | 02/25/2019 10:11 | Finished | CCV @5ppb, IWST-190221B |
| 12 | PQL@0.2ppb,CCV2,1 | 3 | 1000 | Unknown | | 02/25/2019 10:22 | Finished | PQL @ 0.2ppb |
| 13 | CCB-1,CCB,1, | 4 | 1000 | Unknown | | 02/25/2019 10:32 | Finished | CCB R190115A |
| 14 | PQL@0.2ppb,CCV2,1 | 5 | 1000 | Unknown | | 02/25/2019 10:54 | Finished | PQL @ 0.2ppb |
| 15 | MB-H2O,MBLK,1, | 6 | 1000 | Unknown | | 02/25/2019 11:19 | Finished | MB R190115A |
| 16 | LCS-H2O,LCS,1, | 7 | 1000 | Unknown | | 02/25/2019 11:30 | Finished | LCS @5ppb, IWST-190221B |
| 17 | N034295-001B,SAMF | 8 | 1000 | Unknown | | 02/25/2019 11:49 | Finished | SAMP,10mL |
| 18 | N034295-001BMS,MS | 9 | 1000 | Unknown | | 02/25/2019 12:01 | Finished | MS (5ppb), IWST-190221B,10 |
| 19 | N034295-001BMSD,M | 10 | 1000 | Unknown | | 02/25/2019 12:10 | Finished | MSD (5ppb), IWST-190221B,1 |
| 20 | N034125-002A,SAMF | 11 | 1000 | Unknown | | 02/25/2019 12:23 | Finished | SAMP,10mL |
| 21 | N034125-002AMS,MS | 12 | 1000 | Unknown | | 02/25/2019 12:34 | Finished | SAMP,10mL |
| 22 | N034128-002A,SAMF | 13 | 1000 | Unknown | | 02/25/2019 12:44 | Finished | SAMP,1>10mL |
| 23 | N034128-002AMS,MS | 14 | 1000 | Unknown | | 02/25/2019 12:53 | Finished | DUP,1>10mL |
| 24 | N034125-002ADUP,D | 15 | 1000 | Unknown | | 02/25/2019 13:03 | Finished | MSD (1ppb), IWST-190221B,1 |
| 25 | CCV-2,CCV1,1, | 16 | 1000 | Unknown | | 02/25/2019 13:12 | Finished | CCV @10ppb, IWST-190221A |
| 26 | CCB-2,CCB,1, | 17 | 1000 | Unknown | | 02/25/2019 13:22 | Finished | CCB R190115A |
| 27 | N034129-001A,SAMF | 18 | 1000 | Unknown | | 02/25/2019 13:34 | Finished | SAMP,0.5>10mL |
| 28 | N034129-001AMS,MS | 19 | 1000 | Unknown | | 02/25/2019 13:45 | Finished | DUP,0.5>10mL |
| 29 | N034129-002A,SAMF | 20 | 1000 | Unknown | | 02/25/2019 13:55 | Finished | SAMP,0.2>10mL |
| 30 | N034129-002AMS,MS | 21 | 1000 | Unknown | | 02/25/2019 14:04 | Finished | MS (1ppb), IWST-190221B,0.2 |
| 31 | N034129-003A,SAMF | 22 | 1000 | Unknown | | 02/25/2019 14:13 | Finished | MS (1ppb), IWST-190221B,10 |
| 32 | N034129-003AMS,MS | 23 | 1000 | Unknown | | 02/25/2019 14:23 | Finished | MS (1ppb), IWST-190221B,10 |
| 33 | N034129-004A,SAMF | 24 | 1000 | Unknown | | 02/25/2019 14:32 | Finished | SAMP,2>10mL |
| 34 | N034129-004AMS,MS | 25 | 1000 | Unknown | | 02/25/2019 14:42 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 35 | N034129-005A,SAMF | 26 | 1000 | Unknown | | 02/25/2019 14:51 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 36 | N034129-005AMS,MS | 27 | 1000 | Unknown | | 02/25/2019 15:01 | Finished | SAMP,2>10mL |
| 37 | CCV-3,CCV,1, | 28 | 1000 | Unknown | | 02/25/2019 15:10 | Finished | CCV @5ppb, IWST-190221A |
| 38 | CCB-3,CCB,1, | 29 | 1000 | Unknown | | 02/25/2019 15:20 | Finished | CCB R190115A |
| 39 | N034089-005A,SAMF | 30 | 1000 | Unknown | | 02/25/2019 15:32 | Finished | SAMP,1>10mL |
| 40 | N034089-004AMS,MS | 31 | 1000 | Unknown | | 02/25/2019 15:43 | Finished | MS (1ppb), IWST-190221B,10 |
| 41 | N034090-006A,SAMF | 32 | 1000 | Unknown | | 02/25/2019 15:52 | Finished | SAMP,10mL |
| 42 | N034090-006AMS,MS | 33 | 1000 | Unknown | | 02/25/2019 16:02 | Finished | SAMP,2>10mL |
| 43 | N034090-007A,SAMF | 34 | 1000 | Unknown | | 02/25/2019 16:11 | Finished | SAMP,10mL |
| 44 | N034090-007AMS,MS | 35 | 1000 | Unknown | | 02/25/2019 16:21 | Finished | SAMP,10mL |
| 45 | N034090-009A,SAMF | 36 | 1000 | Unknown | | 02/25/2019 16:30 | Finished | SAMP,0.5>10mL |
| 46 | N034090-009AMS,MS | 37 | 1000 | Unknown | | 02/25/2019 16:40 | Finished | SAMP,0.5>10mL |
| 47 | N034090-011A,SAMF | 38 | 1000 | Unknown | | 02/25/2019 16:49 | Finished | SAMP,0.005>10mL |
| 48 | N034090-011AMS,MS | 39 | 1000 | Unknown | | 02/25/2019 16:58 | Finished | SAMP,0.2>10mL |
| 49 | CCV-4,CCV1,1, | 40 | 1000 | Unknown | | 02/25/2019 17:08 | Finished | CCV @10ppb, IWST-190221A |
| 50 | CCB-4,CCB,1, | 41 | 1000 | Unknown | | 02/25/2019 17:17 | Finished | CCB R190115A |
| 51 | N034129-006A,SAMF | 1 | 1000 | Unknown | | 02/25/2019 17:29 | Finished | MS (1ppb), IWST-190221B,10 |
| 52 | N034129-006AMS,MS | 2 | 1000 | Unknown | | 02/25/2019 17:39 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 53 | N034129-007A,SAMF | 3 | 1000 | Unknown | | 02/25/2019 17:49 | Finished | MS (5ppb), IWST-190221B,10 |
| 54 | N034129-007AMS,MS | 4 | 1000 | Unknown | | 02/25/2019 17:58 | Finished | MS (5ppb), IWST-190221B,10 |
| 55 | N034129-008A,SAMF | 5 | 1000 | Unknown | | 02/25/2019 18:08 | Finished | MS (5ppb), IWST-190221B,0.5 |
| 56 | N034129-008AMS,MS | 6 | 1000 | Unknown | | 02/25/2019 18:17 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 57 | N034129-009A,SAMF | 7 | 1000 | Unknown | | 02/25/2019 18:27 | Finished | SAMP,0.2>10mL |
| 58 | N034129-009AMS,MS | 8 | 1000 | Unknown | | 02/25/2019 18:36 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 59 | N034129-010A,SAMF | 9 | 1000 | Unknown | | 02/25/2019 18:46 | Finished | SAMP,0.0025>10mL |
| 60 | N034129-010AMS,MS | 10 | 1000 | Unknown | | 02/25/2019 18:55 | Finished | SAMP,10mL |

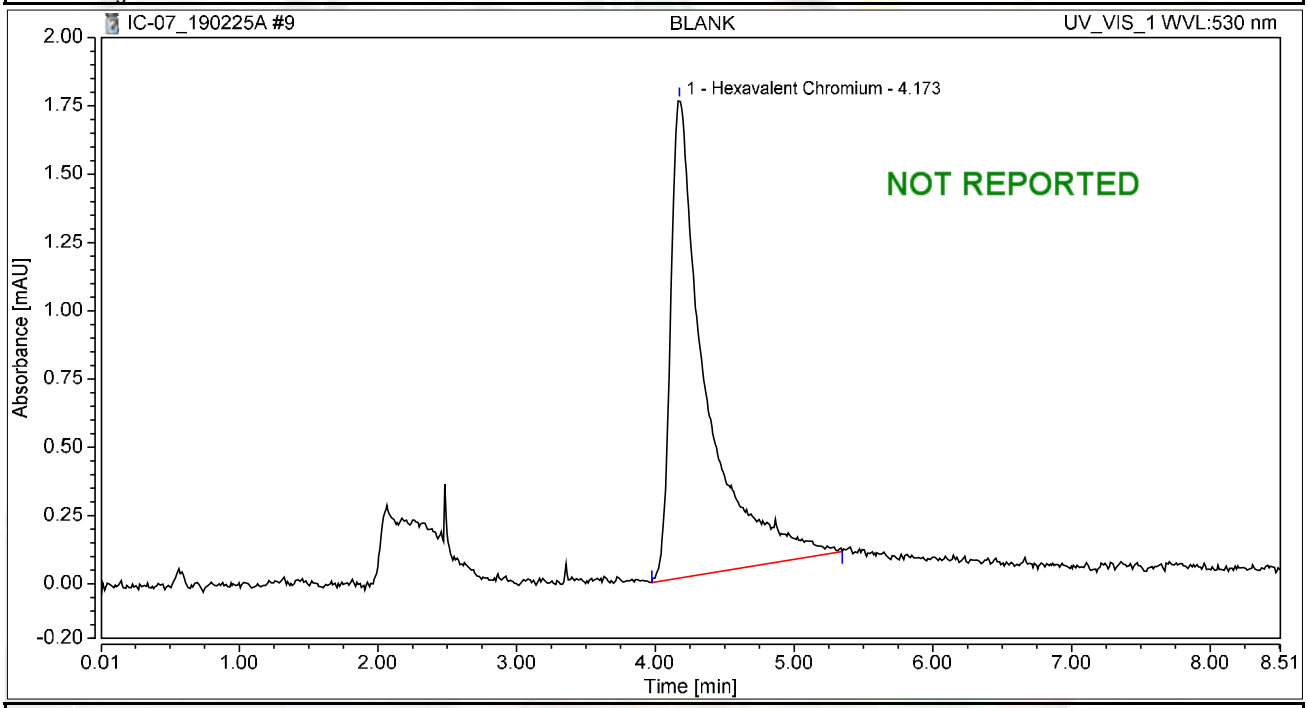
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | CCV-5,CCV,1, | 11 | 1000 | Unknown | | 02/25/2019 19:05 | Finished | CCV @5ppb, IWST-190221A |
| 62 | CCB-5,CCB,1, | 12 | 1000 | Unknown | | 02/25/2019 19:14 | Finished | CCB R190115A |
| 63 | MB-H2O,MBLK,1, | 13 | 1000 | Unknown | | 02/25/2019 19:23 | Finished | SAMP,10mL |
| 64 | LCS-H2O,LCS,1, | 14 | 1000 | Unknown | | 02/25/2019 19:33 | Finished | MS (1ppb), IWST-190221B,10 |
| 65 | N034129-011A,SAMF | 15 | 1000 | Unknown | | 02/25/2019 19:42 | Finished | SAMP,10mL |
| 66 | N034129-011AMS,MS | 16 | 1000 | Unknown | | 02/25/2019 19:52 | Finished | MS (1ppb), IWST-190221B,10 |
| 67 | N034129-012A,SAMF | 17 | 1000 | Unknown | | 02/25/2019 20:01 | Finished | SAMP,10mL |
| 68 | N034129-012AMS,MS | 18 | 1000 | Unknown | | 02/25/2019 20:11 | Finished | MS (1ppb), IWST-190221B,10 |
| 69 | N034129-011ADUP,D | 19 | 1000 | Unknown | | 02/25/2019 20:20 | Finished | SAMP,10mL |
| 70 | N034129-011AMSD,M | 20 | 1000 | Unknown | | 02/25/2019 20:30 | Finished | MS (1ppb), IWST-190221B,10 |
| 71 | N034129-013A,SAMF | 21 | 1000 | Unknown | | 02/25/2019 20:39 | Finished | SAMP,10mL |
| 72 | N034129-013AMS,MS | 22 | 1000 | Unknown | | 02/25/2019 20:49 | Finished | MS (1ppb), IWST-190221B,10 |
| 73 | CCV-6,CCV1,1, | 23 | 1000 | Unknown | | 02/25/2019 20:58 | Finished | CCV @10ppb, IWST-190221A |
| 74 | CCB-6,CCB,1, | 24 | 1000 | Unknown | | 02/25/2019 21:08 | Finished | CCB R190115A |
| 75 | N034129-014A,SAMF | 25 | 1000 | Unknown | | 02/25/2019 21:17 | Finished | SAMP,10mL |
| 76 | N034129-014AMS,MS | 26 | 1000 | Unknown | | 02/25/2019 21:26 | Finished | MS (1ppb), IWST-190221B,10 |
| 77 | N034102-002A,SAMF | 27 | 1000 | Unknown | | 02/25/2019 21:36 | Finished | SAMP,10mL |
| 78 | N034102-002AMS,MS | 28 | 1000 | Unknown | | 02/25/2019 21:45 | Finished | MS (1ppb), IWST-190221B,10 |
| 79 | N034105-004A,SAMF | 29 | 1000 | Unknown | | 02/25/2019 21:55 | Finished | SAMP,10mL |
| 80 | N034105-004AMS,MS | 30 | 1000 | Unknown | | 02/25/2019 22:04 | Interrupted | MS (1ppb), IWST-190221B,10 |
| 81 | N034107-003A,SAMF | 31 | 1000 | Unknown | | 02/25/2019 22:04 | Interrupted | SAMP,10mL |
| 82 | N034107-003AMS,MS | 32 | 1000 | Unknown | | 02/25/2019 22:04 | Interrupted | MS (1ppb), IWST-190221B,10 |
| 83 | N034107-006A,SAMF | 33 | 1000 | Unknown | | 02/25/2019 22:05 | Interrupted | SAMP,10mL |
| 84 | N034107-006AMS,MS | 34 | 1000 | Unknown | | 02/25/2019 22:05 | Interrupted | MS (1ppb), IWST-190221B,10 |
| 85 | CCV-7,CCV,1, | 35 | 1000 | Unknown | | 02/25/2019 22:05 | Interrupted | CCV @5ppb, IWST-190221A |
| 86 | CCB-7,CCB,1, | 36 | 1000 | Unknown | | 02/25/2019 22:05 | Interrupted | CCB R190115A |
| 87 | N034107-012A,SAMF | 37 | 1000 | Unknown | | 02/25/2019 22:05 | Interrupted | SAMP,10mL |
| 88 | N034107-012AMS,MS | 38 | 1000 | Unknown | | 02/25/2019 22:05 | Interrupted | MS (1ppb), IWST-190221B,10 |
| 89 | N034107-013A,SAMF | 39 | 1000 | Unknown | | 02/25/2019 22:05 | Interrupted | SAMP,10mL |
| 90 | N034107-013AMS,MS | 40 | 1000 | Unknown | | 02/25/2019 22:05 | Interrupted | MS (1ppb), IWST-190221B,10 |
| 91 | N034107-016A,SAMF | 41 | 1000 | Unknown | | 02/25/2019 22:05 | Interrupted | SAMP,10mL |
| 92 | N034107-016AMS,MS | 42 | 1000 | Unknown | | 02/25/2019 22:05 | Finished | MS (1ppb), IWST-190221B,10 |
| 93 | N034107-017A,SAMF | 43 | 1000 | Unknown | | 02/25/2019 22:16 | Finished | SAMP,10mL |
| 94 | N034107-017AMS,MS | 44 | 1000 | Unknown | | 02/25/2019 22:26 | Finished | MS (1ppb), IWST-190221B,10 |
| 95 | CCV-8,CCV1,1, | 45 | 1000 | Unknown | | 02/25/2019 22:35 | Finished | CCV @10ppb, IWST-190221A |
| 96 | CCB-8,CCB,1, | 46 | 1000 | Unknown | | 02/25/2019 22:45 | Finished | CCB R190115A |
| 97 | BLANK | 47 | 1000 | Unknown | | 02/25/2019 22:54 | Finished | BLANK |
| 98 | SHUTDOWN | 48 | 1000 | Unknown | | 02/25/2019 23:04 | Finished | |
| 99 | Eluent: R190219B | 49 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 100 | PCR: R190220A | 50 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 09:28** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

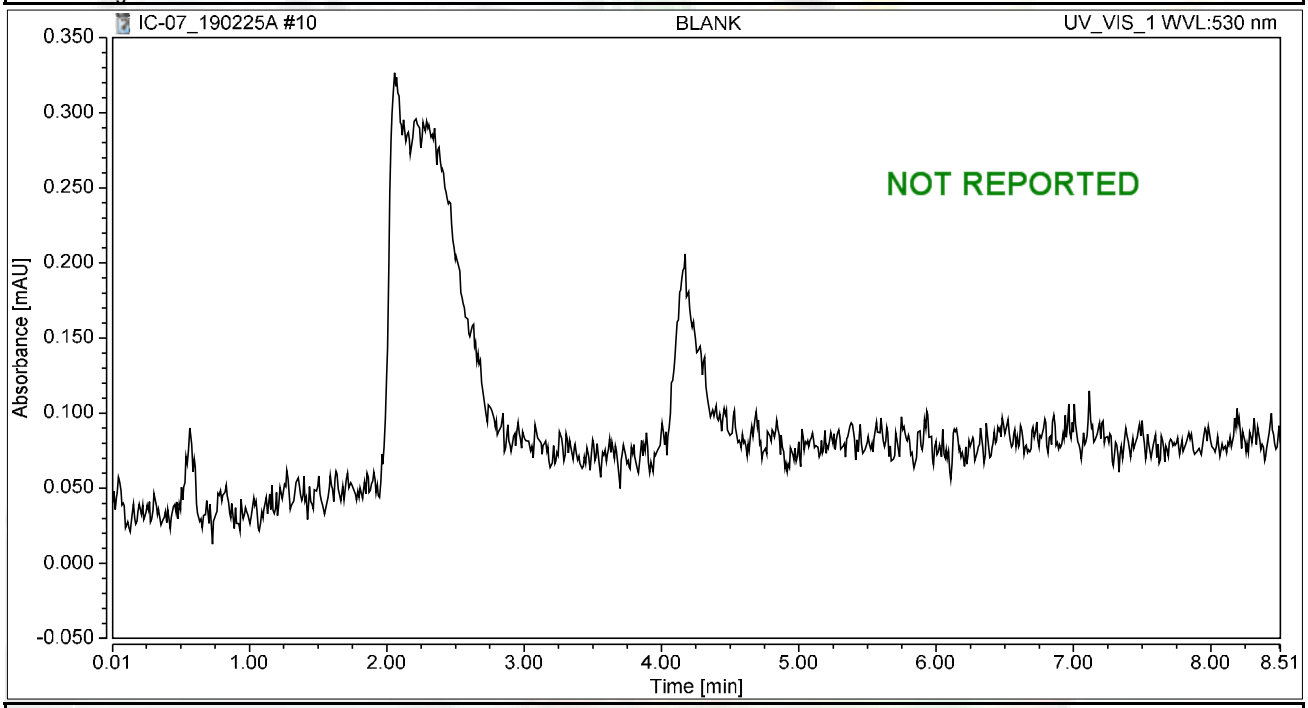
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.173 | 0.518 | 1.751 | 100.00 | 100.00 | 2.0892 |
| **Total:** | | | **0.518** | **1.751** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 09:55** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

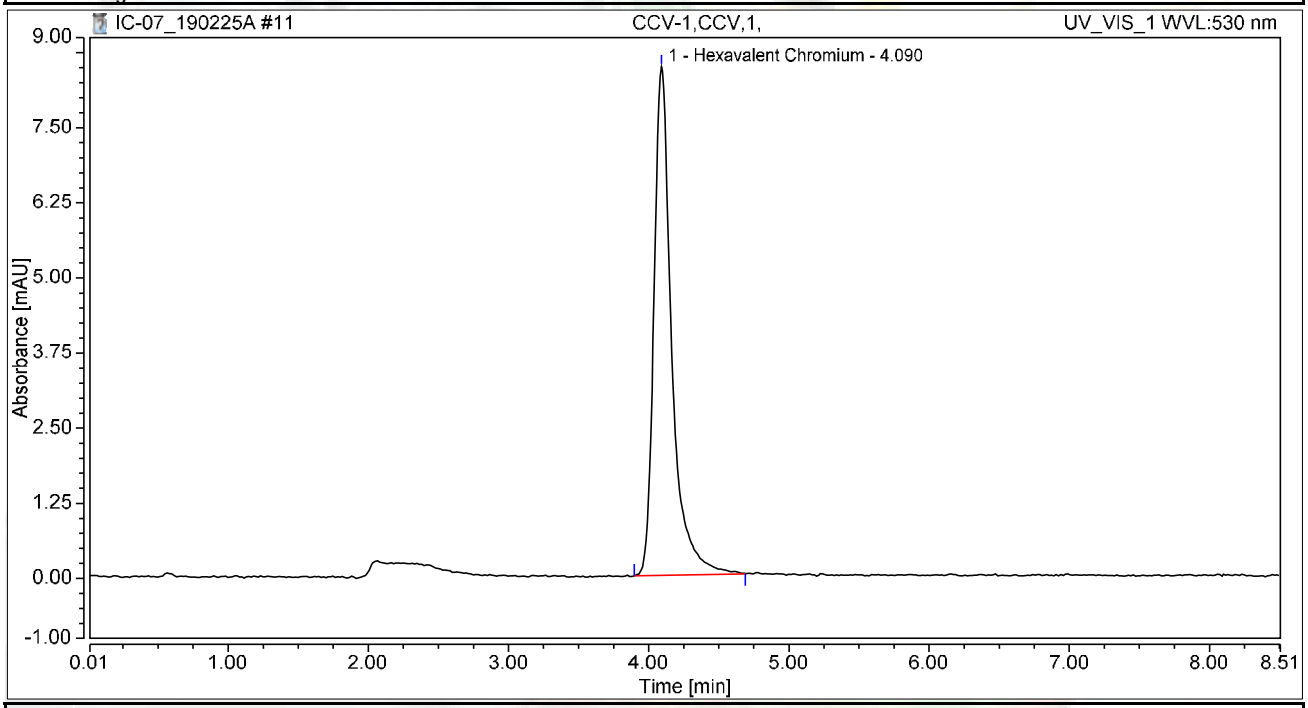
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-1,CCV,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 10:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

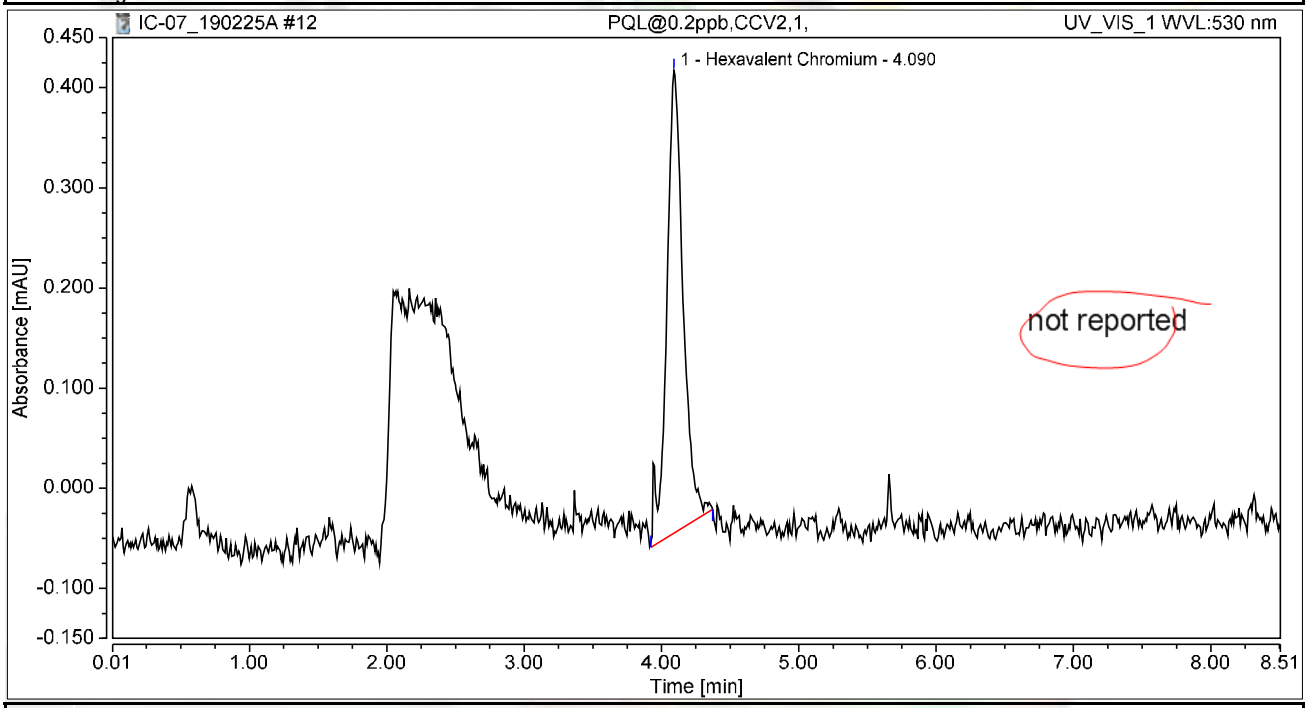
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 1.243 | 8.467 | 100.00 | 100.00 | 5.0151 |
| **Total:** | | | **1.243** | **8.467** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 10:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

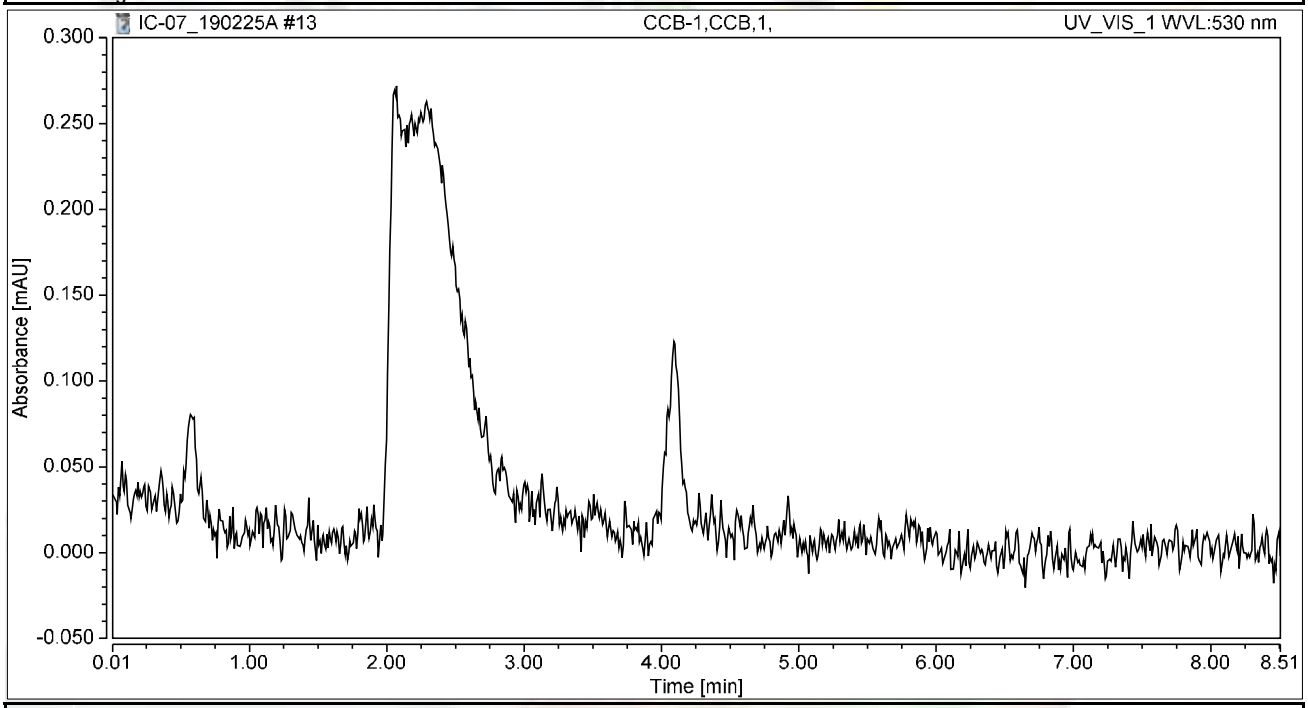
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.064 | 0.462 | 100.00 | 100.00 | 0.2584 |
| **Total:** | | | **0.064** | **0.462** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-1,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 10:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

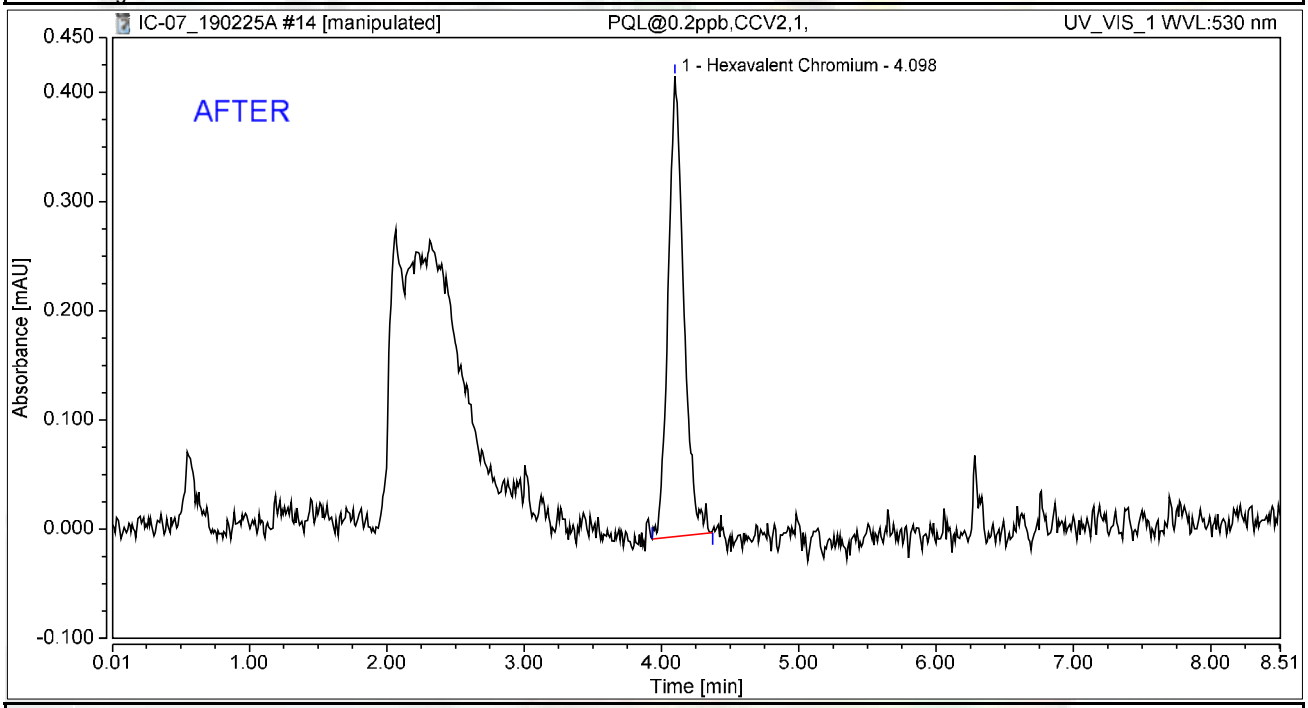
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 10:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.055 | 0.421 | 100.00 | 100.00 | 0.2234 |
| **Total:** | | | **0.055** | **0.421** | **100.00** | **100.00** | |



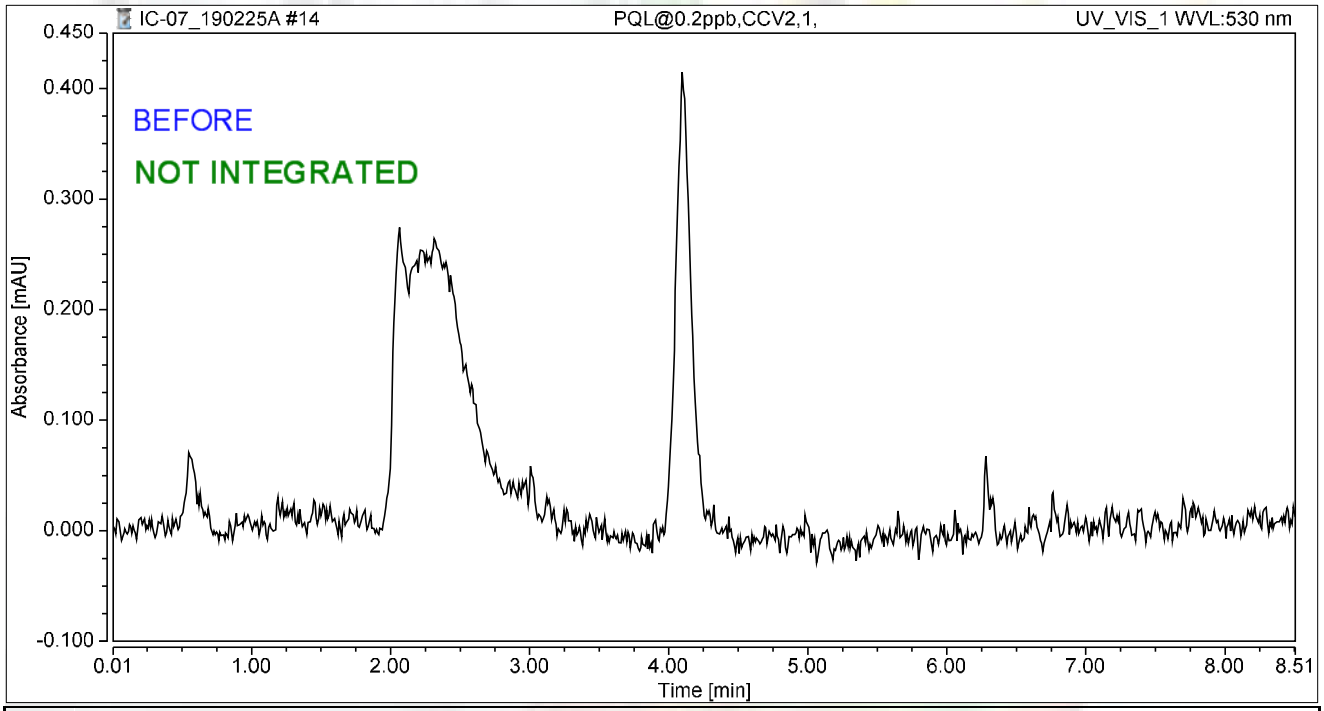
Reviewed by:
Nancy 2/27/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 10:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

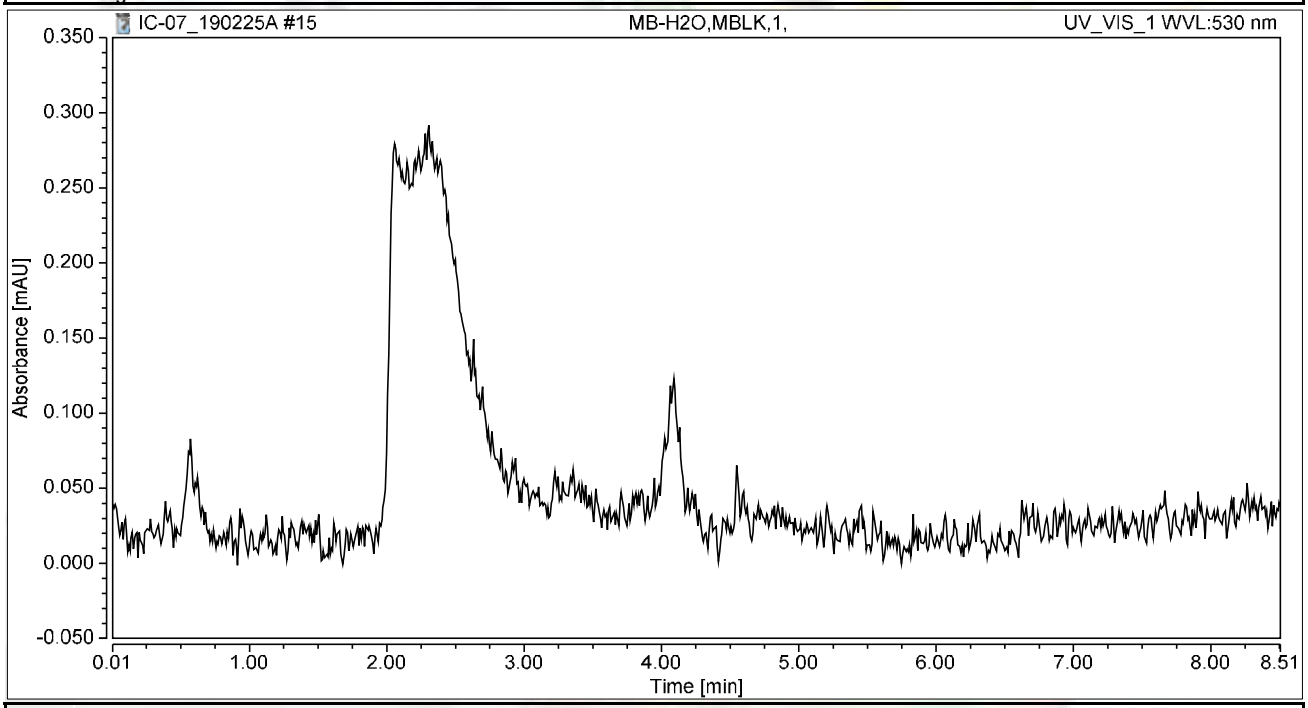
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **MB-H2O,MBLK,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 11:19** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

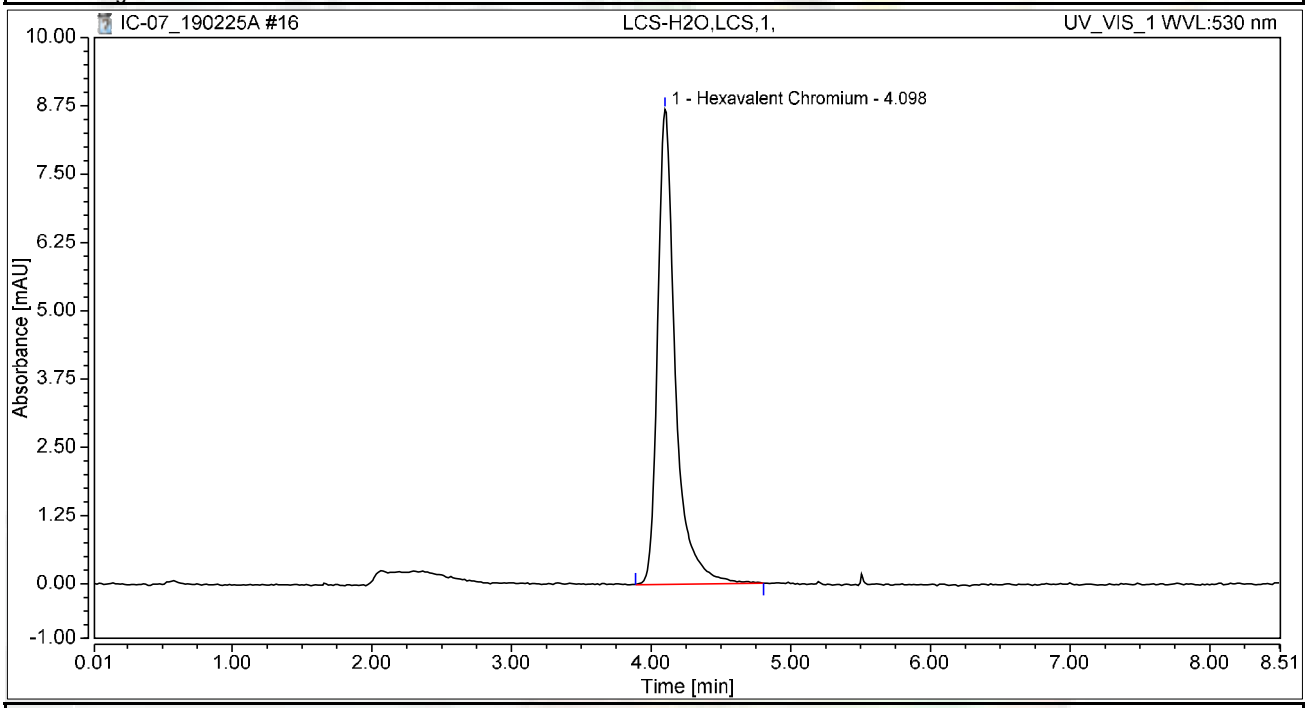
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **LCS-H2O,LCS,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 11:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

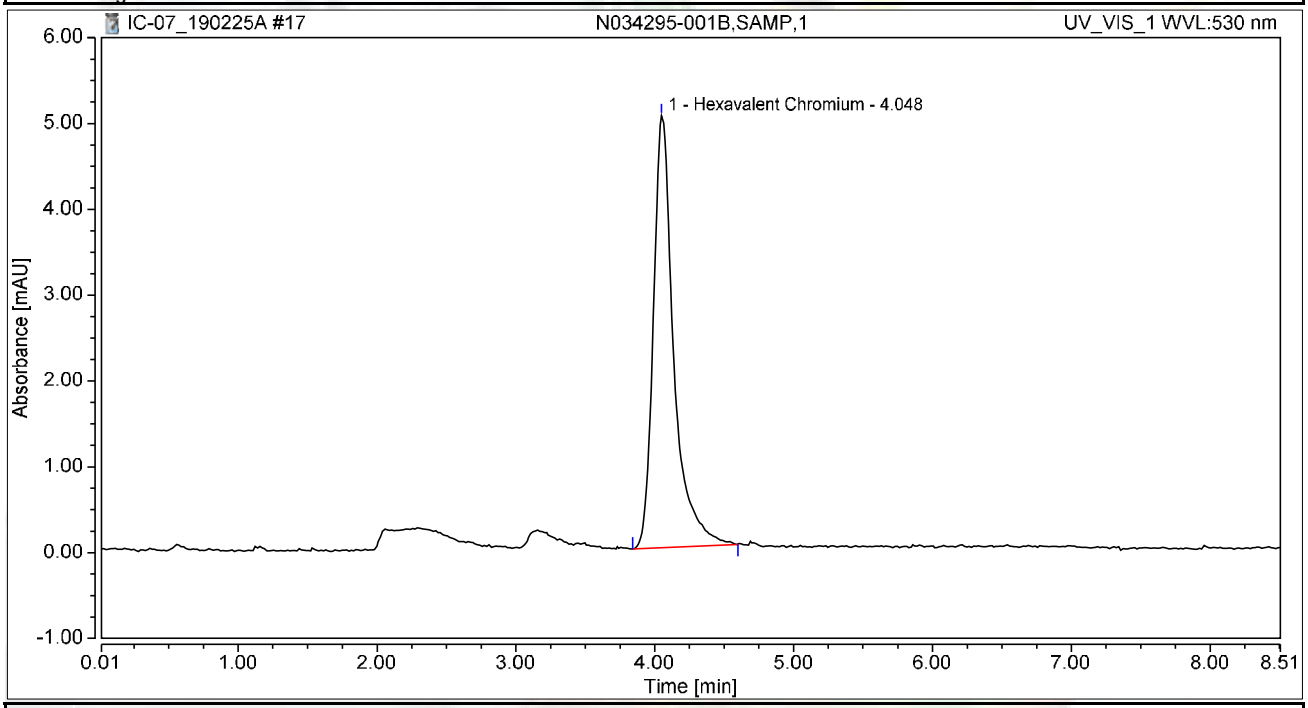
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.284 | 8.698 | 100.00 | 100.00 | 5.1832 |
| **Total:** | | | **1.284** | **8.698** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034295-001B,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 11:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

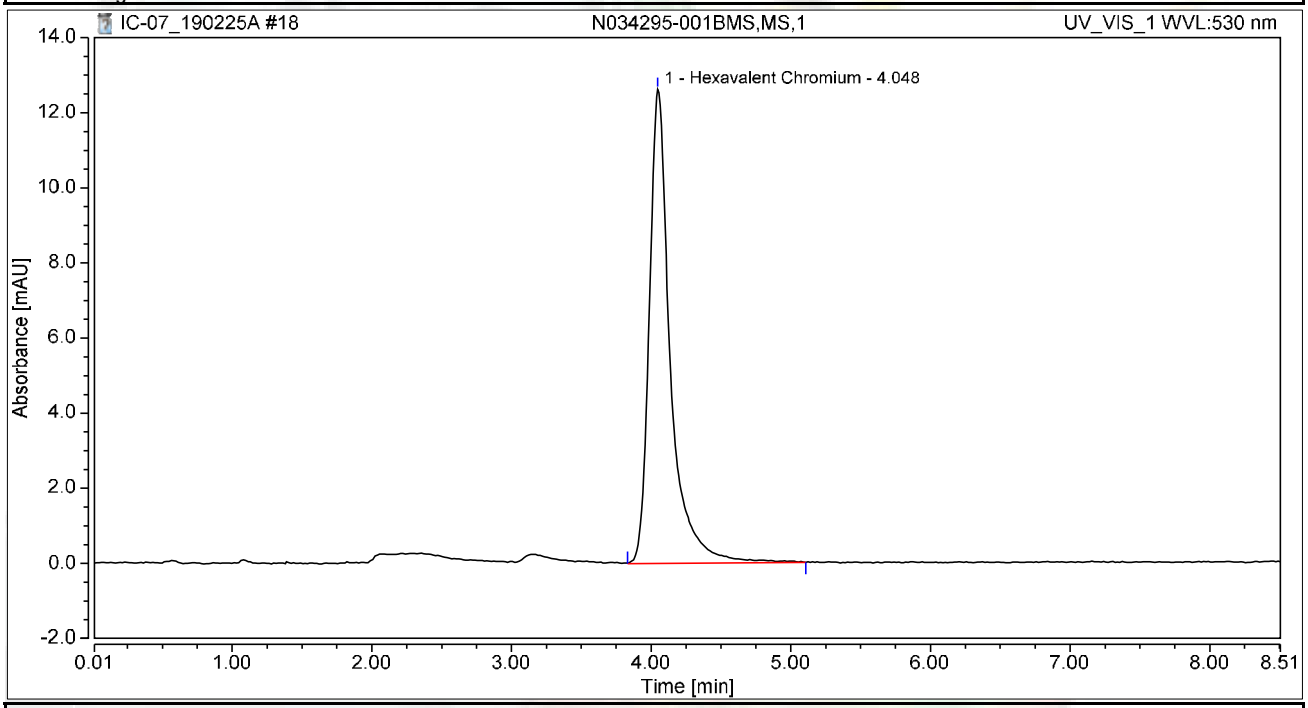
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.858 | 5.033 | 100.00 | 100.00 | 3.4637 |
| **Total:** | | | **0.858** | **5.033** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034295-001BMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 12:01** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

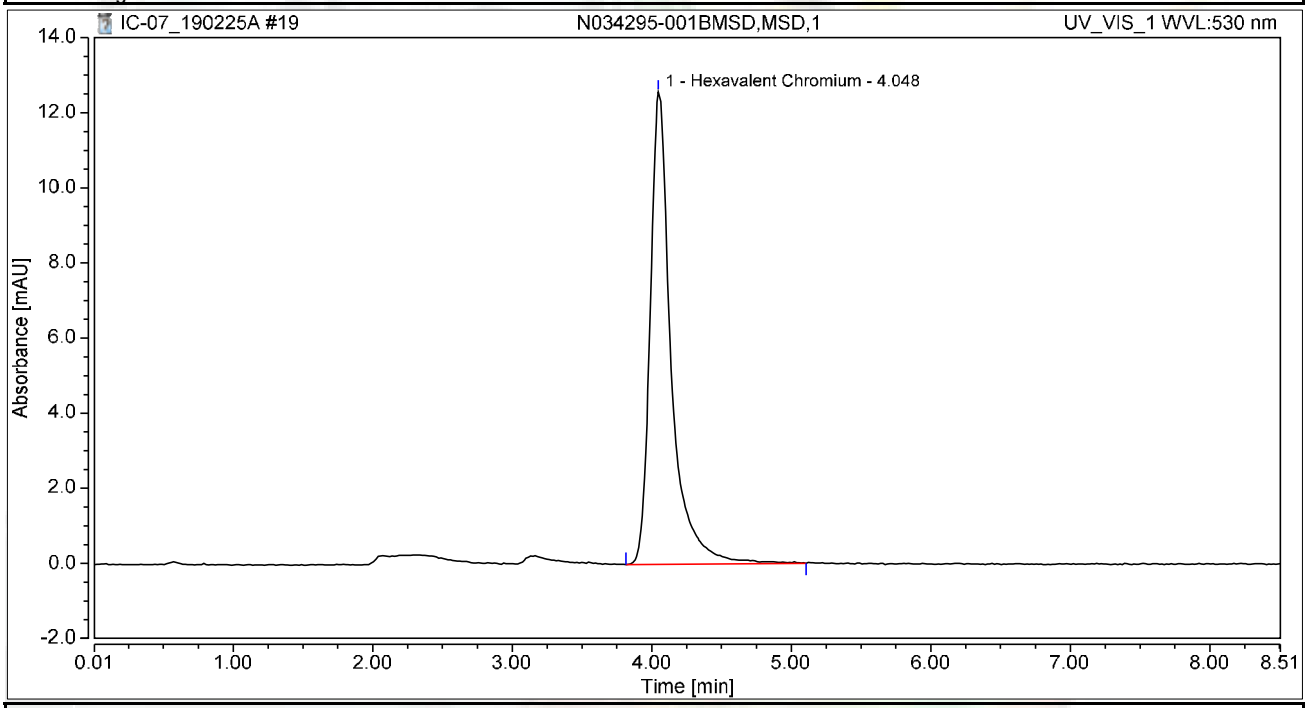
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 2.201 | 12.619 | 100.00 | 100.00 | 8.8830 |
| **Total:** | | | **2.201** | **12.619** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034295-001BMSD,MSD,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 12:10** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

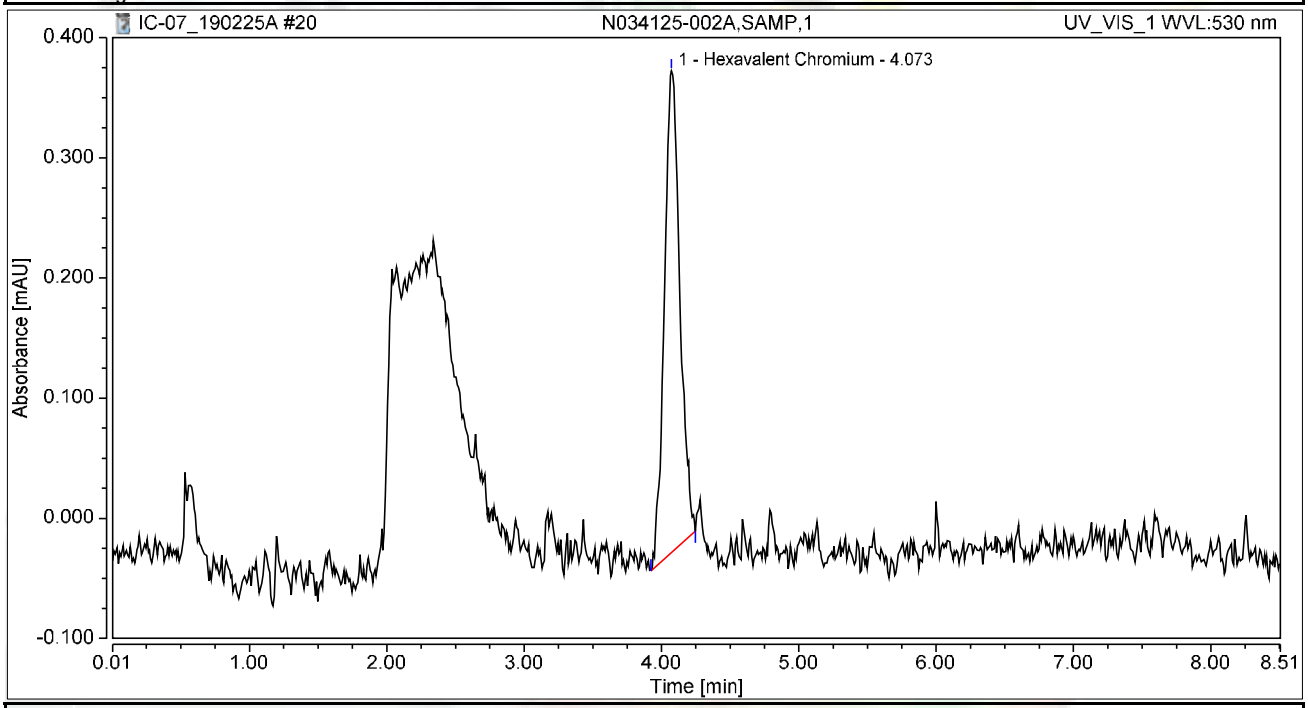
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 2.195 | 12.573 | 100.00 | 100.00 | 8.8575 |
| **Total:** | | | **2.195** | **12.573** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034125-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 12:23** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

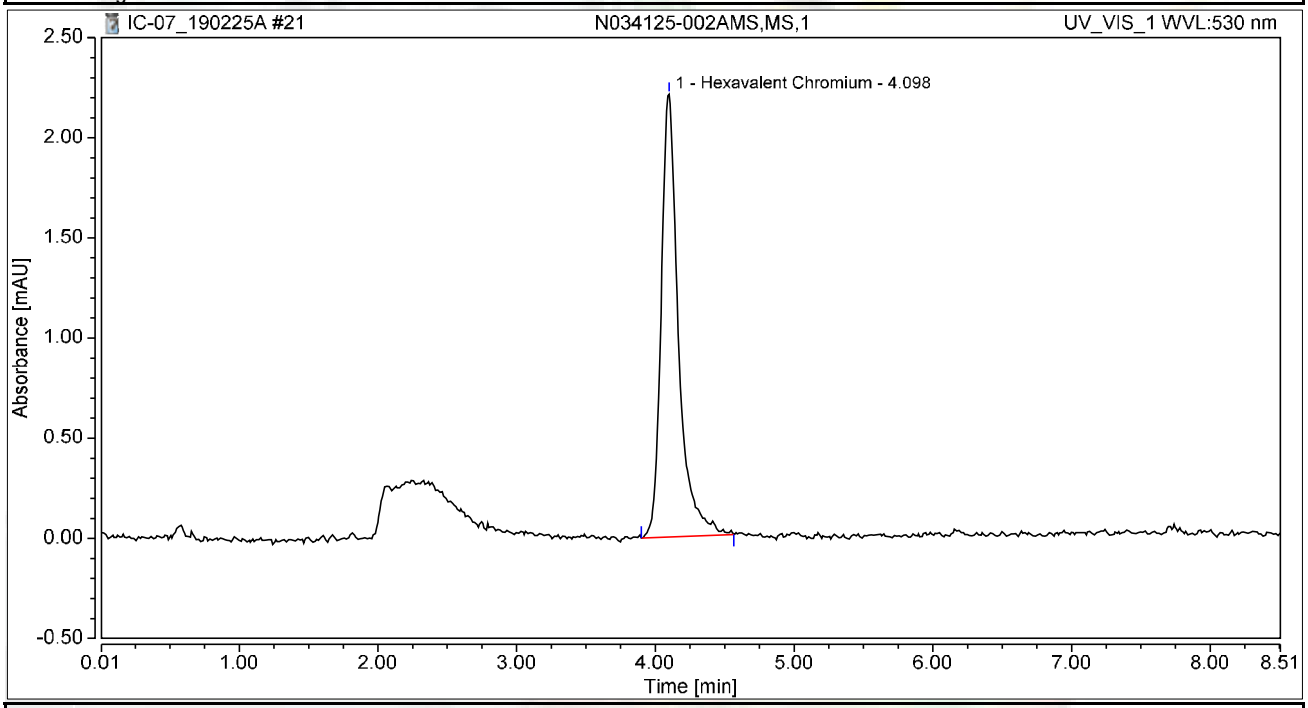
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 0.052 | 0.401 | 100.00 | 100.00 | 0.2107 |
| **Total:** | | | **0.052** | **0.401** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034125-002AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 12:34** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

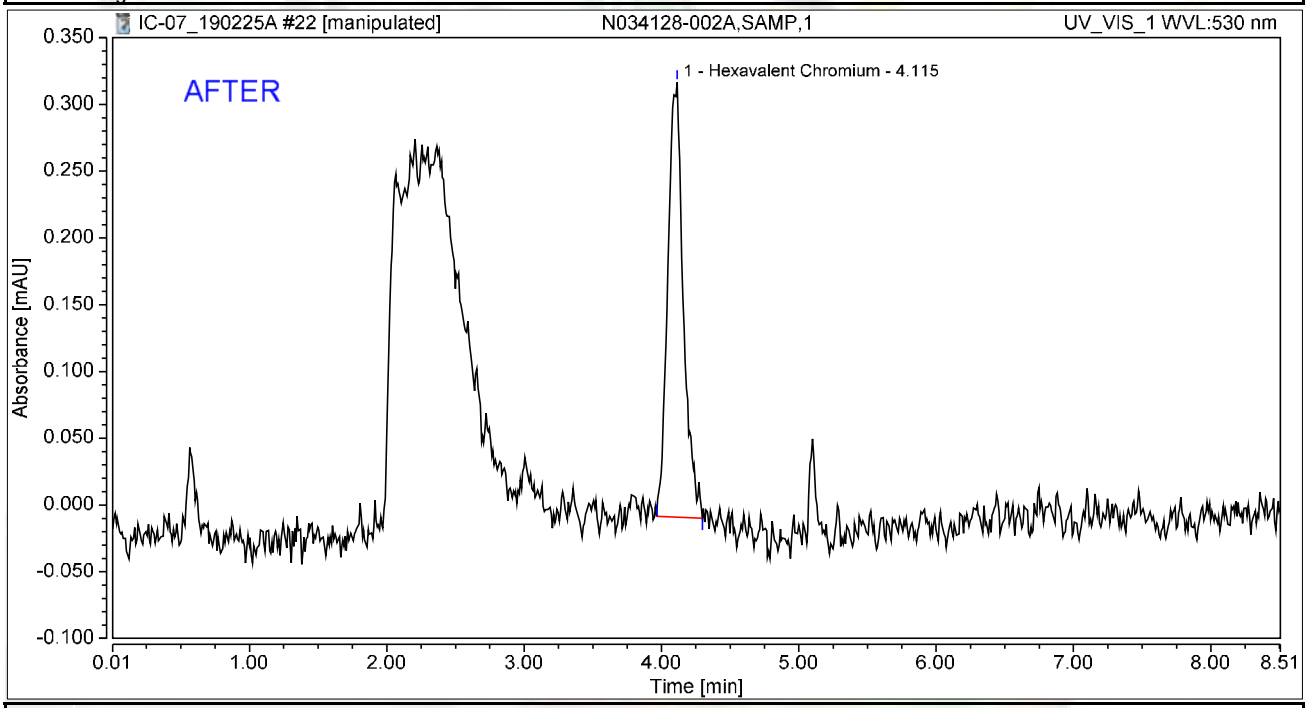
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.320 | 2.212 | 100.00 | 100.00 | 1.2915 |
| **Total:** | | | **0.320** | **2.212** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034128-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 12:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 0.043 | 0.326 | 100.00 | 100.00 | 0.1721 |
| **Total:** | | | **0.043** | **0.326** | **100.00** | **100.00** | |

Reviewed by:
My first report/Integration
2/27/2019

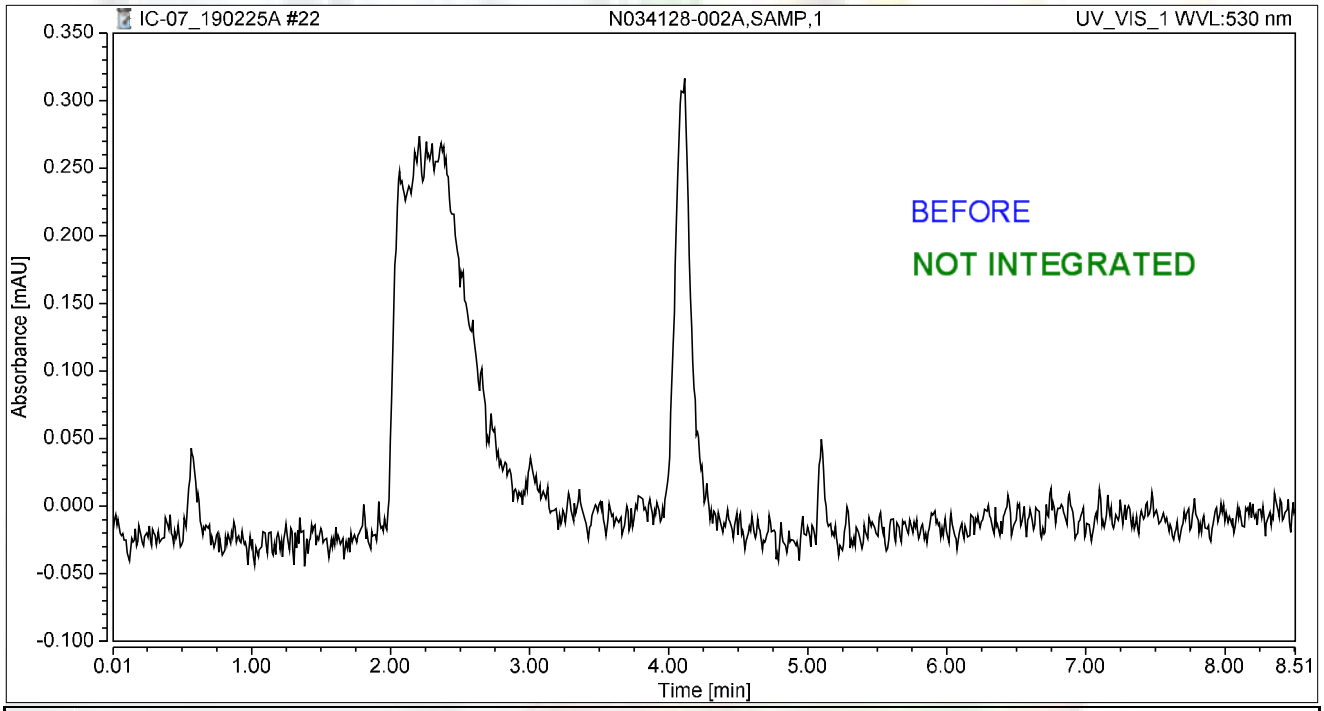
Chromeleon (c) Dionex
Version 7.1.1.1127

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034128-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 12:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

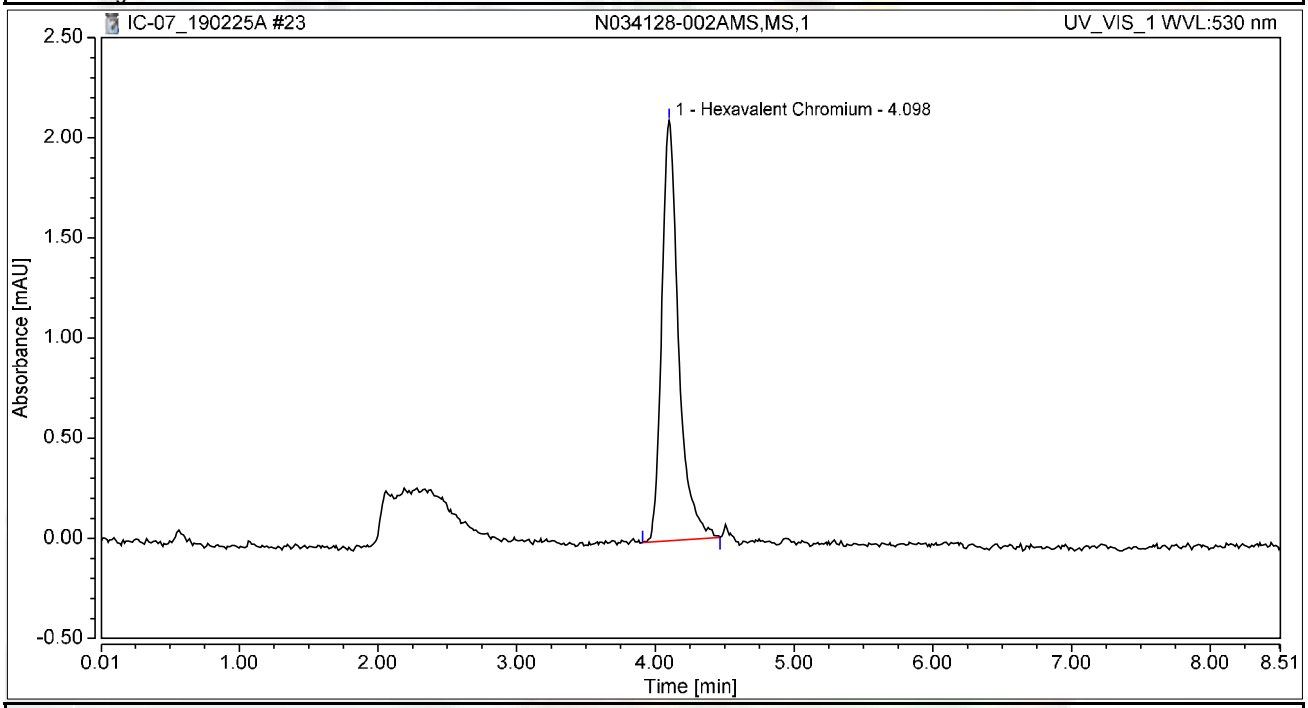
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034128-002AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 12:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

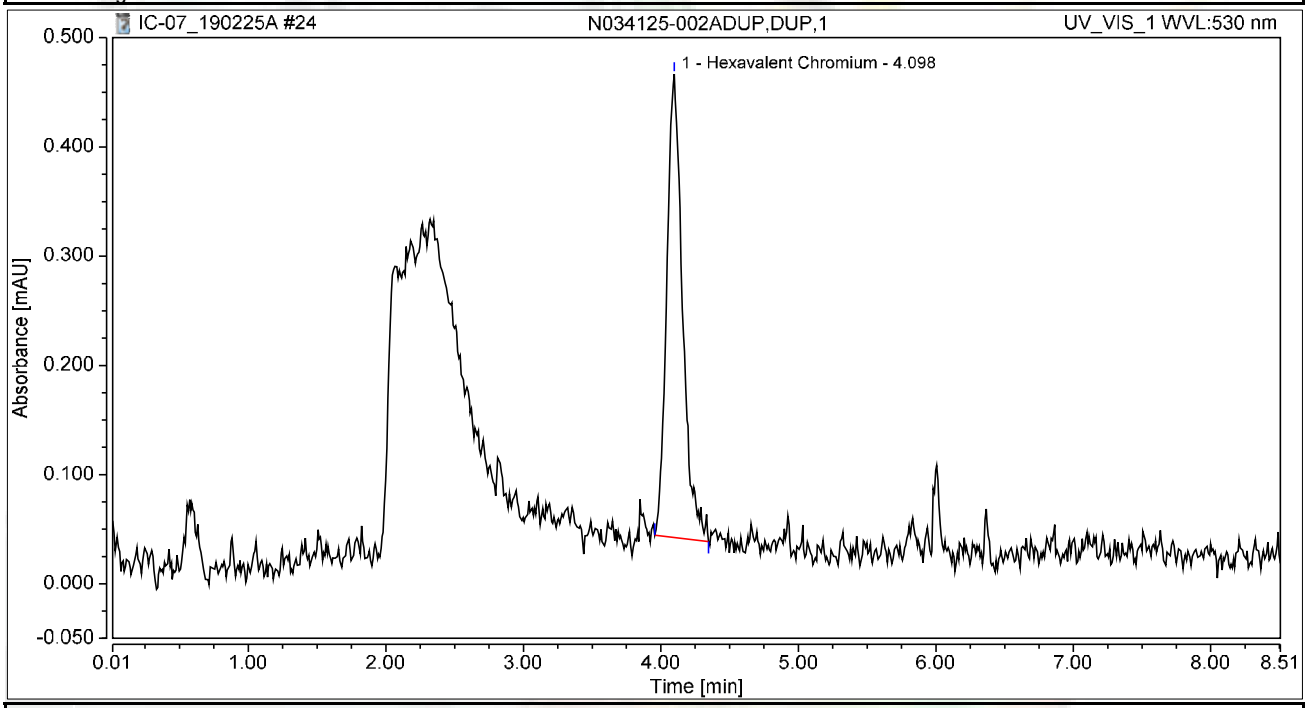
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.296 | 2.099 | 100.00 | 100.00 | 1.1943 |
| **Total:** | | | **0.296** | **2.099** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034125-002ADUP,DUP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 13:03** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

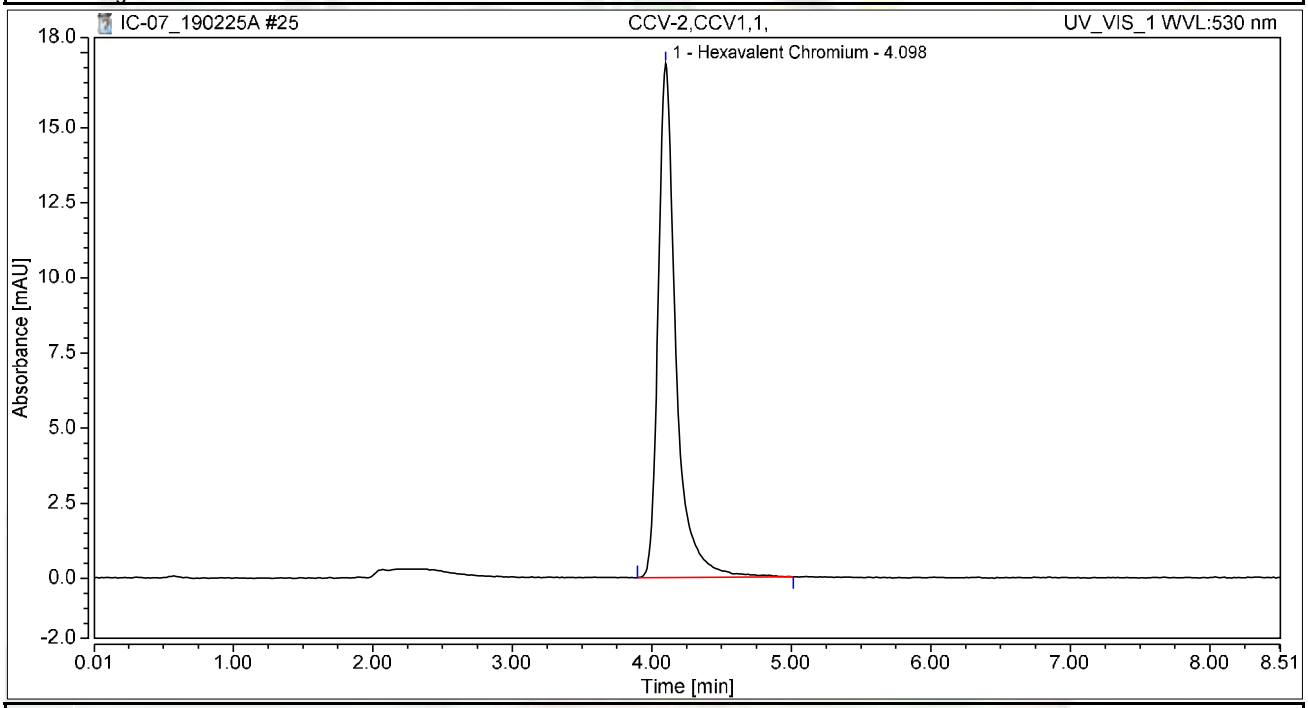
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.056 | 0.424 | 100.00 | 100.00 | 0.2280 |
| **Total:** | | | **0.056** | **0.424** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-2,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 13:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

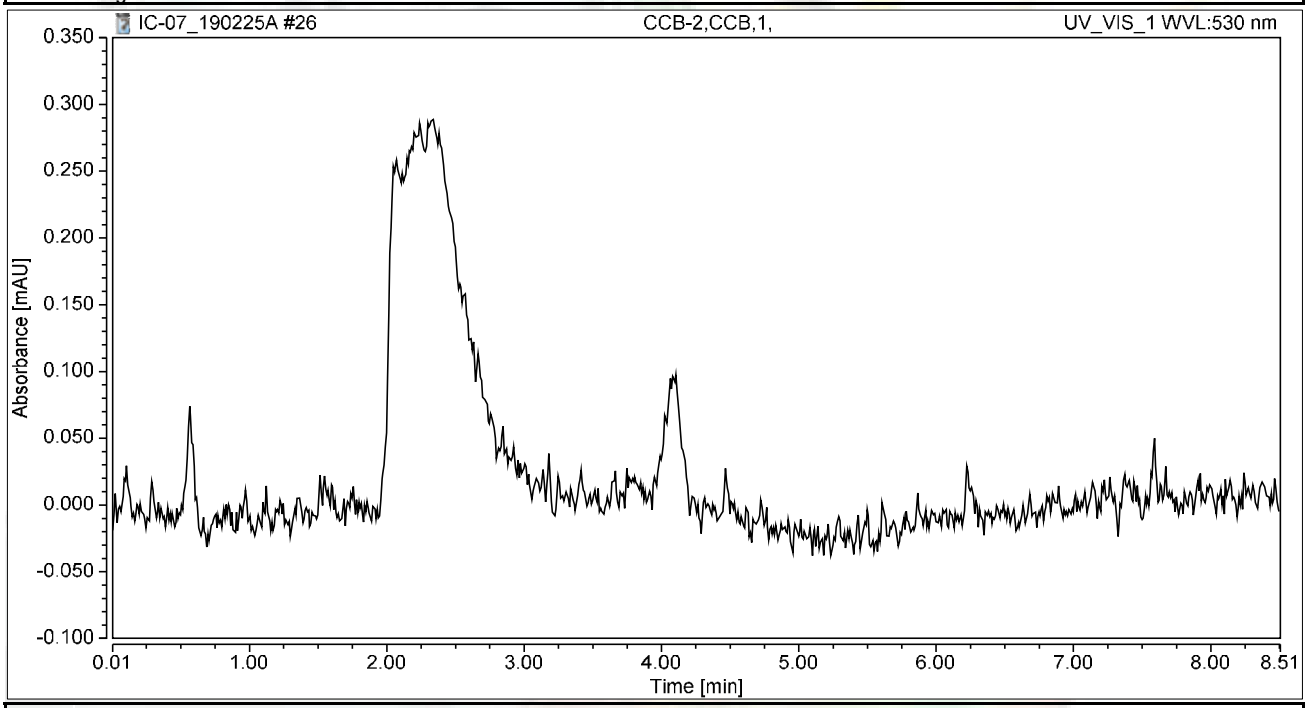
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.523 | 17.109 | 100.00 | 100.00 | 10.1815 |
| **Total:** | | | **2.523** | **17.109** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-2,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 13:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

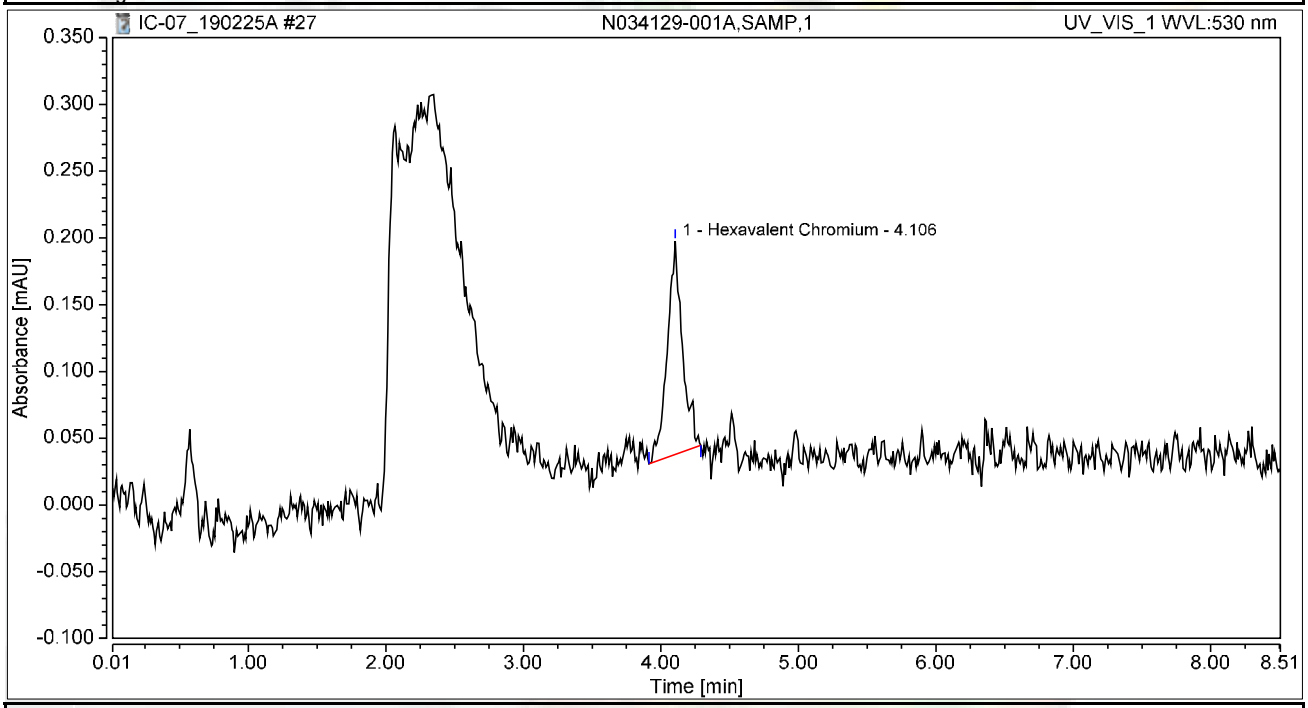
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-001A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 13:34** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

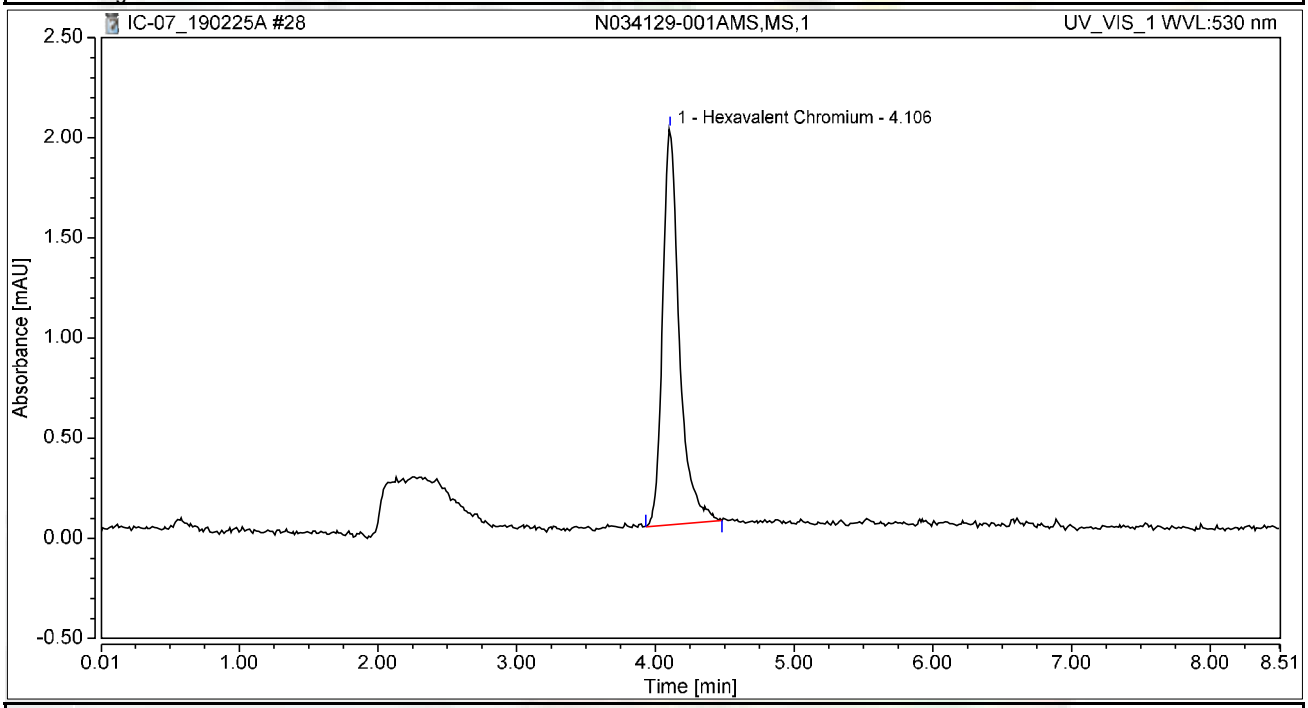
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.020 | 0.160 | 100.00 | 100.00 | 0.0820 |
| **Total:** | | | **0.020** | **0.160** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 13:45** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

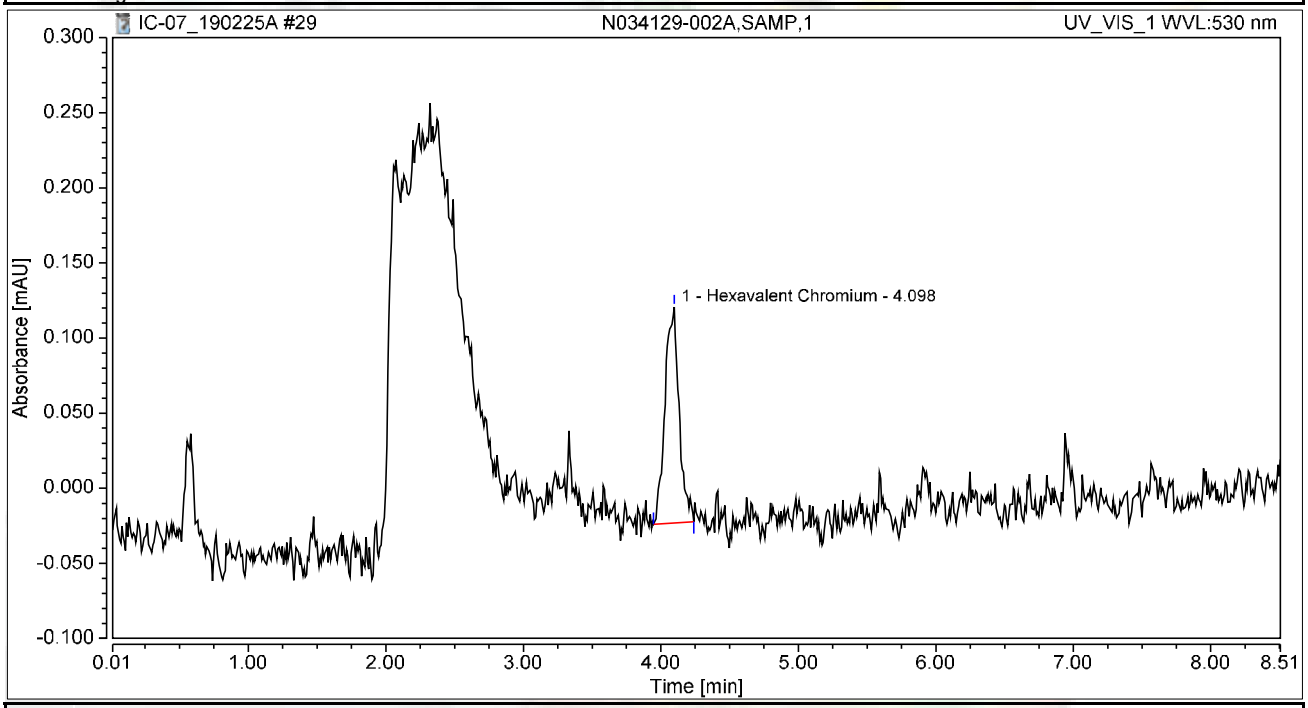
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.277 | 1.978 | 100.00 | 100.00 | 1.1162 |
| **Total:** | | | **0.277** | **1.978** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-002A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **20** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 13:55** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

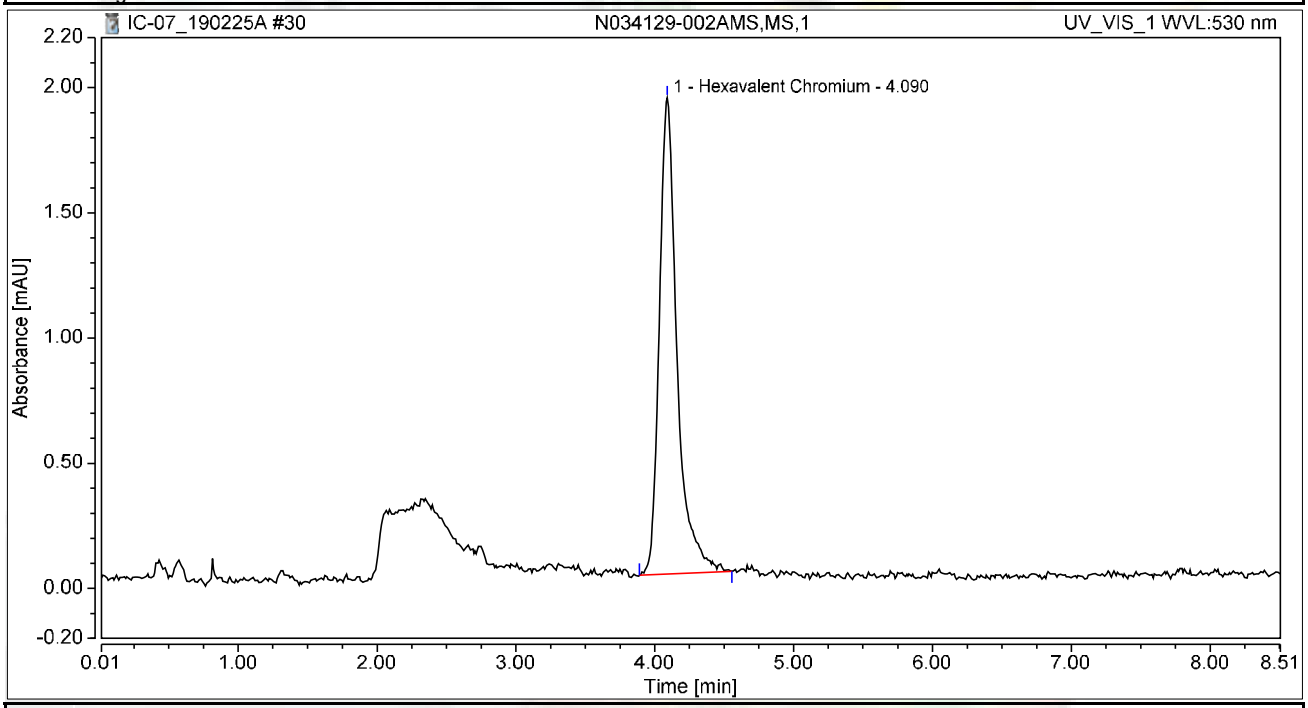
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.017 | 0.144 | 100.00 | 100.00 | 0.0690 |
| **Total:** | | | **0.017** | **0.144** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-002AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 14:04** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

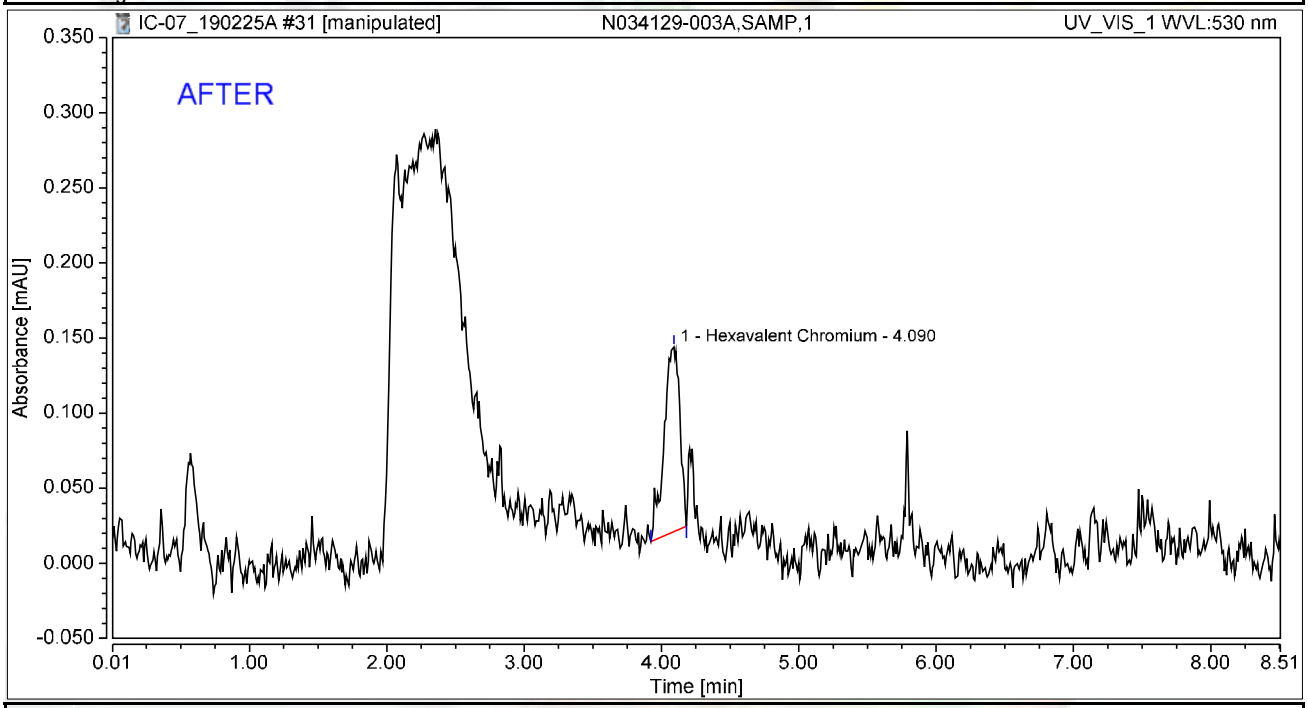
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.282 | 1.903 | 100.00 | 100.00 | 1.1360 |
| **Total:** | | | **0.282** | **1.903** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-003A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 14:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.016 | 0.123 | 100.00 | 100.00 | 0.0656 |
| **Total:** | | | **0.016** | **0.123** | **100.00** | **100.00** | |

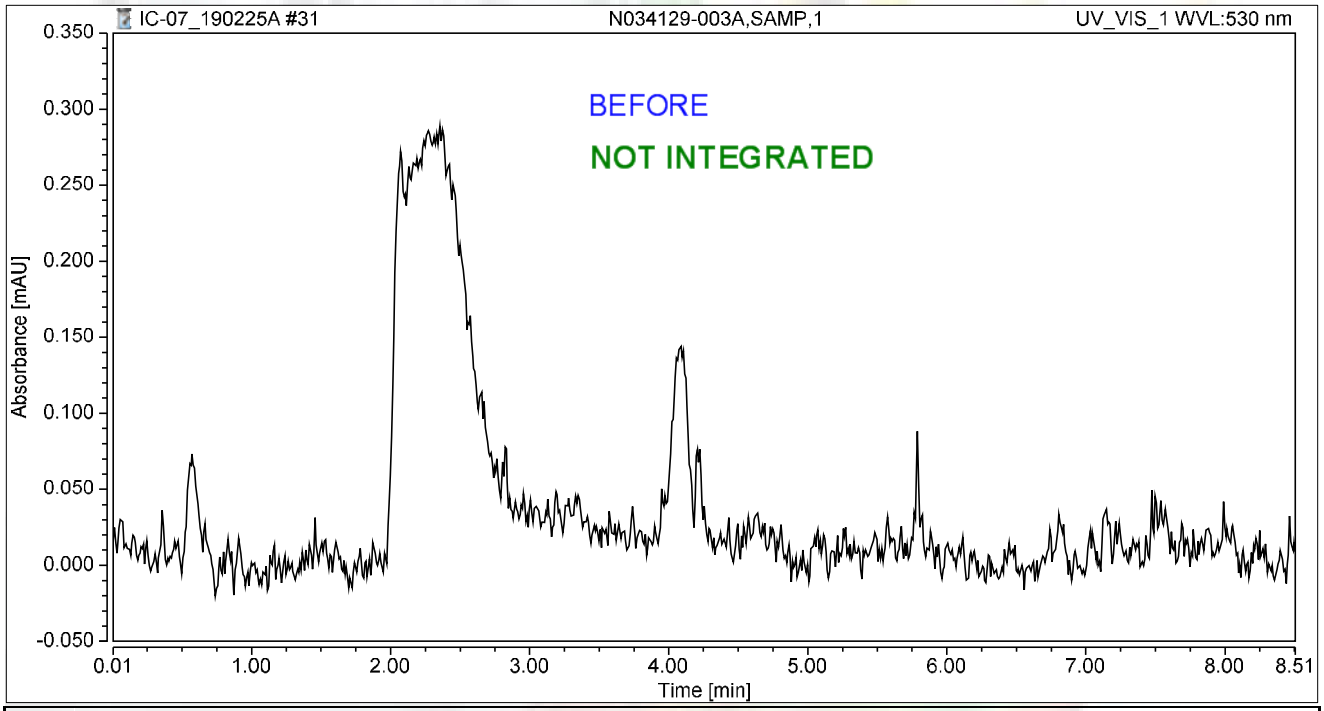
Reviewed by:
Nancy 2/27/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-003A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 14:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

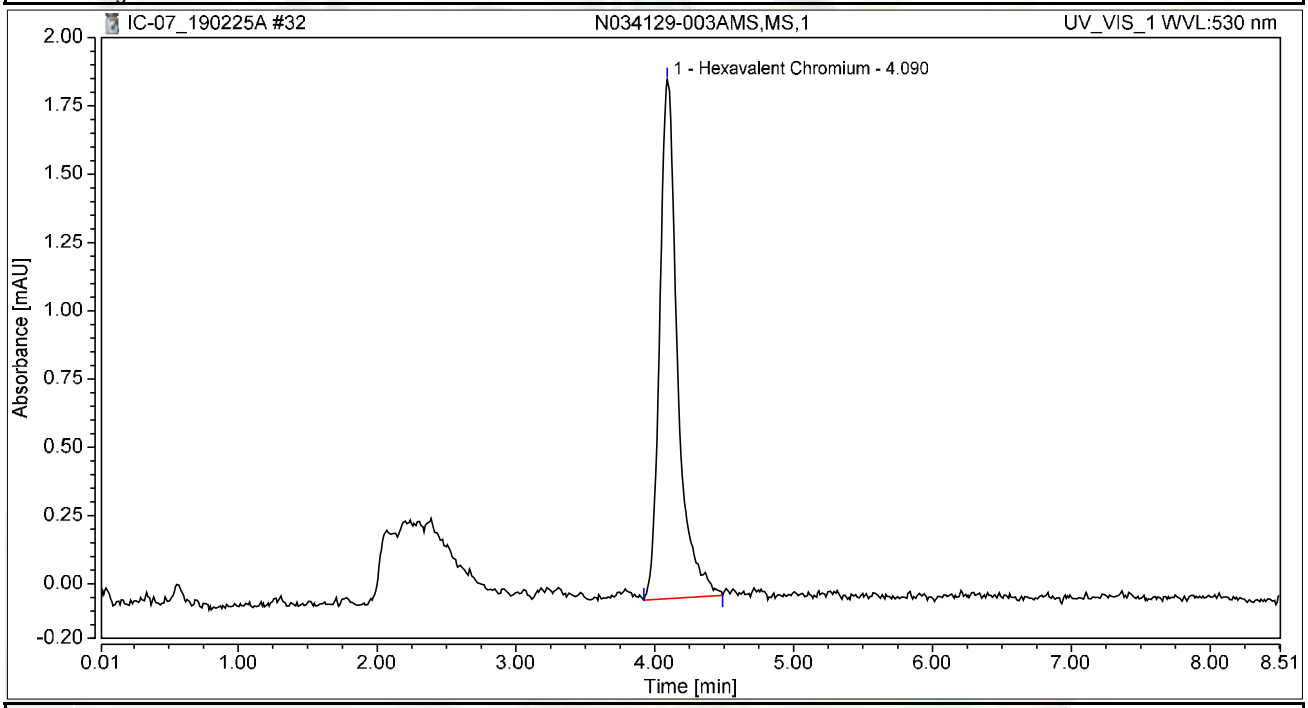
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-003AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **23** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 14:23** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

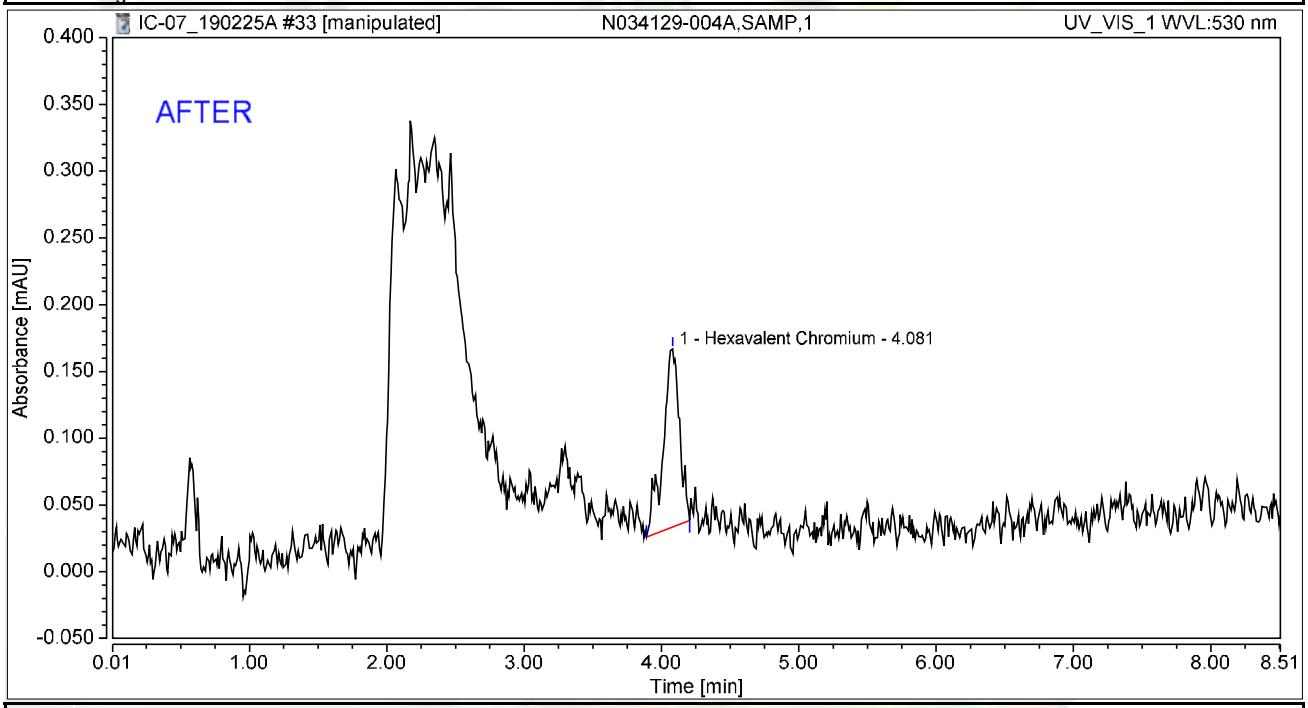
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.284 | 1.900 | 100.00 | 100.00 | 1.1478 |
| **Total:** | | | **0.284** | **1.900** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-004A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **24** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 14:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

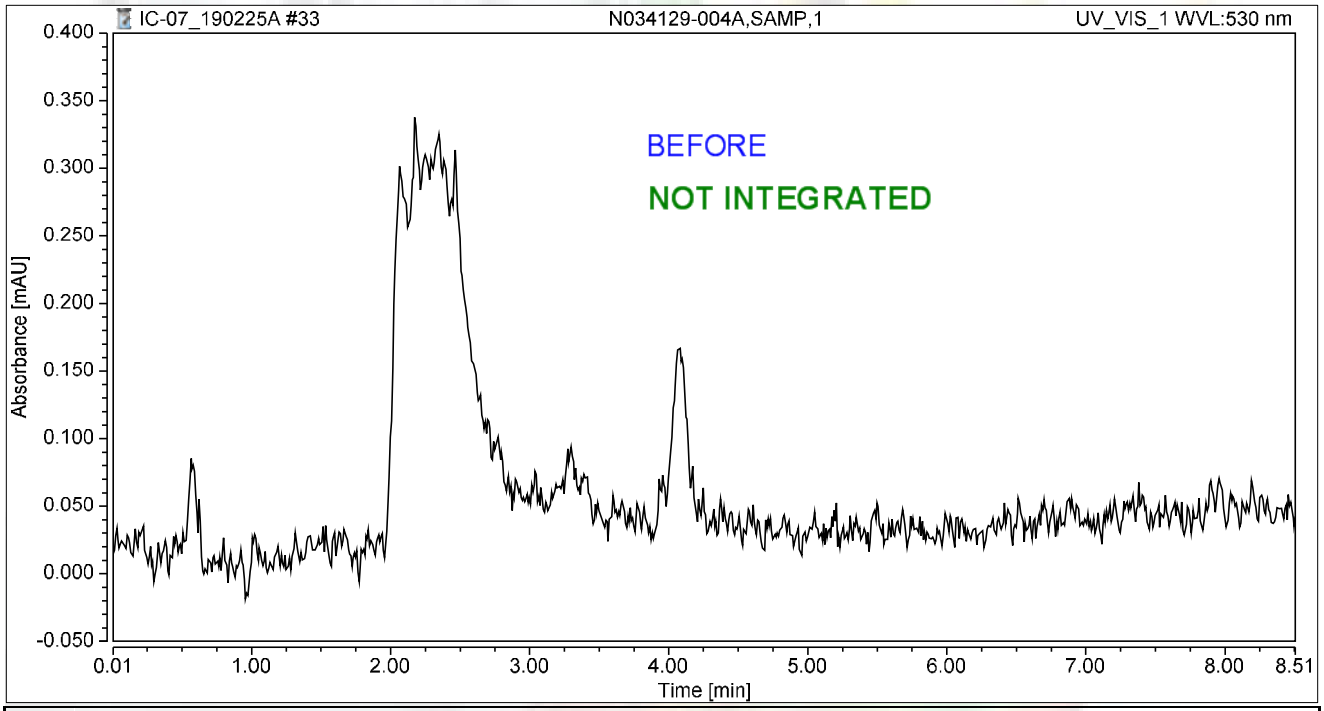
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.019 | 0.133 | 100.00 | 100.00 | 0.0749 |
| **Total:** | | | **0.019** | **0.133** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-004A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **24** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 14:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

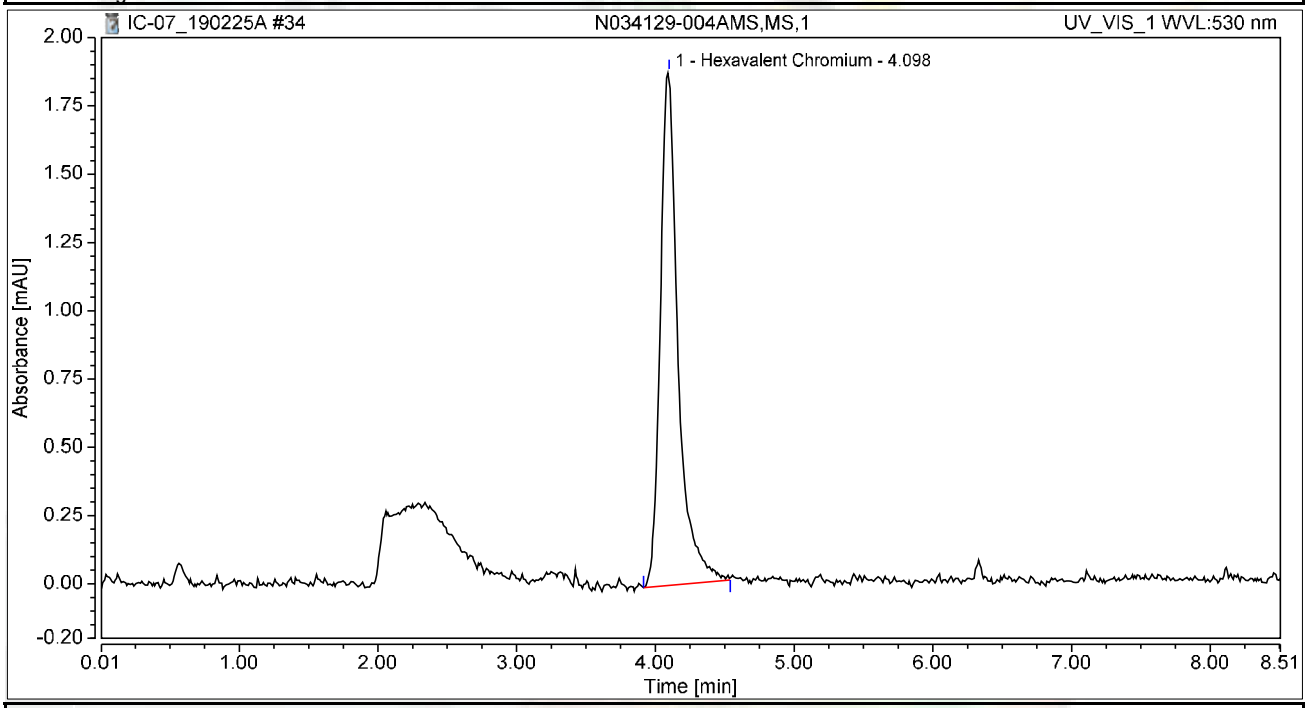
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-004AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 14:42** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

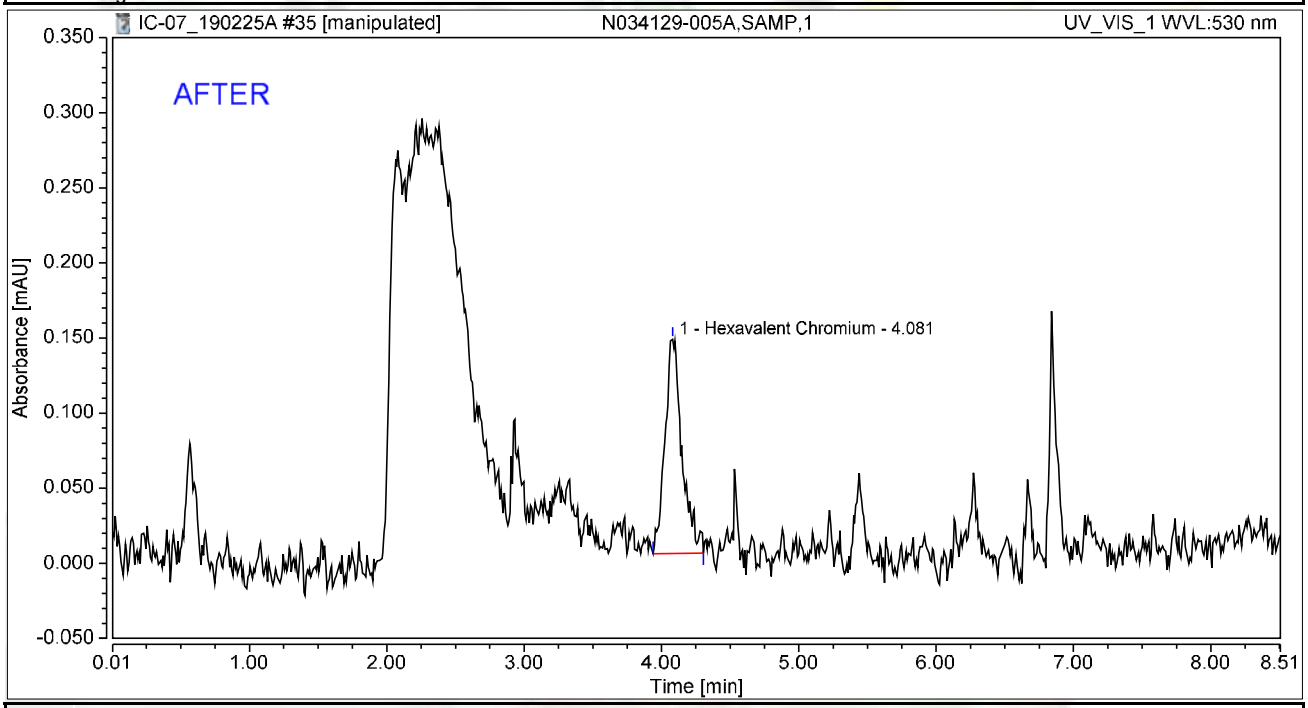
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.280 | 1.882 | 100.00 | 100.00 | 1.1299 |
| **Total:** | | | **0.280** | **1.882** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-005A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **26** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 14:51** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.020 | 0.143 | 100.00 | 100.00 | 0.0827 |
| **Total:** | | | **0.020** | **0.143** | **100.00** | **100.00** | |

Reviewed by:
Nancy 2/27/2019

My first report/Integration

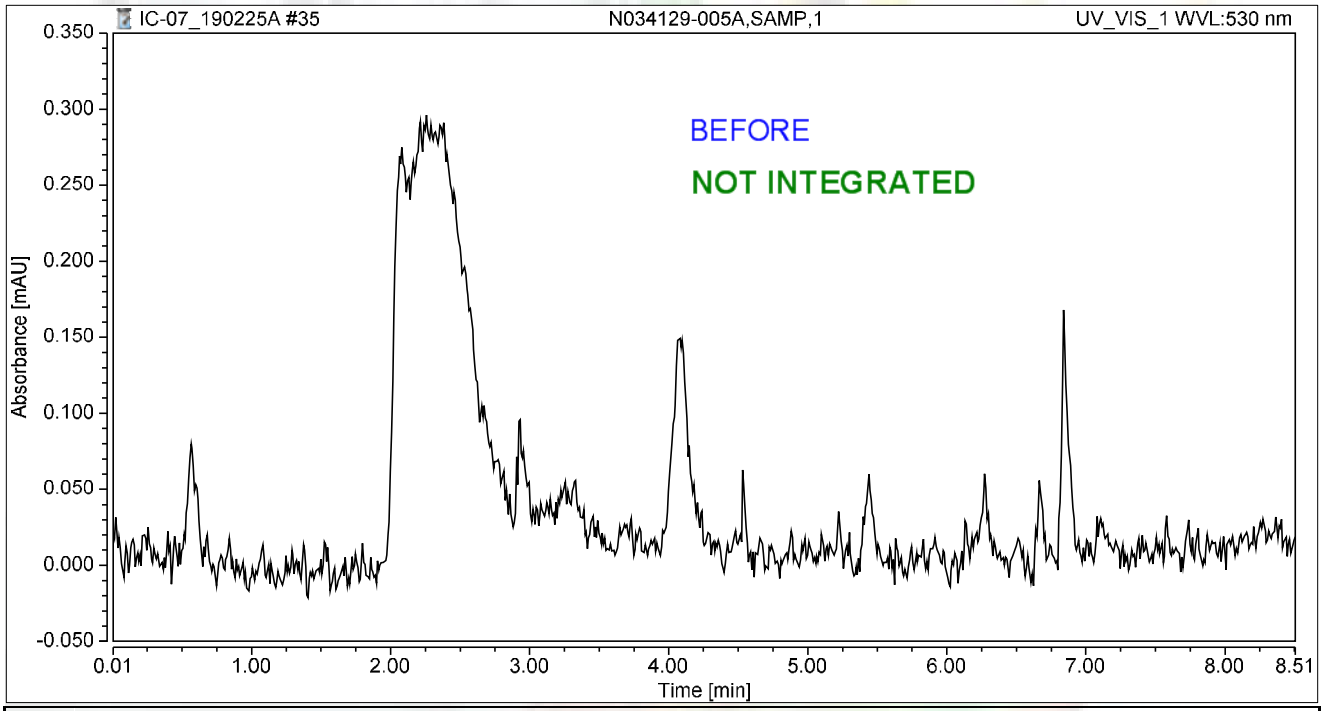
Chromeleon (c) Dionex
Version 7.1.1.1127

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-005A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **26** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 14:51** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

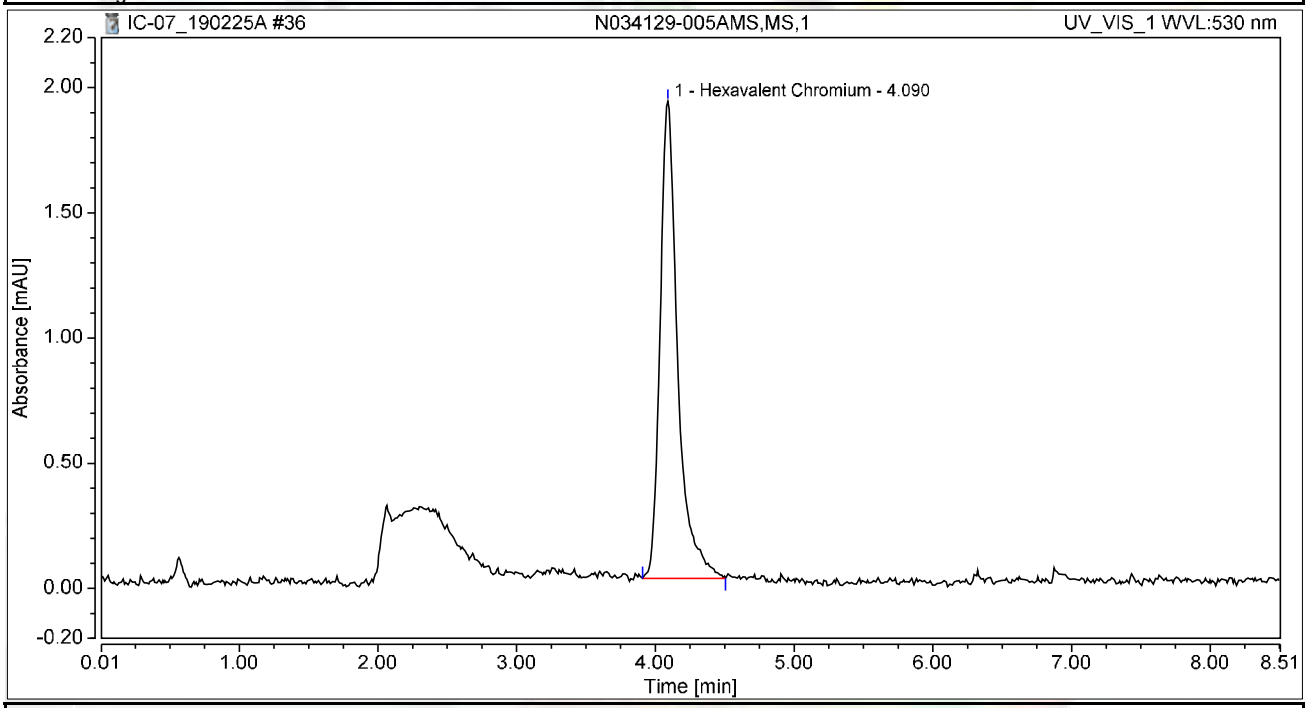
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-005AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 15:01** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

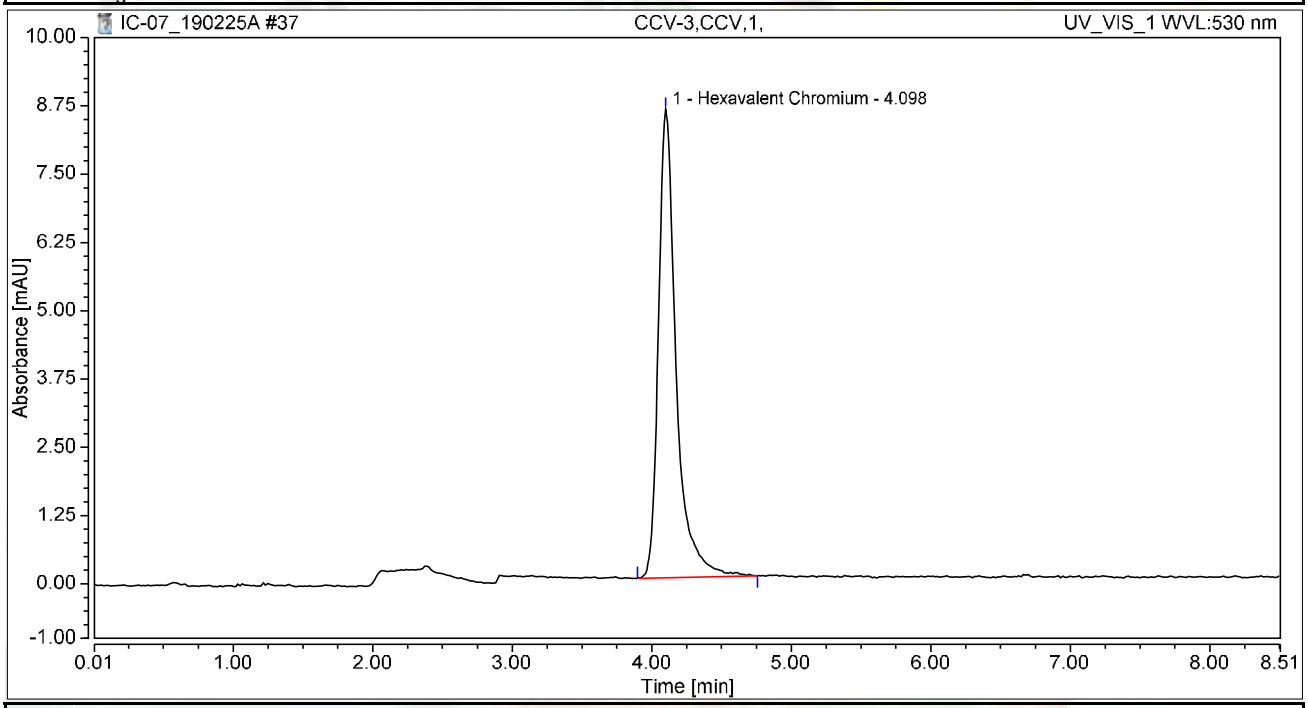
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.281 | 1.906 | 100.00 | 100.00 | 1.1347 |
| **Total:** | | | **0.281** | **1.906** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-3,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **28** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 15:10** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

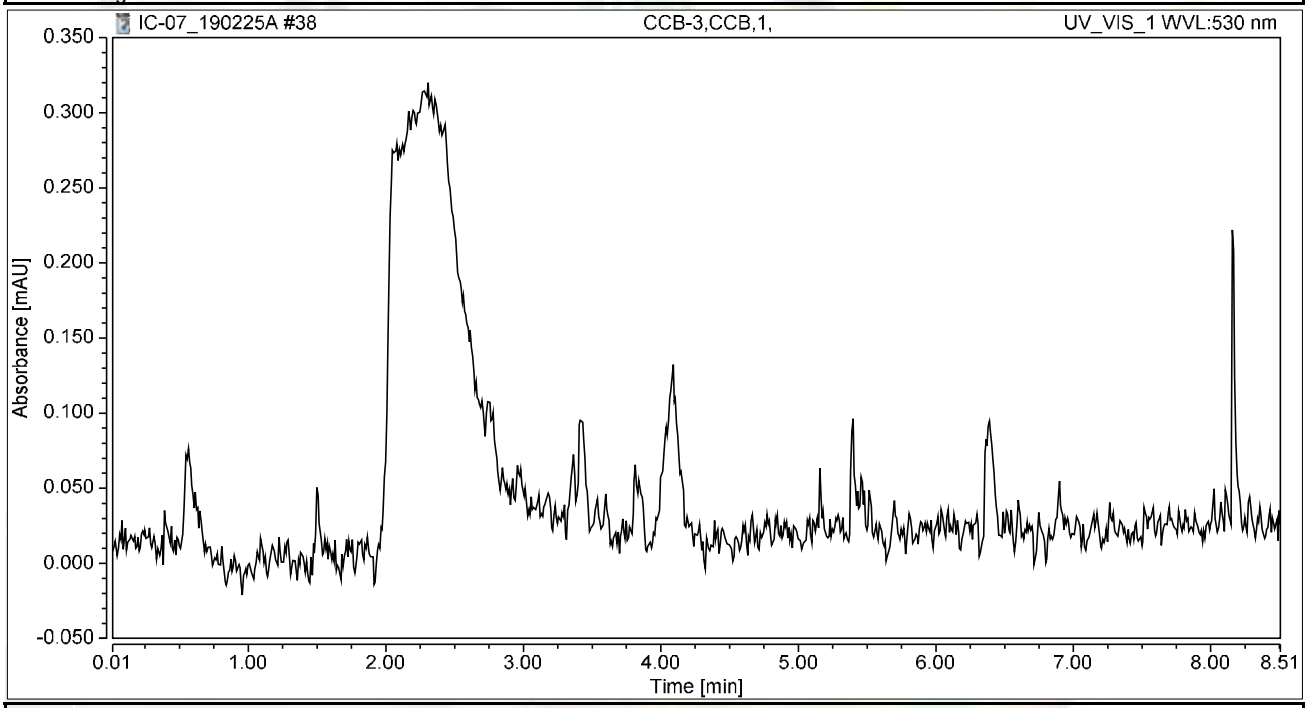
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.261 | 8.578 | 100.00 | 100.00 | 5.0893 |
| **Total:** | | | **1.261** | **8.578** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-3,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **29** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 15:20** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

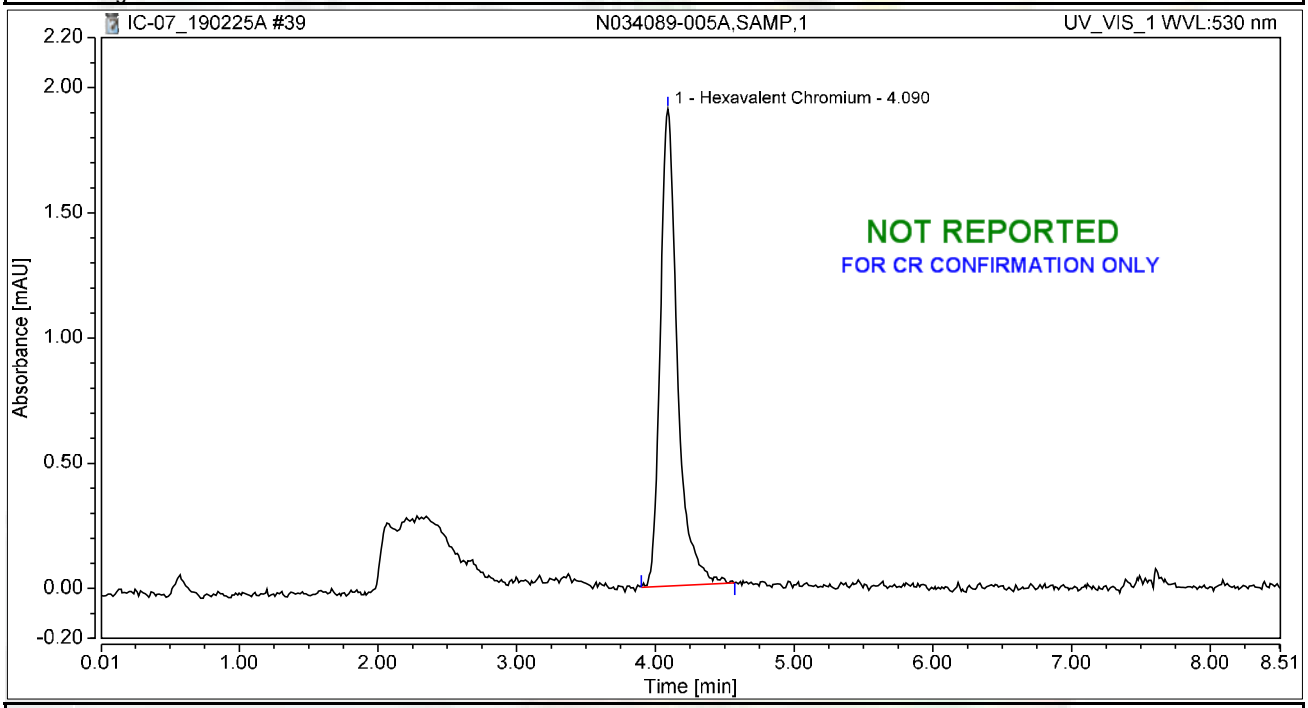
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034089-005A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **30** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 15:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

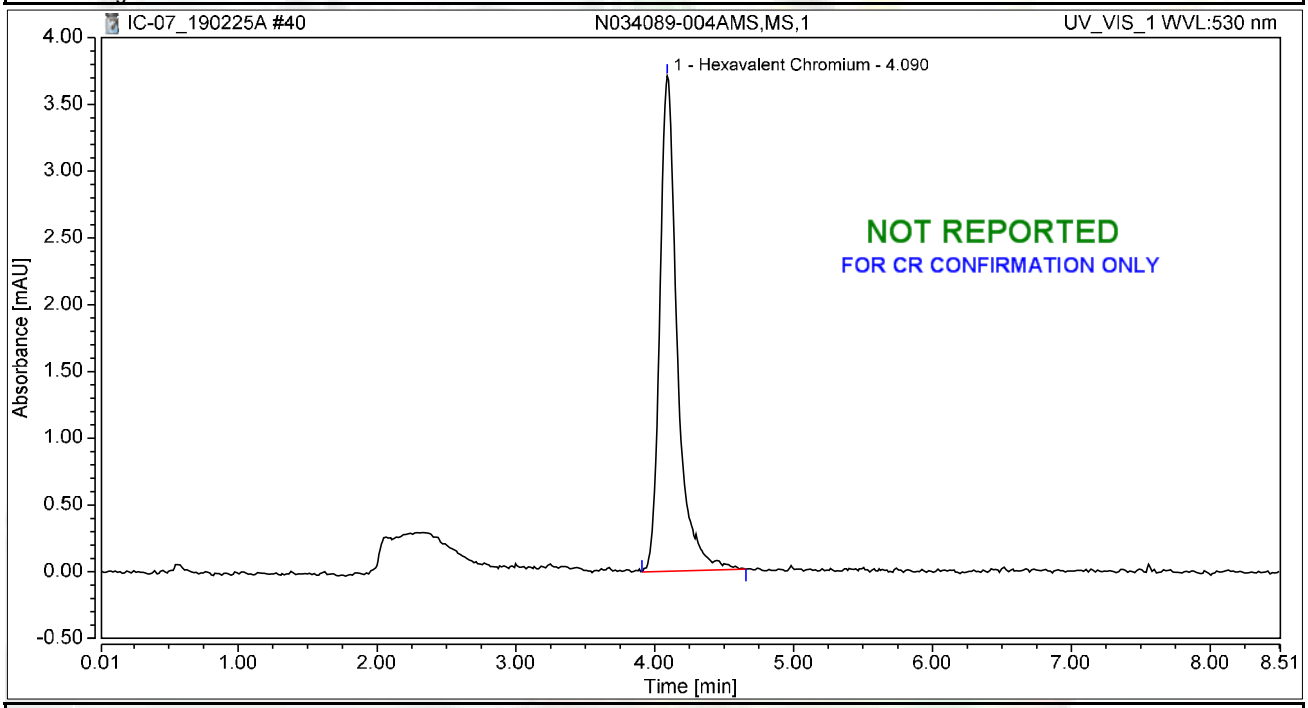
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.274 | 1.906 | 100.00 | 100.00 | 1.1052 |
| **Total:** | | | **0.274** | **1.906** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034089-004AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **31** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 15:43** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

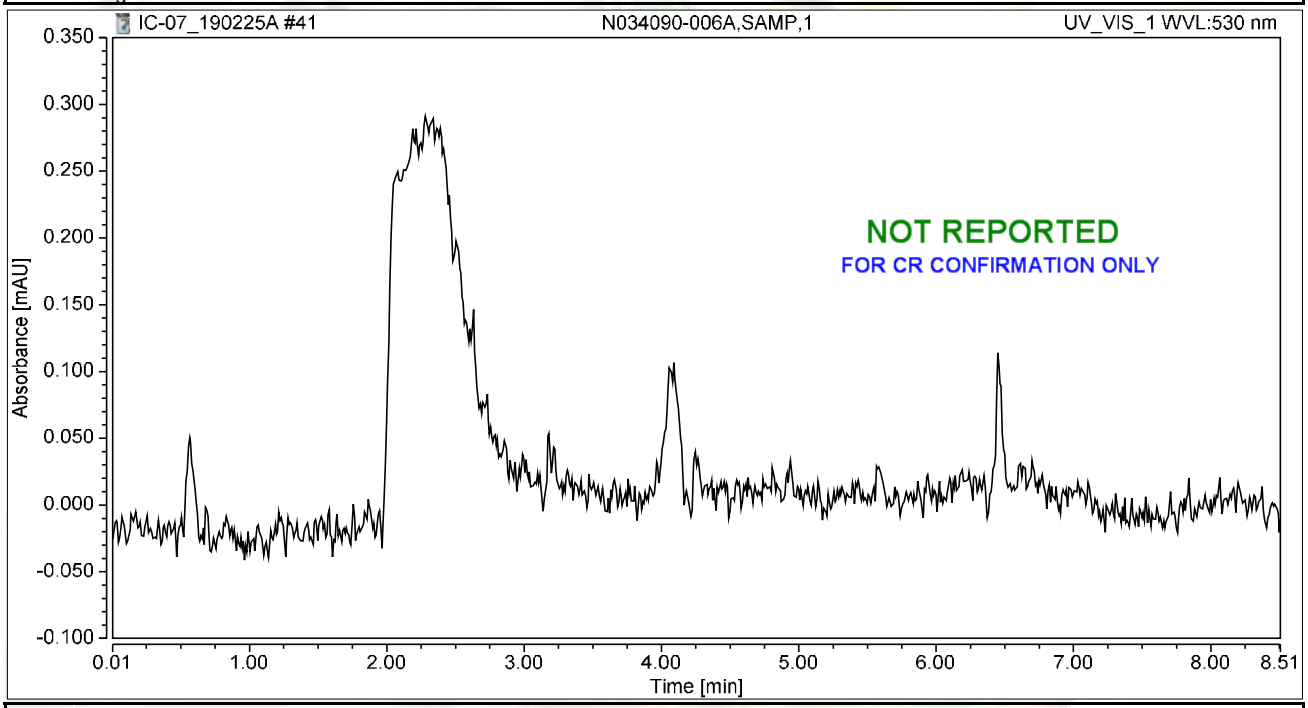
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.543 | 3.709 | 100.00 | 100.00 | 2.1917 |
| **Total:** | | | **0.543** | **3.709** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-006A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **32** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 15:52** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

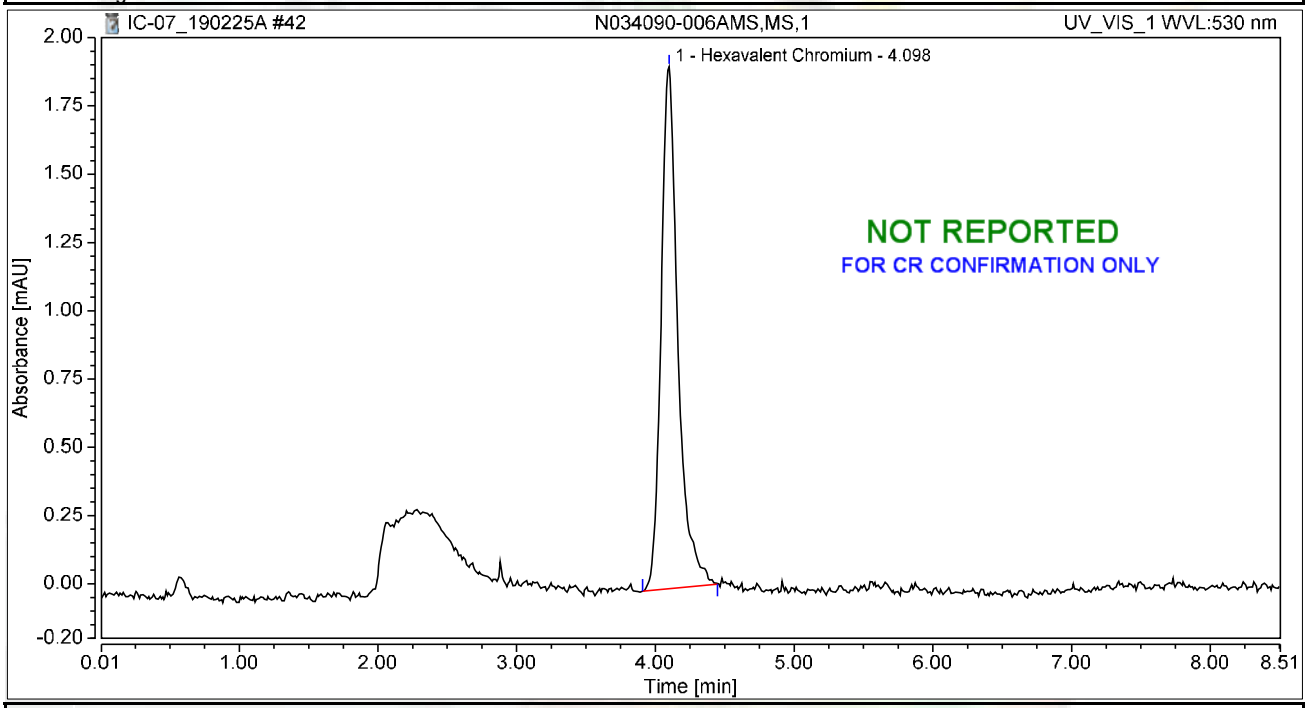
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-006AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **33** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 16:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

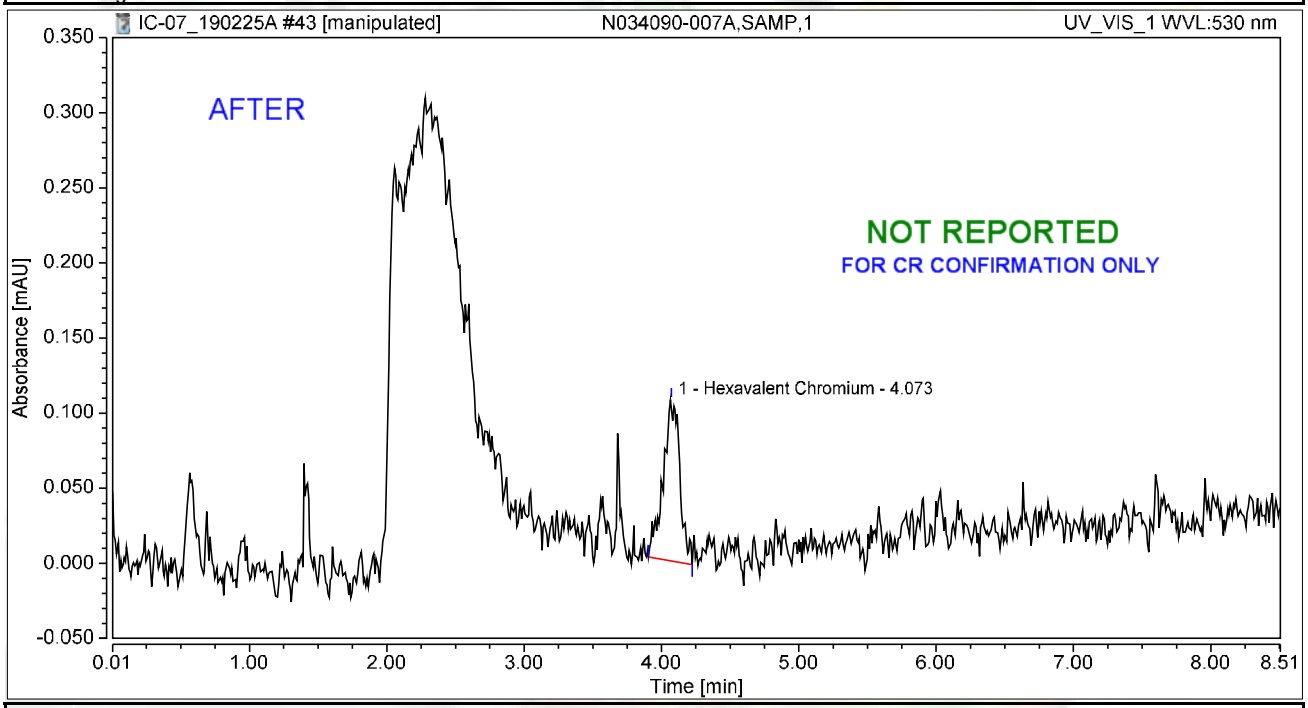
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.269 | 1.911 | 100.00 | 100.00 | 1.0864 |
| **Total:** | | | **0.269** | **1.911** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-007A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **34** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 16:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

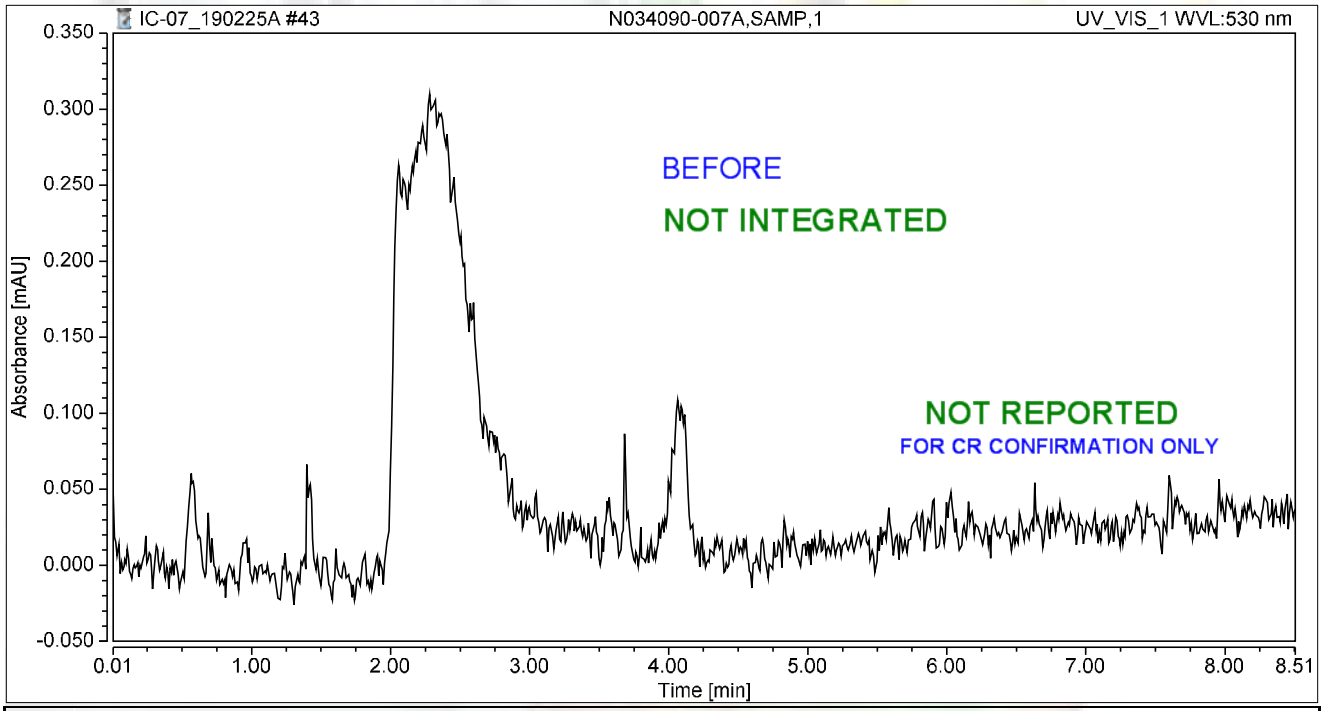
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 0.015 | 0.107 | 100.00 | 100.00 | 0.0612 |
| **Total:** | | | **0.015** | **0.107** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-007A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **34** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 16:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

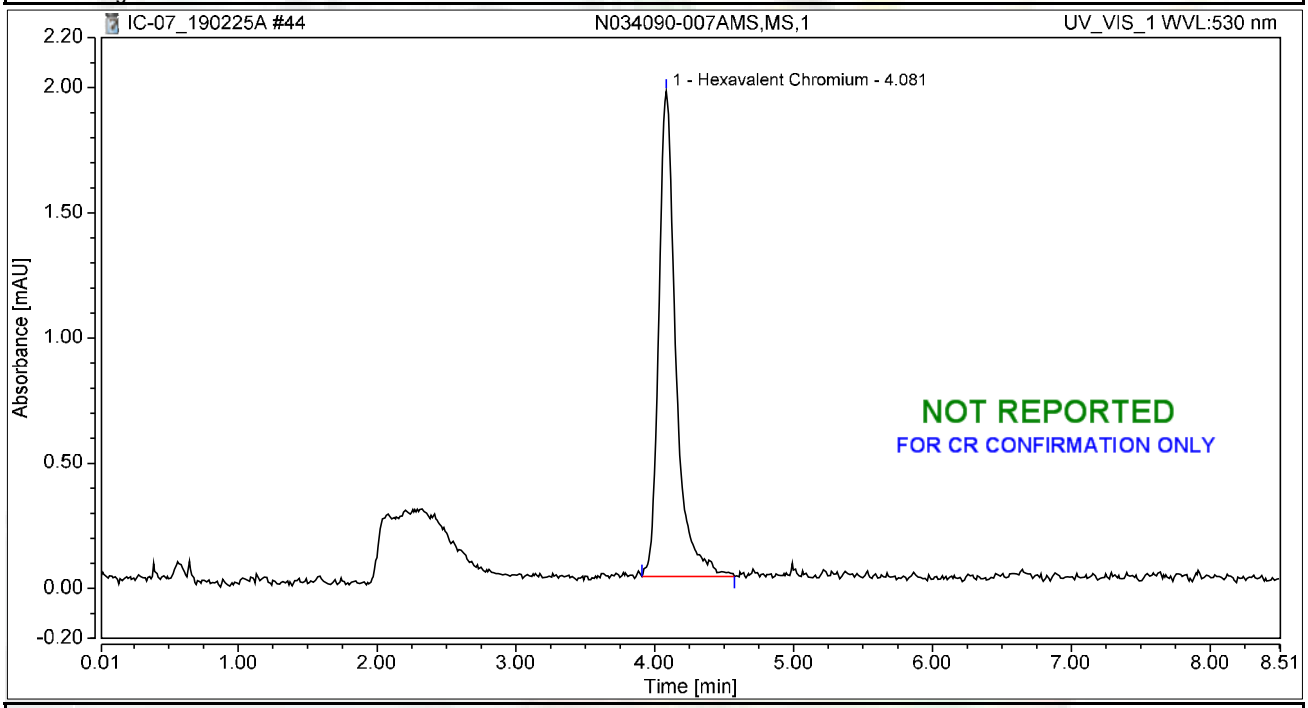
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-007AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **35** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 16:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

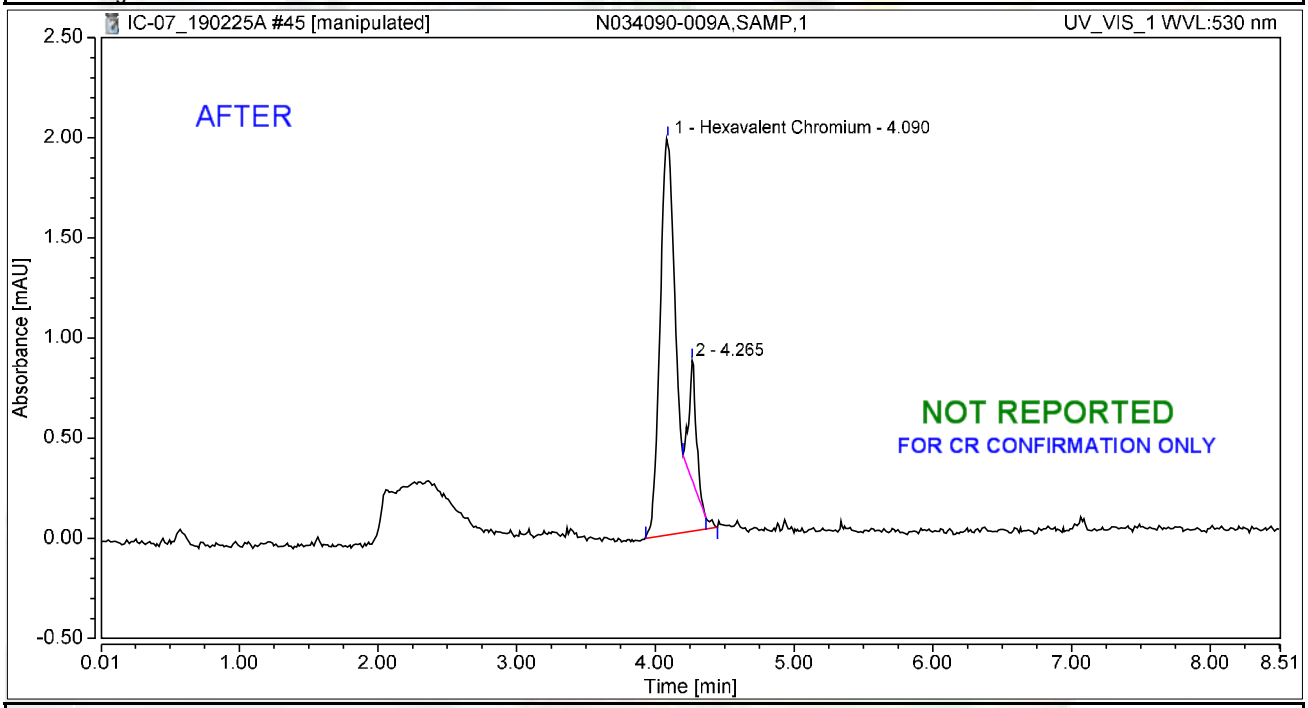
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.277 | 1.939 | 100.00 | 100.00 | 1.1193 |
| **Total:** | | | **0.277** | **1.939** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-009A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **36** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 16:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

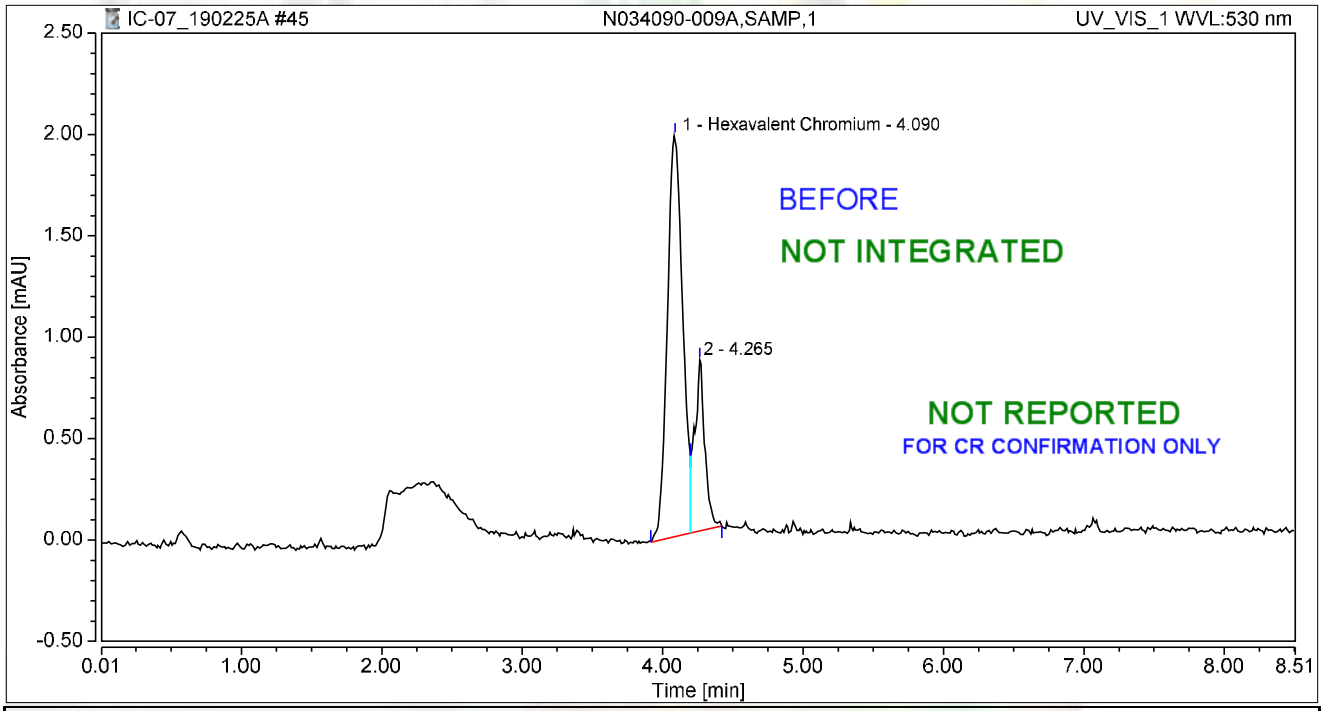
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.288 | 1.979 | 89.12 | 76.82 | 1.1640 |
| 2 | | 4.265 | 0.035 | 0.597 | 10.88 | 23.18 | n.a. |
| **Total:** | | | **0.324** | **2.576** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-009A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **36** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 16:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

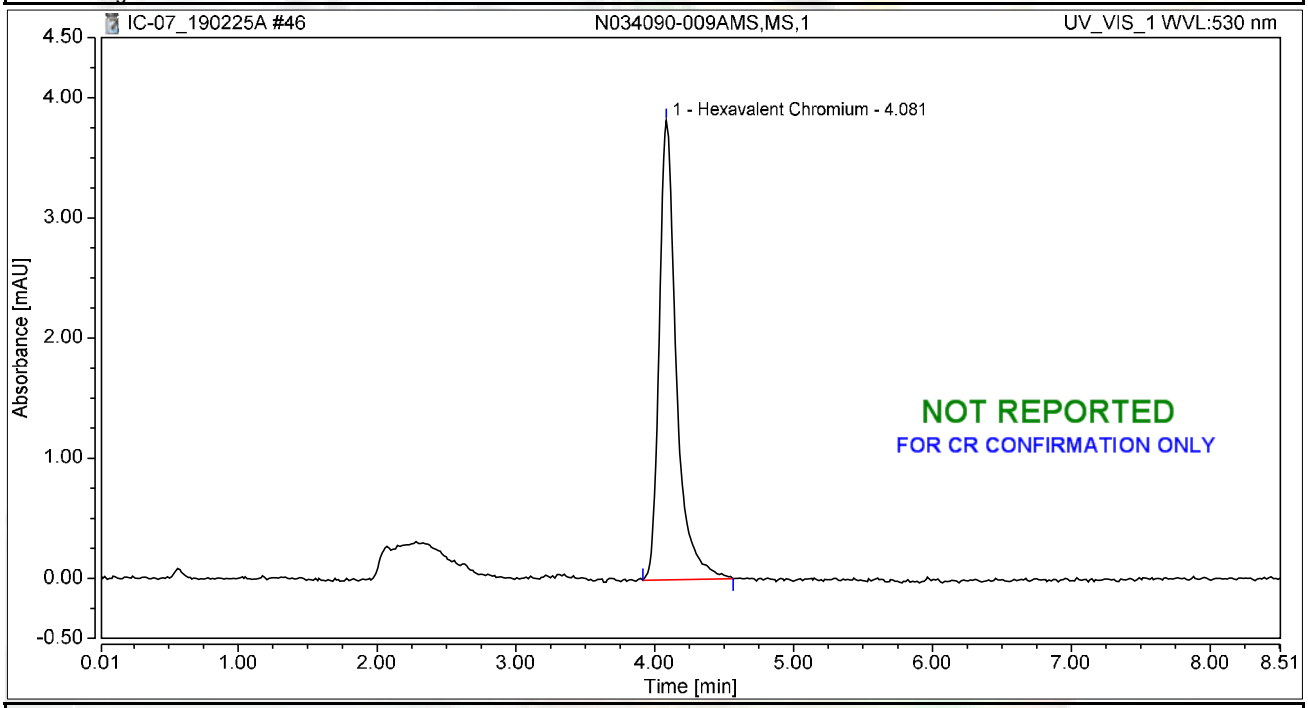
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.250 | 1.979 | 77.60 | 70.12 | 1.0074 |
| 2 | | 4.265 | 0.072 | 0.844 | 22.40 | 29.88 | n.a. |
| **Total:** | | | **0.322** | **2.823** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-009AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **37** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 16:40** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

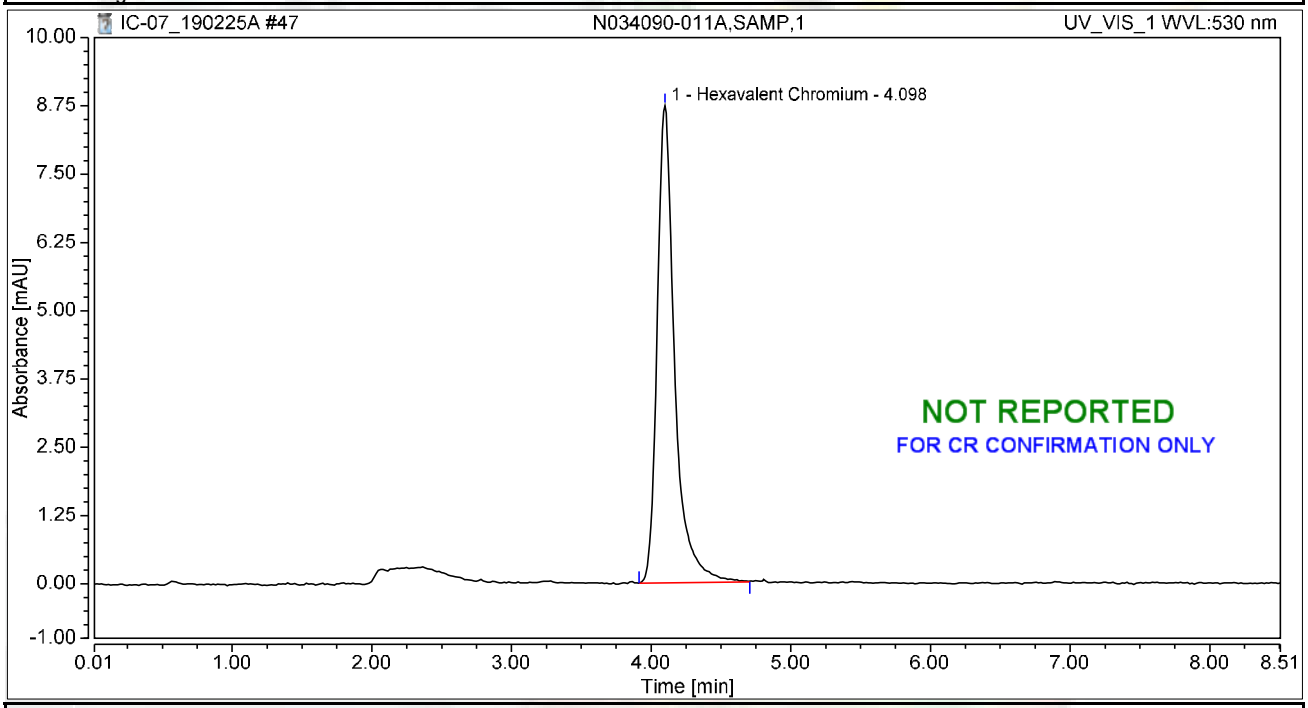
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.548 | 3.823 | 100.00 | 100.00 | 2.2113 |
| **Total:** | | | **0.548** | **3.823** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-011A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **38** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 16:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

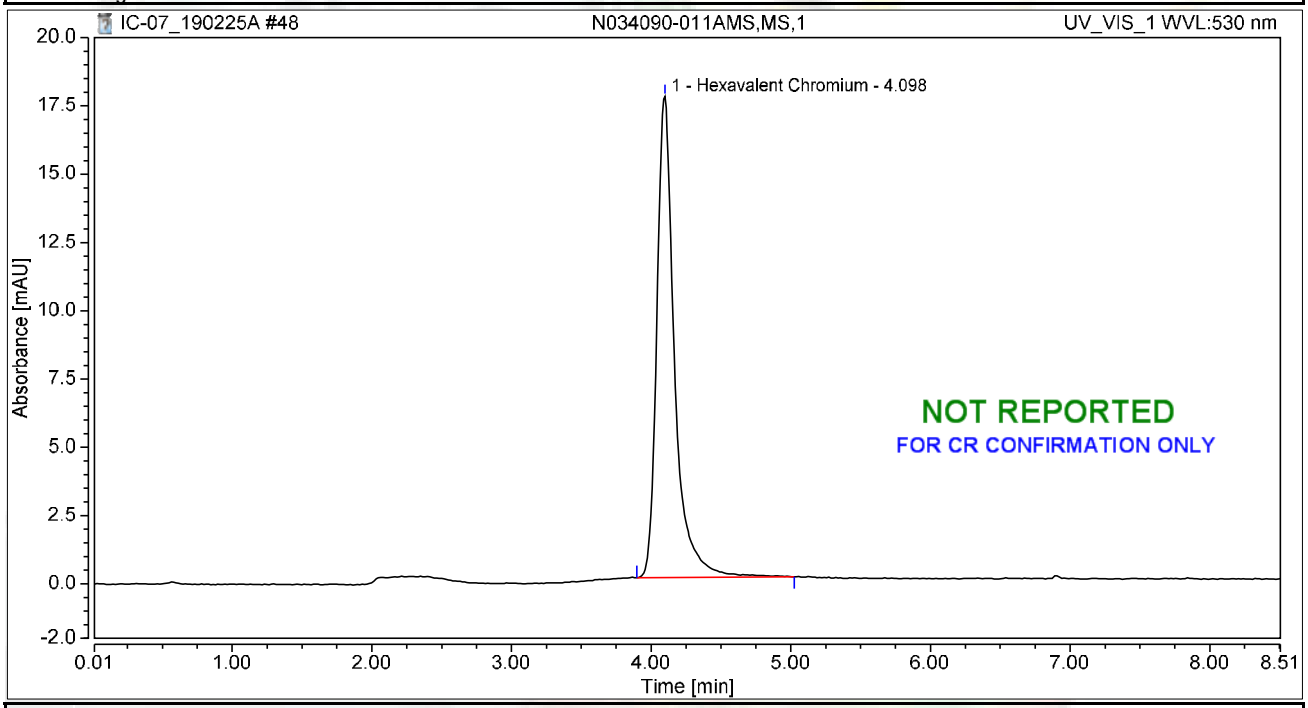
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.274 | 8.744 | 100.00 | 100.00 | 5.1418 |
| **Total:** | | | **1.274** | **8.744** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034090-011AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **39** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 16:58** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

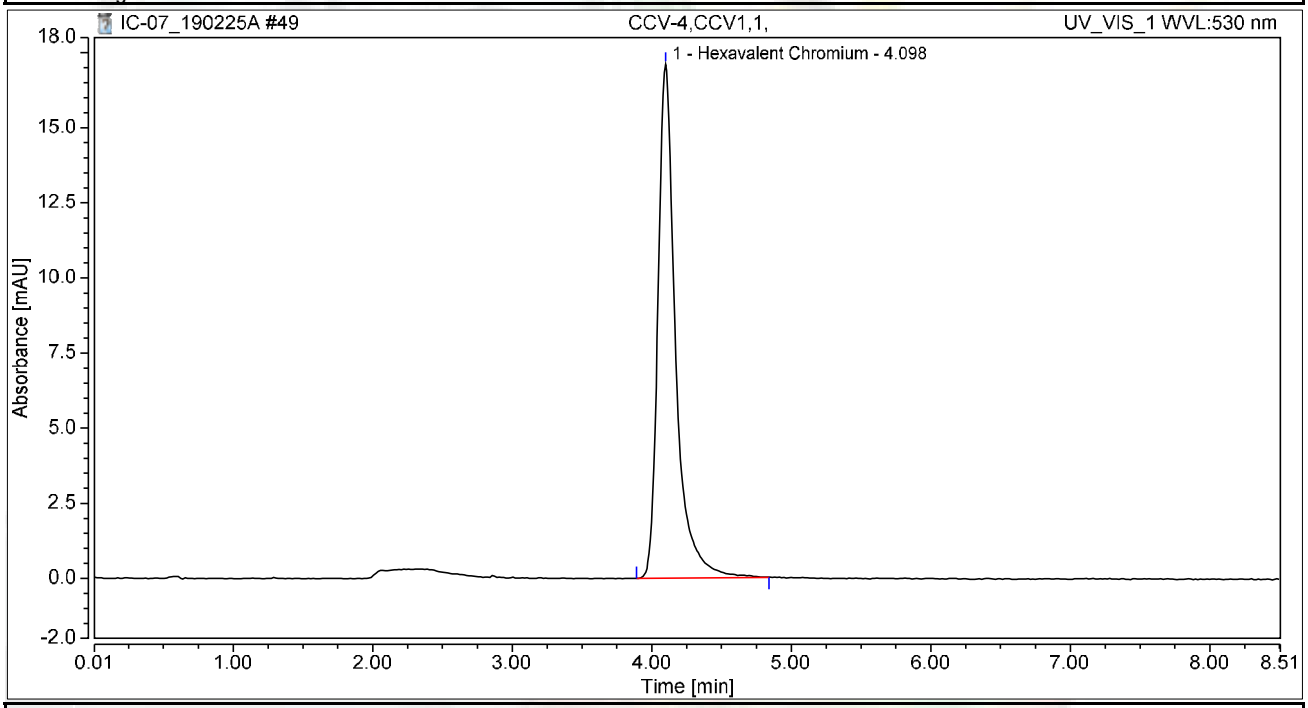
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.594 | 17.604 | 100.00 | 100.00 | 10.4659 |
| **Total:** | | | **2.594** | **17.604** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-4,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **40** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 17:08** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

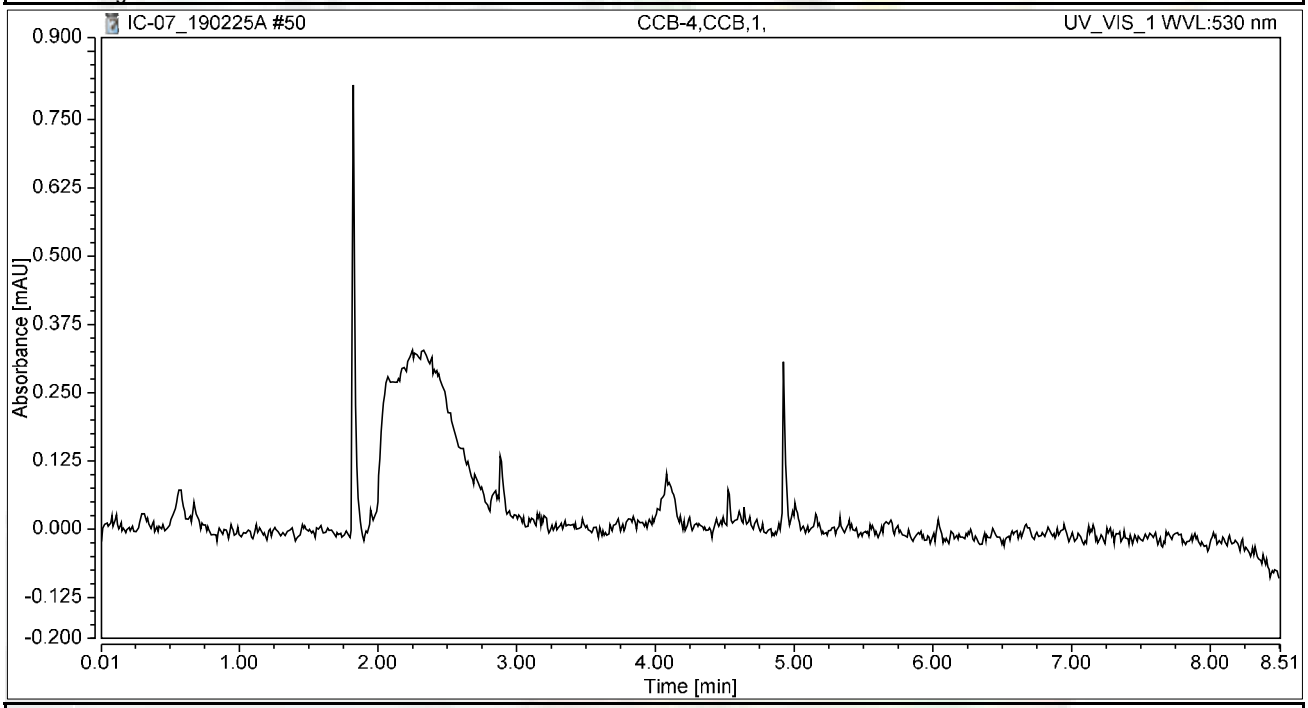
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.504 | 17.109 | 100.00 | 100.00 | 10.1041 |
| **Total:** | | | **2.504** | **17.109** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-4,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **41** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 17:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

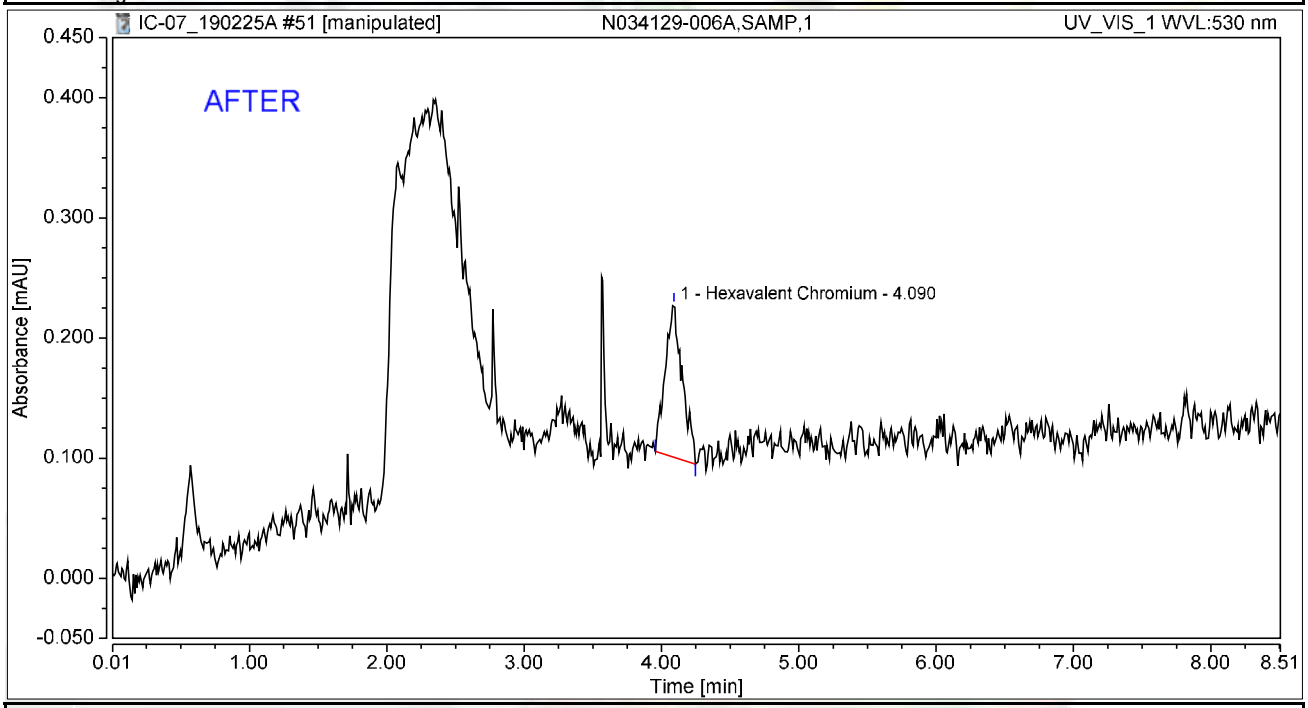
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-006A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 17:29** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.018 | 0.127 | 100.00 | 100.00 | 0.0736 |
| **Total:** | | | **0.018** | **0.127** | **100.00** | **100.00** | |

Reviewed by:
Nancy 2/27/2019

My first report/Integration

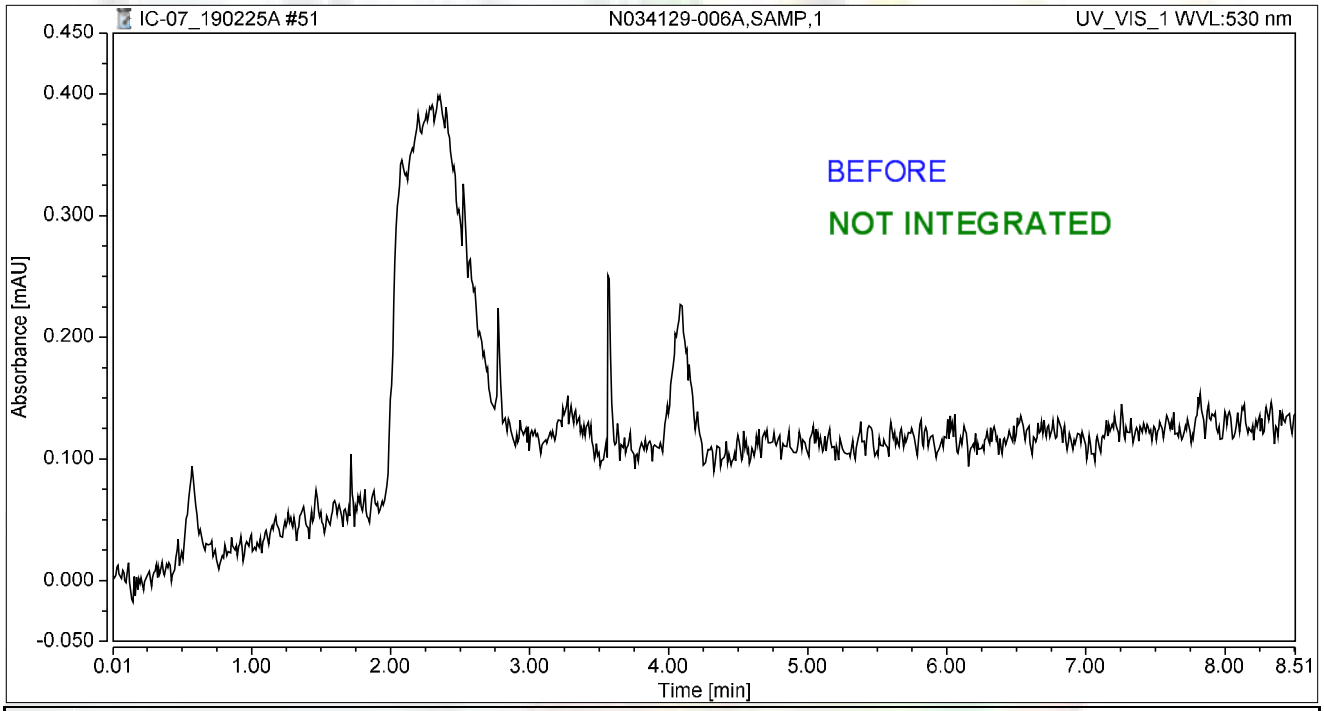
Chromeleon (c) Dionex
Version 7.1.1.1127

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-006A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 17:29** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

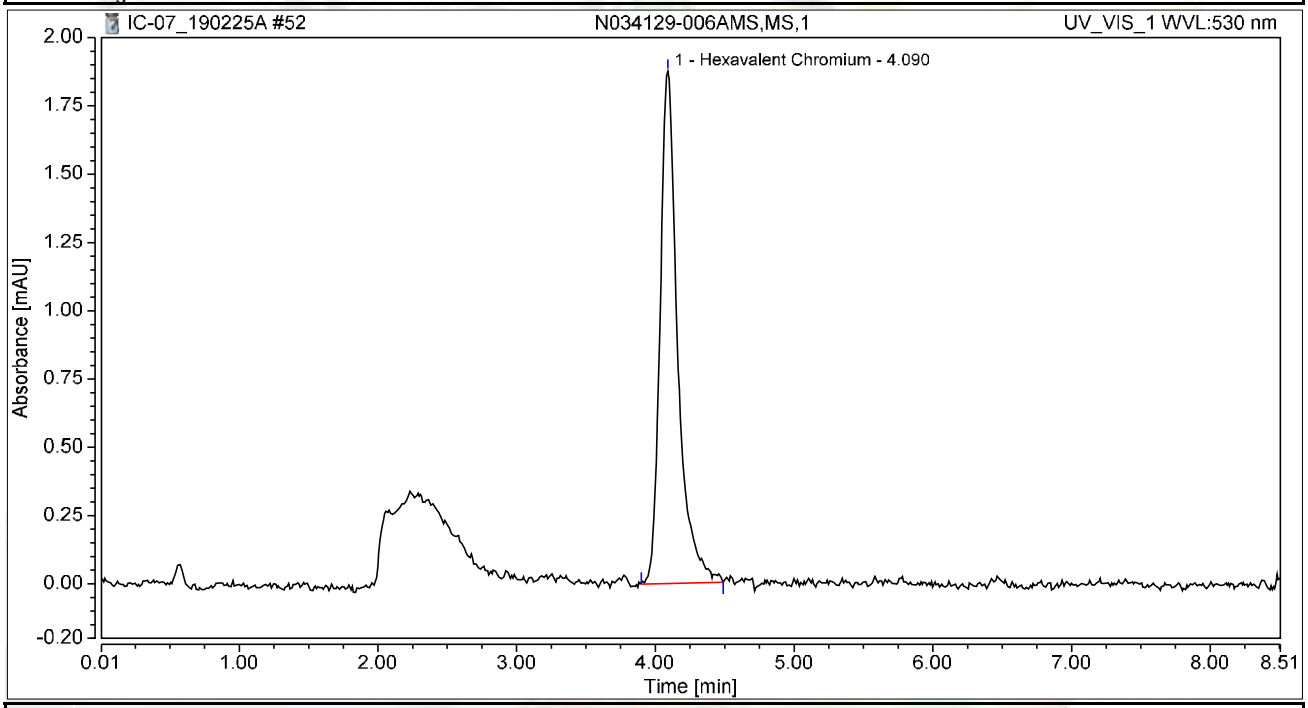
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-006AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 17:39** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

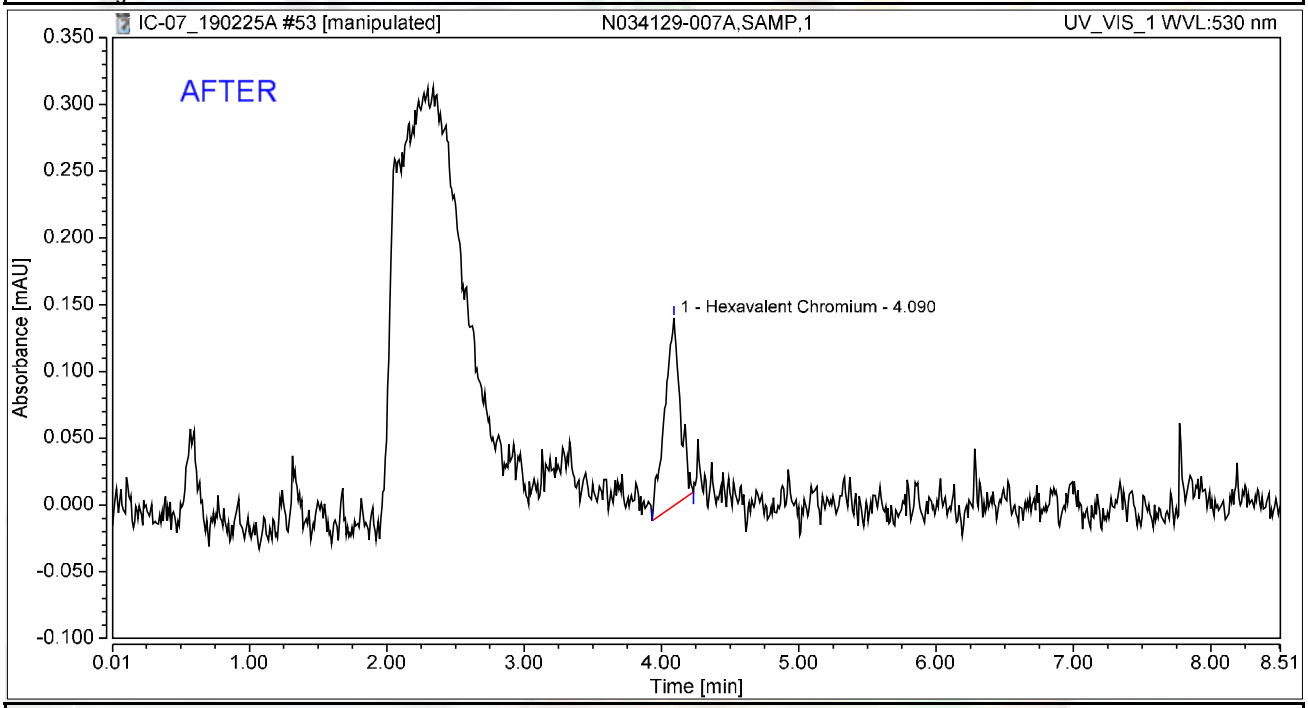
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.276 | 1.877 | 100.00 | 100.00 | 1.1132 |
| **Total:** | | | **0.276** | **1.877** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-007A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 17:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.018 | 0.141 | 100.00 | 100.00 | 0.0735 |
| **Total:** | | | **0.018** | **0.141** | **100.00** | **100.00** | |

Reviewed by:
Nancy 2/27/2019

My first report/Integration

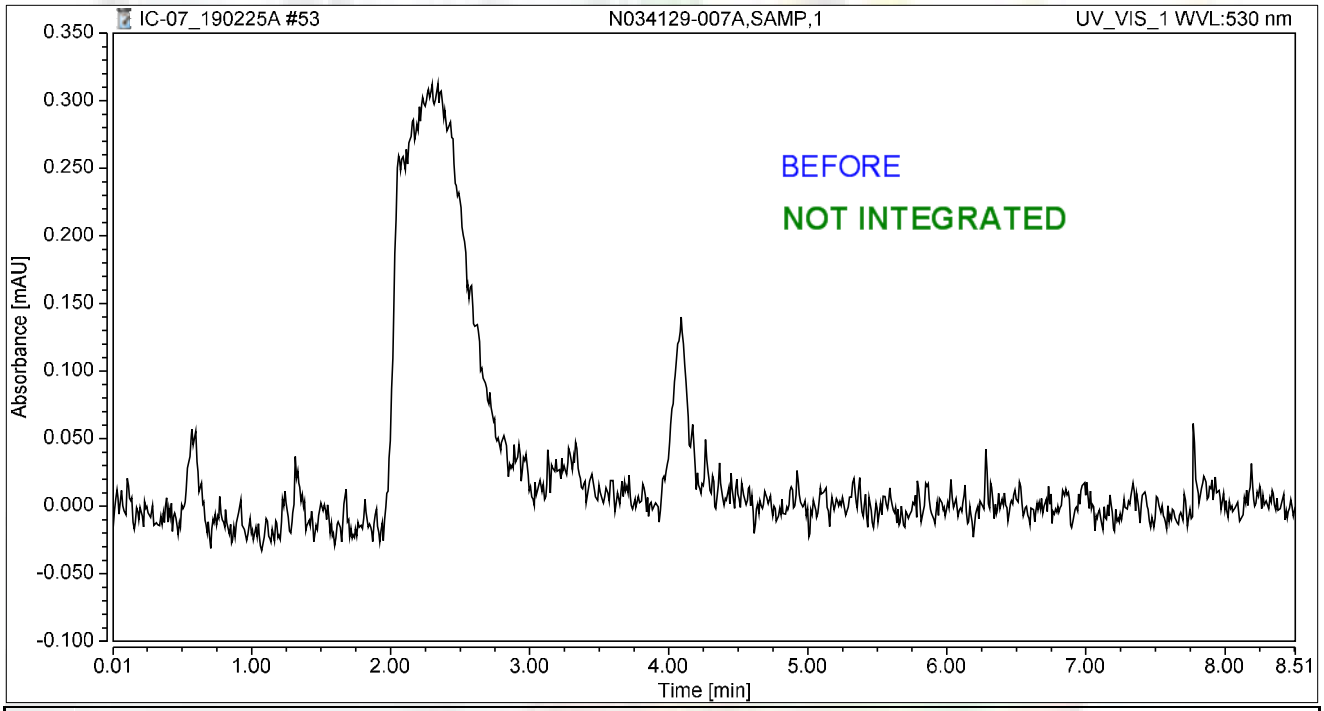
Chromeleon (c) Dionex
Version 7.1.1.1127

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-007A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 17:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

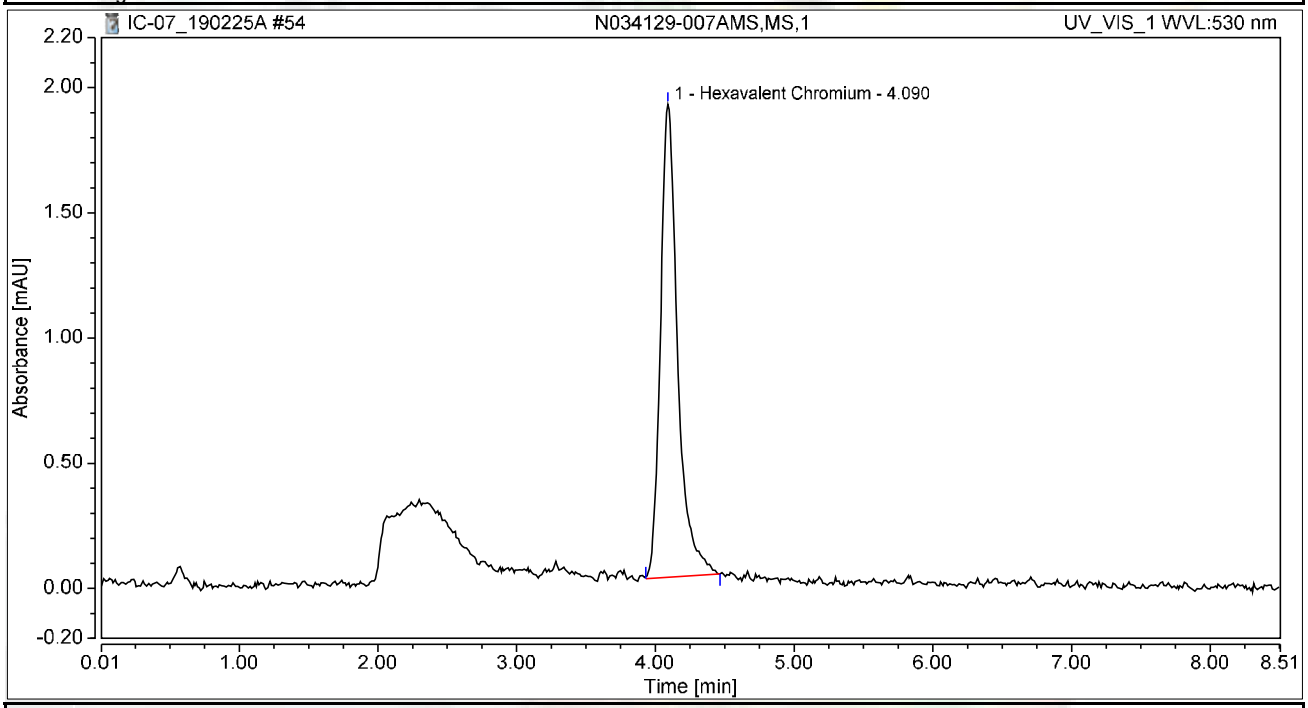
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-007AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 17:58** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

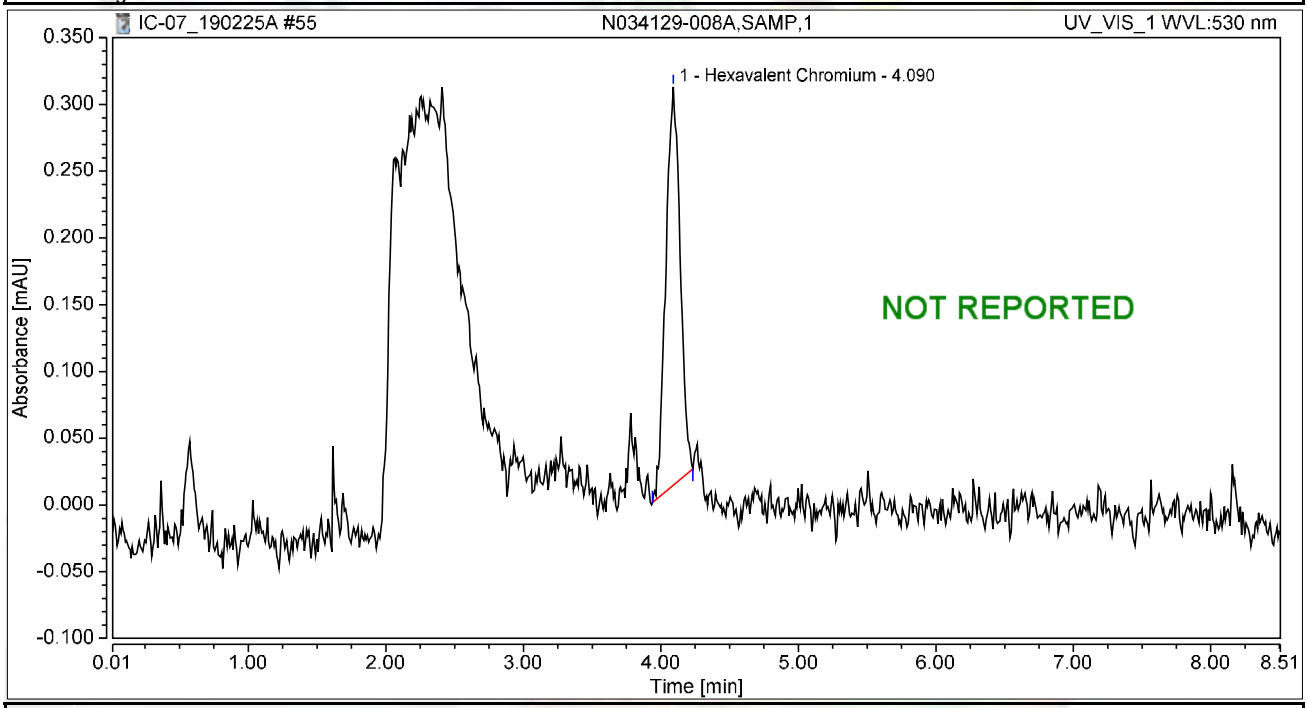
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.271 | 1.889 | 100.00 | 100.00 | 1.0945 |
| **Total:** | | | **0.271** | **1.889** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-008A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 18:08** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

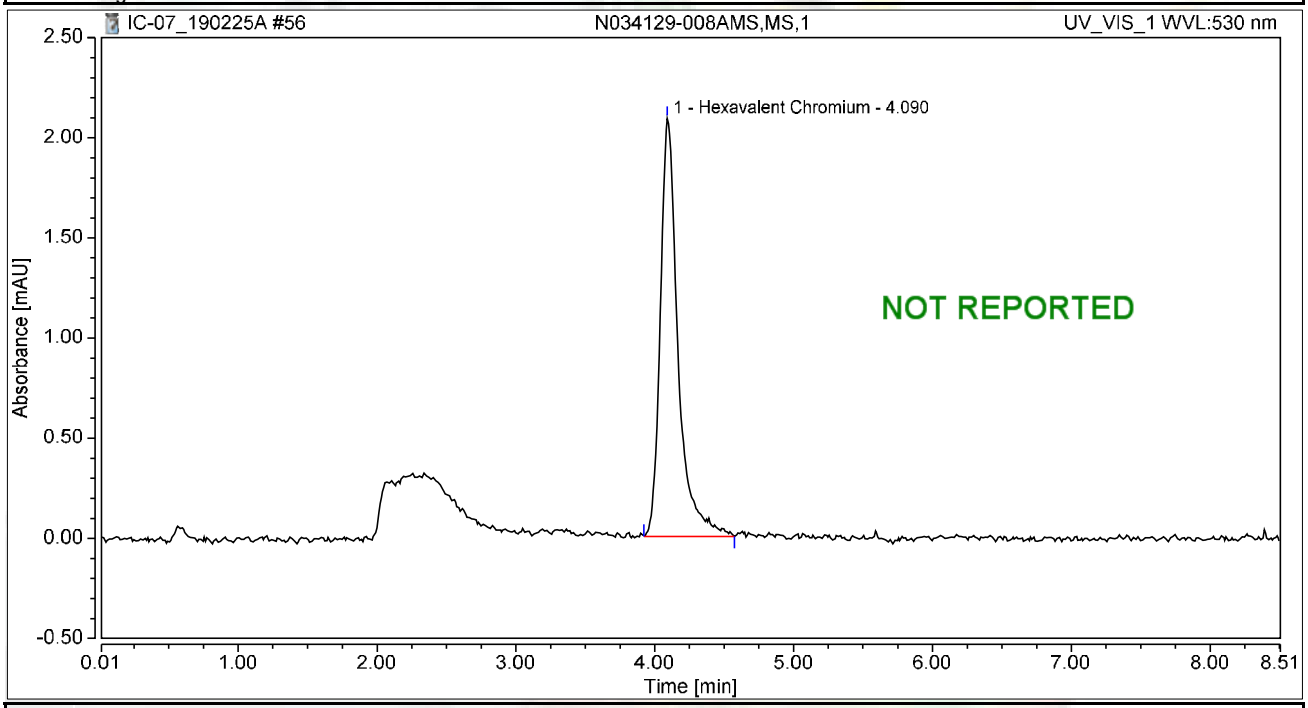
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.036 | 0.298 | 100.00 | 100.00 | 0.1452 |
| **Total:** | | | **0.036** | **0.298** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-008AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 18:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

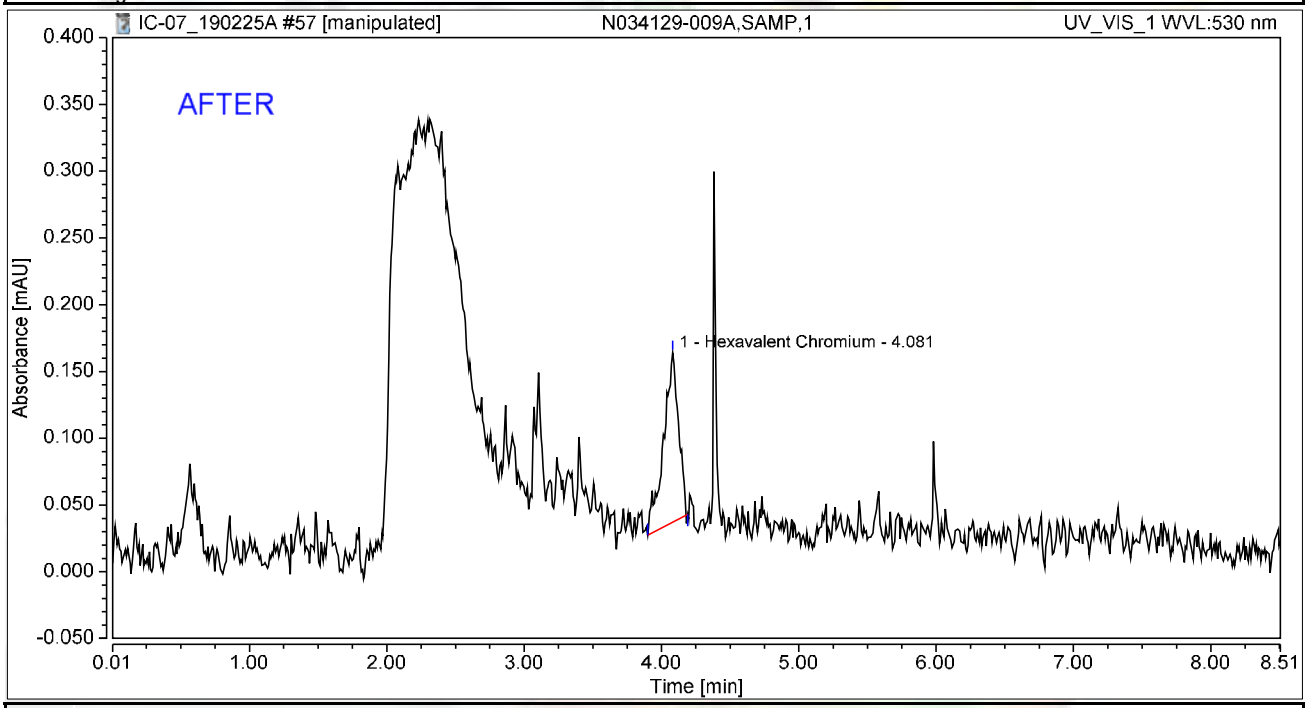
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.309 | 2.087 | 100.00 | 100.00 | 1.2471 |
| **Total:** | | | **0.309** | **2.087** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-009A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 18:27** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

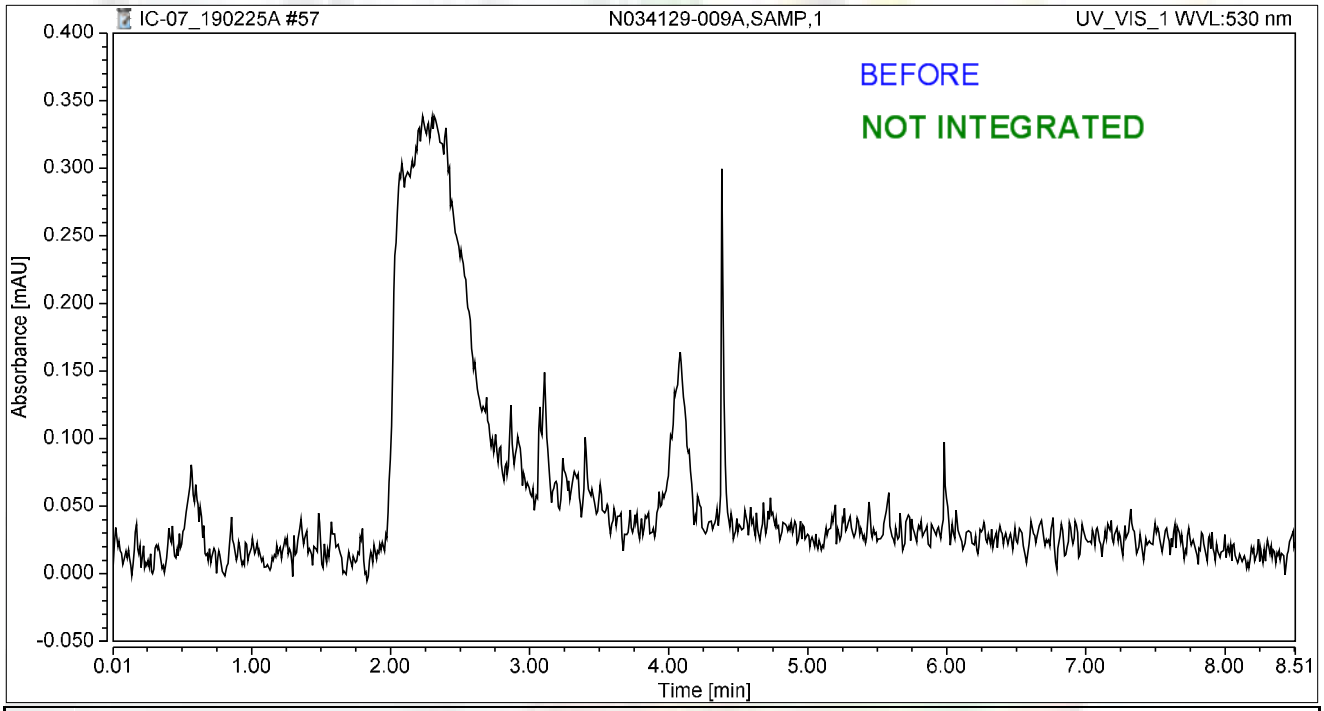
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.016 | 0.127 | 100.00 | 100.00 | 0.0643 |
| **Total:** | | | **0.016** | **0.127** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-009A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 18:27** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

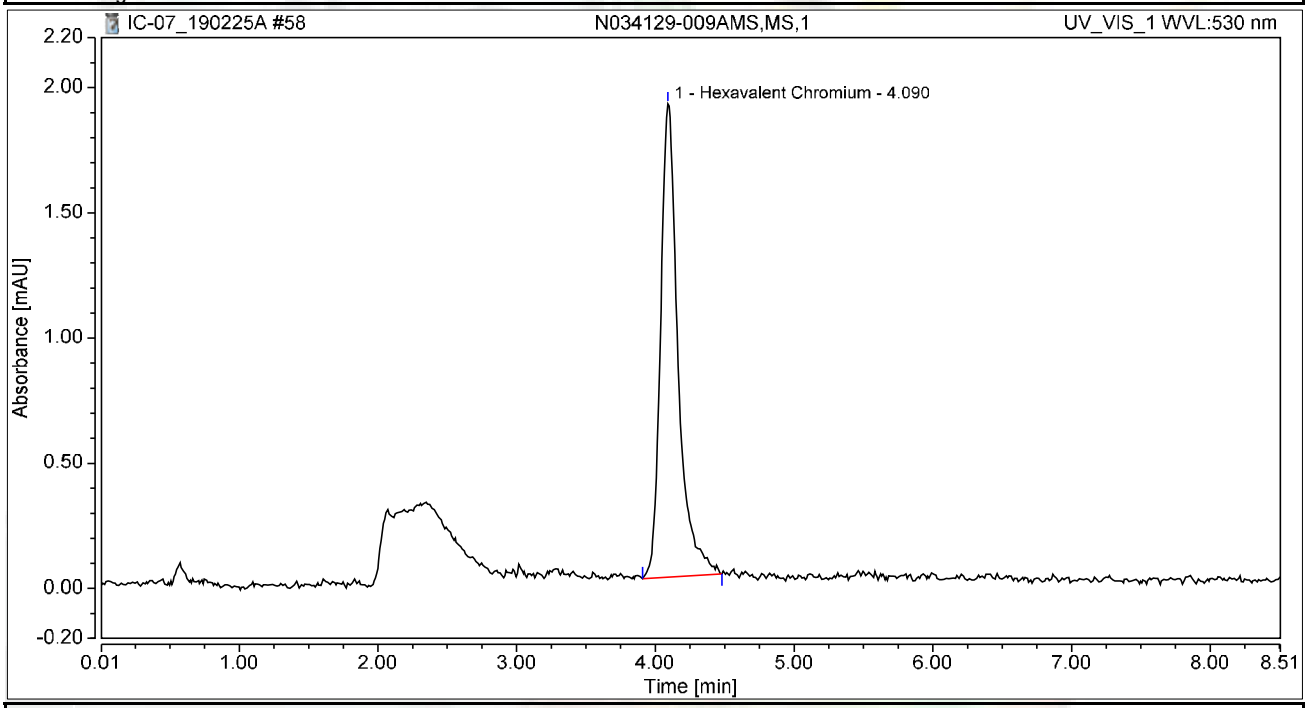
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-009AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 18:36** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

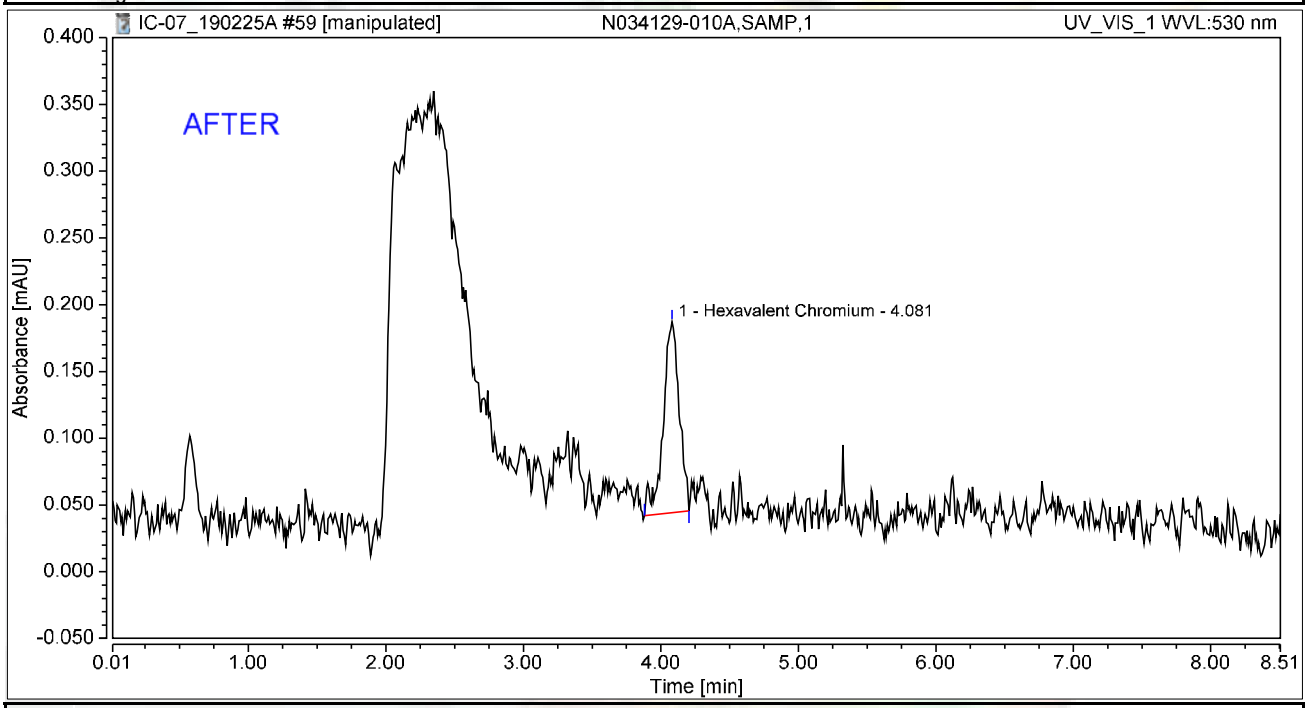
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.277 | 1.891 | 100.00 | 100.00 | 1.1194 |
| **Total:** | | | **0.277** | **1.891** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-010A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 18:46** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

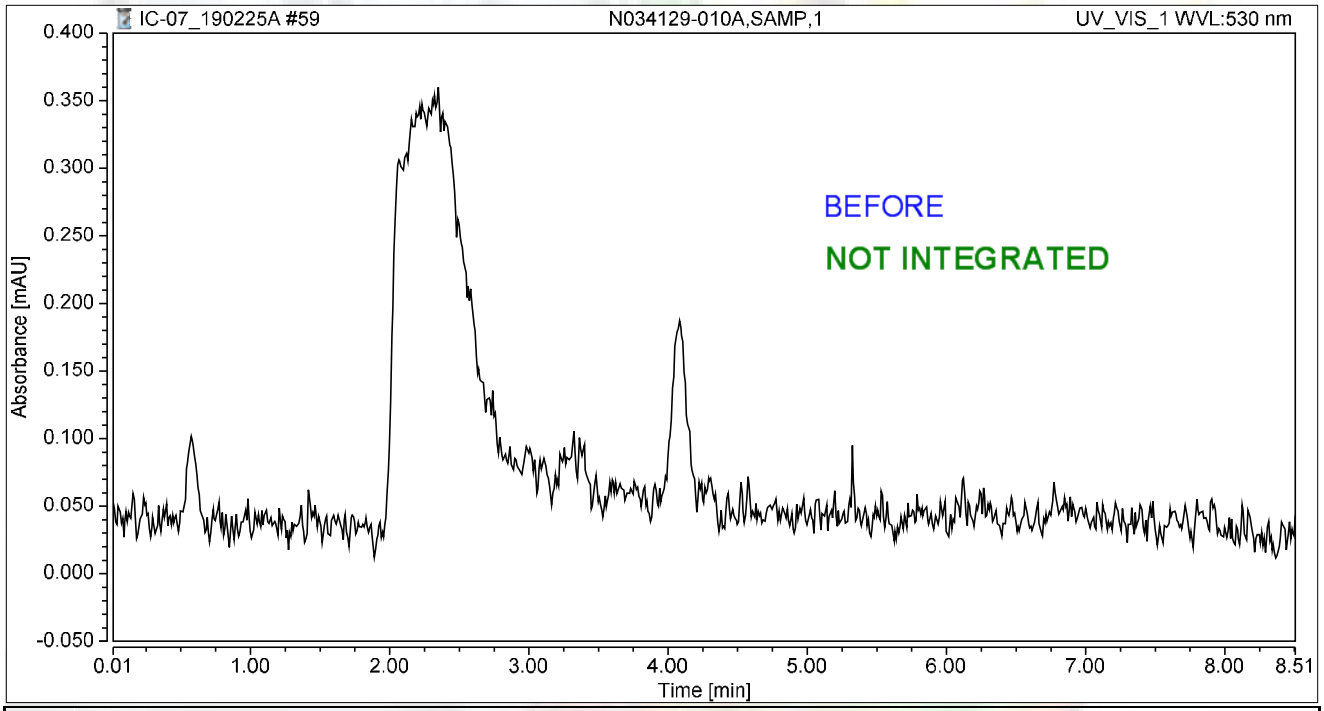
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.019 | 0.143 | 100.00 | 100.00 | 0.0779 |
| **Total:** | | | **0.019** | **0.143** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-010A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 18:46** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

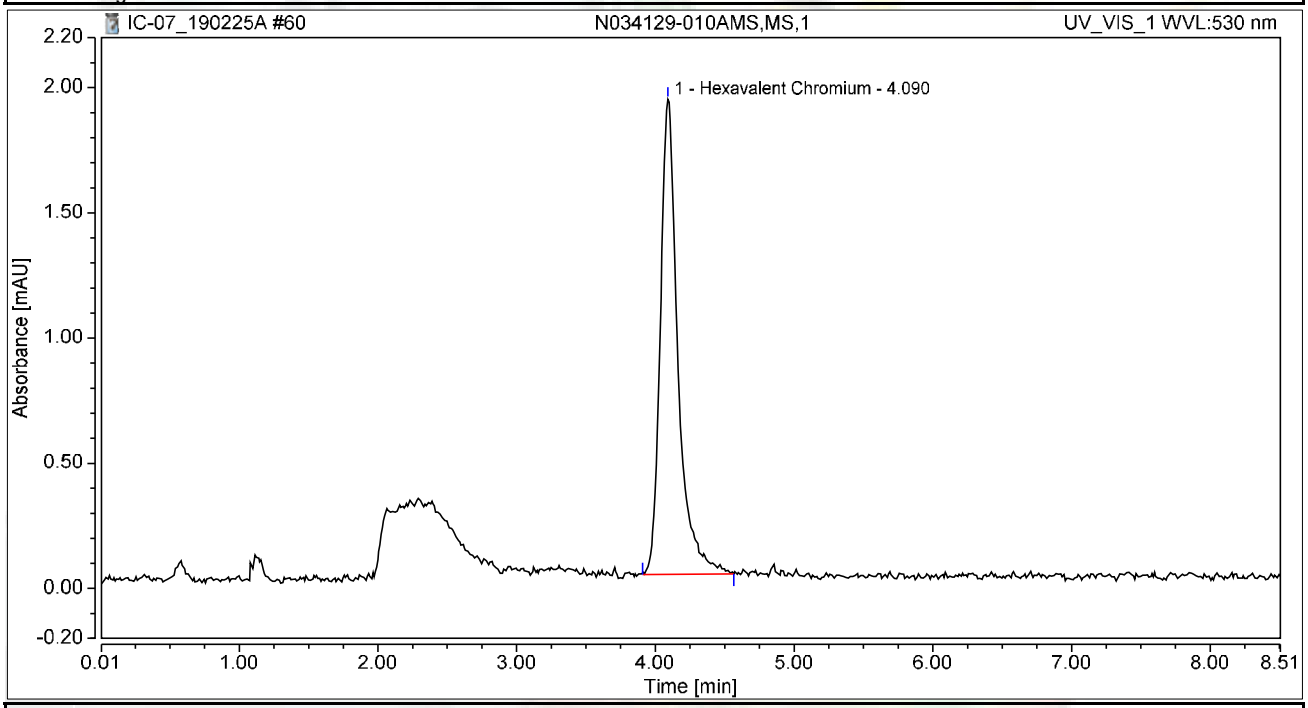
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-010AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 18:55** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

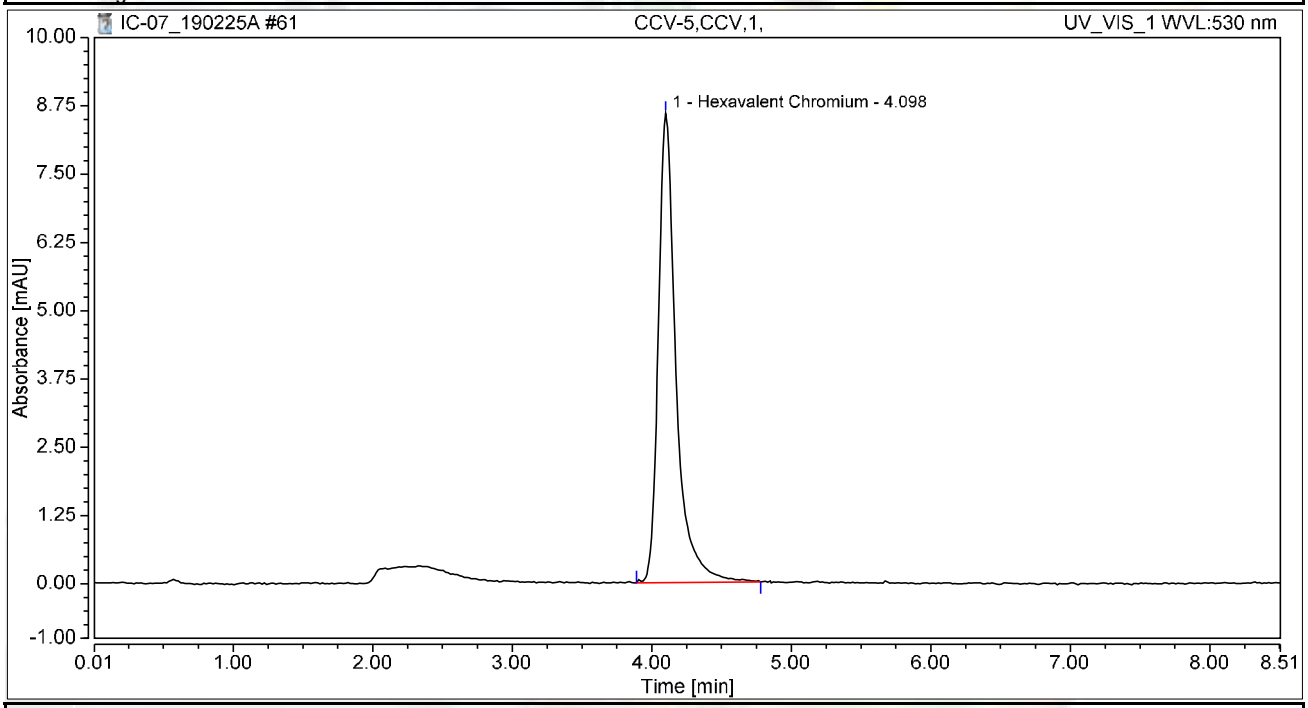
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.279 | 1.898 | 100.00 | 100.00 | 1.1272 |
| **Total:** | | | **0.279** | **1.898** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-5,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 19:05** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

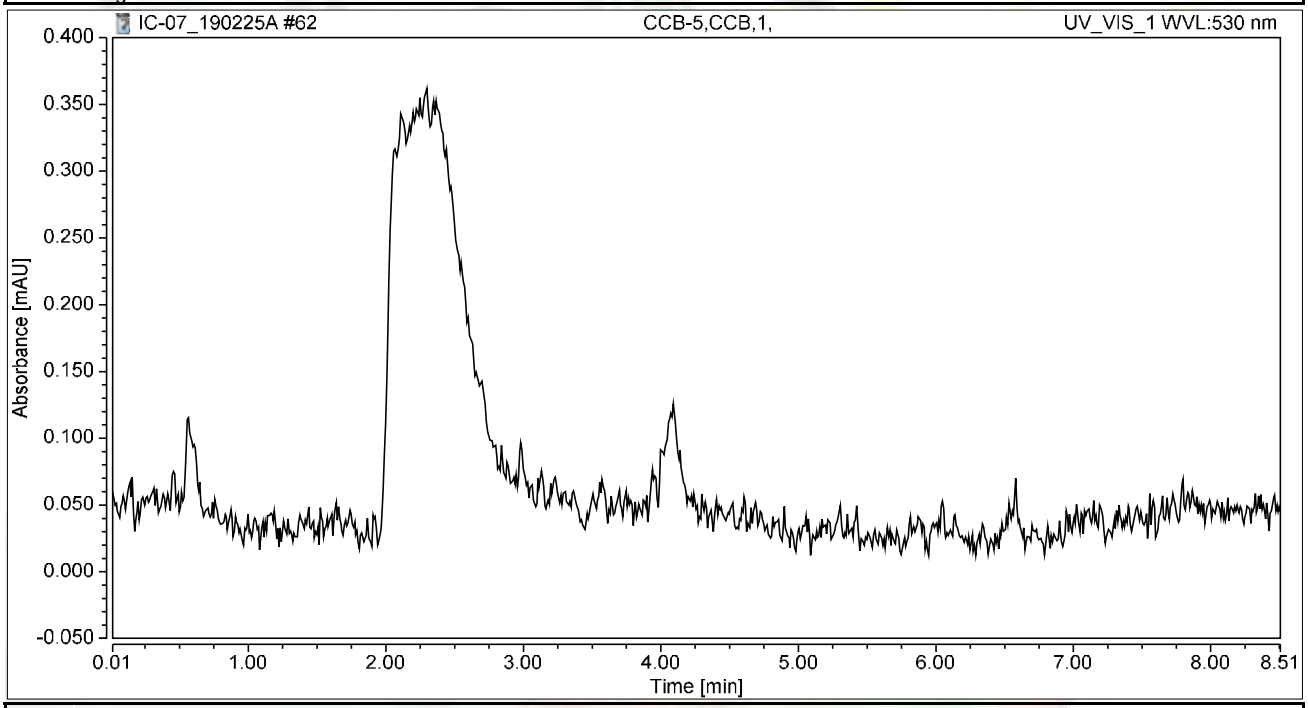
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.265 | 8.592 | 100.00 | 100.00 | 5.1034 |
| **Total:** | | | **1.265** | **8.592** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-5,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **25/Feb/19 19:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# RAW DATA

**INJECTION LOG: 190226A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/26/19 8:52 AM | Not Reported |
| 10 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/26/19 9:13 AM | Not Reported |
| 11 | CCV-1 | CCV | 1 | Hexavalent Chromium | 02/26/19 9:23 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/26/19 9:33 AM | Reported |
| 13 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/26/19 9:42 AM | Reported |
| 14 | MB-R132121 | MBLK | 1 | Hexavalent Chromium | 02/26/19 9:59 AM | Reported |
| 15 | LCS-R132121 | LCS | 1 | Hexavalent Chromium | 02/26/19 10:10 AM | Reported |
| 16 | N034102-002A | SAMP | 5 | Hexavalent Chromium | 02/26/19 10:23 AM | Not Reported |
| 17 | N034102-002AMS | MS | 5 | Hexavalent Chromium | 02/26/19 10:34 AM | Not Reported |
| 18 | N034105-004A | SAMP | 1 | Hexavalent Chromium | 02/26/19 10:44 AM | Not Reported |
| 19 | N034105-004AMS | MS | 1 | Hexavalent Chromium | 02/26/19 10:53 AM | Not Reported |
| 20 | N034107-003A | SAMP | 50 | Hexavalent Chromium | 02/26/19 11:02 AM | Not Reported |
| 21 | N034107-003AMS | MS | 50 | Hexavalent Chromium | 02/26/19 11:12 AM | Not Reported |
| 22 | N034107-006A | SAMP | 50 | Hexavalent Chromium | 02/26/19 11:21 AM | Not Reported |
| 23 | N034107-006AMS | MS | 50 | Hexavalent Chromium | 02/26/19 11:31 AM | Not Reported |
| 24 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 02/26/19 11:40 AM | Reported |
| 25 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/26/19 11:50 AM | Reported |
| 26 | N034107-012A | SAMP | 1 | Hexavalent Chromium | 02/26/19 12:00 PM | Not Reported |
| 27 | N034107-012AMS | MS | 1 | Hexavalent Chromium | 02/26/19 12:11 PM | Not Reported |
| 28 | N034107-013A | SAMP | 1 | Hexavalent Chromium | 02/26/19 12:21 PM | Not Reported |
| 29 | N034107-013AMS | MS | 1 | Hexavalent Chromium | 02/26/19 12:30 PM | Not Reported |
| 30 | N034107-016A | SAMP | 1 | Hexavalent Chromium | 02/26/19 12:40 PM | Not Reported |
| 31 | N034107-016AMS | MS | 1 | Hexavalent Chromium | 02/26/19 12:49 PM | Not Reported |
| 32 | N034107-017A | SAMP | 1 | Hexavalent Chromium | 02/26/19 12:59 PM | Not Reported |
| 33 | N034107-017AMS | MS | 1 | Hexavalent Chromium | 02/26/19 1:08 PM | Not Reported |
| 34 | N034102-002AMS | MS | 5 | Hexavalent Chromium | 02/26/19 1:17 PM | Not Reported |
| 35 | N034105-004AMS | MS | 1 | Hexavalent Chromium | 02/26/19 1:27 PM | Not Reported |
| 36 | CCV-3 | CCV | 1 | Hexavalent Chromium | 02/26/19 1:36 PM | Reported |
| 37 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/26/19 1:46 PM | Reported |
| 38 | N034238-002B | SAMP | 1 | Hexavalent Chromium | 02/26/19 1:55 PM | Reported |
| 39 | N034238-002BMS | MS | 1 | Hexavalent Chromium | 02/26/19 2:05 PM | Reported |
| 40 | N034238-002BMSD | MSD | 1 | Hexavalent Chromium | 02/26/19 2:14 PM | Reported |
| 41 | N034107-012A | SAMP | 5 | Hexavalent Chromium | 02/26/19 2:24 PM | Reported |
| 42 | N034107-012AMS | MS | 5 | Hexavalent Chromium | 02/26/19 2:33 PM | Reported |

**INJECTION LOG: 190226A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034107-012ADUP | DUP | 5 | Hexavalent Chromium | 02/26/19 2:43 PM | Reported |
| 44 | N034107-006A | SAMP | 100 | Hexavalent Chromium | 02/26/19 2:52 PM | Reported |
| 45 | N034107-006AMS | MS | 100 | Hexavalent Chromium | 02/26/19 3:02 PM | Reported |
| 46 | N034129-008A | SAMP | 1 | Hexavalent Chromium | 02/26/19 3:11 PM | Reported |
| 47 | N034129-008AMS | MS | 1 | Hexavalent Chromium | 02/26/19 3:20 PM | Reported |
| 48 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/26/19 3:30 PM | Reported |
| 49 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/26/19 3:39 PM | Reported |
| 50 | N034129-011A | SAMP | 1 | Hexavalent Chromium | 02/26/19 3:49 PM | Reported |
| 51 | N034129-011AMS | MS | 1 | Hexavalent Chromium | 02/26/19 3:58 PM | Reported |
| 52 | N034129-012A | SAMP | 1 | Hexavalent Chromium | 02/26/19 4:08 PM | Reported |
| 53 | N034129-012AMS | MS | 1 | Hexavalent Chromium | 02/26/19 4:17 PM | Reported |
| 54 | N034129-013A | SAMP | 1 | Hexavalent Chromium | 02/26/19 4:27 PM | Reported |
| 55 | N034129-013AMS | MS | 1 | Hexavalent Chromium | 02/26/19 4:36 PM | Reported |
| 56 | N034129-014A | SAMP | 1 | Hexavalent Chromium | 02/26/19 4:46 PM | Reported |
| 57 | N034129-014AMS | MS | 1 | Hexavalent Chromium | 02/26/19 4:55 PM | Reported |
| 58 | N034121-006A | SAMP | 1 | Hexavalent Chromium | 02/26/19 5:05 PM | Reported |
| 59 | LCS-R132145 | LCS | 1 | Hexavalent Chromium | 02/26/19 5:14 PM | Reported |
| 60 | CCV-5 | CCV | 1 | Hexavalent Chromium | 02/26/19 5:25 PM | Reported |
| 61 | CCB-5 | CCB | 1 | Hexavalent Chromium | 02/26/19 5:36 PM | Reported |
| 62 | MB-R132145 | MBLK | 1 | Hexavalent Chromium | 02/26/19 5:46 PM | Reported |
| 63 | N034178-001A | SAMP | 1 | Hexavalent Chromium | 02/26/19 5:58 PM | Reported |
| 64 | N034178-001AMS | MS | 1 | Hexavalent Chromium | 02/26/19 6:07 PM | Reported |
| 65 | N034178-002A | SAMP | 1 | Hexavalent Chromium | 02/26/19 6:16 PM | Reported |
| 66 | N034178-002AMS | MS | 1 | Hexavalent Chromium | 02/26/19 6:26 PM | Reported |
| 67 | N034178-003A | SAMP | 1 | Hexavalent Chromium | 02/26/19 6:35 PM | Reported |
| 68 | N034178-003AMS | MS | 1 | Hexavalent Chromium | 02/26/19 6:45 PM | Reported |
| 69 | N034178-004A | SAMP | 1 | Hexavalent Chromium | 02/26/19 6:54 PM | Reported |
| 70 | N034178-004AMS | MS | 1 | Hexavalent Chromium | 02/26/19 7:04 PM | Reported |
| 71 | N034178-003AMSD | MSD | 1 | Hexavalent Chromium | 02/26/19 7:13 PM | Reported |
| 72 | CCV-6 | CCV1 | 1 | Hexavalent Chromium | 02/26/19 7:23 PM | Reported |
| 73 | CCB-6 | CCB | 1 | Hexavalent Chromium | 02/26/19 7:32 PM | Reported |
| 74 | N034178-005A | SAMP | 1 | Hexavalent Chromium | 02/26/19 7:42 PM | Reported |
| 75 | N034178-005AMS | MS | 1 | Hexavalent Chromium | 02/26/19 7:51 PM | Reported |
| 76 | N034178-006A | SAMP | 1 | Hexavalent Chromium | 02/26/19 8:01 PM | Reported |
| 77 | N034178-006AMS | MS | 1 | Hexavalent Chromium | 02/26/19 8:10 PM | Reported |
| 78 | N034178-007A | SAMP | 1 | Hexavalent Chromium | 02/26/19 8:19 PM | Reported |
| 79 | N034178-007AMS | MS | 1 | Hexavalent Chromium | 02/26/19 8:29 PM | Reported |
| 80 | N034178-008A | SAMP | 1 | Hexavalent Chromium | 02/26/19 8:38 PM | Reported |
| 81 | N034178-008AMS | MS | 1 | Hexavalent Chromium | 02/26/19 8:48 PM | Reported |
| 82 | N034178-006ADUP | DUP | 1 | Hexavalent Chromium | 02/26/19 8:57 PM | Reported |
| 83 | N034178-009A | SAMP | 1 | Hexavalent Chromium | 02/26/19 9:07 PM | Reported |
| 84 | CCV-7 | CCV | 1 | Hexavalent Chromium | 02/26/19 9:16 PM | Reported |

**INJECTION LOG: 190226A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 85 | CCB-7 | CCB | 1 | Hexavalent Chromium | 02/26/19 9:26 PM | Reported |
| 86 | N034178-009AMS | MS | 1 | Hexavalent Chromium | 02/26/19 9:35 PM | Reported |
| 87 | N034178-010A | SAMP | 1 | Hexavalent Chromium | 02/26/19 9:45 PM | Not Reported |
| 88 | N034178-010AMS | MS | 1 | Hexavalent Chromium | 02/26/19 9:54 PM | Not Reported |
| 89 | N034178-011A | SAMP | 5 | Hexavalent Chromium | 02/26/19 10:04 PM | Reported |
| 90 | N034178-011AMS | MS | 5 | Hexavalent Chromium | 02/26/19 10:13 PM | Reported |
| 91 | N034178-011A | SAMP | 1 | Hexavalent Chromium | 02/26/19 10:22 PM | Not Reported |
| 92 | N034178-011AMS | MS | 1 | Hexavalent Chromium | 02/26/19 10:32 PM | Not Reported |
| 93 | CCV-8 | CCV1 | 1 | Hexavalent Chromium | 02/26/19 10:41 PM | Reported |
| 94 | CCB-8 | CCB | 1 | Hexavalent Chromium | 02/26/19 10:51 PM | Reported |
| 95 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/26/19 11:00 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190226A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **27/Feb/19 00:09:44** |
| *No. of Injections:* | **98** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 1 | 1000 | Unknown | | 02/26/2019 08:52 | Finished | BLANK |
| 10 | BLANK | 1 | 1000 | Unknown | | 02/26/2019 09:13 | Finished | BLANK |
| 11 | CCV-1,CCV,1, | 2 | 1000 | Unknown | | 02/26/2019 09:23 | Finished | CCV @5ppb, IWST-190221B |
| 12 | PQL@0.2ppb,CCV2,1 | 3 | 1000 | Unknown | | 02/26/2019 09:33 | Finished | PQL @ 0.2ppb |
| 13 | CCB-1,CCB,1, | 4 | 1000 | Unknown | | 02/26/2019 09:42 | Finished | CCB R190115A |
| 14 | MB-H2O,MBLK,1, | 5 | 1000 | Unknown | | 02/26/2019 09:59 | Finished | MB R190115A |
| 15 | LCS-H2O,LCS,1, | 6 | 1000 | Unknown | | 02/26/2019 10:10 | Finished | LCS @5ppb, IWST-190221B |
| 16 | N034102-002A,SAMF | 7 | 1000 | Unknown | | 02/26/2019 10:23 | Finished | SAMP,2>10mL |
| 17 | N034102-002AMS,MS | 8 | 1000 | Unknown | | 02/26/2019 10:34 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 18 | N034105-004A,SAMF | 9 | 1000 | Unknown | | 02/26/2019 10:44 | Finished | SAMP,10mL |
| 19 | N034105-004AMS,MS | 10 | 1000 | Unknown | | 02/26/2019 10:53 | Finished | MS (5ppb), IWST-190221B,10 |
| 20 | N034107-003A,SAMF | 11 | 1000 | Unknown | | 02/26/2019 11:02 | Finished | SAMP,0.2>10mL |
| 21 | N034107-003AMS,MS | 12 | 1000 | Unknown | | 02/26/2019 11:12 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 22 | N034107-006A,SAMF | 13 | 1000 | Unknown | | 02/26/2019 11:21 | Finished | SAMP,0.2>10mL |
| 23 | N034107-006AMS,MS | 14 | 1000 | Unknown | | 02/26/2019 11:31 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 24 | CCV-2,CCV1,1, | 15 | 1000 | Unknown | | 02/26/2019 11:40 | Finished | CCV @10ppb, IWST-190221A |
| 25 | CCB-2,CCB,1, | 16 | 1000 | Unknown | | 02/26/2019 11:50 | Finished | CCB R190115A |
| 26 | N034107-012A,SAMF | 17 | 1000 | Unknown | | 02/26/2019 12:00 | Finished | SAMP,10mL |
| 27 | N034107-012AMS,MS | 18 | 1000 | Unknown | | 02/26/2019 12:11 | Finished | MS (5ppb), IWST-190221B,10 |
| 28 | N034107-013A,SAMF | 19 | 1000 | Unknown | | 02/26/2019 12:21 | Finished | SAMP,10mL |
| 29 | N034107-013AMS,MS | 20 | 1000 | Unknown | | 02/26/2019 12:30 | Finished | MS (5ppb), IWST-190221B,10 |
| 30 | N034107-016A,SAMF | 21 | 1000 | Unknown | | 02/26/2019 12:40 | Finished | SAMP,10mL |
| 31 | N034107-016AMS,MS | 22 | 1000 | Unknown | | 02/26/2019 12:49 | Finished | MS (5ppb), IWST-190221B,10 |
| 32 | N034107-017A,SAMF | 23 | 1000 | Unknown | | 02/26/2019 12:59 | Finished | SAMP,10mL |
| 33 | N034107-017AMS,MS | 24 | 1000 | Unknown | | 02/26/2019 13:08 | Finished | MS (5ppb), IWST-190221B,10 |
| 34 | N034102-002AMS,MS | 25 | 1000 | Unknown | | 02/26/2019 13:17 | Finished | SAMP,10mL |
| 35 | N034105-004AMS,MS | 26 | 1000 | Unknown | | 02/26/2019 13:27 | Finished | MS (5ppb), IWST-190221B,10 |
| 36 | CCV-3,CCV,1, | 27 | 1000 | Unknown | | 02/26/2019 13:36 | Finished | CCV @5ppb, IWST-190221A |
| 37 | CCB-3,CCB,1, | 28 | 1000 | Unknown | | 02/26/2019 13:46 | Finished | CCB R190115A |
| 38 | N034238-002B,SAMF | 29 | 1000 | Unknown | | 02/26/2019 13:55 | Finished | SAMP,1>10mL |
| 39 | N034238-002BMS,MS | 30 | 1000 | Unknown | | 02/26/2019 14:05 | Finished | MS (1ppb), IWST-190221B,10 |
| 40 | N034238-002BMSD,M | 31 | 1000 | Unknown | | 02/26/2019 14:14 | Finished | SAMP,10mL |
| 41 | N034107-012A,SAMF | 32 | 1000 | Unknown | | 02/26/2019 14:24 | Finished | SAMP,2>10mL |
| 42 | N034107-012AMS,MS | 33 | 1000 | Unknown | | 02/26/2019 14:33 | Finished | SAMP,10mL |
| 43 | N034107-012ADUP,D | 34 | 1000 | Unknown | | 02/26/2019 14:43 | Finished | SAMP,10mL |
| 44 | N034107-006A,SAMF | 35 | 1000 | Unknown | | 02/26/2019 14:52 | Finished | SAMP,0.5>10mL |
| 45 | N034107-006AMS,MS | 36 | 1000 | Unknown | | 02/26/2019 15:02 | Finished | SAMP,0.5>10mL |
| 46 | N034129-008A,SAMF | 37 | 1000 | Unknown | | 02/26/2019 15:11 | Finished | SAMP,0.005>10mL |
| 47 | N034129-008AMS,MS | 38 | 1000 | Unknown | | 02/26/2019 15:20 | Finished | SAMP,0.2>10mL |
| 48 | CCV-4,CCV1,1, | 39 | 1000 | Unknown | | 02/26/2019 15:30 | Finished | CCV @10ppb, IWST-190221A |
| 49 | CCB-4,CCB,1, | 40 | 1000 | Unknown | | 02/26/2019 15:39 | Finished | CCB R190115A |
| 50 | N034129-011A,SAMF | 41 | 1000 | Unknown | | 02/26/2019 15:49 | Finished | MS (1ppb), IWST-190221B,10 |
| 51 | N034129-011AMS,MS | 42 | 1000 | Unknown | | 02/26/2019 15:58 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 52 | N034129-012A,SAMF | 43 | 1000 | Unknown | | 02/26/2019 16:08 | Finished | MS (5ppb), IWST-190221B,10 |
| 53 | N034129-012AMS,MS | 44 | 1000 | Unknown | | 02/26/2019 16:17 | Finished | MS (5ppb), IWST-190221B,10 |
| 54 | N034129-013A,SAMF | 45 | 1000 | Unknown | | 02/26/2019 16:27 | Finished | MS (5ppb), IWST-190221B,0.5 |
| 55 | N034129-013AMS,MS | 46 | 1000 | Unknown | | 02/26/2019 16:36 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 56 | N034129-014A,SAMF | 47 | 1000 | Unknown | | 02/26/2019 16:46 | Finished | SAMP,0.2>10mL |
| 57 | N034129-014AMS,MS | 48 | 1000 | Unknown | | 02/26/2019 16:55 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 58 | N034121-006A,SAMF | 49 | 1000 | Unknown | | 02/26/2019 17:05 | Finished | SAMP,0.0025>10mL |
| 59 | LCS-H2O,LCS,1, | 50 | 1000 | Unknown | | 02/26/2019 17:14 | Finished | SAMP,10mL |
| 60 | CCV-5,CCV,1, | 1 | 1000 | Unknown | | 02/26/2019 17:25 | Finished | CCV @5ppb, IWST-190221A |

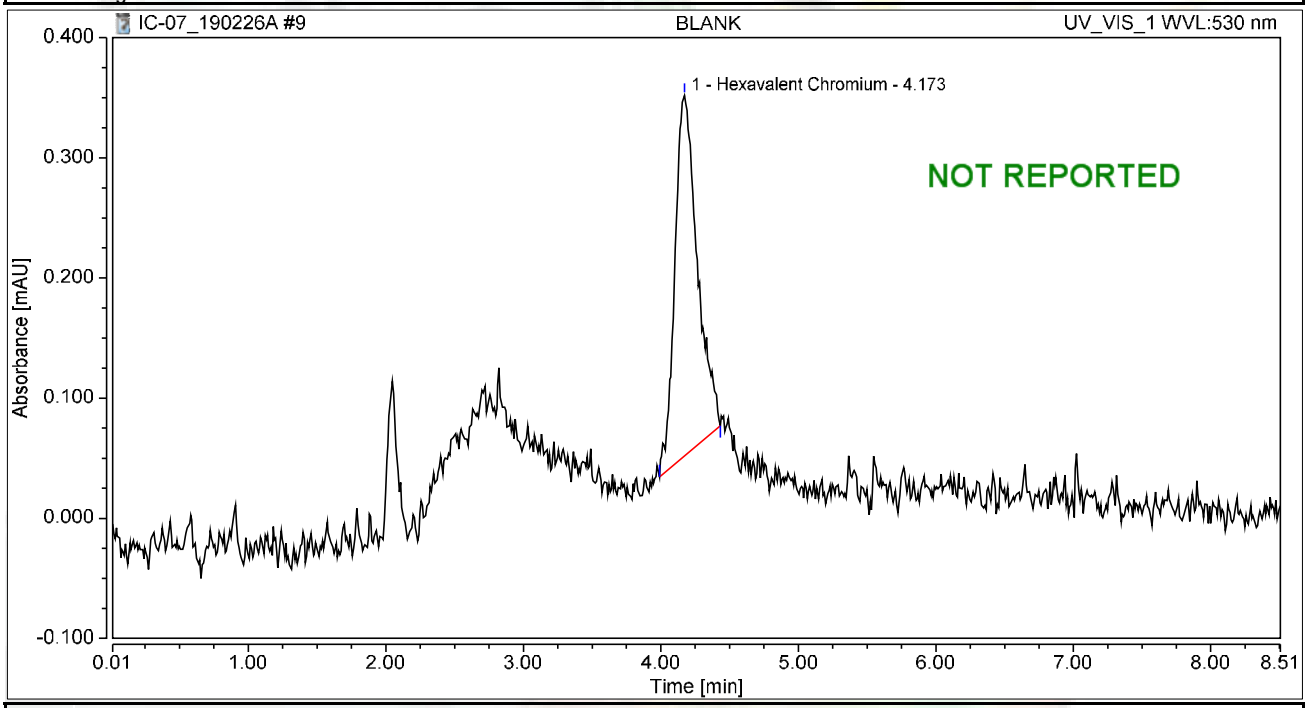
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | CCB-5,CCB,1, | 2 | 1000 | Unknown | | 02/26/2019 17:36 | Finished | CCB R190115A |
| 62 | MB-H2O,MBLK,1, | 3 | 1000 | Unknown | | 02/26/2019 17:46 | Finished | SAMP,10mL |
| 63 | N034178-001A,SAMF | 4 | 1000 | Unknown | | 02/26/2019 17:58 | Finished | MS (1ppb), IWST-190221B,10 |
| 64 | N034178-001AMS,MS | 5 | 1000 | Unknown | | 02/26/2019 18:07 | Finished | SAMP,10mL |
| 65 | N034178-002A,SAMF | 6 | 1000 | Unknown | | 02/26/2019 18:16 | Finished | MS (1ppb), IWST-190221B,10 |
| 66 | N034178-002AMS,MS | 7 | 1000 | Unknown | | 02/26/2019 18:26 | Finished | SAMP,10mL |
| 67 | N034178-003A,SAMF | 8 | 1000 | Unknown | | 02/26/2019 18:35 | Finished | MS (1ppb), IWST-190221B,10 |
| 68 | N034178-003AMS,MS | 9 | 1000 | Unknown | | 02/26/2019 18:45 | Finished | SAMP,10mL |
| 69 | N034178-004A,SAMF | 10 | 1000 | Unknown | | 02/26/2019 18:54 | Finished | MS (1ppb), IWST-190221B,10 |
| 70 | N034178-004AMS,MS | 11 | 1000 | Unknown | | 02/26/2019 19:04 | Finished | SAMP,10mL |
| 71 | N034178-003AMSD,M | 12 | 1000 | Unknown | | 02/26/2019 19:13 | Finished | MS (1ppb), IWST-190221B,10 |
| 72 | CCV-6,CCV1,1, | 13 | 1000 | Unknown | | 02/26/2019 19:23 | Finished | CCV @10ppb, IWST-190221A |
| 73 | CCB-6,CCB,1, | 14 | 1000 | Unknown | | 02/26/2019 19:32 | Finished | CCB R190115A |
| 74 | N034178-005A,SAMF | 15 | 1000 | Unknown | | 02/26/2019 19:42 | Finished | SAMP,10mL |
| 75 | N034178-005AMS,MS | 16 | 1000 | Unknown | | 02/26/2019 19:51 | Finished | MS (1ppb), IWST-190221B,10 |
| 76 | N034178-006A,SAMF | 17 | 1000 | Unknown | | 02/26/2019 20:01 | Finished | SAMP,10mL |
| 77 | N034178-006AMS,MS | 18 | 1000 | Unknown | | 02/26/2019 20:10 | Finished | MS (1ppb), IWST-190221B,10 |
| 78 | N034178-007A,SAMF | 19 | 1000 | Unknown | | 02/26/2019 20:19 | Finished | SAMP,10mL |
| 79 | N034178-007AMS,MS | 20 | 1000 | Unknown | | 02/26/2019 20:29 | Finished | MS (1ppb), IWST-190221B,10 |
| 80 | N034178-008A,SAMF | 21 | 1000 | Unknown | | 02/26/2019 20:38 | Finished | SAMP,10mL |
| 81 | N034178-008AMS,MS | 22 | 1000 | Unknown | | 02/26/2019 20:48 | Finished | MS (1ppb), IWST-190221B,10 |
| 82 | N034178-006ADUP,D | 23 | 1000 | Unknown | | 02/26/2019 20:57 | Finished | SAMP,10mL |
| 83 | N034178-009A,SAMF | 24 | 1000 | Unknown | | 02/26/2019 21:07 | Finished | MS (1ppb), IWST-190221B,10 |
| 84 | CCV-7,CCV,1, | 25 | 1000 | Unknown | | 02/26/2019 21:16 | Finished | CCV @5ppb, IWST-190221A |
| 85 | CCB-7,CCB,1, | 26 | 1000 | Unknown | | 02/26/2019 21:26 | Finished | CCB R190115A |
| 86 | N034178-009AMS,MS | 27 | 1000 | Unknown | | 02/26/2019 21:35 | Finished | SAMP,10mL |
| 87 | N034178-010A,SAMF | 28 | 1000 | Unknown | | 02/26/2019 21:45 | Finished | MS (1ppb), IWST-190221B,10 |
| 88 | N034178-010AMS,MS | 29 | 1000 | Unknown | | 02/26/2019 21:54 | Finished | SAMP,10mL |
| 89 | N034178-011A,SAMF | 30 | 1000 | Unknown | | 02/26/2019 22:04 | Finished | MS (1ppb), IWST-190221B,10 |
| 90 | N034178-011AMS,MS | 31 | 1000 | Unknown | | 02/26/2019 22:13 | Finished | SAMP,10mL |
| 91 | N034178-011A,SAMF | 32 | 1000 | Unknown | | 02/26/2019 22:22 | Finished | SAMP,10mL |
| 92 | N034178-011AMS,MS | 33 | 1000 | Unknown | | 02/26/2019 22:32 | Finished | SAMP,10mL |
| 93 | CCV-8,CCV1,1, | 34 | 1000 | Unknown | | 02/26/2019 22:41 | Finished | CCV @10ppb, IWST-190221A |
| 94 | CCB-8,CCB,1, | 35 | 1000 | Unknown | | 02/26/2019 22:51 | Finished | CCB R190115A |
| 95 | BLANK | 36 | 1000 | Unknown | | 02/26/2019 23:00 | Finished | BLANK |
| 96 | SHUTDOWN | 37 | 1000 | Unknown | | 02/26/2019 23:10 | Finished | |
| 97 | Eluent: R190226B | 38 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 98 | PCR: R190226A | 39 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 08:52** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

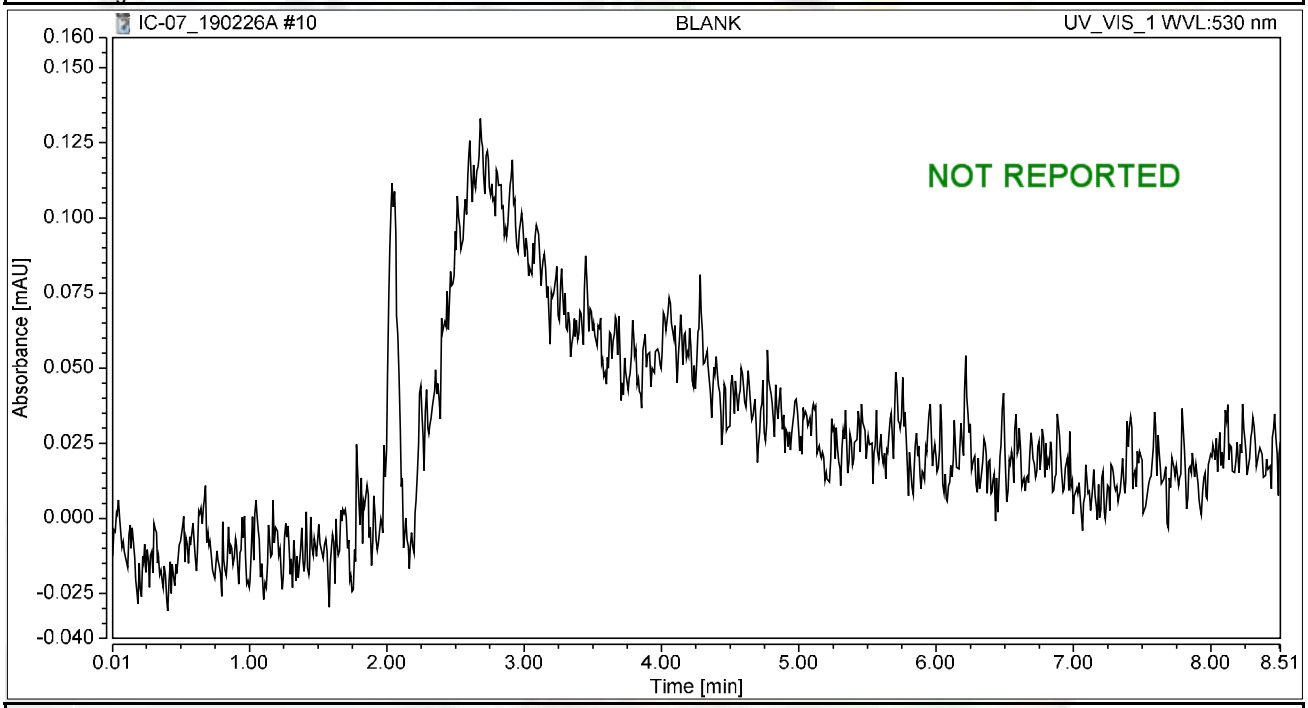
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.173 | 0.057 | 0.300 | 100.00 | 100.00 | 0.2285 |
| **Total:** | | | **0.057** | **0.300** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 09:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

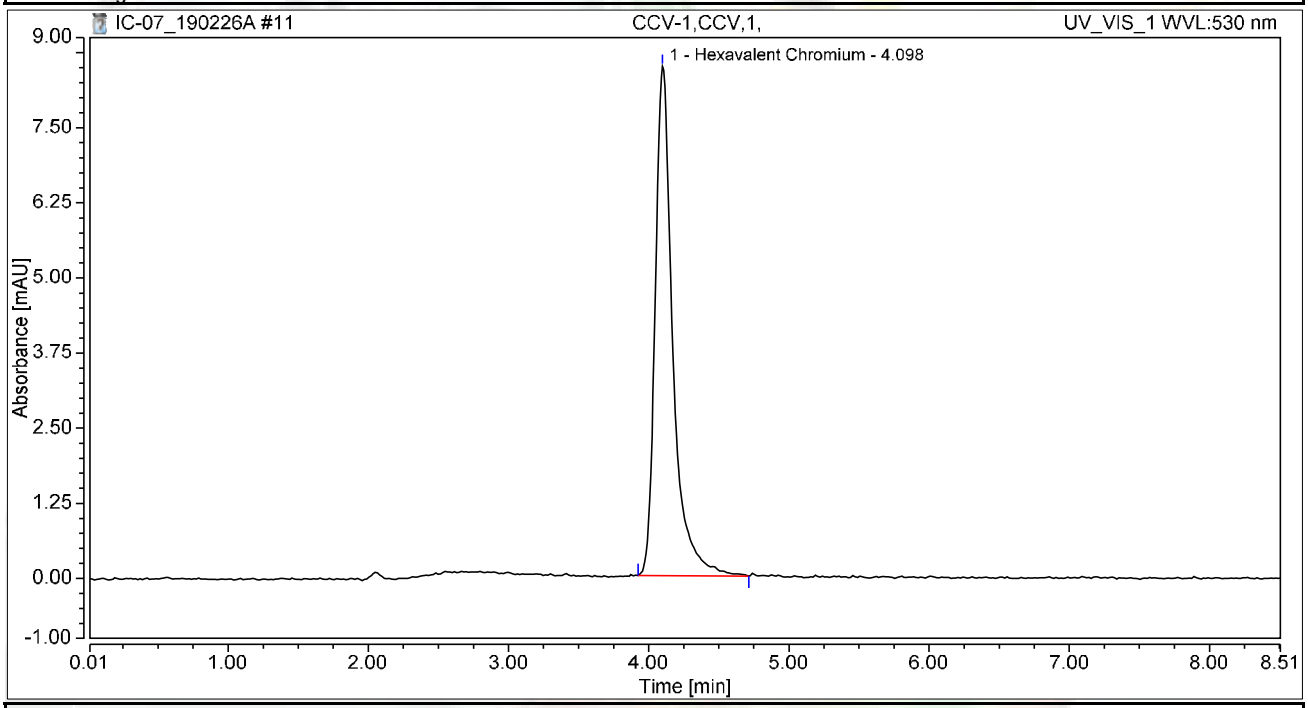
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-1,CCV,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 09:23** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

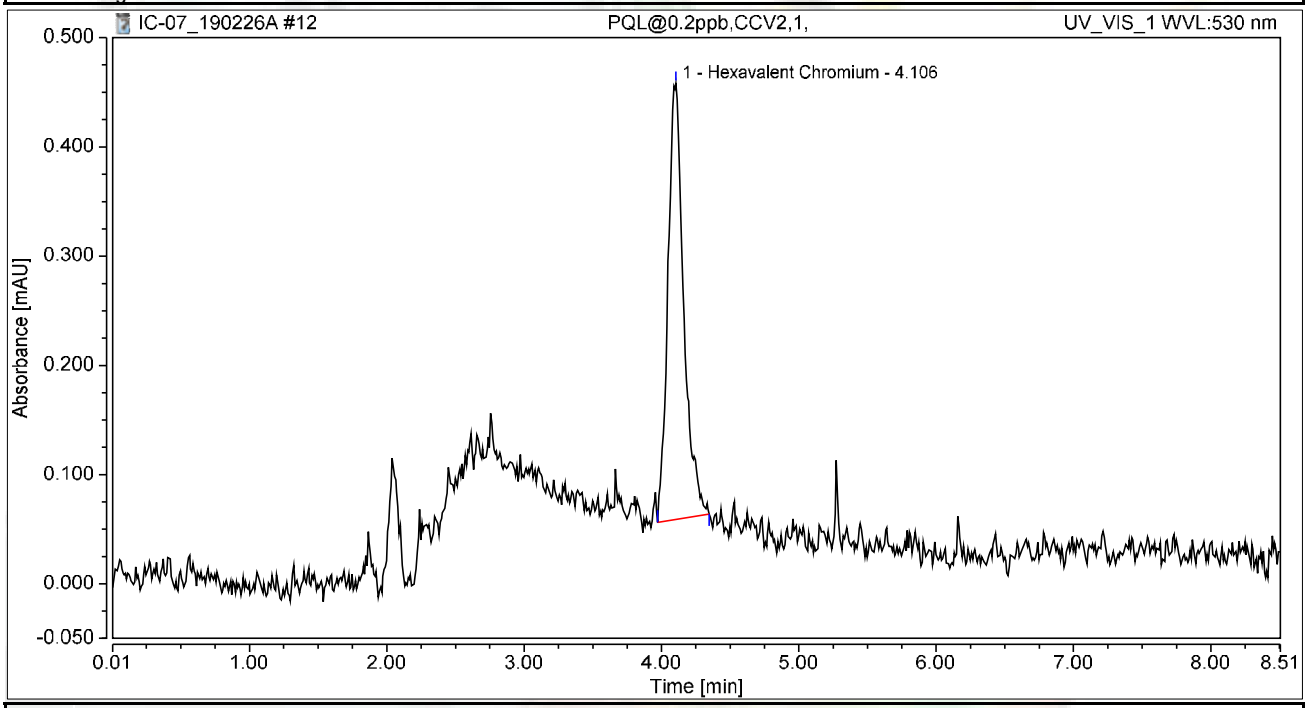
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.237 | 8.478 | 100.00 | 100.00 | 4.9935 |
| **Total:** | | | **1.237** | **8.478** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 09:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

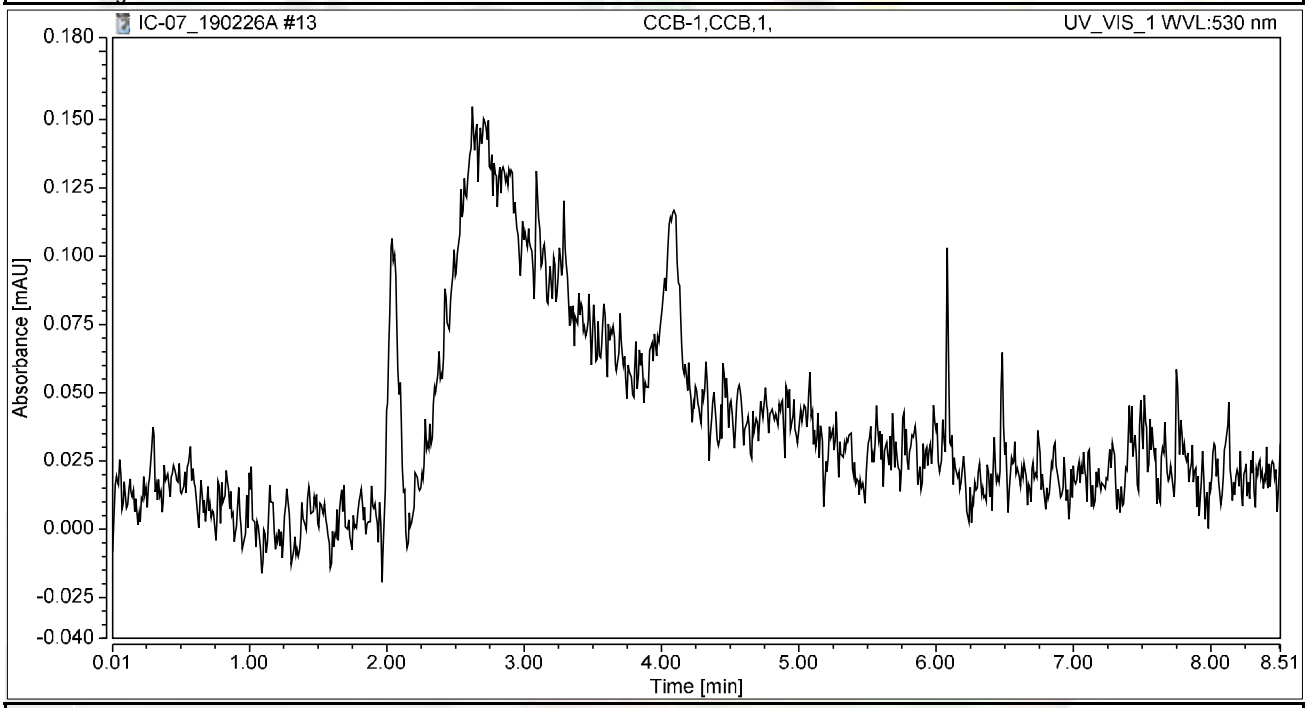
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.053 | 0.399 | 100.00 | 100.00 | 0.2139 |
| **Total:** | | | **0.053** | **0.399** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-1,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 09:42** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

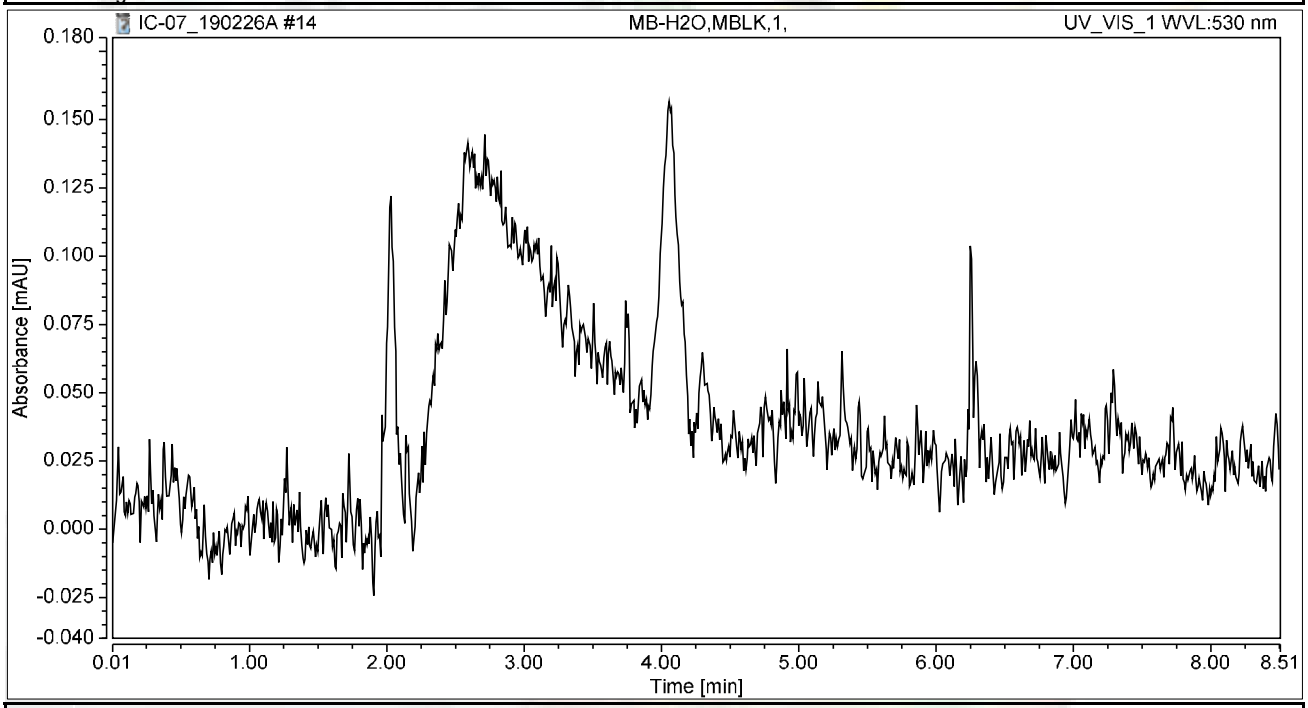
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **MB-H2O,MBLK,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 09:59** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

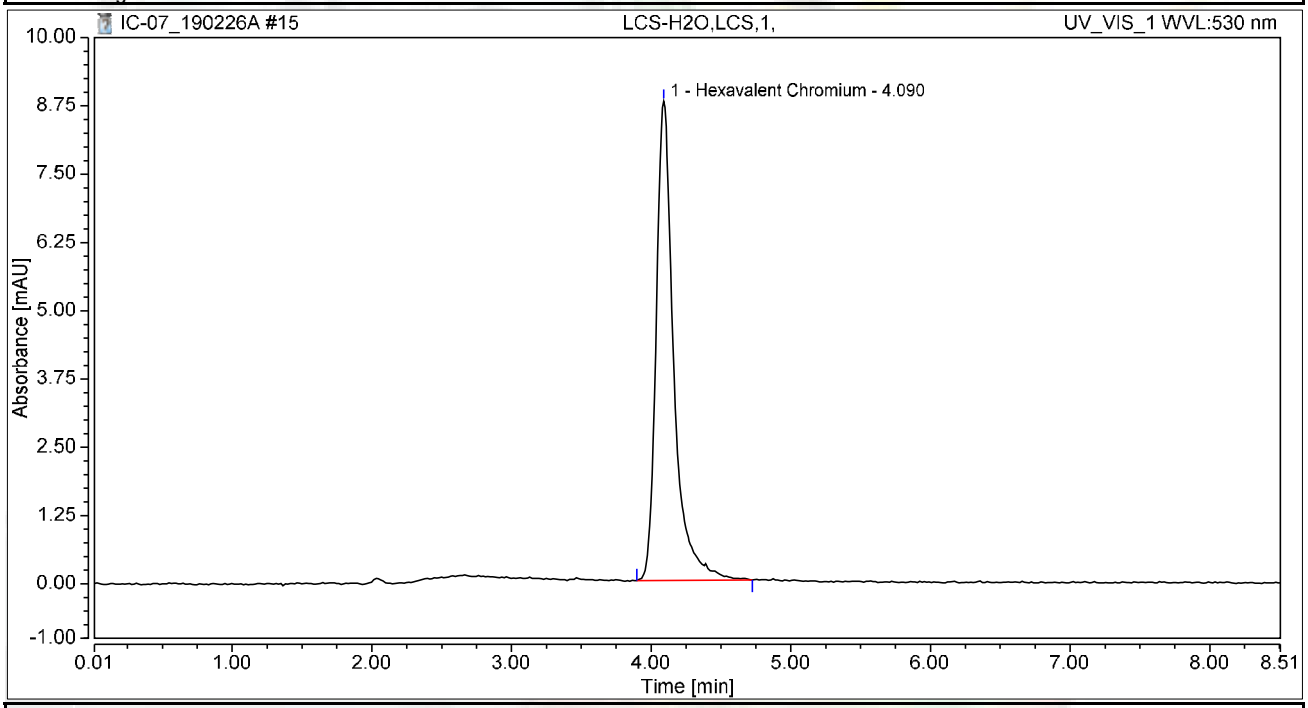
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **LCS-H2O,LCS,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 10:10** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

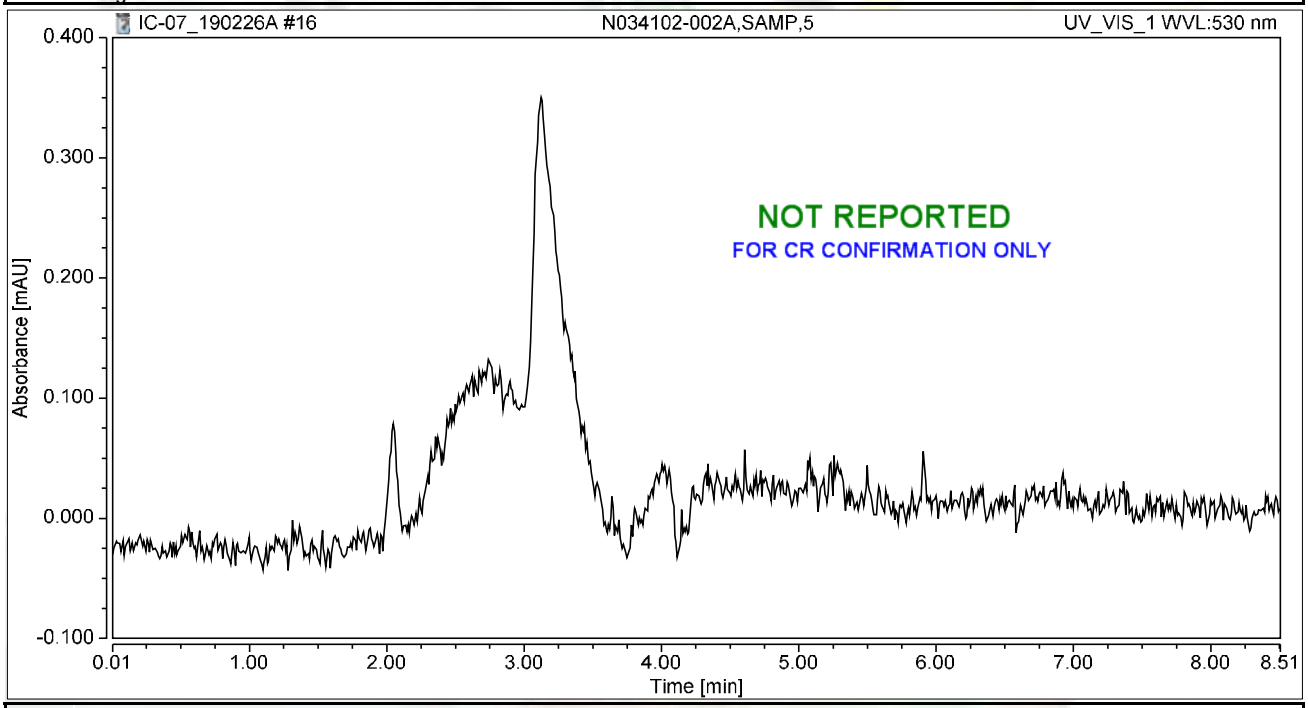
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 1.286 | 8.772 | 100.00 | 100.00 | 5.1910 |
| **Total:** | | | **1.286** | **8.772** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-002A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 10:23** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

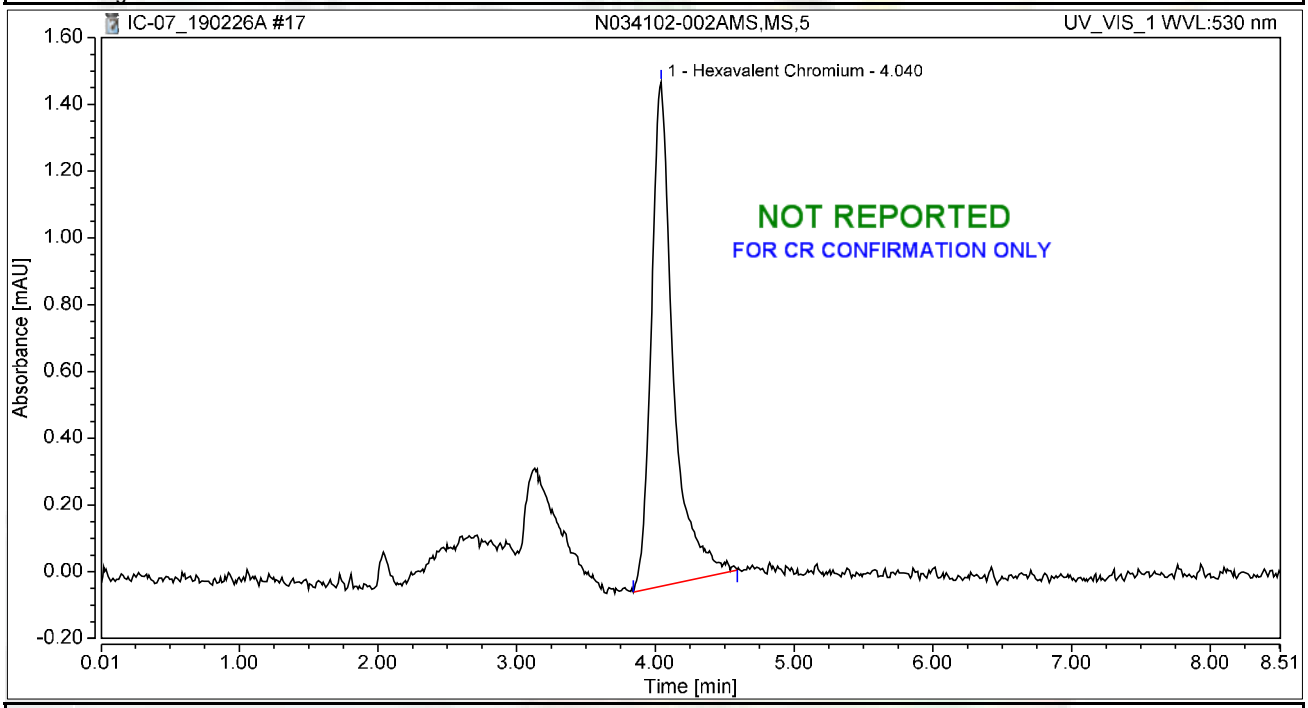
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-002AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 10:34** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

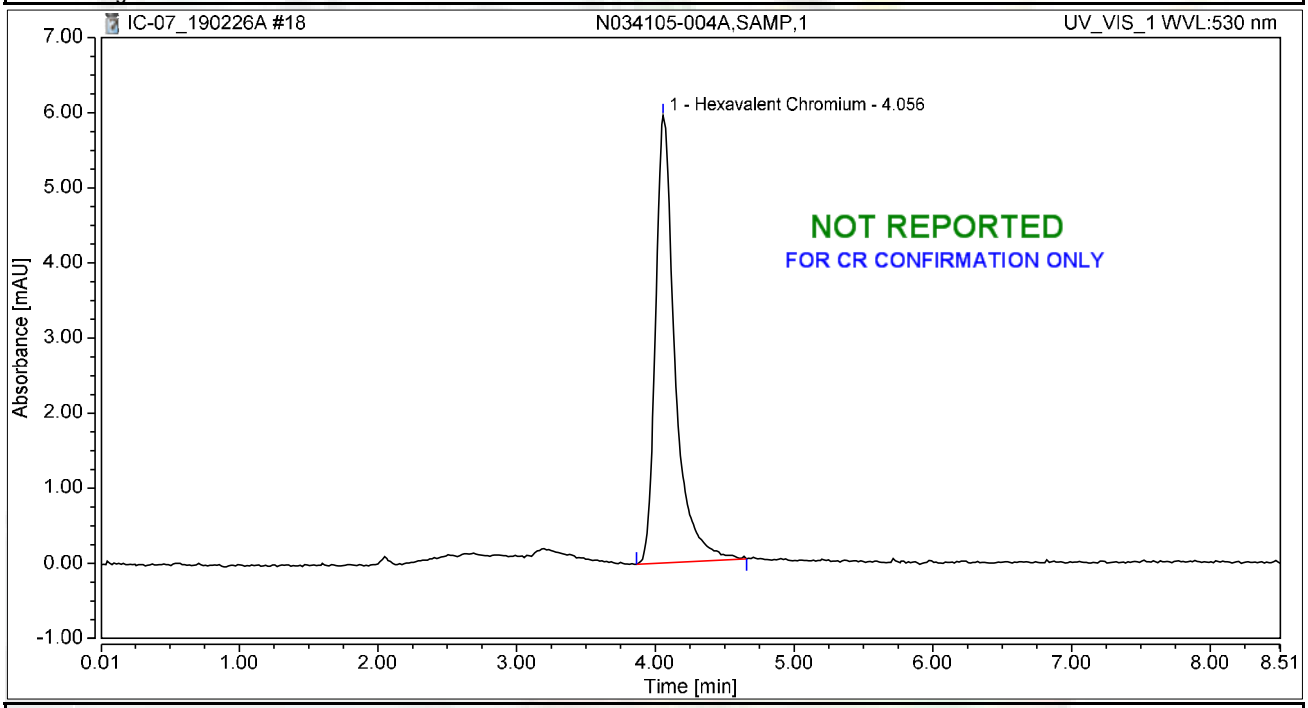
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.040 | 0.277 | 1.511 | 100.00 | 100.00 | 1.1172 |
| **Total:** | | | **0.277** | **1.511** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034105-004A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 10:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

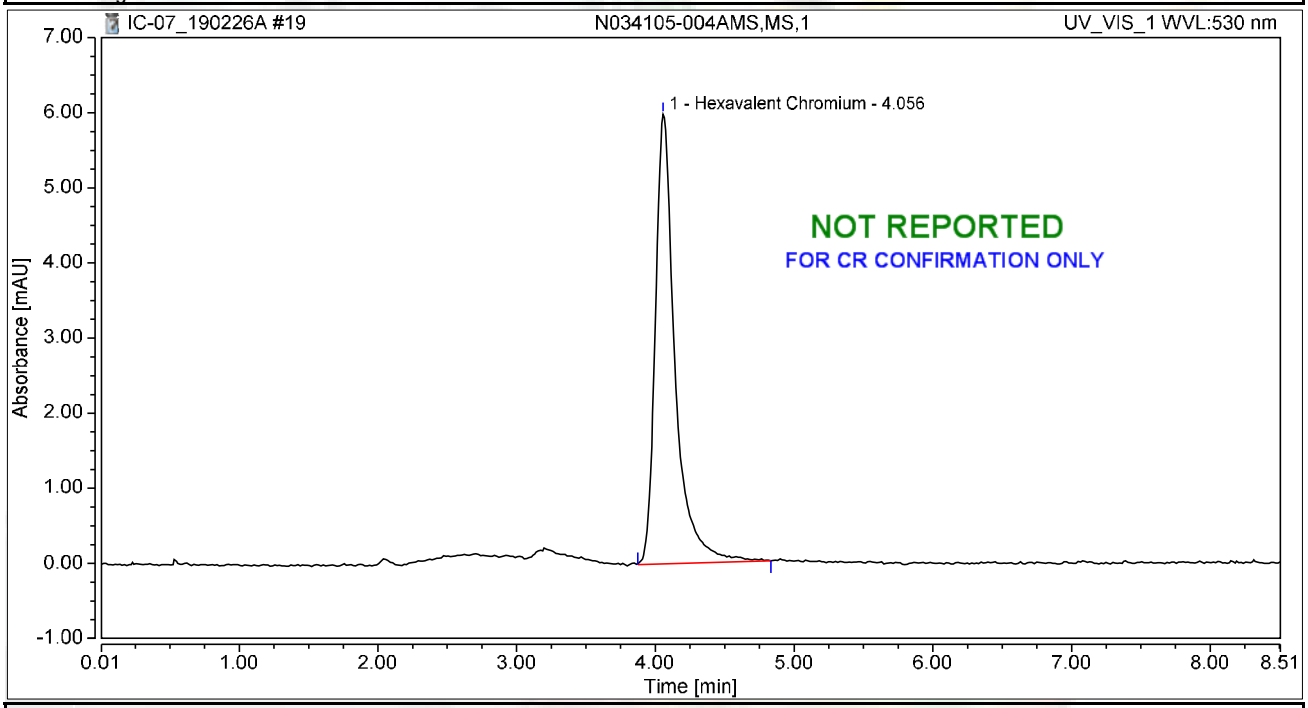
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.056 | 0.970 | 5.954 | 100.00 | 100.00 | 3.9152 |
| **Total:** | | | **0.970** | **5.954** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034105-004AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 10:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

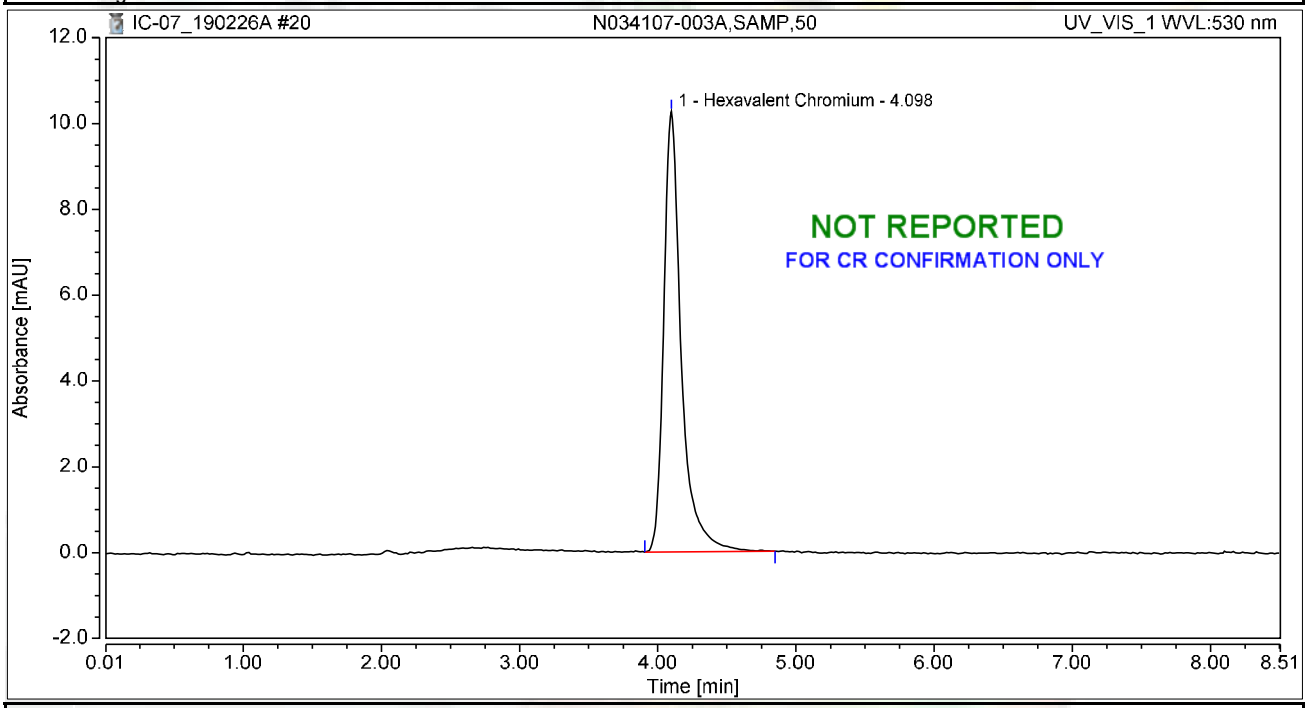
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.056 | 0.988 | 5.984 | 100.00 | 100.00 | 3.9884 |
| **Total:** | | | **0.988** | **5.984** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-003A,SAMP,50** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 11:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

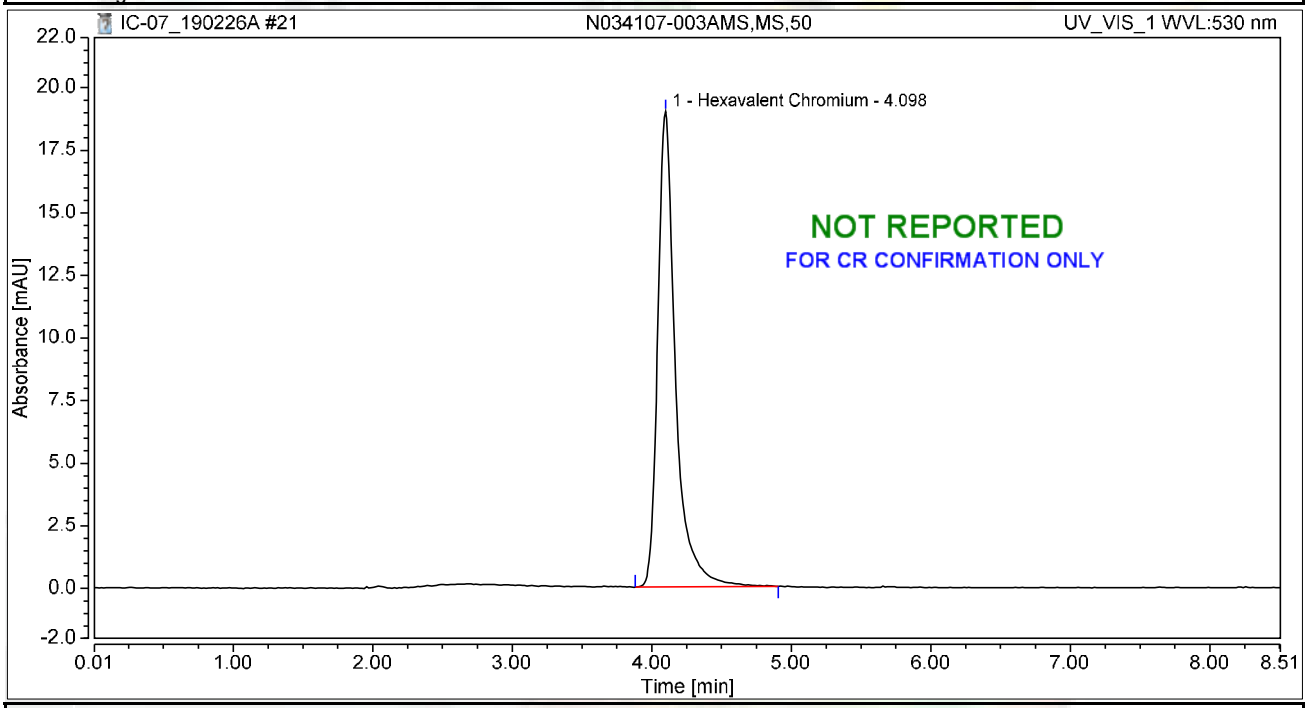
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.516 | 10.264 | 100.00 | 100.00 | 6.1182 |
| **Total:** | | | **1.516** | **10.264** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-003AMS,MS,50** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 11:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

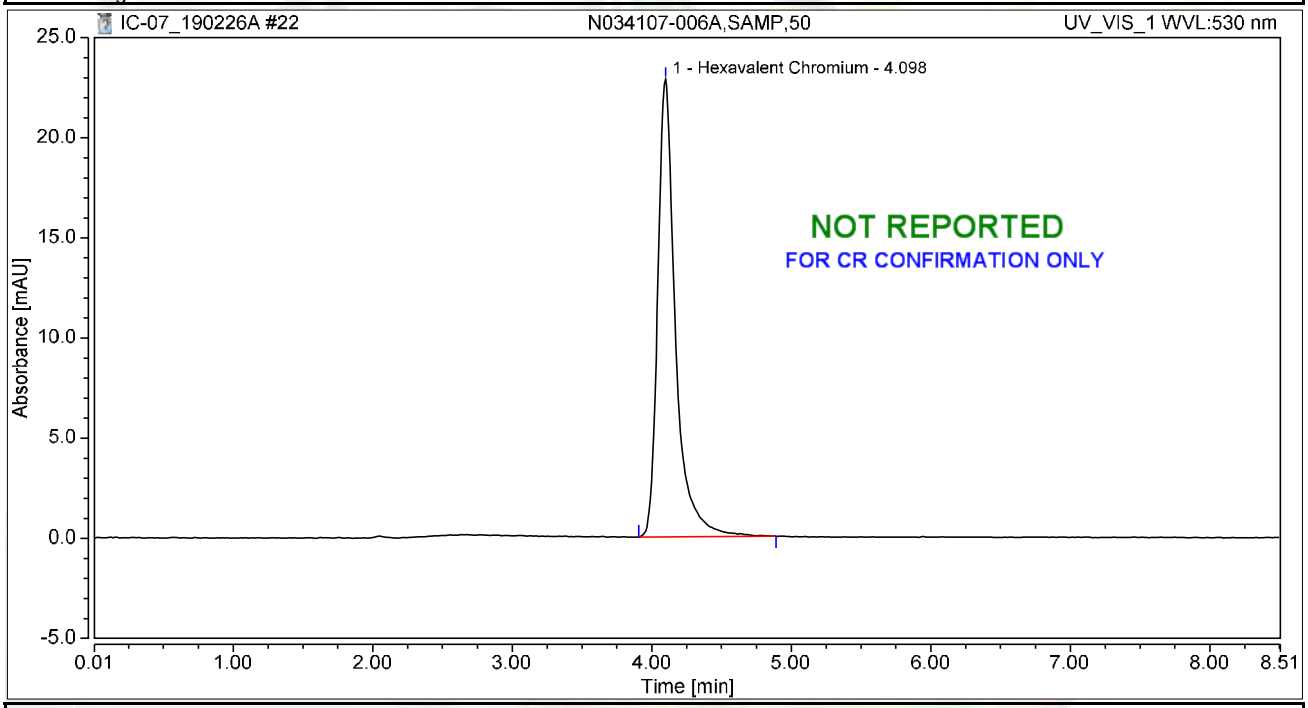
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.799 | 18.991 | 100.00 | 100.00 | 11.2944 |
| **Total:** | | | **2.799** | **18.991** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-006A,SAMP,50** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 11:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

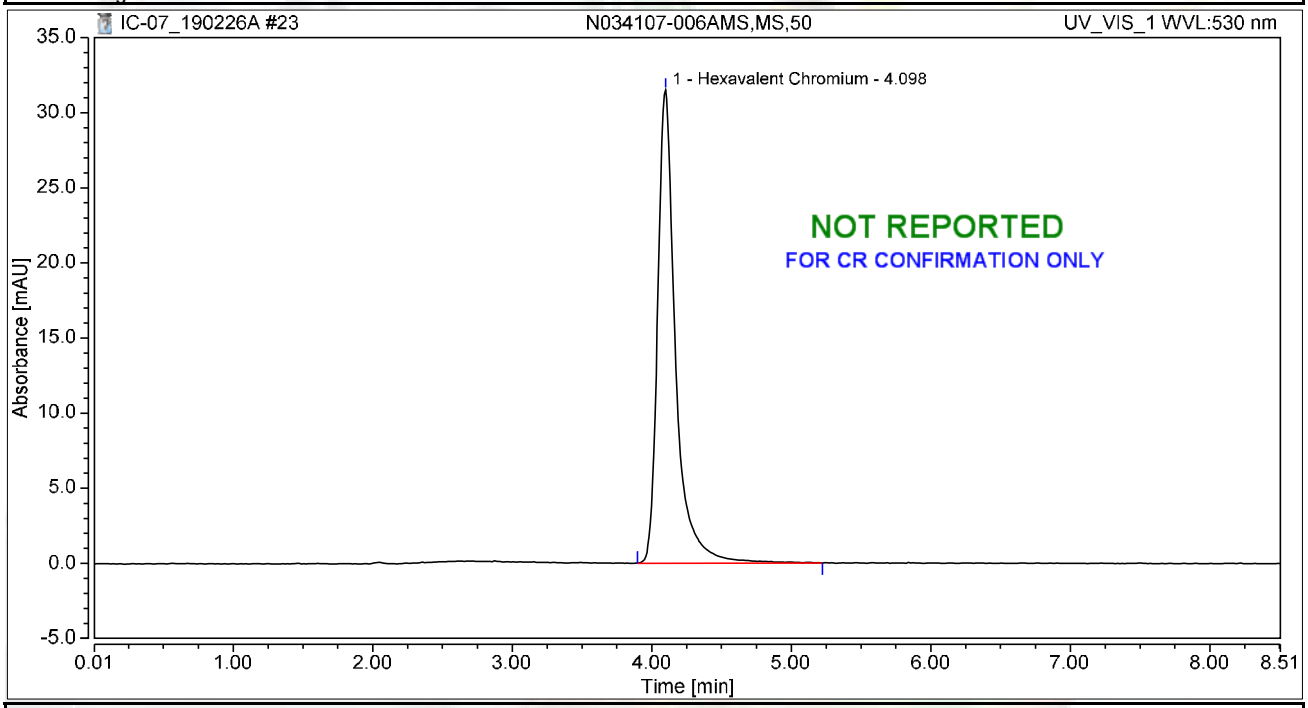
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 3.361 | 22.847 | 100.00 | 100.00 | 13.5623 |
| **Total:** | | | **3.361** | **22.847** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-006AMS,MS,50** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 11:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

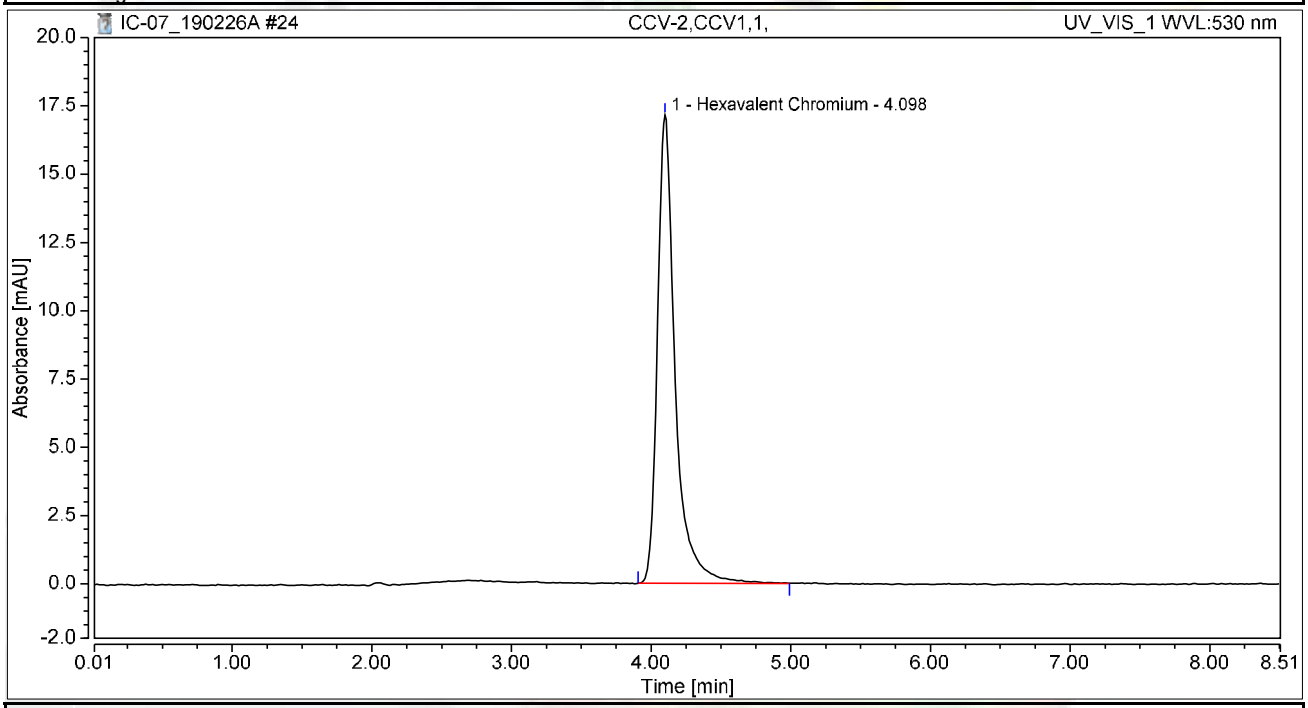
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 4.680 | 31.497 | 100.00 | 100.00 | 18.8857 |
| **Total:** | | | **4.680** | **31.497** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-2,CCV1,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 11:40** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

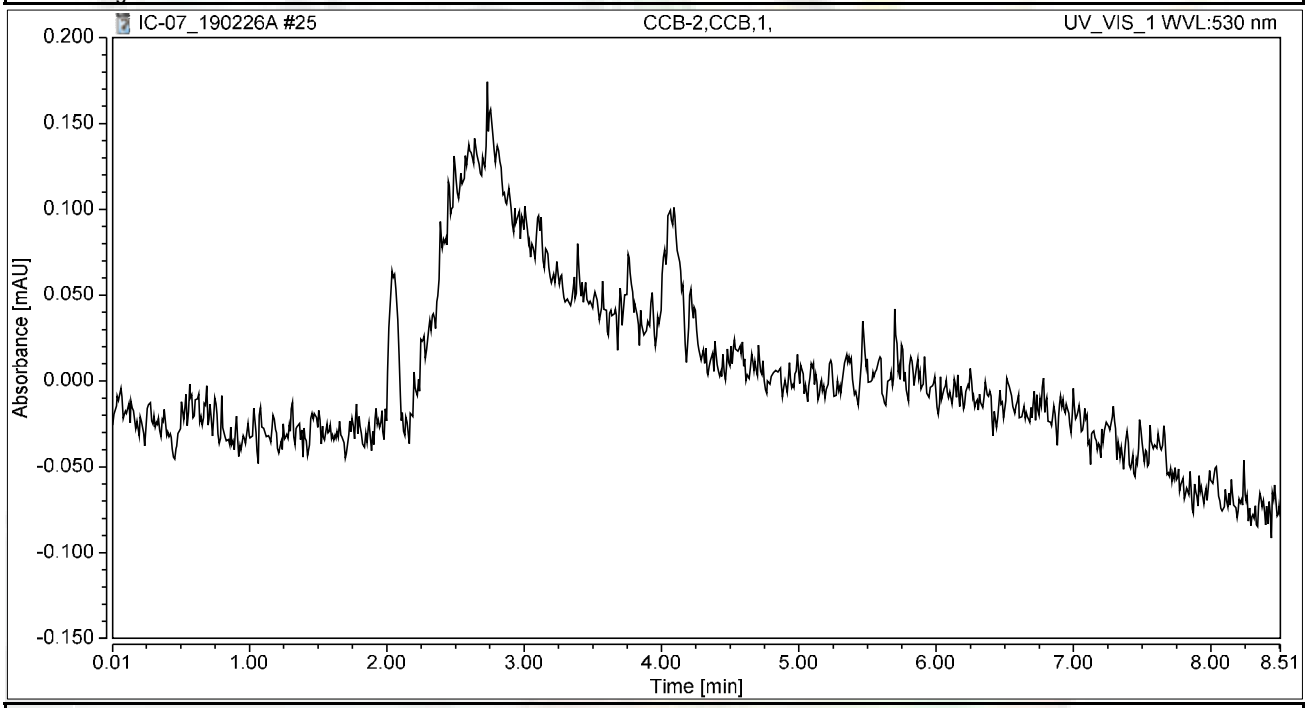
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.526 | 17.143 | 100.00 | 100.00 | 10.1929 |
| **Total:** | | | **2.526** | **17.143** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-2,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 11:50** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

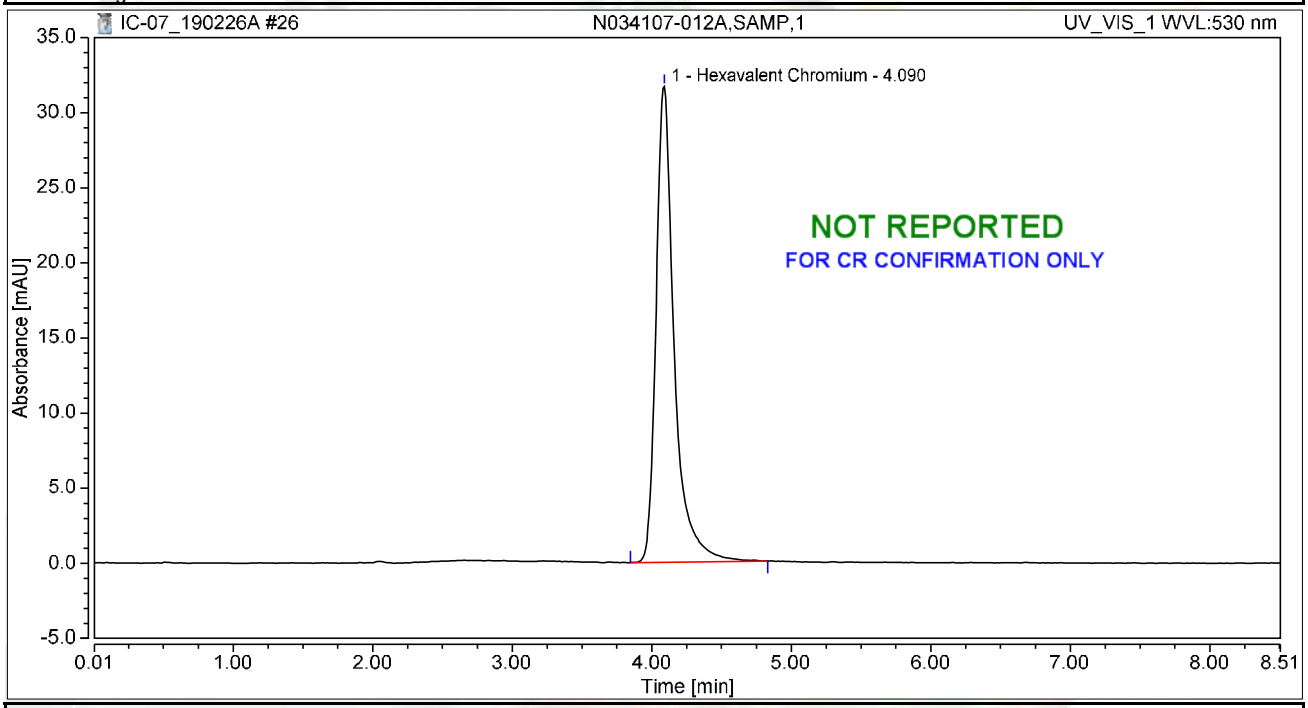
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-012A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 12:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

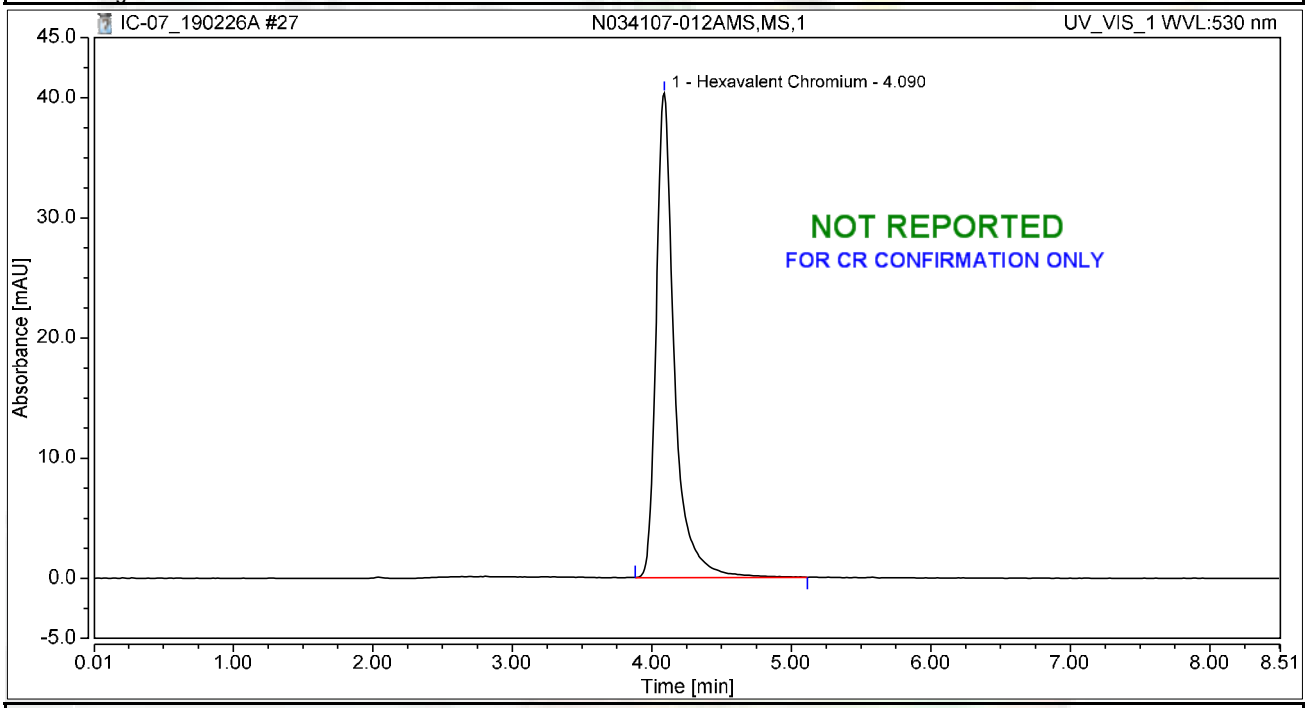
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 4.770 | 31.684 | 100.00 | 100.00 | 19.2490 |
| **Total:** | | | **4.770** | **31.684** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-012AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 12:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

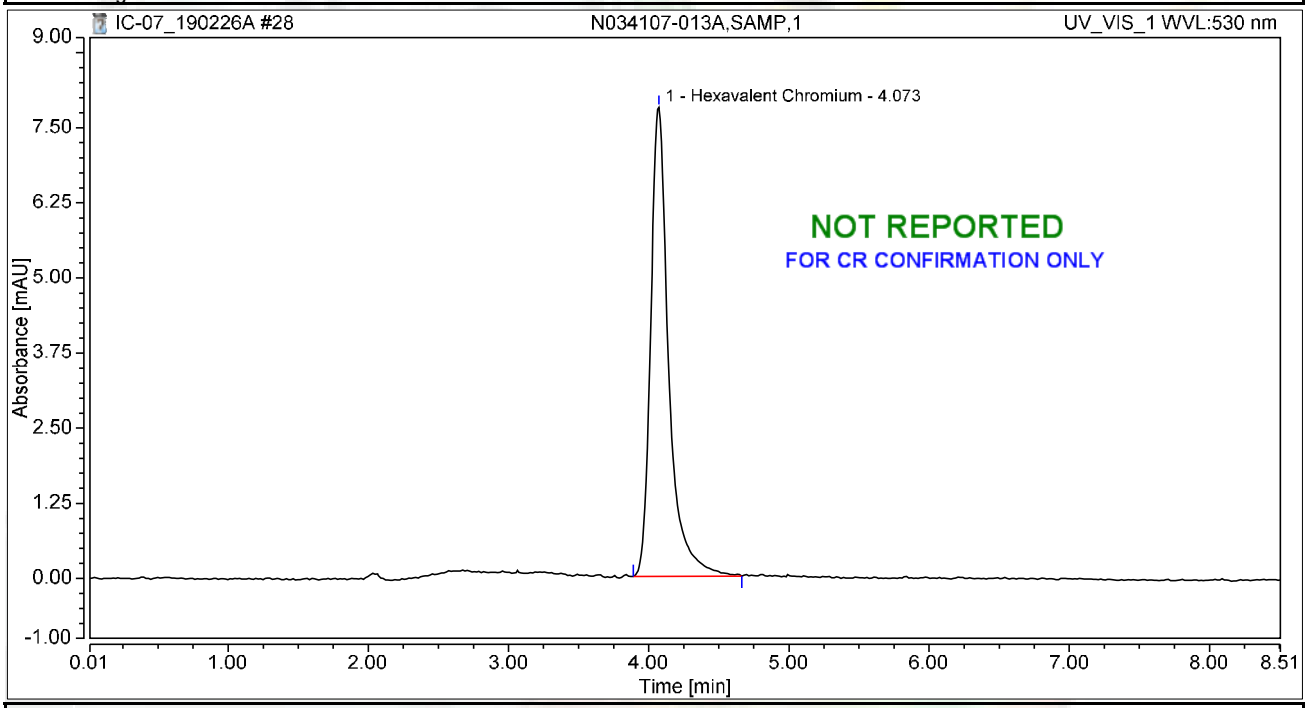
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 6.090 | 40.290 | 100.00 | 100.00 | 24.5738 |
| **Total:** | | | **6.090** | **40.290** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-013A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 12:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

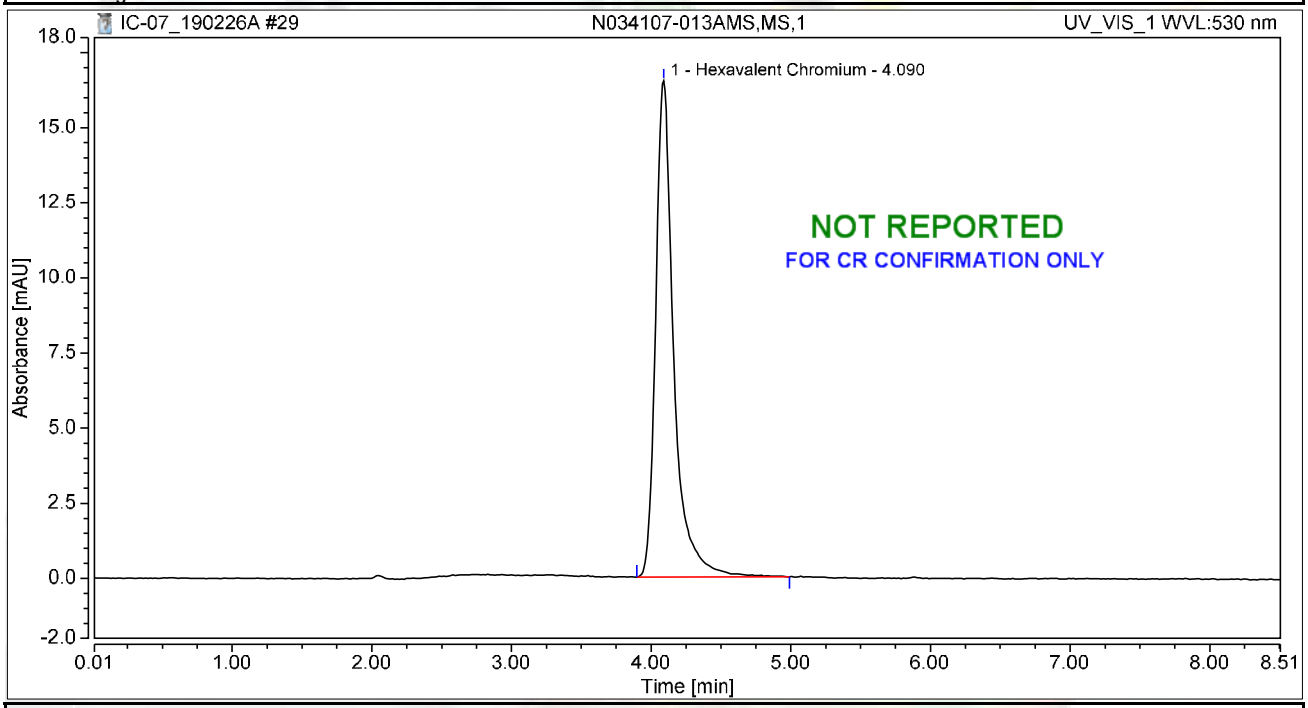
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 1.165 | 7.807 | 100.00 | 100.00 | 4.7007 |
| **Total:** | | | **1.165** | **7.807** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-013AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **20** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 12:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

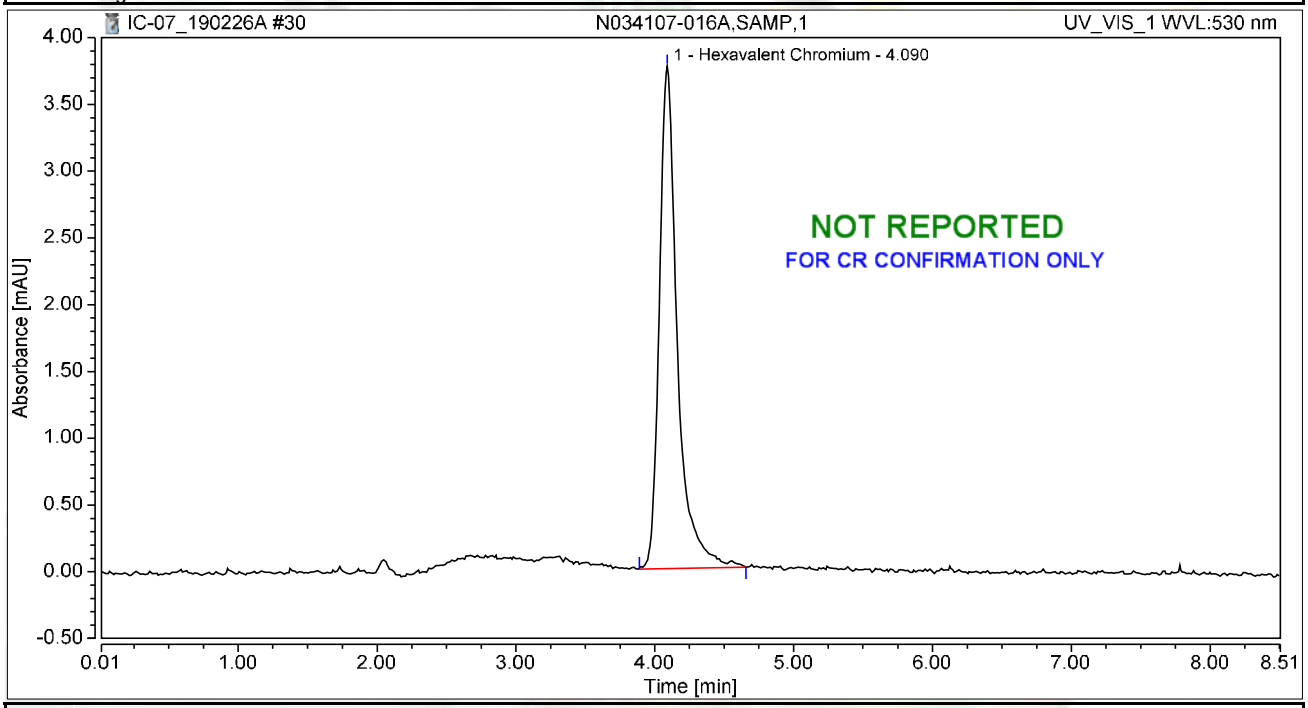
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 2.482 | 16.514 | 100.00 | 100.00 | 10.0169 |
| **Total:** | | | **2.482** | **16.514** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-016A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 12:40** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

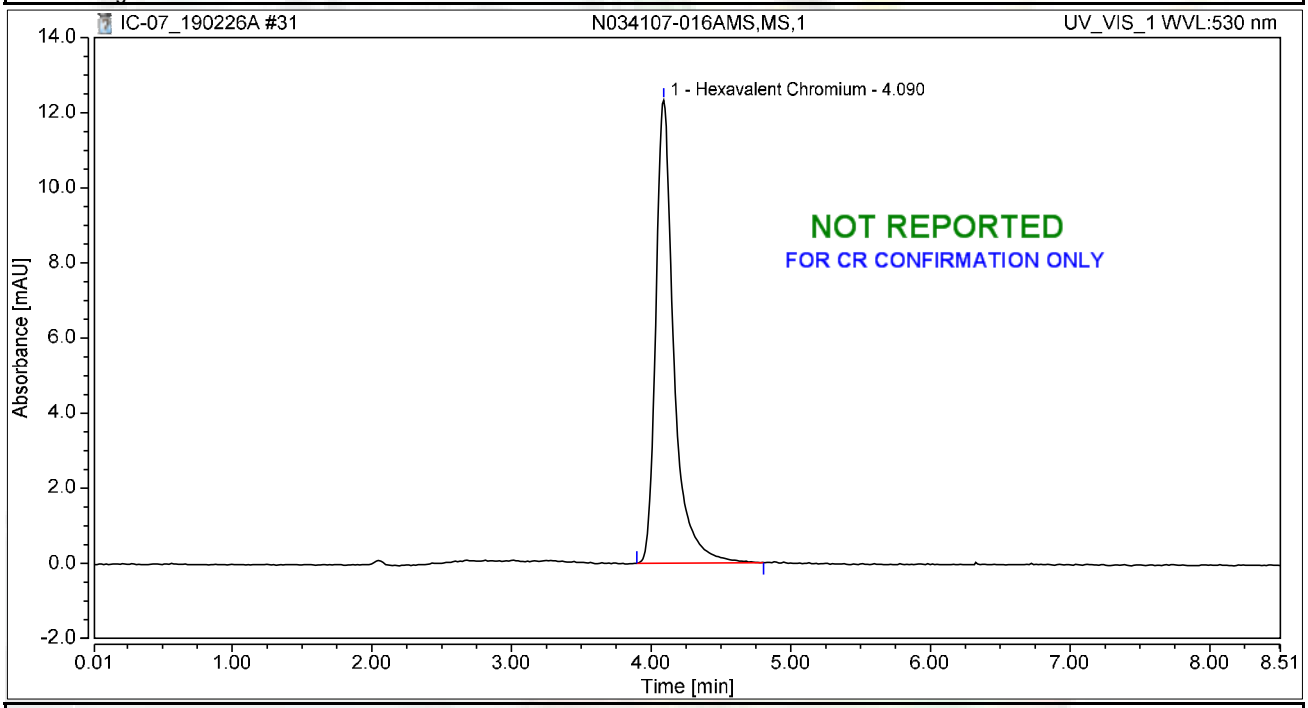
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.566 | 3.762 | 100.00 | 100.00 | 2.2838 |
| **Total:** | | | **0.566** | **3.762** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-016AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 12:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

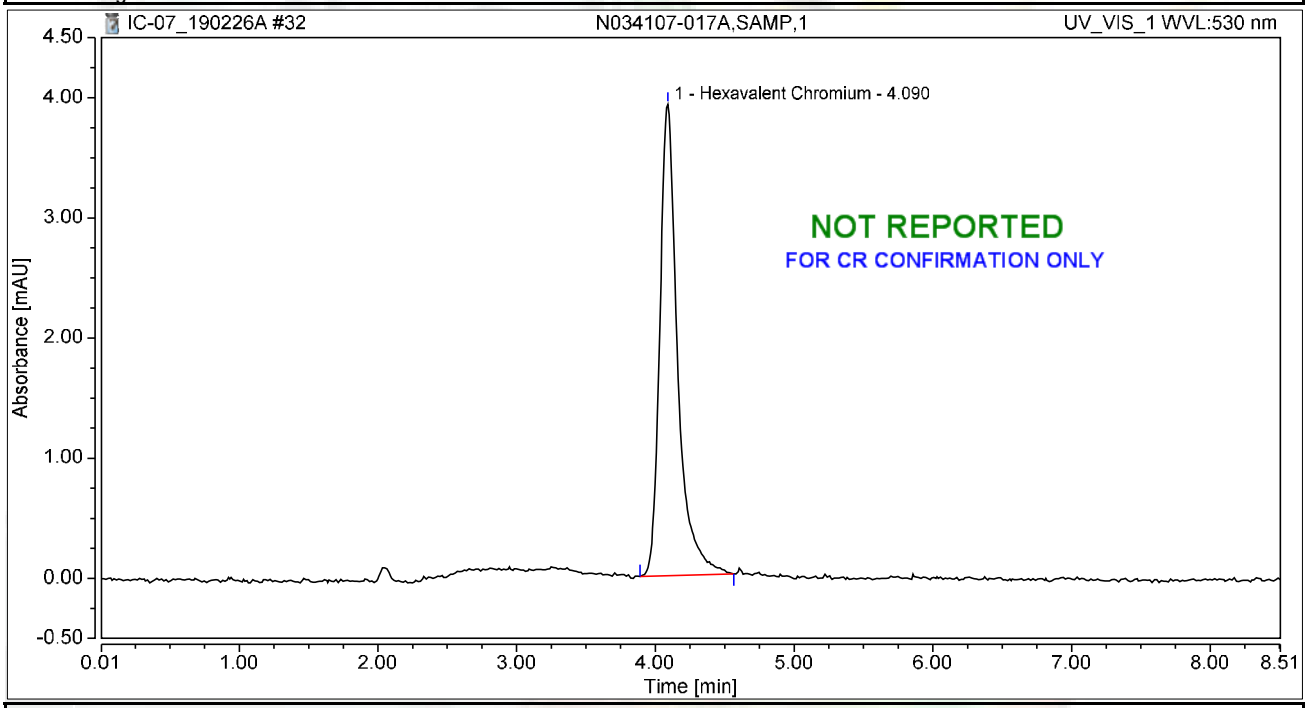
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 1.854 | 12.326 | 100.00 | 100.00 | 7.4804 |
| **Total:** | | | **1.854** | **12.326** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-017A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **23** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 12:59** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

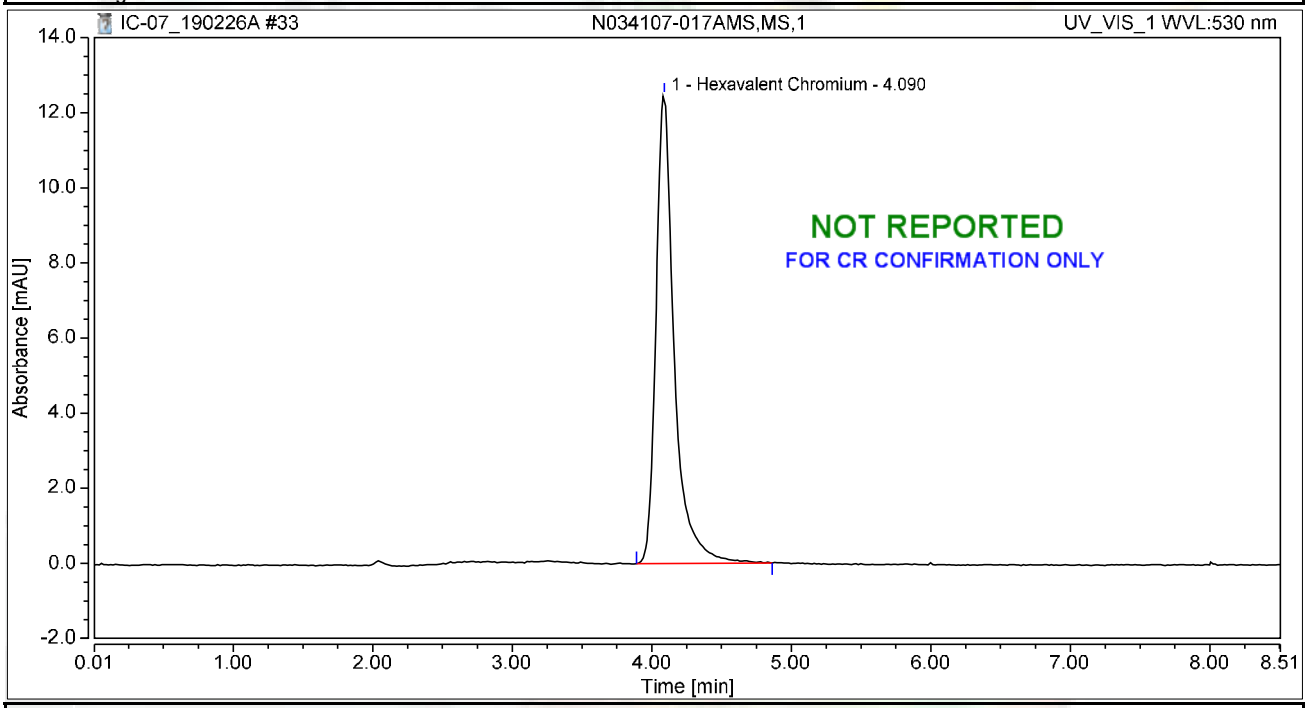
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.584 | 3.924 | 100.00 | 100.00 | 2.3574 |
| **Total:** | | | **0.584** | **3.924** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-017AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **24** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 13:08** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

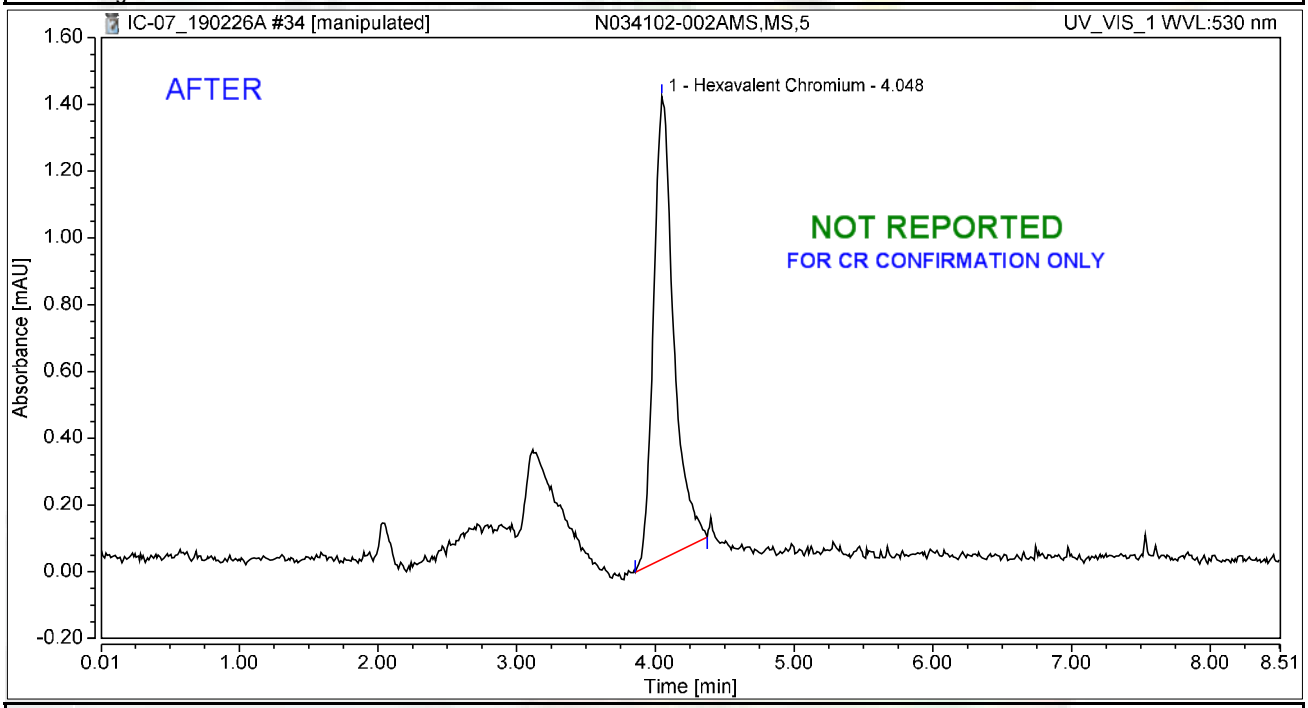
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 1.890 | 12.468 | 100.00 | 100.00 | 7.6264 |
| **Total:** | | | **1.890** | **12.468** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-002AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 13:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

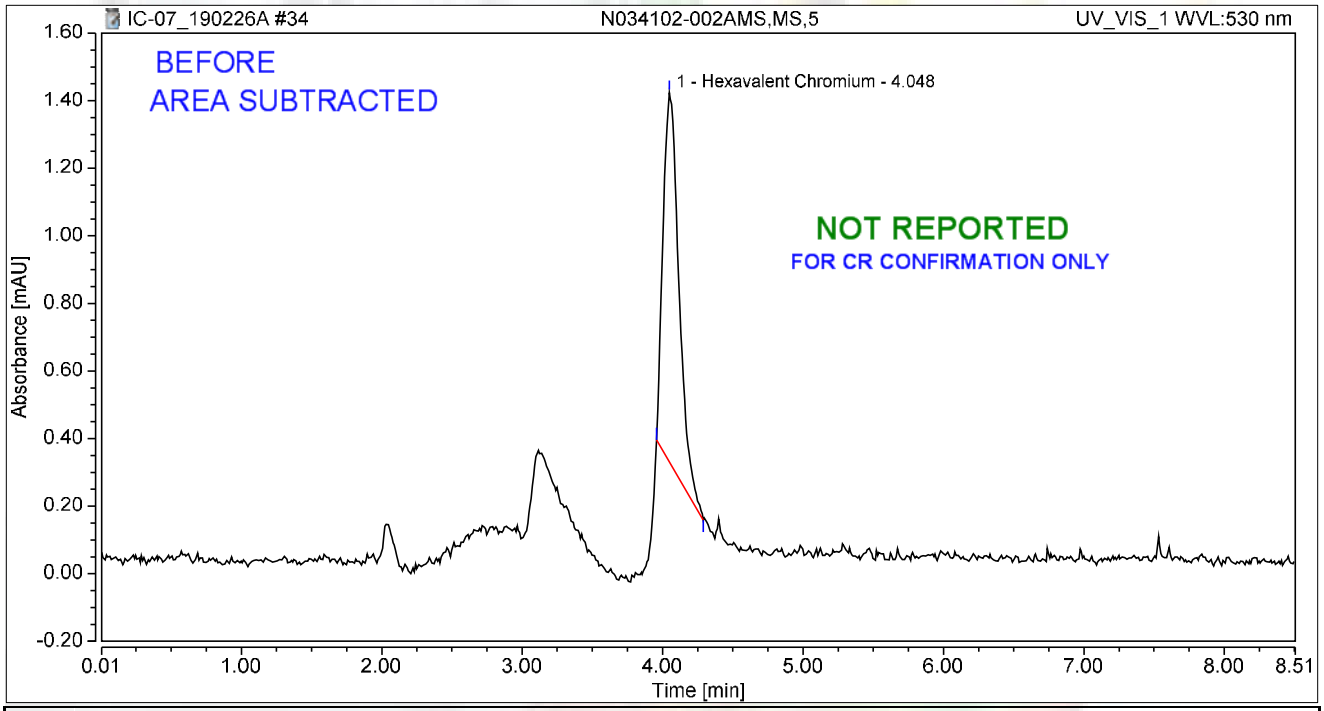
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.233 | 1.387 | 100.00 | 100.00 | 0.9408 |
| **Total:** | | | **0.233** | **1.387** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-002AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 13:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

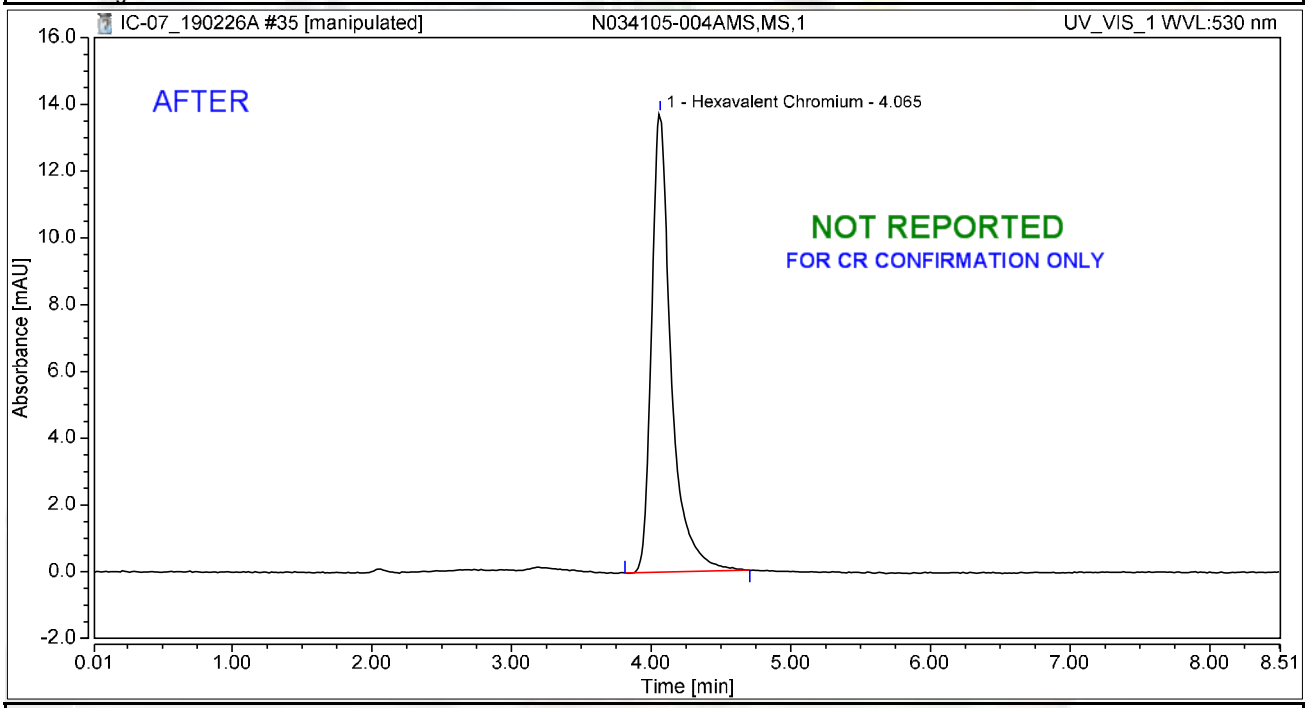
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.144 | 1.093 | 100.00 | 100.00 | 0.5810 |
| **Total:** | | | **0.144** | **1.093** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034105-004AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **26** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 13:27** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

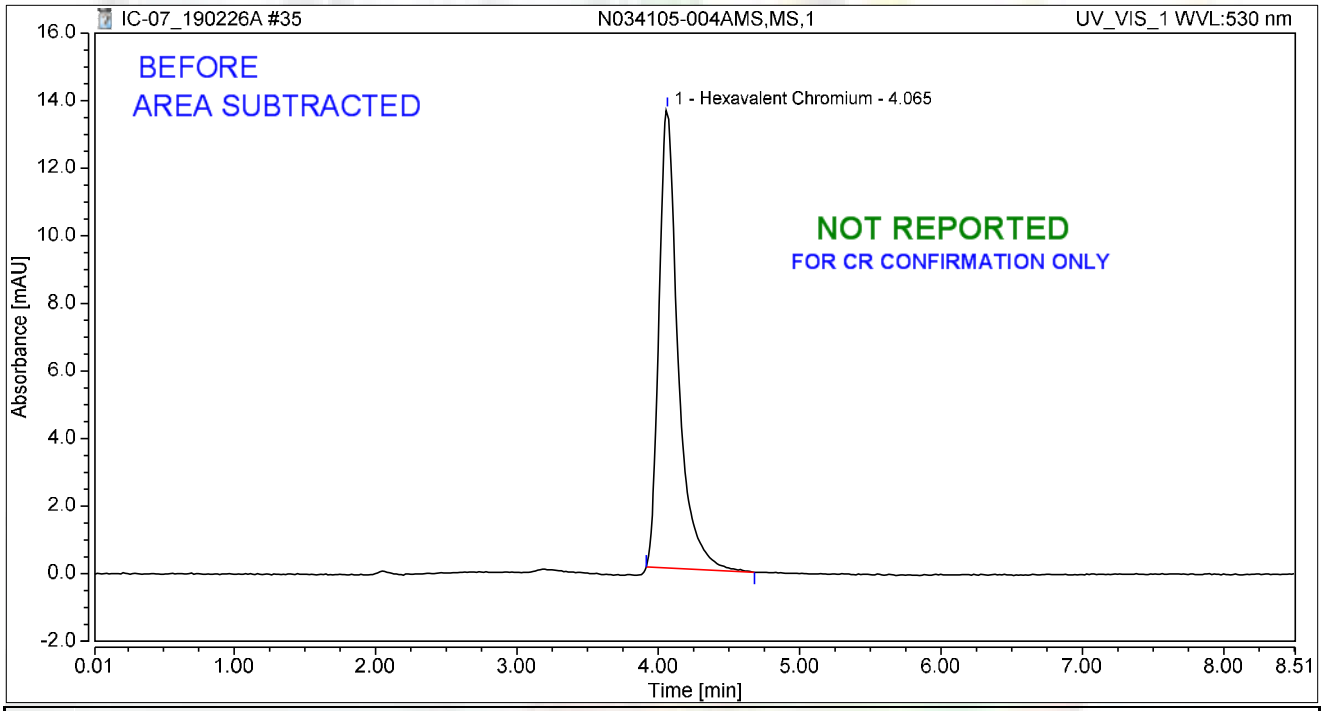
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.065 | 2.233 | 13.749 | 100.00 | 100.00 | 9.0117 |
| **Total:** | | | **2.233** | **13.749** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034105-004AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **26** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 13:27** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

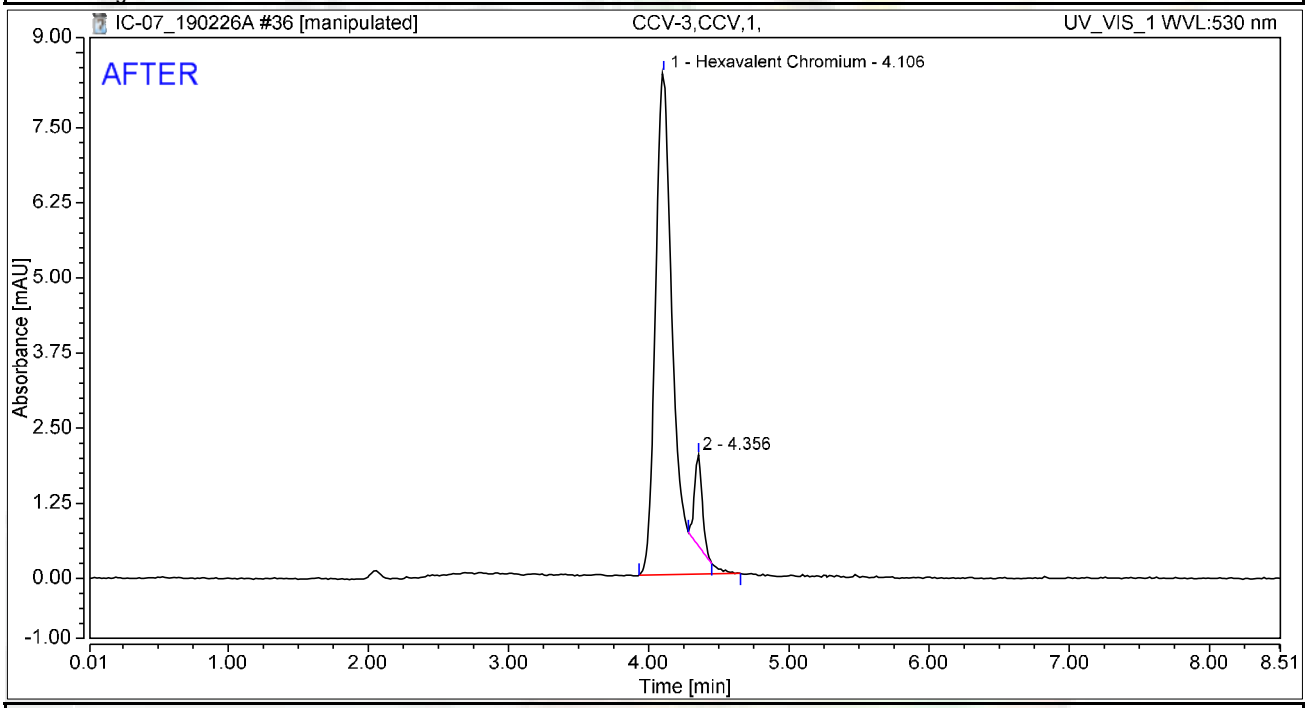
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.065 | 2.143 | 13.568 | 100.00 | 100.00 | 8.6471 |
| **Total:** | | | **2.143** | **13.568** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-3,CCV,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 13:36** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

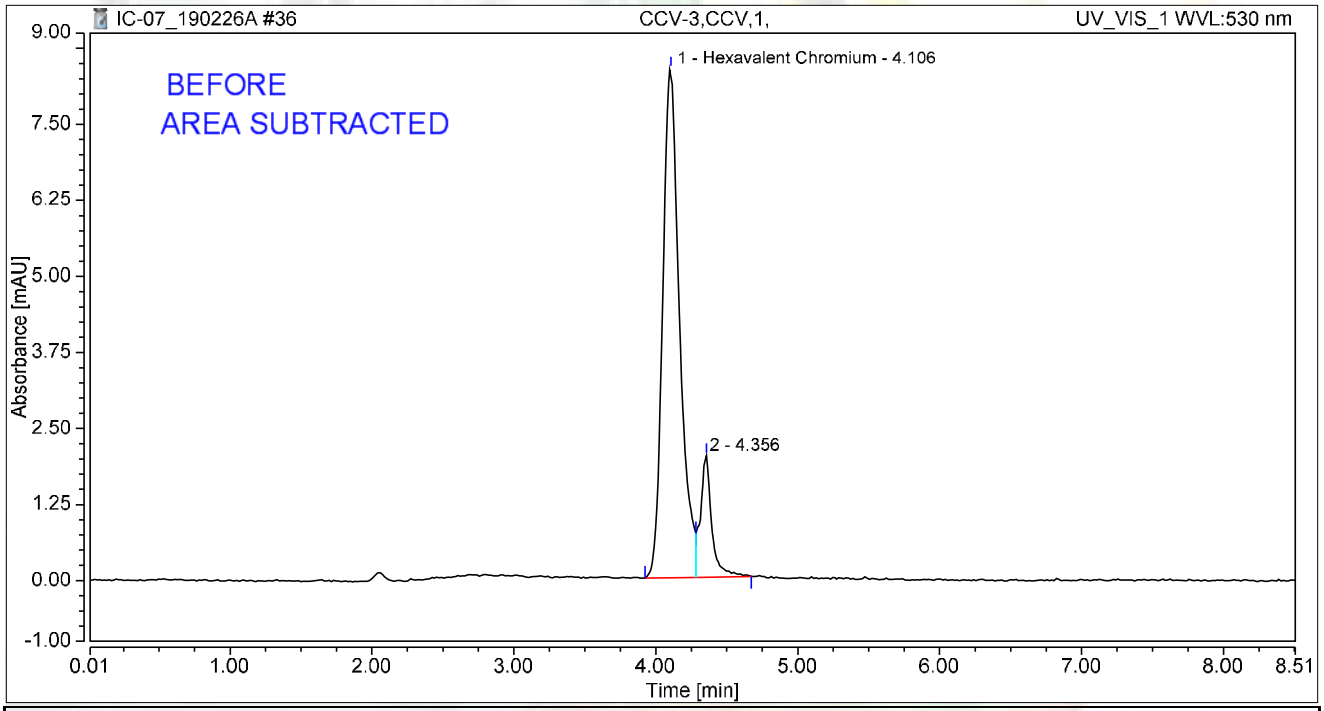
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.232 | 8.351 | 92.83 | 84.65 | 4.9718 |
| 2 | | 4.356 | 0.095 | 1.514 | 7.17 | 15.35 | n.a. |
| **Total:** | | | **1.327** | **9.865** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-3,CCV,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 13:36** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

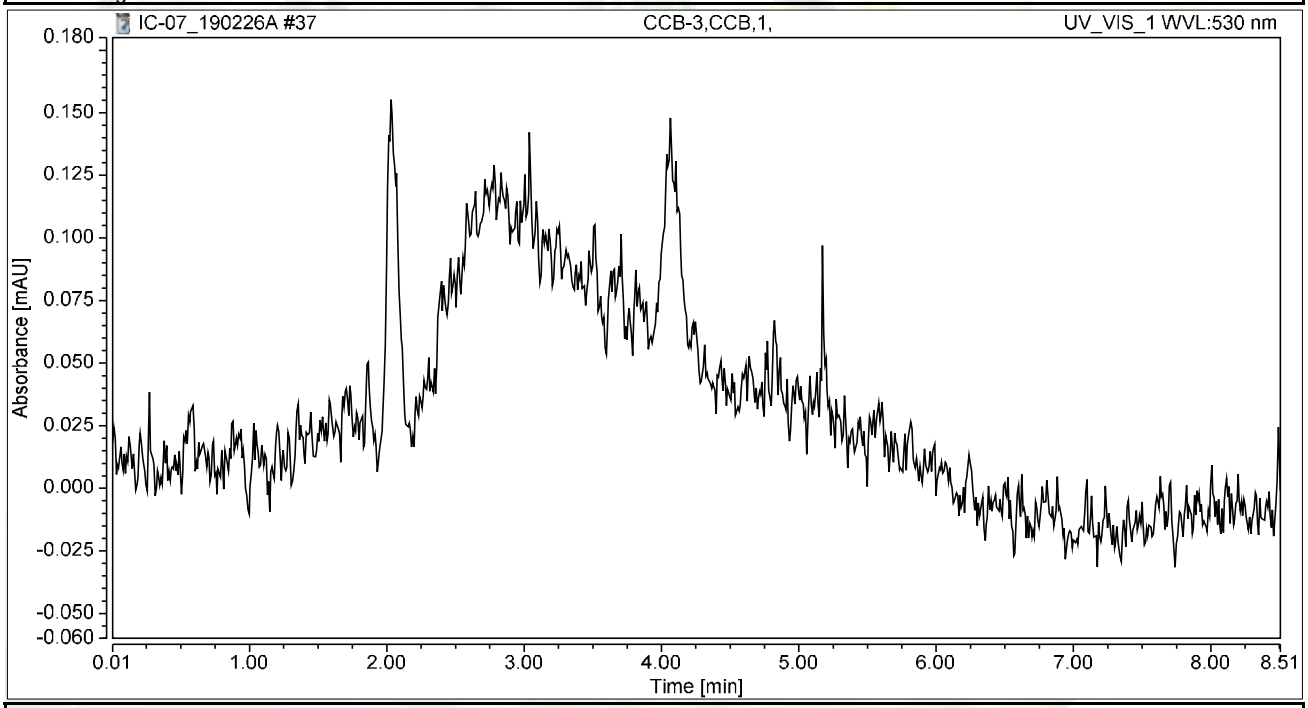
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.152 | 8.362 | 86.11 | 80.73 | 4.6477 |
| 2 | | 4.356 | 0.186 | 1.996 | 13.89 | 19.27 | n.a. |
| **Total:** | | | **1.338** | **10.358** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-3,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **28** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 13:46** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

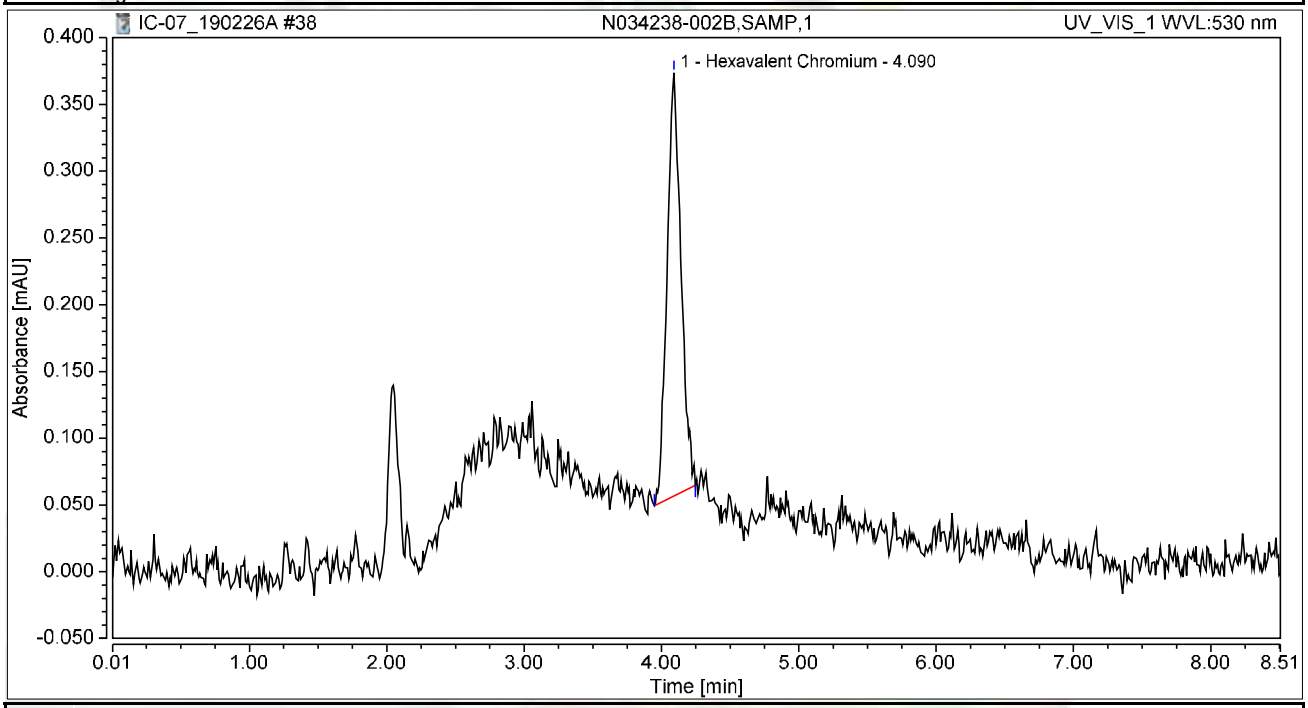
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034238-002B,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **29** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 13:55** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

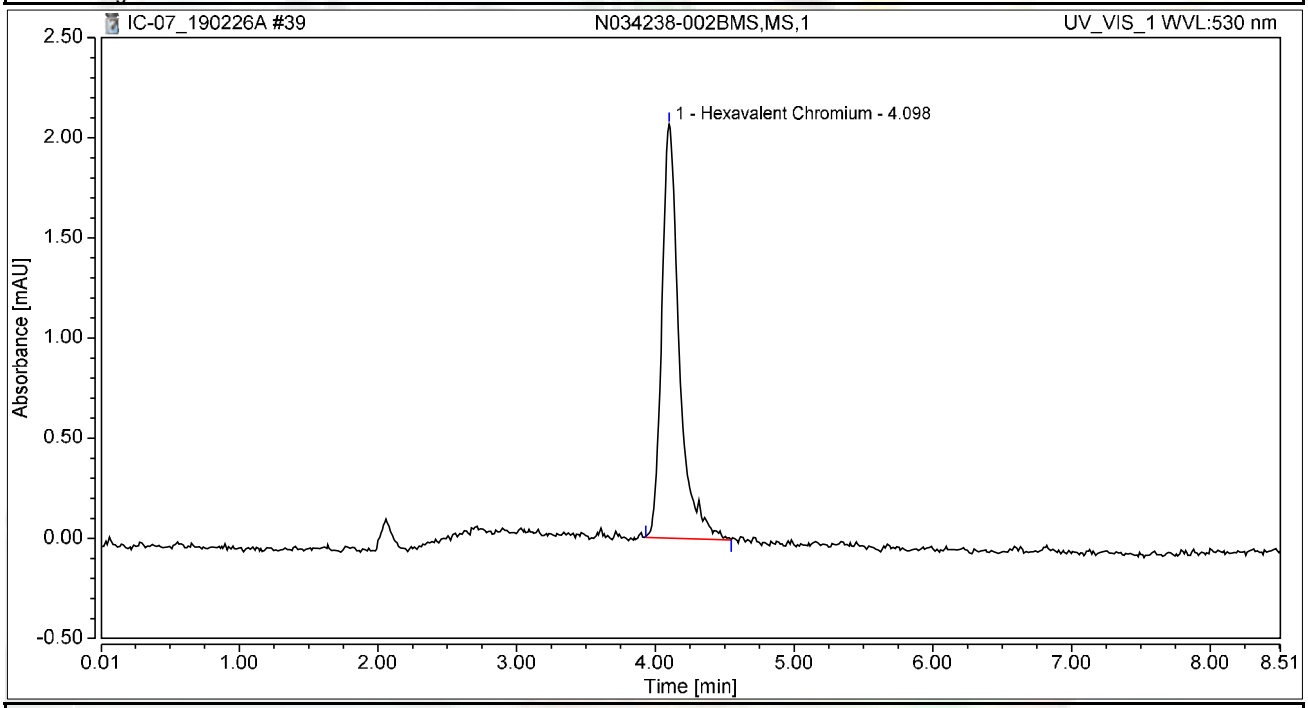
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.037 | 0.317 | 100.00 | 100.00 | 0.1496 |
| **Total:** | | | **0.037** | **0.317** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034238-002BMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **30** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 14:05** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

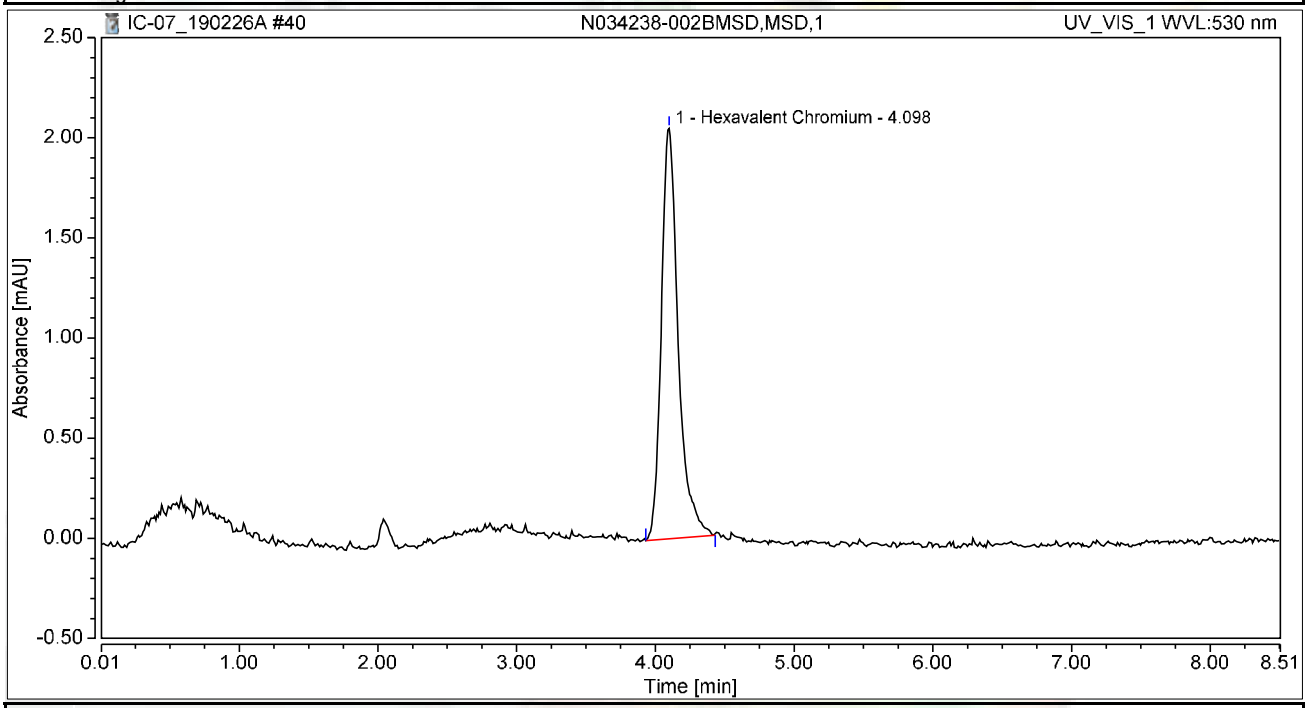
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.302 | 2.067 | 100.00 | 100.00 | 1.2174 |
| **Total:** | | | **0.302** | **2.067** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034238-002BMSD,MSD,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **31** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 14:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

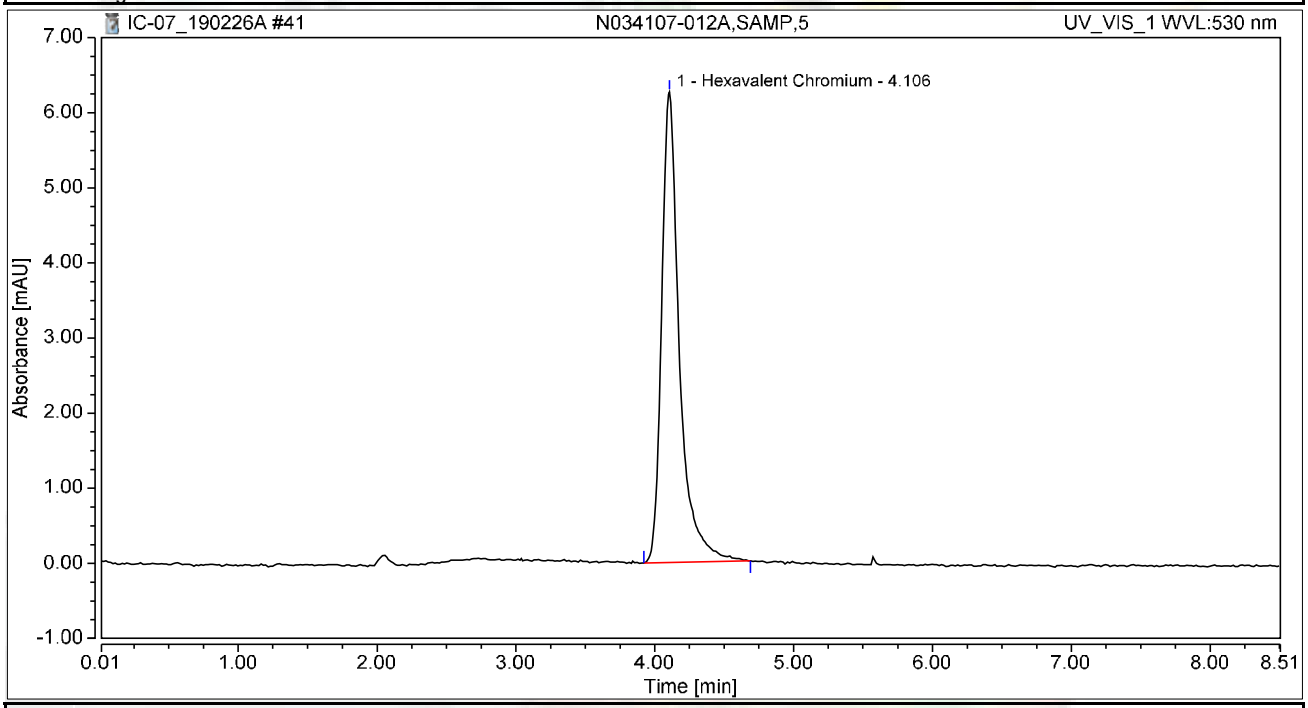
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.289 | 2.050 | 100.00 | 100.00 | 1.1659 |
| **Total:** | | | **0.289** | **2.050** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-012A,SAMP,5** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **32** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 14:24** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

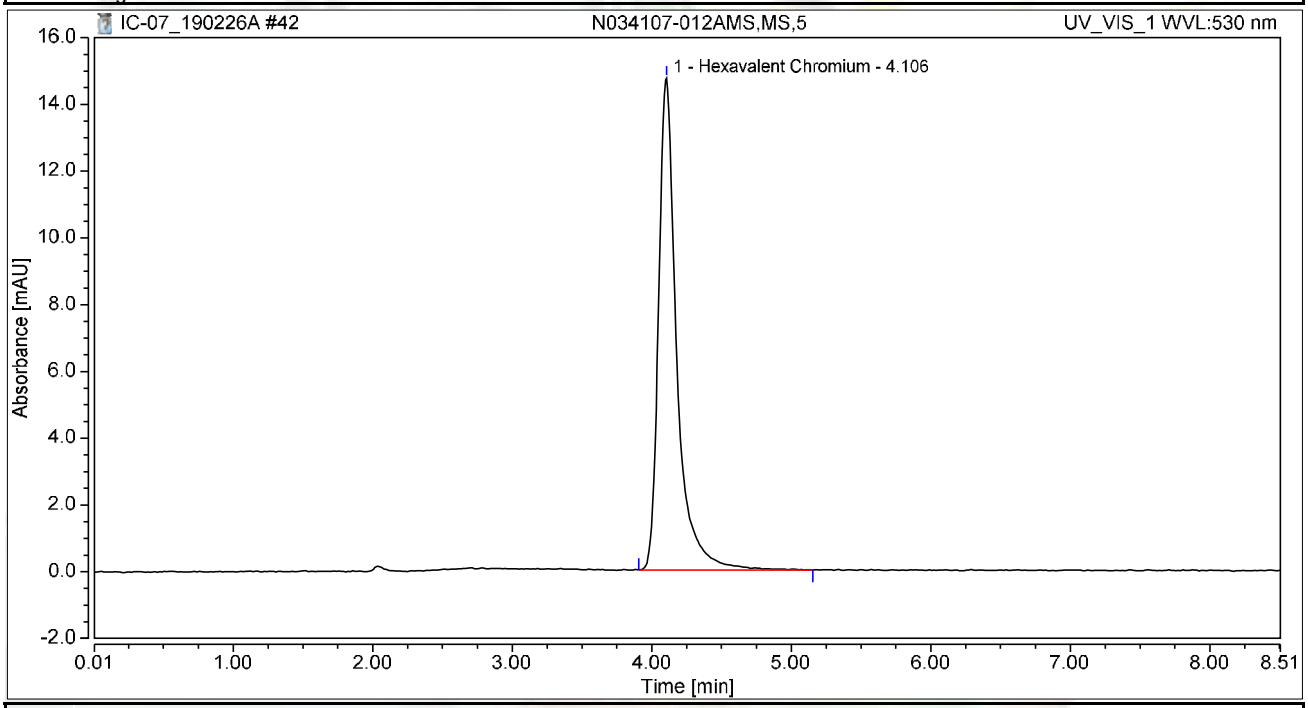
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.930 | 6.263 | 100.00 | 100.00 | 3.7513 |
| **Total:** | | | **0.930** | **6.263** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-012AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **33** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 14:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

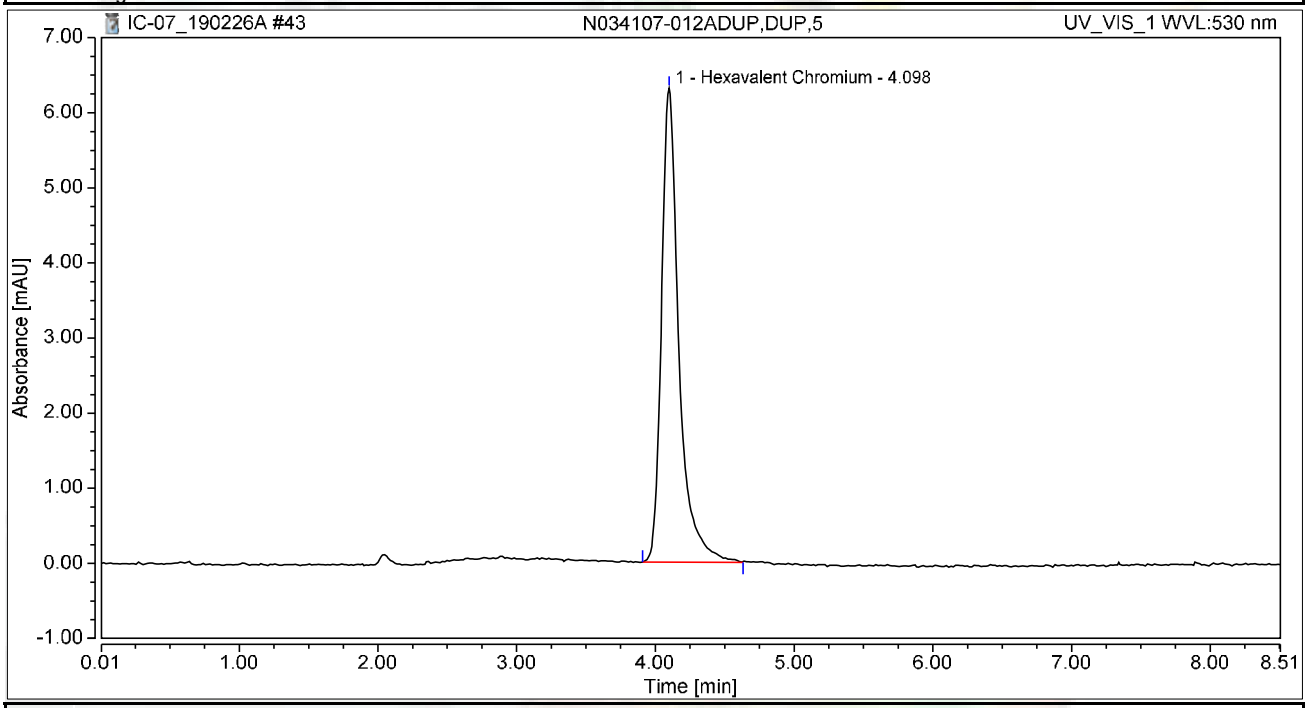
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 2.223 | 14.744 | 100.00 | 100.00 | 8.9712 |
| **Total:** | | | **2.223** | **14.744** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-012ADUP,DUP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **34** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 14:43** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

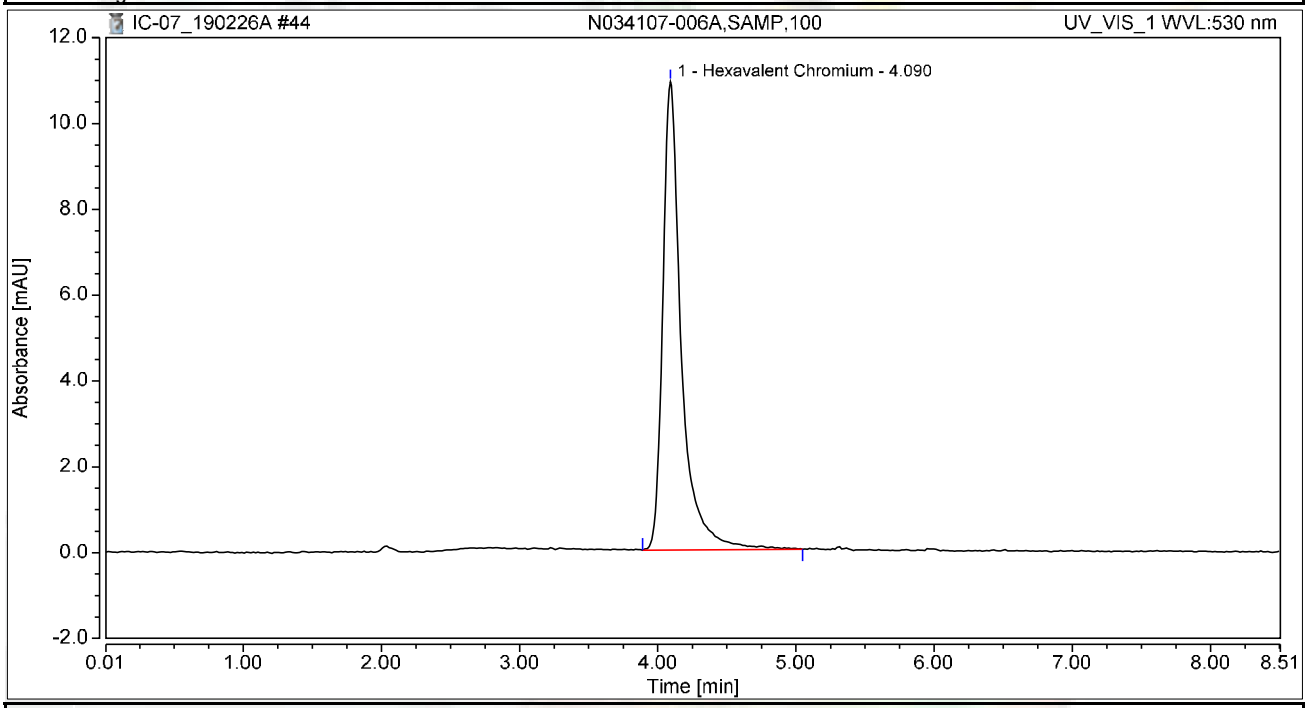
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.920 | 6.309 | 100.00 | 100.00 | 3.7105 |
| **Total:** | | | **0.920** | **6.309** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-006A,SAMP,100** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **35** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 14:52** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

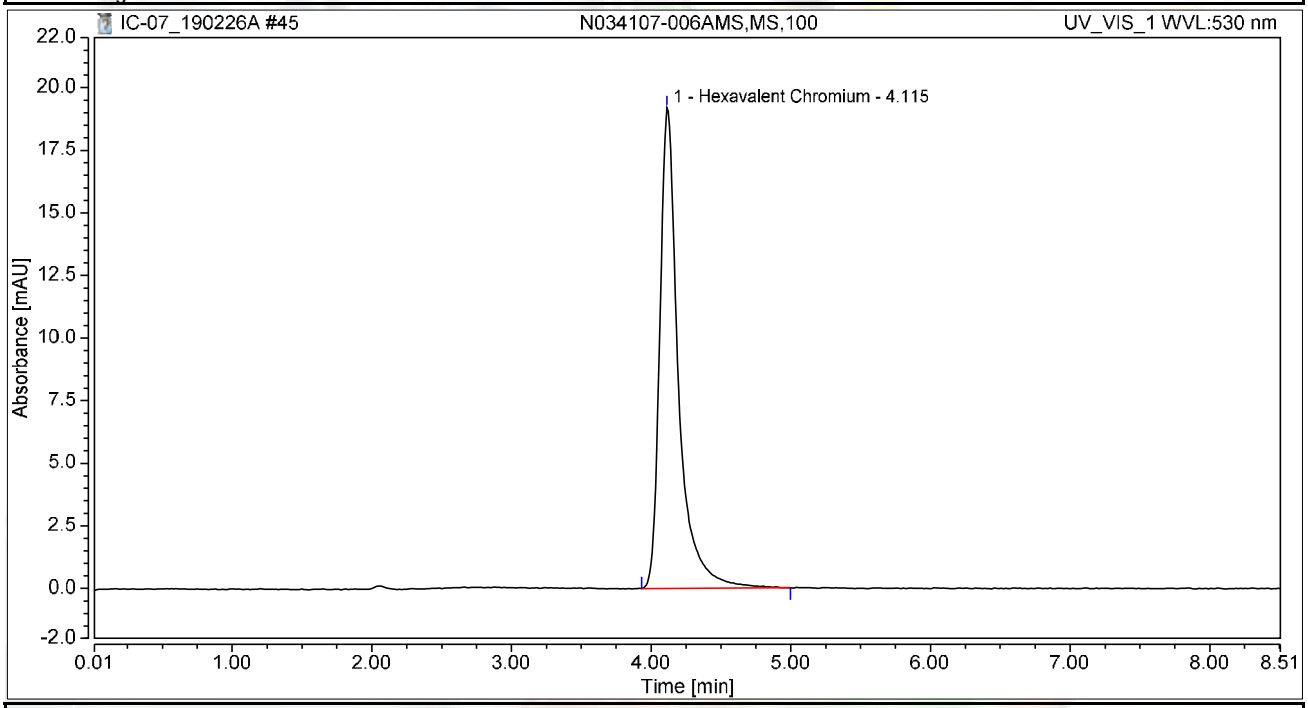
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 1.703 | 10.909 | 100.00 | 100.00 | 6.8735 |
| **Total:** | | | **1.703** | **10.909** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034107-006AMS,MS,100** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **36** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 15:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

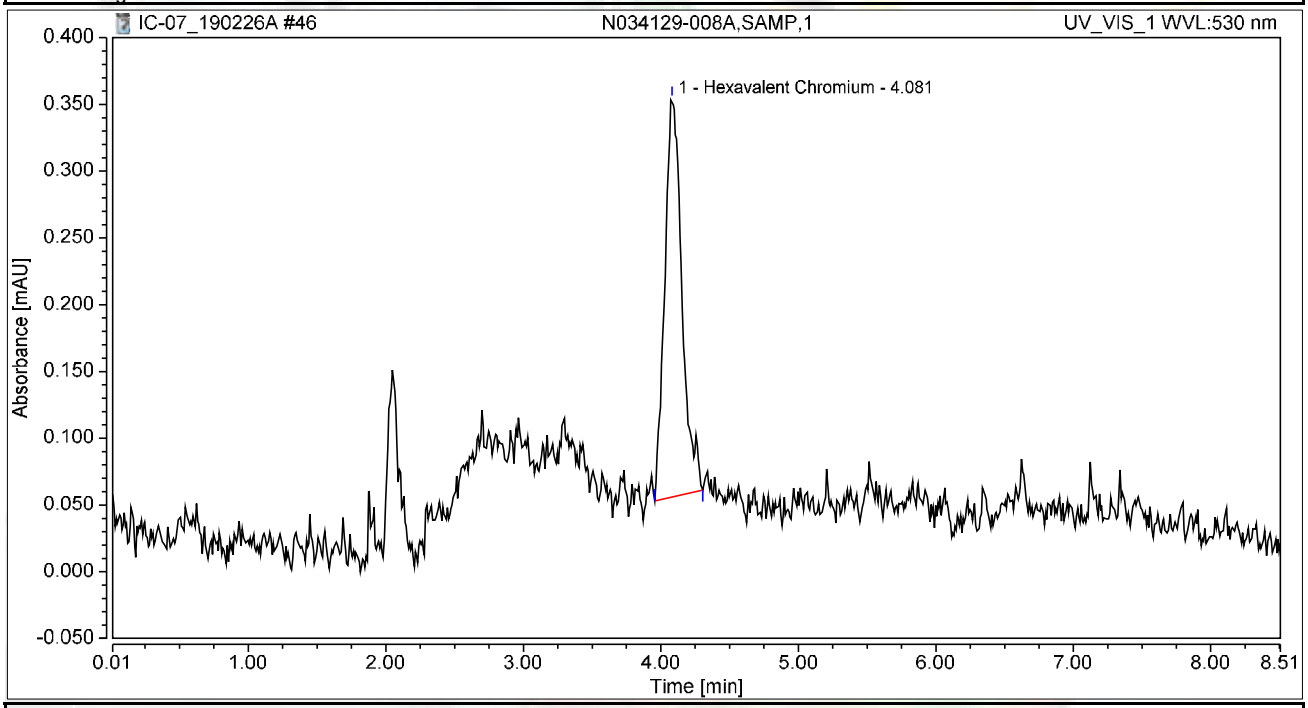
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 2.988 | 19.214 | 100.00 | 100.00 | 12.0581 |
| **Total:** | | | **2.988** | **19.214** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-008A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **37** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 15:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

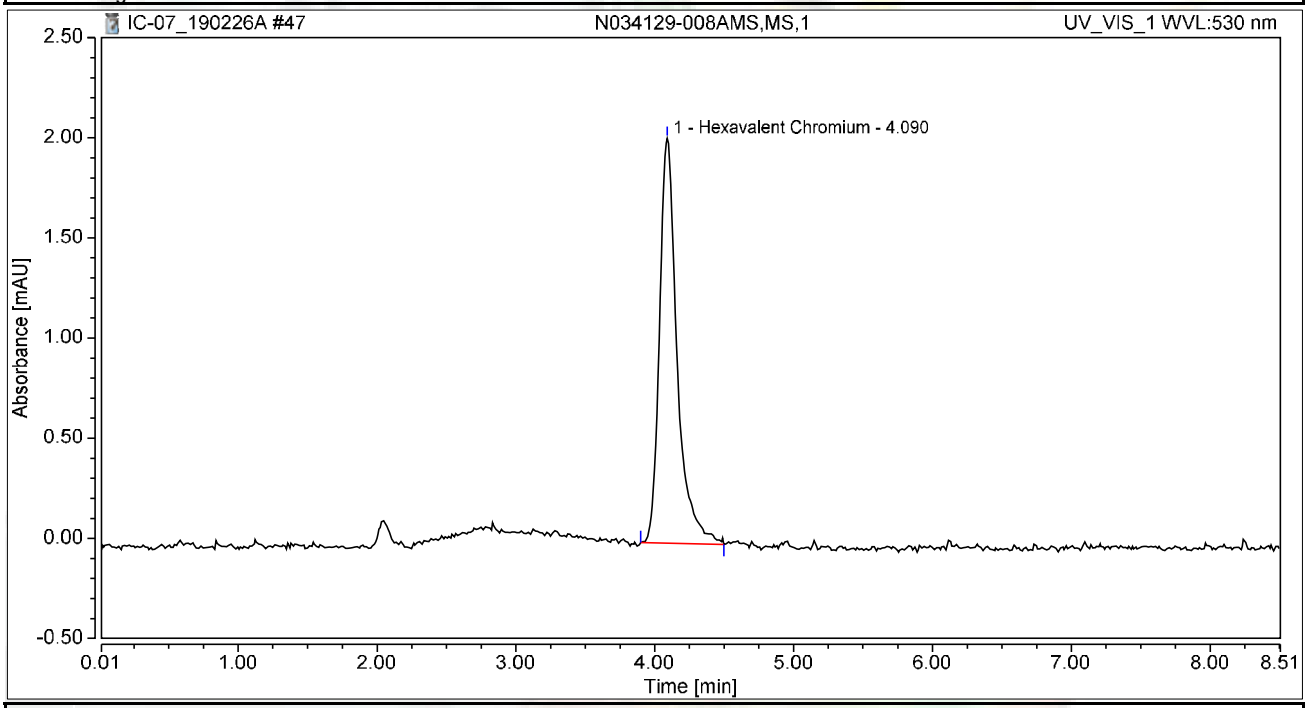
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.043 | 0.299 | 100.00 | 100.00 | 0.1742 |
| **Total:** | | | **0.043** | **0.299** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-008AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **38** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 15:20** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

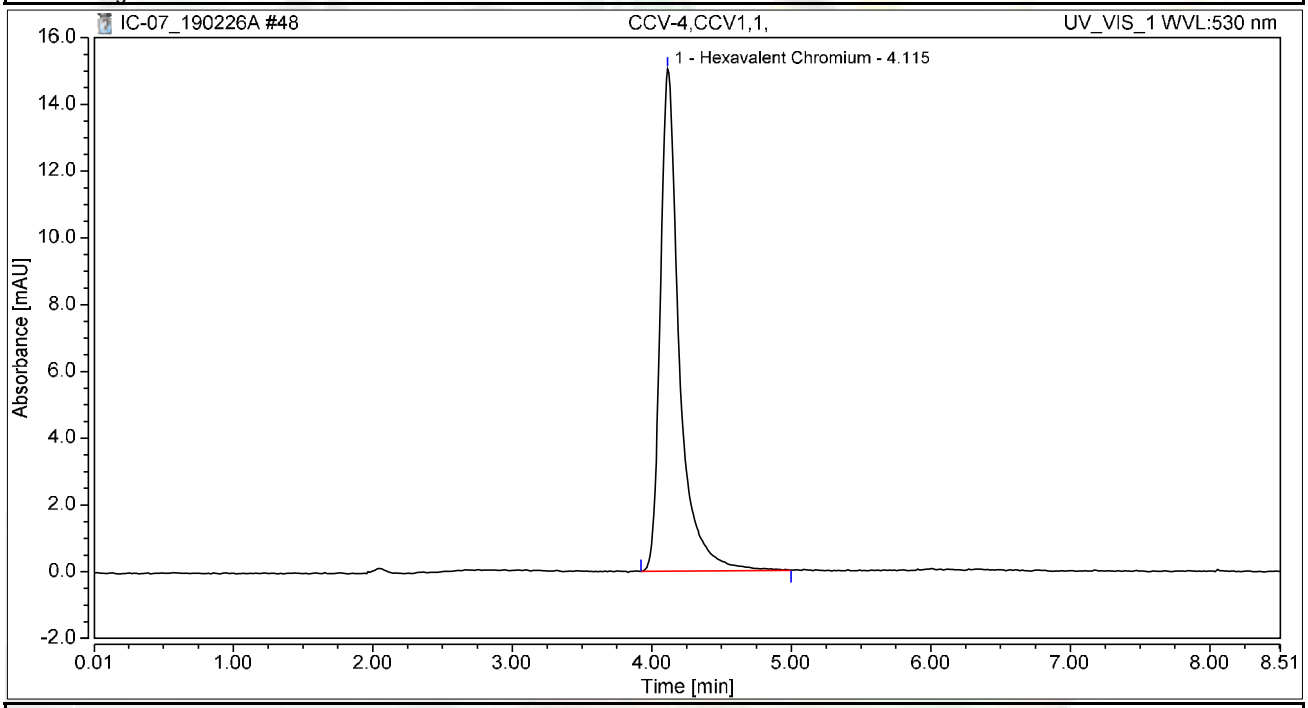
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.298 | 2.021 | 100.00 | 100.00 | 1.2026 |
| **Total:** | | | **0.298** | **2.021** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-4,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **39** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 15:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

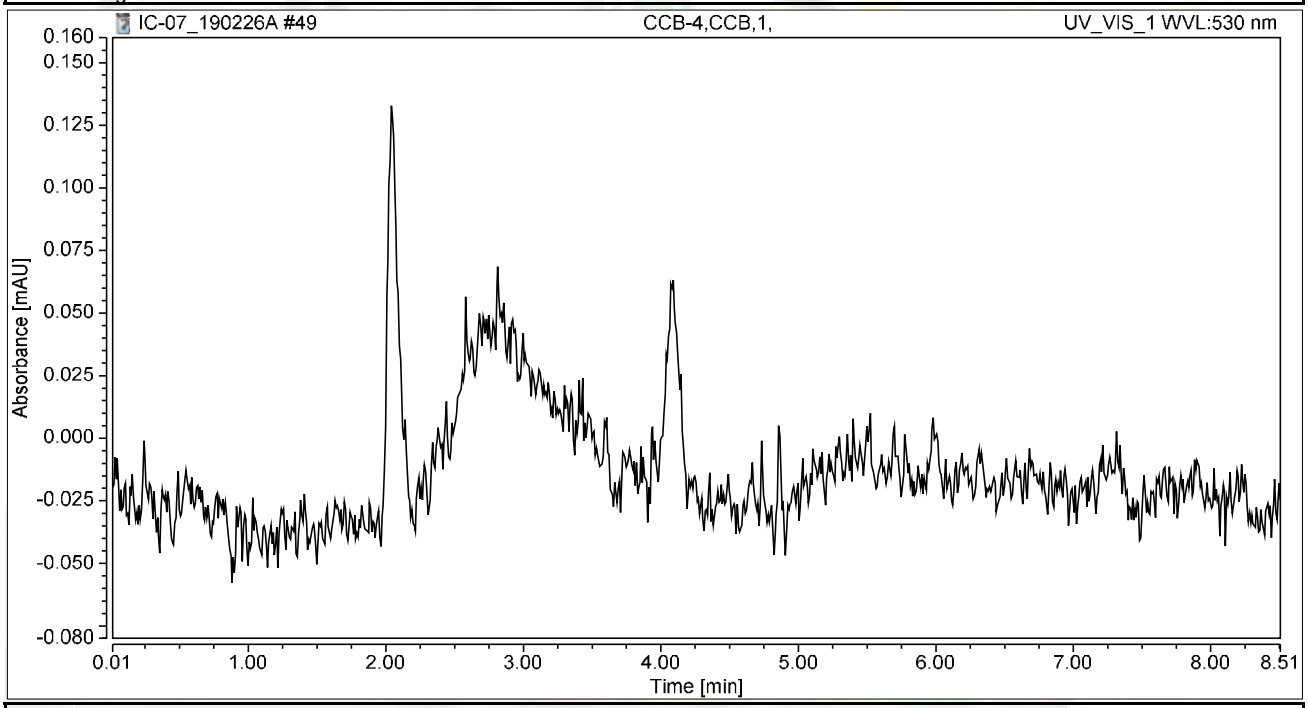
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 2.377 | 15.040 | 100.00 | 100.00 | 9.5910 |
| **Total:** | | | **2.377** | **15.040** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-4,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **40** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 15:39** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

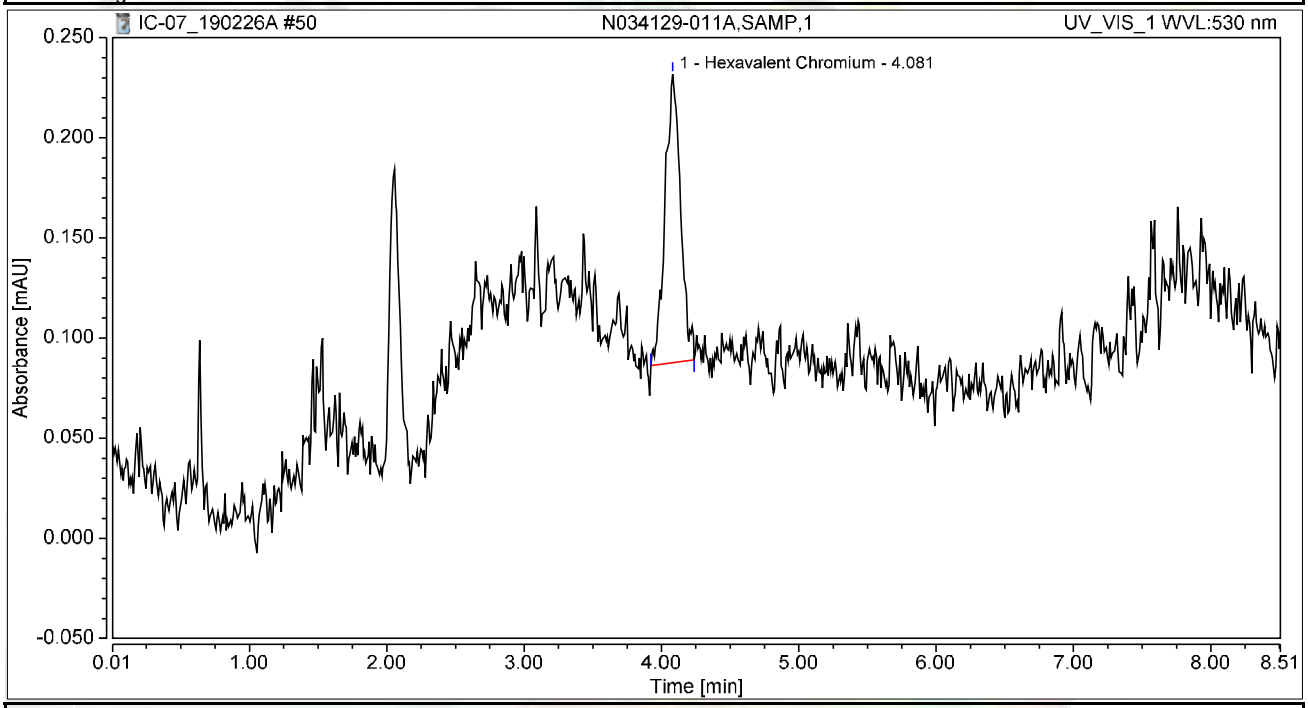
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-011A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **41** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 15:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

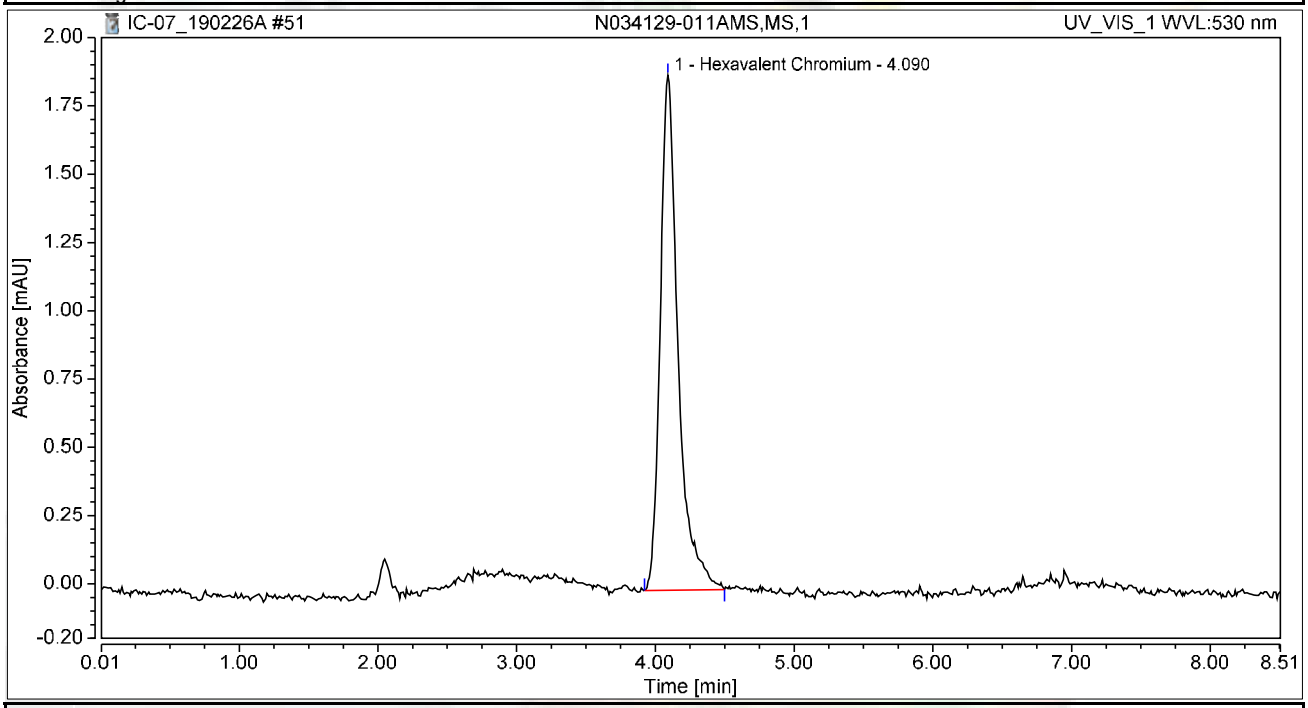
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.019 | 0.144 | 100.00 | 100.00 | 0.0757 |
| **Total:** | | | **0.019** | **0.144** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-011AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **42** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 15:58** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

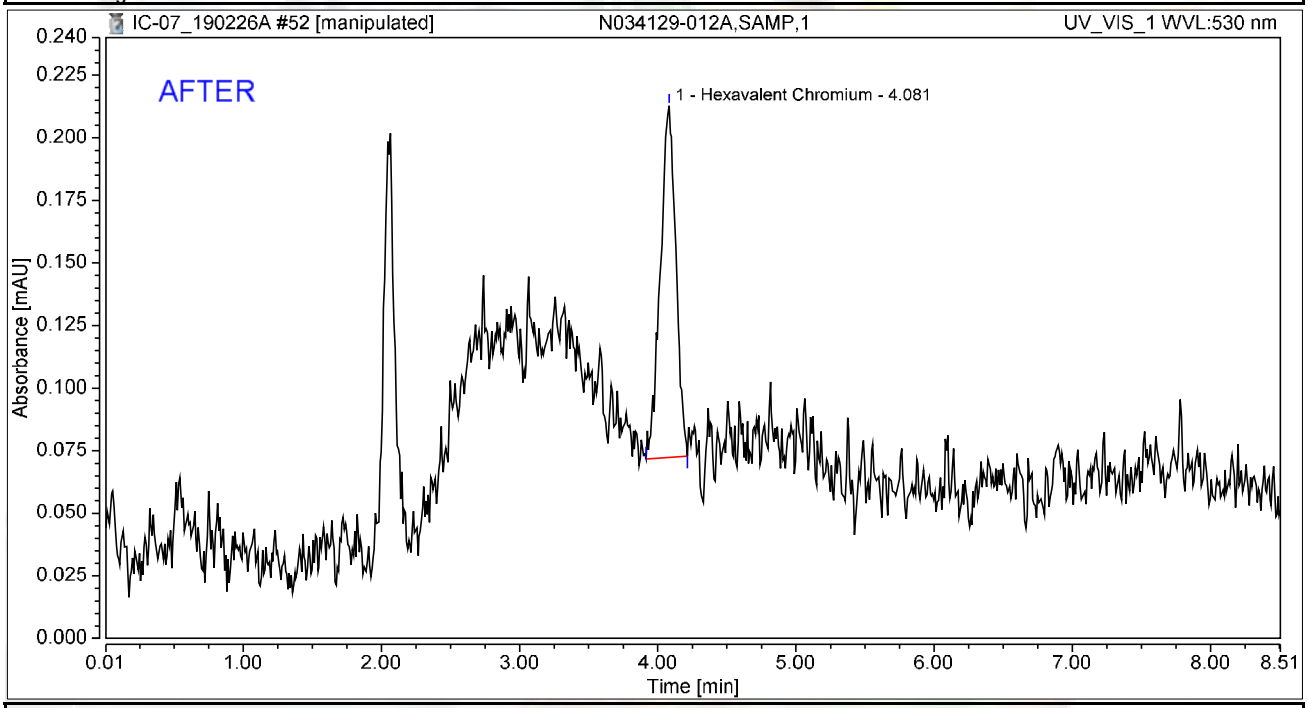
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.282 | 1.885 | 100.00 | 100.00 | 1.1365 |
| **Total:** | | | **0.282** | **1.885** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-012A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **43** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 16:08** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.018 | 0.140 | 100.00 | 100.00 | 0.0739 |
| **Total:** | | | **0.018** | **0.140** | **100.00** | **100.00** | |

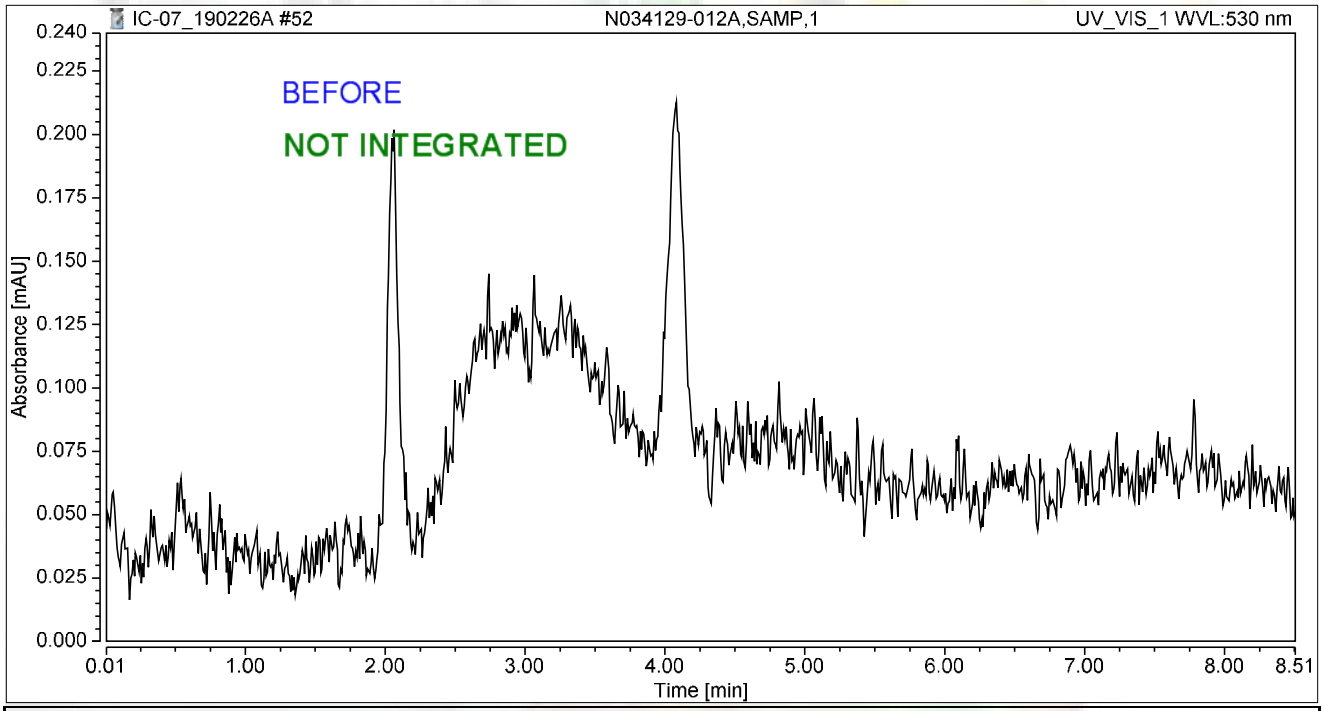
Reviewed by:
Nancy 2/28/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-012A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **43** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 16:08** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

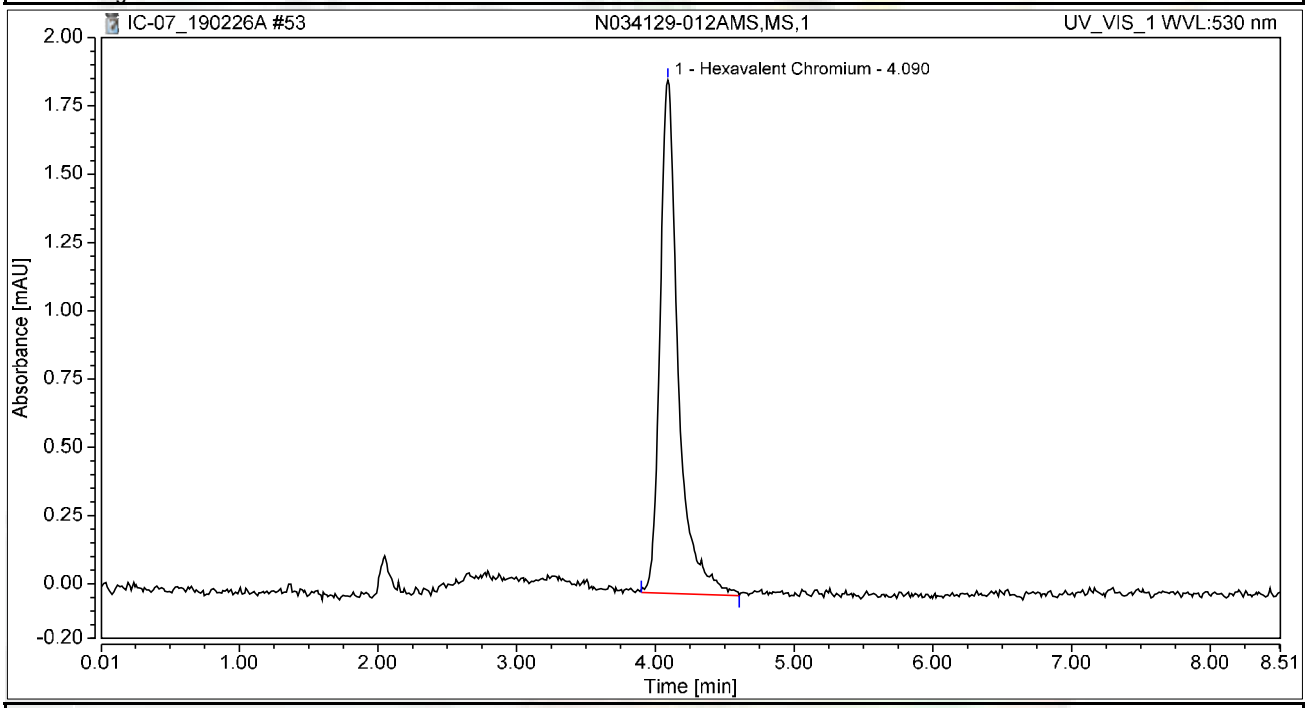
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-012AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **44** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 16:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

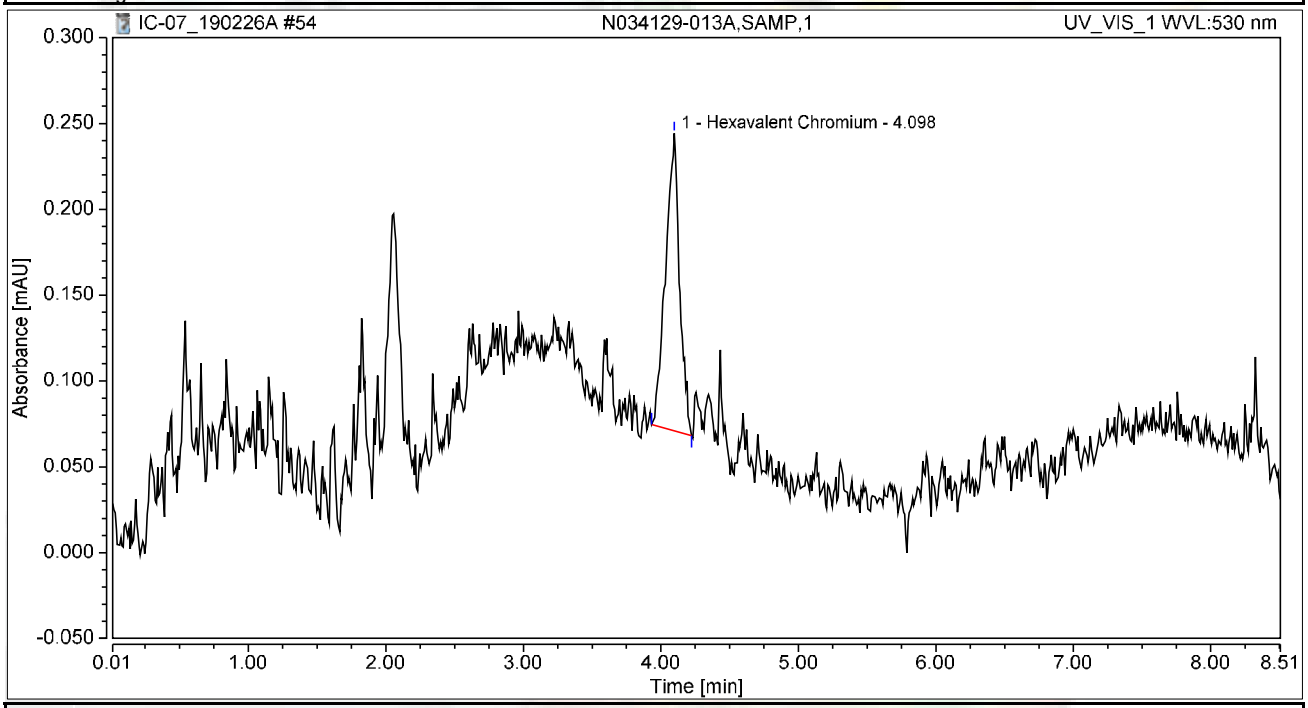
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.287 | 1.879 | 100.00 | 100.00 | 1.1575 |
| **Total:** | | | **0.287** | **1.879** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-013A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **45** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 16:27** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

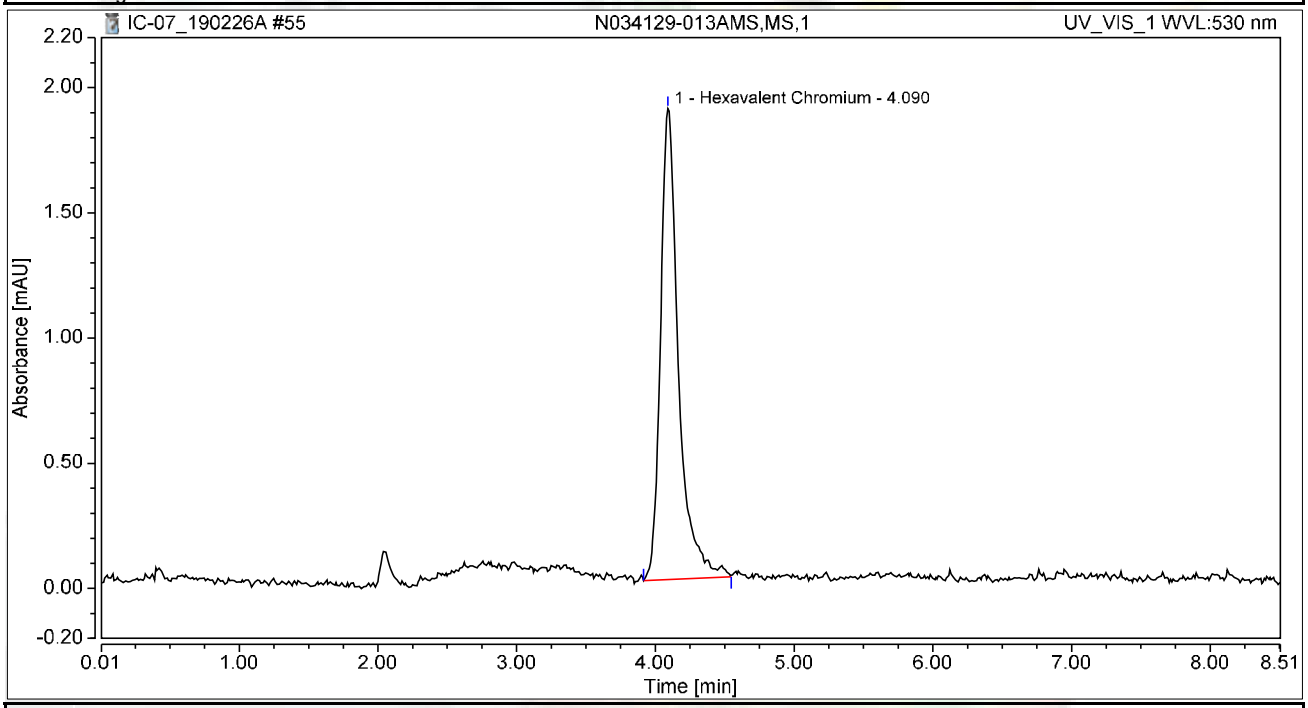
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.020 | 0.173 | 100.00 | 100.00 | 0.0820 |
| **Total:** | | | **0.020** | **0.173** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-013AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **46** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 16:36** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

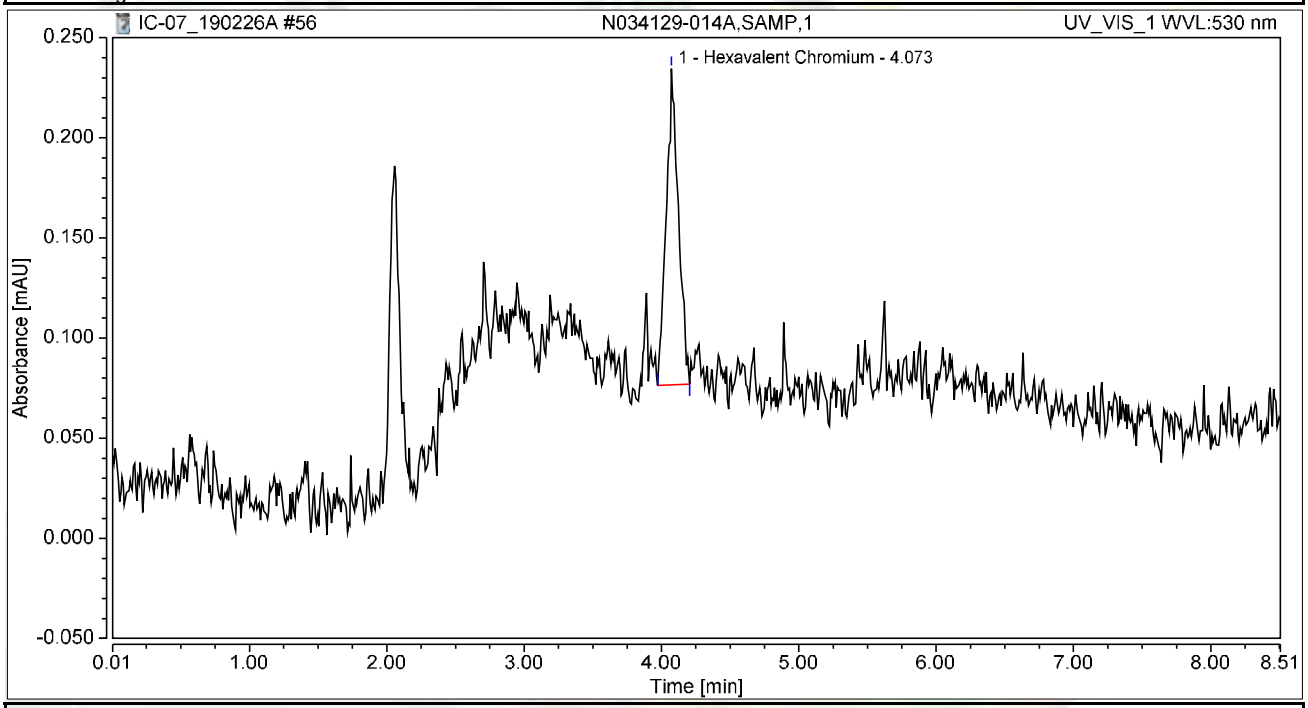
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.283 | 1.881 | 100.00 | 100.00 | 1.1419 |
| **Total:** | | | **0.283** | **1.881** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-014A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **47** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 16:46** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

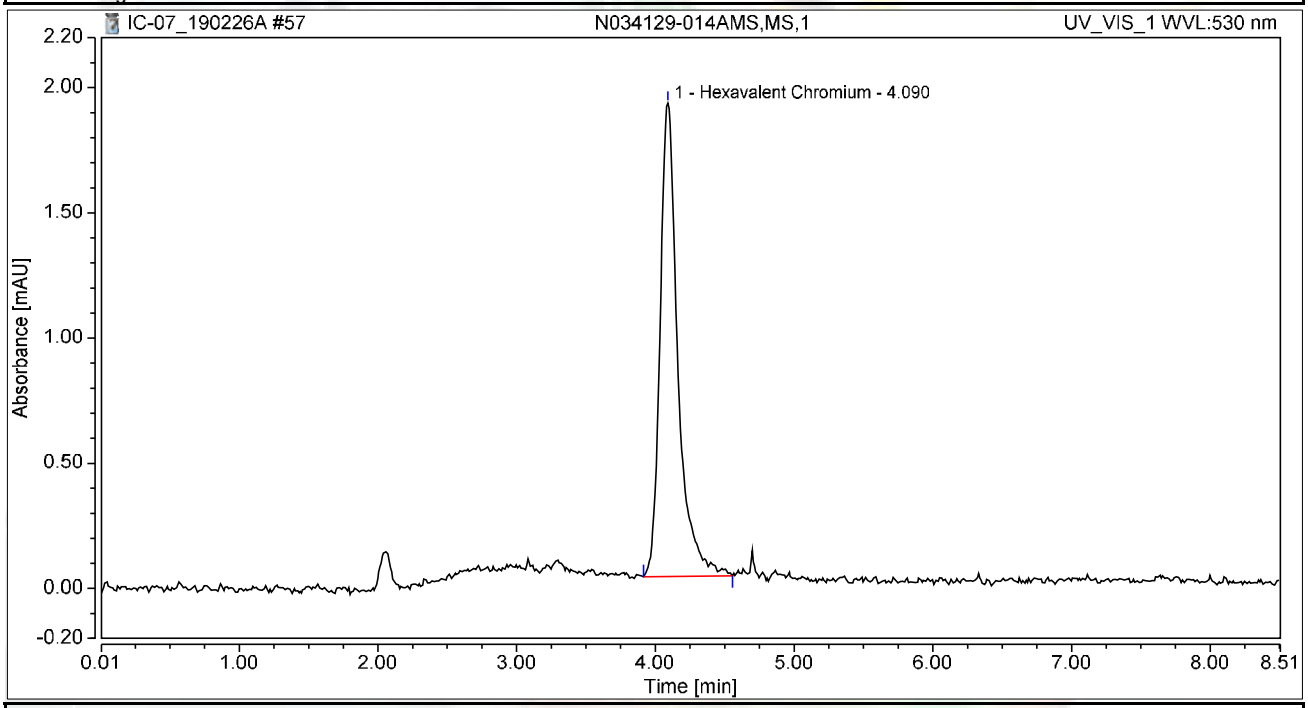
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 0.016 | 0.158 | 100.00 | 100.00 | 0.0648 |
| **Total:** | | | **0.016** | **0.158** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034129-014AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **48** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 16:55** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

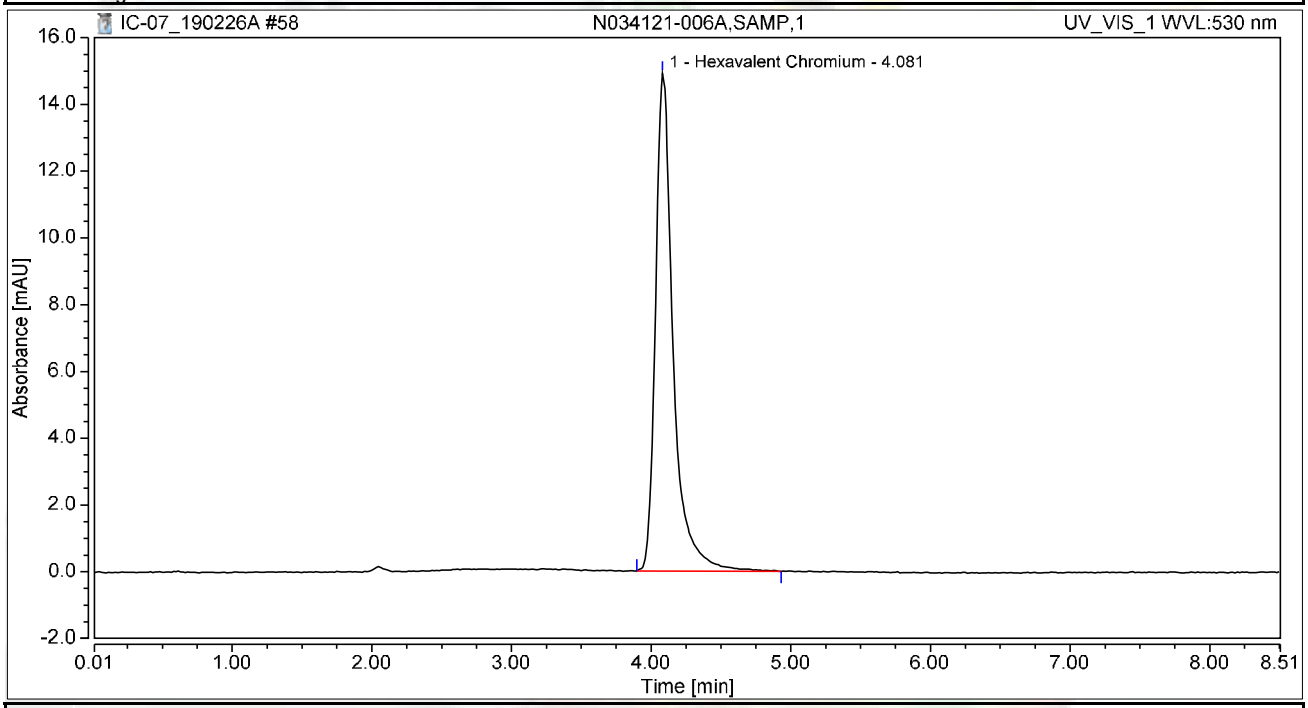
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.282 | 1.890 | 100.00 | 100.00 | 1.1367 |
| **Total:** | | | **0.282** | **1.890** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-006A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **49** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 17:05** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

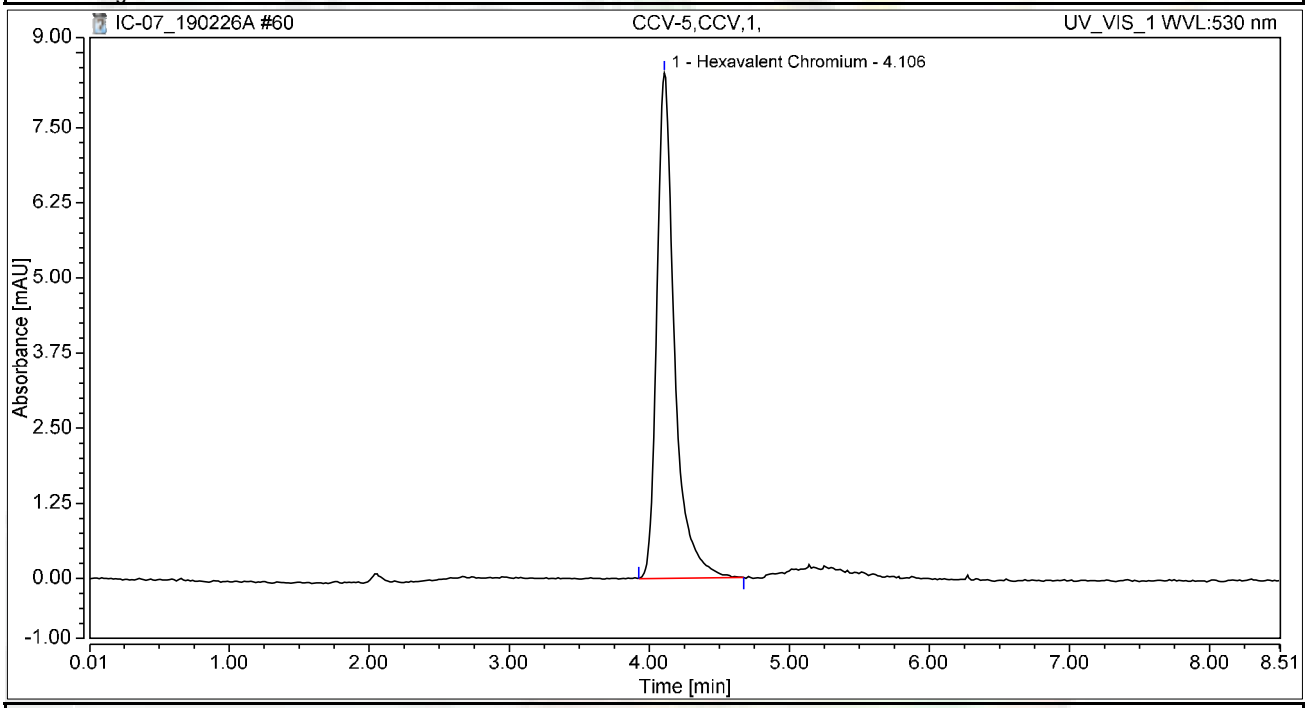
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 2.189 | 14.911 | 100.00 | 100.00 | 8.8343 |
| **Total:** | | | **2.189** | **14.911** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-5,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 17:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

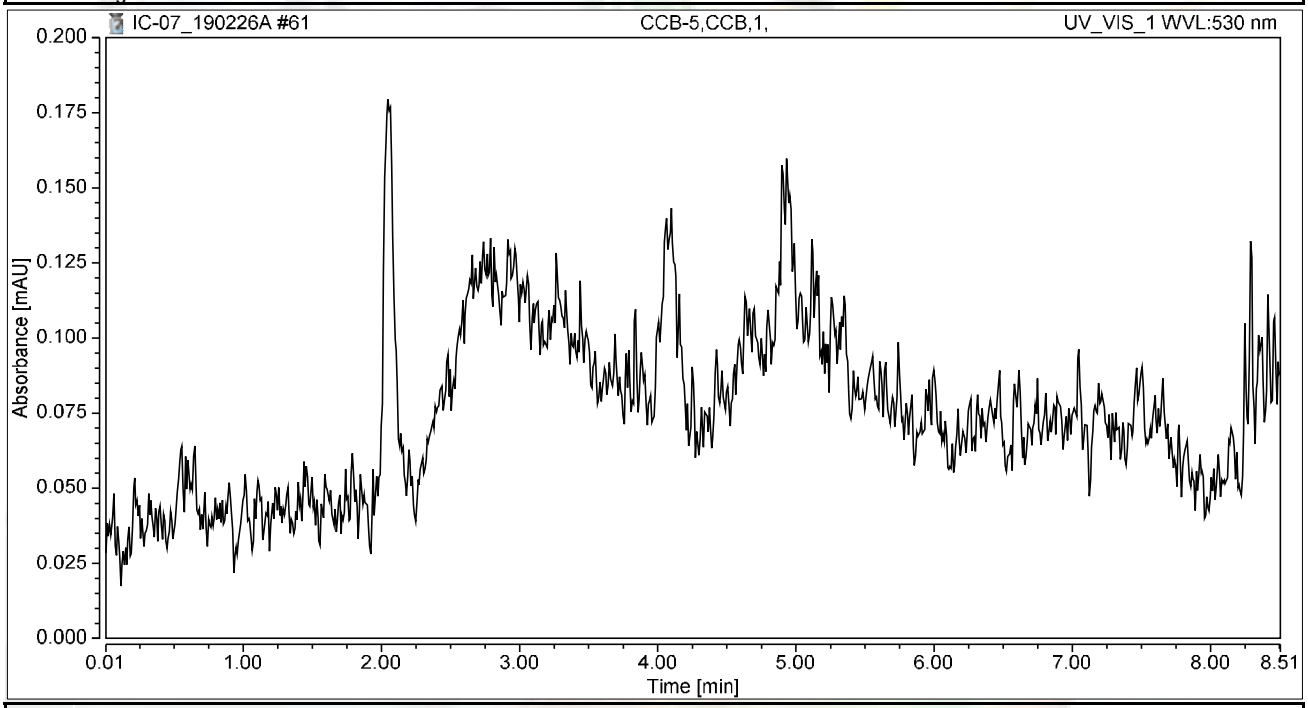
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.228 | 8.413 | 100.00 | 100.00 | 4.9554 |
| **Total:** | | | **1.228** | **8.413** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-5,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 17:36** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# SM 4500-NO3F

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R132119 **Analyst:** QBM

**ASSET #:** N034129 **Date Analyzed:** 2/26/2019

**Method:** 4500_N03

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | X | | | X | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 3. ICV within ± 15% of expected value. | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | X | | | X | | |
| 5. CCV within ± 15% of expected value. | X | | | X | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | X | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< PQL) | X | | | X | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | X | | | X | | |
| 9. Are all samples analyzed within hold time. | X | | | X | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 11. LCS compounds within control limits. | X | | | X | | |
| 12. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | X |
| 14. Runlog complete and included in package. | X | | | X | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | X |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | X |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | X | | |
| 18. Are analytical results correct? | X | | | X | | |
| 19. Is the QC summary report present and complete? | X | | | X | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer QBM Date: 2/28/2019

2nd Level Reviewer 2/28/2019 Date:

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 4500N03F
**TEST NAME:** Nitrate/Nitrite-N by Automated Cadmium Reduction
**MATRIX:** Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

**Nitrate/Nitrite-N, mg/L= A * DF**

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N034129-002C**

The concentration in mg/L is calculated as follows:

| | | | | |
|---|---|---|---|---|
| **Nitrate/Nitrite-N** | = | 0.3928 | * | 1 |
| | = | 0.3928 | mg/L | |

Reporting result in two significant figures,

**Nitrate/Nitrite-N = 0.39 mg/L**

NS 2/28/2019

# INITIAL CALIBRATION DATA SUMMARY

## EPA 353.2 NO3 as N (NO3CD) - Endpoint

### General setup

| | |
|---|---|
| **Measuring unit** | **ppm** |
| **Number of decimals** | 4 |
| **Stabilization time (sec)** | 26 |
| **Measurement time (sec)** | 3 |
| **Sample volume (µl)** | 450 |
| **Filter** | 546 |
| **Reagent prime** | No |
| **CD Reduction** | Yes |

### Limits and dilution

| | |
|---|---|
| **Low level** | **-0.2** |
| **High level** | 4 |
| **Max linearity** | 4 |
| **Blank min** | 0 |
| **Blank max** | 0.049 |
| **Postdilution factor %** | 10 |
| **Factor Calculations** | No |

### Washes

| | |
|---|---|
| **Number of final washes** | 6 |
| **Wash every** | R1, R2 |

### O.D.Corrections

| | |
|---|---|
| **Carry Over** | **No** |
| **Carry Over value** | 0.0000 |
| **Blank** | No |
| **Gain** | No |

### Reagents

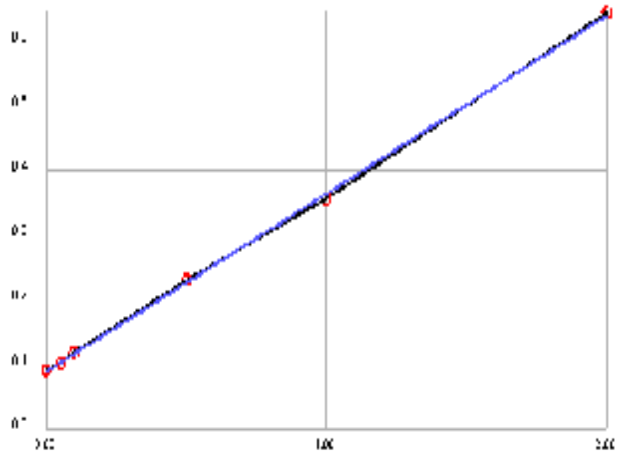
| N. | Volume (µl) | Incubation time (sec) |
|---|---|---|
| **1** | 200 | 102 |
| **2** | 300 | 663 |
| **3** | 0 | 0 |

### QC

| N. | Value | Tolerance |
|---|---|---|
| **1** | 1 | 0.1 |

## Calibration

| | |
|---|---|
| **Curve type** | Linear (Calibrants) |
| **Curve forced to zero** | No |
| **Blank inclusion** | No |



| | |
|---|---|
| **Formula** | y = 0.276x + 0.0892 |
| **Correlation** | .999797 |

| Calibrant | Energy | Set | Conc |
|---|---|---|---|
| **1** | 0.0900 | 0.0000 | 0.0029 |
| **2** | 0.1028 | 0.0500 | 0.0493 |
| **3** | 0.1175 | 0.1000 | 0.1025 |
| **4** | 0.2310 | 0.5000 | 0.5138 |
| **5** | 0.3569 | 1.0000 | 0.9700 |
| **6** | 0.6443 | 2.0000 | 2.0114 |

**Notes:**

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132119** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132119** | TestNo: **SM4500-NO3** | | Analysis Date: **2/26/2019** | SeqNo: **3302011** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.526 | 0.050 | 0.5000 | 0 | 105 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132119** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132119** | TestNo: **SM4500-NO3** | | Analysis Date: **2/26/2019** | SeqNo: **3302022** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.474 | 0.050 | 0.5000 | 0 | 94.8 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132119** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132119** | TestNo: **SM4500-NO3** | | Analysis Date: **2/26/2019** | SeqNo: **3302033** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.501 | 0.050 | 0.5000 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132119** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132119** | TestNo: **SM4500-NO3** | | Analysis Date: **2/26/2019** | SeqNo: **3302012** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132119** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132119** | TestNo: **SM4500-NO3** | | Analysis Date: **2/26/2019** | SeqNo: **3302023** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132119** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132119** | TestNo: **SM4500-NO3** | | Analysis Date: **2/26/2019** | SeqNo: **3302034** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

**Advanced Technology Laboratories, Inc.**

**3151 W. Post Rd.**
**Las Vegas, NV. 89118**
**702-307-2659**
**702-307-2691**
**www.atl-labs.com**

**Time start: 02-26-2019 13:12**
**Time end: 02-26-2019 15:32**

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 1 | <BLANK> | 15:01:11 | -0.0047 | | 0.0879 |
| 2 | <BLANK> | 15:02:06 | 0.0181 | | 0.0942 |
| 3 | <BLANK> | 15:03:05 | 0.0033 | | 0.0901 |
| 4 | <CAL1> | 15:04:01 | 0.0029 | [0] | 0.0900 |
| 5 | <CAL2> | 15:05:02 | 0.0493 | [0.05] | 0.1028 |
| 6 | <CAL3> | 15:05:56 | 0.1025 | [0.1] | 0.1175 |
| 7 | <CAL4> | 15:06:52 | 0.5138 | [0.5] | 0.2310 |
| 8 | <CAL5> | 15:07:53 | 0.9700 | [1] | 0.3569 |
| 9 | <CAL6> | 15:08:49 | 2.0114 | [2] | 0.6443 |
| 10 | ,BLANK,BLANK,1, NOT REPORTED | 15:09:43 | 0.0783 | | 0.1108 |
| 11 | ,ICV,ICV,1, | 15:10:44 | 0.5261 | | 0.2344 |
| 12 | ,ICB,ICB,1, | 15:11:40 | 0.0279 | | 0.0969 |
| 13 | ,MB-H2O,MBLK,1, | 15:12:41 | 0.0087 | | 0.0916 |
| 14 | ,LCS-H2O,LCS,1, | 15:13:35 | 0.4747 | | 0.2202 |
| 15 | ,N034129-002C,SAMP,1, | 15:14:31 | 0.3928 | | 0.1976 |
| 16 | ,N034129-014C,SAMP,1, | 15:15:26 | 0.3725 | | 0.1920 |
| 17 | ,N034129-004C,SAMP,1, | 15:16:27 | 0.3645 | | 0.1898 |
| 18 | ,N034129-004CDUP,DUP,1, | 15:17:10 | 0.3801 | | 0.1941 |
| 19 | ,N034129-005C,SAMP,1, | 15:18:00 | 0.3743 | | 0.1925 |
| 20 | ,N034129-005CMS,MS,1, | 15:18:42 | 0.8457 | | 0.3226 |
| 21 | ,N034129-005CMSD,MSD,1, | 15:19:31 | 0.8809 | | 0.3323 |
| 22 | ,BLANK, NOT REPORTED | 15:20:13 | 0.0359 | | 0.0991 |
| 23 | ,CCV-1,CCV,1, | 15:20:56 | 0.4740 | | 0.2200 |
| 24 | ,CCB-1,CCB,1, | 15:21:44 | 0.0159 | | 0.0936 |
| 25 | ,N034129-006C,SAMP,1, | 15:22:28 | 0.3939 | | 0.1979 |
| 26 | ,N034129-007C,SAMP,1, | 15:23:17 | 0.3841 | | 0.1952 |

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 27 | ,N034129-008C,SAMP,1, | 15:23:59 | 0.3884 | | 0.1964 |
| 28 | ,N034129-009C,SAMP,1, | 15:24:43 | 0.3946 | | 0.1981 |
| 29 | ,N034129-010C,SAMP,1, | 15:25:31 | 0.4055 | | 0.2011 |
| 30 | ,N034129-011C,SAMP,1, | 15:26:14 | 0.4037 | | 0.2006 |
| 31 | ,N034129-012C,SAMP,1, | 15:26:56 | 0.3859 | | 0.1957 |
| 32 | ,N034129-013C,SAMP,1, | 15:27:46 | 0.3334 | | 0.1812 |
| 33 | ,N034129-003C,SAMP,10, | 15:28:28 | 0.7211 | | 0.2882 |
| 34 | ,BLANK, NOT REPORTED | 15:29:11 | 0.0152 | | 0.0934 |
| 35 | ,CCV-2,CCV,1, | 15:30:01 | 0.5011 | | 0.2275 |
| 36 | ,CCB-2,CCB,1, | 15:30:43 | 0.0083 | | 0.0915 |

**Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog**

## Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 2/26/2019
Time Analyzed: 1:12 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190221D
Color reagent: R190221E
2% Copper Sulfate: R190221C
Ammonium Hydroxide: CINV-190124B

| Sample ID. | Sample Wt./Vol. | Sample pH | Std Code | Spike Amt Added (mL) | Spike Conc.(PPM) | Final Volume (mL) | Dilution (F/I) | Reading & Calculations (mg/L) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
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| | | | | | | | | | |
| | | | | | | | | | |
| N034129-002C | | 8.29 | | | | | | | |
| N034129-003C | | 7.79 | | | | | | | |
| N034129-004C | | 7.15 | | | | | | | |
| N034129-005C | | 7.49 | | | | | | | |
| N034129-006C | | 6.98 | | | | | | | |
| N034129-007C | | 8.48 | | | | | | | |
| N034129-008C | | 7.89 | | | | | | | |
| N034129-009C | | 7.27 | | | | | | | |
| N034129-010C | | 8.05 | | | | | | | |
| N034129-011C | | 8.55 | | | | | | | |
| N034129-012C | | 7.96 | | | | | | | |
| N034129-013C | | 8.25 | | | | | | | |
| N034129-014C | | 8.01 | | | | | | | |
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Advanced Technology Laboratories, Inc.
Book # 1

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

| Analyte | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Ave | SD | $t_{(n-1)}$ value | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.0573 | 0.0562 | 0.0500 | 0.0730 | 0.0698 | 0.0637 | 0.0564 | 0.0609 | 0.0082 | 3.143 | 0.0259 | 0.05 |
| **Method Blank** | | | | | | | | | | | | |
| Nitrate/Nitrite as N | 0.0160 | 0.0067 | 0.0064 | 0.0204 | 0.0173 | 0.0036 | 0.0083 | 0.0112 | 0.0065 | 3.143 | 0.0317 | 0.05 |

**MDL:** **0.0317** **mg/L**

# EPA 6010B
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72482 **Instrument ID:** ICP-02
**ASSET #:** N034129 **Analyst:** CEI
**Method:** **Date Analyzed:** 2/19/2019

[X] EPA 6010B / 200.7 DISS [ ] EPA 7470A / 7471A/245.1
[ ] EPA 6020 / 200.8 [ ] Other _____

| Initial Calibration and Initial Calibration Verification | Ist Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: _____

2nd Level Reviewer [signature] 2/28/19 Date: _____

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72664
**ASSET #:** N034129
**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 2/27/2019

**Method:**

[X] EPA 6010B / 200.7 DISS
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: —

2nd Level Reviewer 2/28/19 Date: —

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA 6010B
**TEST NAME:** Heavy Metals by ICP
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N034129-004D** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.05726 * 1 *(25/25) * 1000

Iron , ug/L = 57.26

Reporting results in two significant figures,

**Iron , ug/L = 57**

NS 2/25/2019

# % RSD SUMMARY

**RSD SUMMARY: 190219E**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Fe | 0 | 6.48 | 15 | PASS |
| Standard1 | ICAL | 1 | Fe | 0.02 | 4.94 | 15 | PASS |
| Standard2 | ICAL | 1 | Fe | 0.05 | 0.42 | 15 | PASS |
| Standard3 | ICAL | 1 | Fe | 2 | 0.26 | 15 | PASS |
| Standard4 | ICAL | 1 | Fe | 5 | 0.21 | 15 | PASS |
| Standard5 | ICAL | 1 | Fe | 7.5 | 0.16 | 15 | PASS |
| Standard6 | ICAL | 1 | Fe | 10 | 0.38 | 15 | PASS |
| Standard7 | ICAL | 1 | Fe | 20 | 0.098 | 15 | PASS |
| ICV | ICV | 1 | Fe | 10.051 | 0.84 | 15 | PASS |
| ICB | ICB | 1 | Fe | 0.0018 | 35.0098 | 15 | <PQL |
| LLICV1 | CCV1 | 1 | Fe | 0.021 | 2.66 | 20 | PASS |
| ICSA1 | ICSA | 1 | Fe | 177.76 | 0.058 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Fe | 177.51 | 0.1 | 15 | PASS |
| CCV1 | CCV | 1 | Fe | 9.99 | 0.19 | 15 | PASS |
| CCB1 | CCB | 1 | Fe | 0.0025 | 3.25 | 15 | PASS |
| CCV2 | CCV | 1 | Fe | 9.94 | 0.45 | 15 | PASS |
| CCB2 | CCB | 1 | Fe | 0.0028 | 36.39 | 15 | <PQL |
| MB-72482 | MBLK | 1 | Fe | 0.00061 | 103.43 | 15 | <PQL |
| LCS-72482 | LCS | 1 | Fe | 0.11 | 0.72 | 15 | PASS |
| N034123-013B | SAMP | 1 | Fe | 0.017 | 3.88 | 15 | PASS |
| CCV3 | CCV | 1 | Fe | 9.99 | 0.72 | 15 | PASS |
| CCB3 | CCB | 1 | Fe | 0.0039 | 19.27 | 15 | <PQL |
| N034123-013B | SAMP | 5 | Fe | 0.0038 | 9.66 | 15 | PASS |
| N034123-013B-PS | PS | 1 | Fe | 0.11 | 0.66 | 15 | PASS |
| N034123-013B-MS | MS | 1 | Fe | 0.11 | 0.97 | 15 | PASS |
| N034123-013B-MSD | MSD | 1 | Fe | 0.11 | 0.42 | 15 | PASS |
| N034123-014B | SAMP | 1 | Fe | 0.0059 | 7.55 | 15 | PASS |
| N034123-015B | SAMP | 1 | Fe | 0.0082 | 15.14 | 15 | <PQL |
| N034123-016B | SAMP | 1 | Fe | 0.077 | 1.6 | 15 | PASS |
| N034123-017B | SAMP | 1 | Fe | 1.93 | 0.31 | 15 | PASS |
| N034123-019B | SAMP | 1 | Fe | 5.18 | 0.19 | 15 | PASS |
| N034129-002D | SAMP | 1 | Fe | 0.0097 | 5.4 | 15 | PASS |
| CCV4 | CCV | 1 | Fe | 10.061 | 0.33 | 15 | PASS |
| CCB4 | CCB | 1 | Fe | 0.0053 | 9.19 | 15 | PASS |
| ICSA2 | ICSA | 1 | Fe | 177.25 | 0.18 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Fe | 177.14 | 0.12 | 15 | PASS |
| N034129-003D | SAMP | 1 | Fe | 0.047 | 10.56 | 15 | PASS |
| N034129-004D | SAMP | 1 | Fe | 0.057 | 1.73 | 15 | PASS |
| N034129-005D | SAMP | 1 | Fe | 0.025 | 4.16 | 15 | PASS |
| N034129-006D | SAMP | 1 | Fe | 0.024 | 1.73 | 15 | PASS |
| N034129-007D | SAMP | 1 | Fe | 0.026 | 1.37 | 15 | PASS |
| N034129-008D | SAMP | 1 | Fe | 0.0073 | 9.11 | 15 | PASS |

**RSD SUMMARY: 190219E**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| N034129-009D | SAMP | 1 | Fe | 0.026 | 2.18 | 15 | PASS |
| N034129-010D | SAMP | 1 | Fe | 0.007 | 9.51 | 15 | PASS |
| N034129-011D | SAMP | 1 | Fe | 0.014 | 2.17 | 15 | PASS |
| N034129-012D | SAMP | 1 | Fe | 0.0095 | 3.94 | 15 | PASS |
| CCV5 | CCV | 1 | Fe | 10.008 | 0.66 | 15 | PASS |
| CCB5 | CCB | 1 | Fe | 0.005 | 10.96 | 15 | PASS |
| N034129-013D | SAMP | 1 | Fe | 0.022 | 5.63 | 15 | PASS |
| N034129-014D | SAMP | 1 | Fe | 0.016 | 2.25 | 15 | PASS |
| CCV6 | CCV | 1 | Fe | 10.007 | 0.64 | 15 | PASS |
| CCB6 | CCB | 1 | Fe | 0.005 | 4.46 | 15 | PASS |
| CCV7 | CCV | 1 | Fe | 10.007 | 0.086 | 15 | PASS |
| CCB7 | CCB | 1 | Fe | 0.0063 | 15.33 | 15 | <PQL |
| CCV8 | CCV | 1 | Fe | 10.011 | 0.49 | 15 | PASS |
| CCB8 | CCB | 1 | Fe | 0.0062 | 13.7 | 15 | PASS |
| ICSA3 | ICSA | 1 | Fe | 177.07 | 0.1 | 15 | PASS |
| ICSAB3 | ICSAB | 1 | Fe | 176.36 | 0.059 | 15 | PASS |
| CCV9 | CCV | 1 | Fe | 9.89 | 0.056 | 15 | PASS |
| CCB9 | CCB | 1 | Fe | 0.003 | 14.12 | 15 | PASS |
| CCV10 | CCV | 1 | Fe | 9.82 | 0.32 | 15 | PASS |
| CCB10 | CCB | 1 | Fe | 0.0035 | 51.17 | 15 | <PQL |
| ICSA4 | ICSA | 1 | Fe | 174.22 | 0.28 | 15 | PASS |
| ICSAB4 | ICSAB | 1 | Fe | 173.66 | 0.24 | 15 | PASS |

**RSD SUMMARY: 190227A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Fe | 0 | 10.058 | 15 | PASS |
| Standard1 | ICAL | 1 | Fe | 0.02 | 4.58 | 15 | PASS |
| Standard2 | ICAL | 1 | Fe | 0.05 | 0.72 | 15 | PASS |
| Standard3 | ICAL | 1 | Fe | 2 | 0.38 | 15 | PASS |
| Standard4 | ICAL | 1 | Fe | 5 | 0.17 | 15 | PASS |
| Standard5 | ICAL | 1 | Fe | 7.5 | 0.27 | 15 | PASS |
| Standard6 | ICAL | 1 | Fe | 10 | 0.58 | 15 | PASS |
| Standard7 | ICAL | 1 | Fe | 20 | 0.45 | 15 | PASS |
| ICV | ICV | 1 | Fe | 10.001 | 0.27 | 15 | PASS |
| ICB | ICB | 1 | Fe | 0.002 | 33.37 | 15 | <PQL |
| LLICV1 | CCV1 | 1 | Fe | 0.023 | 4.037 | 20 | PASS |
| ICSA1 | ICSA | 1 | Fe | 170.99 | 0.17 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Fe | 178.75 | 0.19 | 15 | PASS |
| MB-72664 | MBLK | 1 | Fe | 0.0061 | 8.69 | 15 | PASS |
| LCS-72664 | LCS | 1 | Fe | 0.11 | 0.39 | 15 | PASS |
| N034104-006C | SAMP | 1 | Fe | 0.0023 | 9.3 | 15 | PASS |
| N034104-006C | SAMP | 5 | Fe | 0.0013 | 30.26 | 15 | <PQL |
| N034104-006C-PS | PS | 1 | Fe | 0.098 | 0.58 | 15 | PASS |
| N034104-006C-MS | MS | 1 | Fe | 0.097 | 1.6 | 15 | PASS |
| N034104-006C-MSD | MSD | 1 | Fe | 0.1 | 1.34 | 15 | PASS |
| N034129-003D | SAMP | 1 | Fe | 0.003 | 29.43 | 15 | <PQL |
| N034129-007D | SAMP | 1 | Fe | 0.0019 | 72.38 | 15 | <PQL |
| CCV1 | CCV | 1 | Fe | 9.84 | 0.37 | 15 | PASS |
| CCB1 | CCB | 1 | Fe | 0.0016 | 45.15 | 15 | <PQL |
| ICSA2 | ICSA | 1 | Fe | 169.34 | 0.16 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Fe | 176.33 | 0.21 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190219E**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-181001A,0.5<50mL |
| Standard2 | MWST-181001E |
| Standard3 | MWST-181001J,5<50mL |
| Standard4 | MWST-181001J,12.5<50mL |
| Standard5 | MWST-181001J,15<40mL |
| Standard6 | MWST-181001J,25<50mL |
| Standard7 | MWST-181001J |
| ICV | MWST-181001O |
| CCV | MWST-181001J,25<50mL |
| ICSA/ICSAB | MWST-181001R/MWST-180730A |
| Int. Std. (Y) | MSST-180926A/B |
| PS Spike | MWST-180930D/E/F |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CalBlk | IBLK | 1 | 02/19/2019 | 07:01:38 PM |
| 2 | Standard1 | ICAL | 1 | 02/19/2019 | 07:05:24 PM |
| 3 | Standard2 | ICAL | 1 | 02/19/2019 | 07:09:39 PM |
| 4 | Standard3 | ICAL | 1 | 02/19/2019 | 07:13:56 PM |
| 5 | Standard4 | ICAL | 1 | 02/19/2019 | 07:18:12 PM |
| 6 | Standard5 | ICAL | 1 | 02/19/2019 | 07:22:31 PM |
| 7 | Standard6 | ICAL | 1 | 02/19/2019 | 07:26:49 PM |
| 8 | Standard7 | ICAL | 1 | 02/19/2019 | 07:31:09 PM |
| 250 | ICV | ICV | 1 | 02/19/2019 | 07:36:31 PM |
| 1 | ICB | ICB | 1 | 02/19/2019 | 07:41:52 PM |
| 2 | LLICV1 | CCV1 | 1 | 02/19/2019 | 07:45:36 PM |
| 9 | ICSA1 | ICSA | 1 | 02/19/2019 | 07:49:54 PM |
| 10 | ICSAB1 | ICSAB | 1 | 02/19/2019 | 07:55:19 PM |
| 70 | N034104-015E | SAMP | 1 | 02/19/2019 | 08:00:47 PM |
| 11 | MB-72481 | MBLK | 1 | 02/19/2019 | 08:05:40 PM |
| 12 | LCS-72481 | LCS | 1 | 02/19/2019 | 08:09:25 PM |
| 13 | N034120-001B | SAMP | 1 | 02/19/2019 | 08:13:40 PM |
| 14 | N034120-001B | SAMP | 5 | 02/19/2019 | 08:17:56 PM |
| 15 | N034120-001B-PS | PS | 1 | 02/19/2019 | 08:22:11 PM |
| 16 | N034120-001B-MS | MS | 1 | 02/19/2019 | 08:26:29 PM |
| 17 | N034120-001B-MSD | MSD | 1 | 02/19/2019 | 08:30:45 PM |
| 18 | N034121-004B | SAMP | 1 | 02/19/2019 | 08:35:03 PM |
| 19 | N034121-006B | SAMP | 1 | 02/19/2019 | 08:39:21 PM |
| 7 | CCV1 | CCV | 1 | 02/19/2019 | 08:44:38 PM |
| 1 | CCB1 | CCB | 1 | 02/19/2019 | 08:50:26 PM |
| 20 | N034121-007B | SAMP | 1 | 02/19/2019 | 08:54:12 PM |
| 21 | N034121-008B | SAMP | 1 | 02/19/2019 | 08:59:30 PM |
| 22 | N034121-009B | SAMP | 1 | 02/19/2019 | 09:04:49 PM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 23 | N034121-010B | SAMP | 1 | 02/19/2019 | 09:10:10 PM |
| 24 | N034121-011B | SAMP | 1 | 02/19/2019 | 09:15:26 PM |
| 25 | N034123-001B | SAMP | 1 | 02/19/2019 | 09:19:40 PM |
| 26 | N034123-002B | SAMP | 1 | 02/19/2019 | 09:24:57 PM |
| 27 | N034123-003B | SAMP | 1 | 02/19/2019 | 09:29:14 PM |
| 28 | N034123-004B | SAMP | 1 | 02/19/2019 | 09:34:30 PM |
| 29 | N034123-005B | SAMP | 1 | 02/19/2019 | 09:38:47 PM |
| 7 | CCV2 | CCV | 1 | 02/19/2019 | 09:44:05 PM |
| 1 | CCB2 | CCB | 1 | 02/19/2019 | 09:49:25 PM |
| 30 | N034123-006B | SAMP | 1 | 02/19/2019 | 09:53:10 PM |
| 31 | N034123-007B | SAMP | 1 | 02/19/2019 | 09:58:28 PM |
| 32 | N034123-008B | SAMP | 1 | 02/19/2019 | 10:03:45 PM |
| 33 | N034123-009B | SAMP | 1 | 02/19/2019 | 10:09:01 PM |
| 34 | N034123-010B | SAMP | 1 | 02/19/2019 | 10:14:20 PM |
| 35 | N034123-011B | SAMP | 1 | 02/19/2019 | 10:18:37 PM |
| 36 | N034123-012B | SAMP | 1 | 02/19/2019 | 10:22:52 PM |
| 37 | MB-72482 | MBLK | 1 | 02/19/2019 | 10:28:08 PM |
| 38 | LCS-72482 | LCS | 1 | 02/19/2019 | 10:31:54 PM |
| 39 | N034123-013B | SAMP | 1 | 02/19/2019 | 10:36:10 PM |
| 7 | CCV3 | CCV | 1 | 02/19/2019 | 10:41:27 PM |
| 1 | CCB3 | CCB | 1 | 02/19/2019 | 10:46:46 PM |
| 40 | N034123-013B | SAMP | 5 | 02/19/2019 | 10:50:31 PM |
| 41 | N034123-013B-PS | PS | 1 | 02/19/2019 | 10:54:48 PM |
| 42 | N034123-013B-MS | MS | 1 | 02/19/2019 | 11:00:06 PM |
| 43 | N034123-013B-MSD | MSD | 1 | 02/19/2019 | 11:05:23 PM |
| 44 | N034123-014B | SAMP | 1 | 02/19/2019 | 11:10:41 PM |
| 45 | N034123-015B | SAMP | 1 | 02/19/2019 | 11:15:59 PM |
| 46 | N034123-016B | SAMP | 1 | 02/19/2019 | 11:21:17 PM |
| 47 | N034123-017B | SAMP | 1 | 02/19/2019 | 11:25:35 PM |
| 48 | N034123-019B | SAMP | 1 | 02/19/2019 | 11:29:53 PM |
| 49 | N034129-002D | SAMP | 1 | 02/19/2019 | 11:35:11 PM |
| 7 | CCV4 | CCV | 1 | 02/19/2019 | 11:39:27 PM |
| 1 | CCB4 | CCB | 1 | 02/19/2019 | 11:44:47 PM |
| 9 | ICSA2 | ICSA | 1 | 02/19/2019 | 11:48:34 PM |
| 10 | ICSAB2 | ICSAB | 1 | 02/19/2019 | 11:54:00 PM |
| 50 | N034129-003D | SAMP | 1 | 02/19/2019 | 11:59:27 PM |
| 51 | N034129-004D | SAMP | 1 | 02/20/2019 | 12:03:43 AM |
| 52 | N034129-005D | SAMP | 1 | 02/20/2019 | 12:07:59 AM |
| 53 | N034129-006D | SAMP | 1 | 02/20/2019 | 12:12:15 AM |
| 54 | N034129-007D | SAMP | 1 | 02/20/2019 | 12:16:32 AM |
| 55 | N034129-008D | SAMP | 1 | 02/20/2019 | 12:20:19 AM |
| 56 | N034129-009D | SAMP | 1 | 02/20/2019 | 12:24:07 AM |
| 57 | N034129-010D | SAMP | 1 | 02/20/2019 | 12:27:55 AM |
| 58 | N034129-011D | SAMP | 1 | 02/20/2019 | 12:31:43 AM |
| 59 | N034129-012D | SAMP | 1 | 02/20/2019 | 12:36:03 AM |
| 7 | CCV5 | CCV | 1 | 02/20/2019 | 12:39:50 AM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CCB5 | CCB | 1 | 02/20/2019 | 12:45:11 AM |
| 60 | N034129-013D | SAMP | 1 | 02/20/2019 | 12:48:56 AM |
| 61 | N034129-014D | SAMP | 1 | 02/20/2019 | 12:53:12 AM |
| 71 | MB-72518 | MBLK | 1 | 02/20/2019 | 12:57:29 AM |
| 72 | LCS-72518 | LCS | 1 | 02/20/2019 | 01:01:15 AM |
| 73 | N034182-001B | SAMP | 1 | 02/20/2019 | 01:05:31 AM |
| 74 | N034182-001B | SAMP | 5 | 02/20/2019 | 01:10:49 AM |
| 75 | N034182-001B-PS | PS | 1 | 02/20/2019 | 01:15:05 AM |
| 76 | N034182-001B-MS | MS | 1 | 02/20/2019 | 01:20:23 AM |
| 77 | N034182-001B-MSD | MSD | 1 | 02/20/2019 | 01:25:40 AM |
| 78 | N034182-002B | SAMP | 1 | 02/20/2019 | 01:30:57 AM |
| 7 | CCV6 | CCV | 1 | 02/20/2019 | 01:36:14 AM |
| 1 | CCB6 | CCB | 1 | 02/20/2019 | 01:41:35 AM |
| 79 | N034182-004B | SAMP | 1 | 02/20/2019 | 01:45:21 AM |
| 80 | N034182-005B | SAMP | 1 | 02/20/2019 | 01:50:38 AM |
| 81 | N034182-007B | SAMP | 1 | 02/20/2019 | 01:55:55 AM |
| 82 | N034182-009B | SAMP | 1 | 02/20/2019 | 02:01:16 AM |
| 83 | N034182-010B | SAMP | 1 | 02/20/2019 | 02:05:34 AM |
| 84 | N034182-011B | SAMP | 1 | 02/20/2019 | 02:10:50 AM |
| 85 | N034182-012B | SAMP | 1 | 02/20/2019 | 02:15:07 AM |
| 86 | N034182-013B | SAMP | 1 | 02/20/2019 | 02:20:25 AM |
| 87 | N034183-001B | SAMP | 1 | 02/20/2019 | 02:24:42 AM |
| 88 | N034183-003B | SAMP | 1 | 02/20/2019 | 02:30:00 AM |
| 7 | CCV7 | CCV | 1 | 02/20/2019 | 02:35:17 AM |
| 1 | CCB7 | CCB | 1 | 02/20/2019 | 02:40:38 AM |
| 89 | N034183-004B | SAMP | 1 | 02/20/2019 | 02:44:23 AM |
| 90 | N034183-005B | SAMP | 1 | 02/20/2019 | 02:49:40 AM |
| 91 | N034183-006B | SAMP | 1 | 02/20/2019 | 02:53:57 AM |
| 92 | N034183-007B | SAMP | 1 | 02/20/2019 | 02:58:15 AM |
| 93 | N034183-009B | SAMP | 1 | 02/20/2019 | 03:03:32 AM |
| 94 | N034183-010B | SAMP | 1 | 02/20/2019 | 03:08:52 AM |
| 95 | N034183-011B | SAMP | 1 | 02/20/2019 | 03:14:11 AM |
| 96 | N034183-012B | SAMP | 1 | 02/20/2019 | 03:18:28 AM |
| 97 | MB-72479 | MBLK | 1 | 02/20/2019 | 03:22:46 AM |
| 98 | LCS-72479 | LCS | 1 | 02/20/2019 | 03:26:32 AM |
| 7 | CCV8 | CCV | 1 | 02/20/2019 | 03:30:49 AM |
| 1 | CCB8 | CCB | 1 | 02/20/2019 | 03:36:10 AM |
| 9 | ICSA3 | ICSA | 1 | 02/20/2019 | 03:39:56 AM |
| 10 | ICSAB3 | ICSAB | 1 | 02/20/2019 | 03:45:49 AM |
| 99 | N034129-002E | SAMP | 1 | 02/20/2019 | 03:51:15 AM |
| 100 | N034129-002E | SAMP | 5 | 02/20/2019 | 03:55:31 AM |
| 101 | N034129-002E-PS | PS | 1 | 02/20/2019 | 03:59:47 AM |
| 102 | N034129-002E-MS | MS | 1 | 02/20/2019 | 04:04:04 AM |
| 103 | N034129-002E-MSD | MSD | 1 | 02/20/2019 | 04:08:22 AM |
| 104 | N034129-003E | SAMP | 1 | 02/20/2019 | 04:12:39 AM |
| 105 | N034129-004E | SAMP | 1 | 02/20/2019 | 04:16:26 AM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 106 | N034129-005E | SAMP | 1 | 02/20/2019 | 04:20:44 AM |
| 107 | N034129-006E | SAMP | 1 | 02/20/2019 | 04:25:03 AM |
| 108 | N034129-007E | SAMP | 1 | 02/20/2019 | 04:28:49 AM |
| 3 | CCV9 | CCV | 1 | 02/20/2019 | 04:33:05 AM |
| 2 | CCB9 | CCB | 1 | 02/20/2019 | 04:37:23 AM |
| 109 | N034129-008E | SAMP | 1 | 02/20/2019 | 04:41:08 AM |
| 110 | N034129-009E | SAMP | 1 | 02/20/2019 | 04:44:54 AM |
| 111 | N034129-010E | SAMP | 1 | 02/20/2019 | 04:49:10 AM |
| 112 | N034129-011E | SAMP | 1 | 02/20/2019 | 04:52:58 AM |
| 113 | N034129-012E | SAMP | 1 | 02/20/2019 | 04:57:14 AM |
| 114 | N034129-013E | SAMP | 1 | 02/20/2019 | 05:01:31 AM |
| 115 | N034129-014E | SAMP | 1 | 02/20/2019 | 05:05:48 AM |
| 3 | CCV10 | CCV | 1 | 02/20/2019 | 05:09:34 AM |
| 2 | CCB10 | CCB | 1 | 02/20/2019 | 05:13:52 AM |
| 9 | ICSA4 | ICSA | 1 | 02/20/2019 | 05:17:37 AM |
| 10 | ICSAB4 | ICSAB | 1 | 02/20/2019 | 05:23:02 AM |

**INJECTION LOG: 190227A**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-181001A,0.5<50mL |
| Standard2 | MWST-181001E |
| Standard3 | MWST-181001J,5<50mL |
| Standard4 | MWST-181001J,12.5<50mL |
| Standard5 | MWST-181001J,15<40mL |
| Standard6 | MWST-181001J,25<50mL |
| Standard7 | MWST-181001J |
| ICV | MWST-181001O |
| CCV | MWST-181001J,25<50mL |
| ICSA/ICSAB | MWST-181001R/MWST-180730A |
| Int. Std. (Y) | MSST-180926A/B |
| PS Spike | MWST-180930D/E/F |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CalBlk | IBLK | 1 | 02/27/2019 | 09:26:41 AM |
| 2 | Standard1 | ICAL | 1 | 02/27/2019 | 09:30:29 AM |
| 3 | Standard2 | ICAL | 1 | 02/27/2019 | 09:34:14 AM |
| 4 | Standard3 | ICAL | 1 | 02/27/2019 | 09:38:29 AM |
| 5 | Standard4 | ICAL | 1 | 02/27/2019 | 09:42:45 AM |
| 6 | Standard5 | ICAL | 1 | 02/27/2019 | 09:47:04 AM |
| 7 | Standard6 | ICAL | 1 | 02/27/2019 | 09:51:23 AM |
| 8 | Standard7 | ICAL | 1 | 02/27/2019 | 09:55:43 AM |
| 250 | ICV | ICV | 1 | 02/27/2019 | 10:03:05 AM |
| 1 | ICB | ICB | 1 | 02/27/2019 | 10:08:27 AM |
| 2 | LLICV1 | CCV1 | 1 | 02/27/2019 | 10:12:11 AM |
| 9 | ICSA1 | ICSA | 1 | 02/27/2019 | 10:15:58 AM |
| 10 | ICSAB1 | ICSAB | 1 | 02/27/2019 | 10:21:24 AM |
| 11 | MB-72664 | MBLK | 1 | 02/27/2019 | 10:29:21 AM |
| 12 | LCS-72664 | LCS | 1 | 02/27/2019 | 10:33:06 AM |
| 13 | N034104-006C | SAMP | 1 | 02/27/2019 | 10:37:21 AM |
| 14 | N034104-006C | SAMP | 5 | 02/27/2019 | 10:41:38 AM |
| 15 | N034104-006C-PS | PS | 1 | 02/27/2019 | 10:45:54 AM |
| 16 | N034104-006C-MS | MS | 1 | 02/27/2019 | 10:50:11 AM |
| 17 | N034104-006C-MSD | MSD | 1 | 02/27/2019 | 10:54:28 AM |
| 18 | N034129-003D | SAMP | 1 | 02/27/2019 | 10:58:46 AM |
| 19 | N034129-007D | SAMP | 1 | 02/27/2019 | 11:03:02 AM |
| 7 | CCV1 | CCV | 1 | 02/27/2019 | 11:07:21 AM |
| 1 | CCB1 | CCB | 1 | 02/27/2019 | 11:12:40 AM |
| 9 | ICSA2 | ICSA | 1 | 02/27/2019 | 11:16:29 AM |
| 10 | ICSAB2 | ICSAB | 1 | 02/27/2019 | 11:24:48 AM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/14/2019 8:17:21**
Prep End Date: **2/14/2019 3:00:00**
Prep Batch **72482** Prep Code: **3010_W_DISS**

Reviewed/ Date: NS 2/25/2019
Initials/ Date: for
Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **Db-2-3** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72482 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-72482 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034123-013B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034123-013B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034123-013B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034123-014B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034123-015B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034123-016B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034123-017B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034123-019B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-002D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-003D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-004D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-005D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10560 | HYDROCHLORIC ACID |
| 10570 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/14/2019 8:17:21**
Prep End Date: **2/14/2019 3:00:00**
Reviewed/ Date: NS 2/25/2019
Initials/ Date: for
Prep Batch **72482** Prep Code: **3010_W_DISS** Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **Db-2-3** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-006D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-007D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-008D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-009D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-010D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-011D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-012D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-013D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-014D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10560 | HYDROCHLORIC ACID |
| 10570 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/26/2019 4:32:16**
Prep End Date: **2/26/2019 9:00:00**
Reviewed/ Date: NS 2/28/2019
Initials/ Date: for
Prep Batch **72664** Prep Code: **3010_W_DISS** Technician **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.6** | **02-17** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72664 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-72664 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-006C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-006C-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034104-006C-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-003D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-007D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10560 | HYDROCHLORIC ACID |
| 10570 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190219E**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Iron** | | | | | | | | |
| CalBlk | 02/19/2019 | 07:01:38 PM | Fe | 273.953 | -135 | 0.00 | mg/L | |
| Standard1 | 02/19/2019 | 07:05:24 PM | Fe | 273.953 | 324 | 0.0200 | mg/L | |
| Standard2 | 02/19/2019 | 07:09:39 PM | Fe | 273.953 | 1276 | 0.050 | mg/L | |
| Standard3 | 02/19/2019 | 07:13:56 PM | Fe | 273.953 | 33283 | 2.000 | mg/L | |
| Standard4 | 02/19/2019 | 07:18:12 PM | Fe | 273.953 | 83668 | 5.000 | mg/L | |
| Standard5 | 02/19/2019 | 07:22:31 PM | Fe | 273.953 | 125709 | 7.500 | mg/L | |
| Standard6 | 02/19/2019 | 07:26:49 PM | Fe | 273.953 | 163326 | 10.000 | mg/L | |
| Standard7 | 02/19/2019 | 07:31:09 PM | Fe | 273.953 | 324222 | 20.000 | mg/L | 0.9999 |

**INITIAL CALIBRATION SUMMARY: 190227A**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Iron** | | | | | | | | |
| CalBlk | 02/27/2019 | 09:26:41 AM | Fe | 273.953 | -122 | 0.00 | mg/L | |
| Standard1 | 02/27/2019 | 09:30:29 AM | Fe | 273.953 | 338 | 0.0200 | mg/L | |
| Standard2 | 02/27/2019 | 09:34:14 AM | Fe | 273.953 | 1079 | 0.050 | mg/L | |
| Standard3 | 02/27/2019 | 09:38:29 AM | Fe | 273.953 | 29146 | 2.000 | mg/L | |
| Standard4 | 02/27/2019 | 09:42:45 AM | Fe | 273.953 | 72974 | 5.000 | mg/L | |
| Standard5 | 02/27/2019 | 09:47:04 AM | Fe | 273.953 | 109502 | 7.500 | mg/L | |
| Standard6 | 02/27/2019 | 09:51:23 AM | Fe | 273.953 | 144282 | 10.000 | mg/L | |
| Standard7 | 02/27/2019 | 09:55:43 AM | Fe | 273.953 | 287489 | 20.000 | mg/L | 1.0000 |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296732** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10051.362 | 20 | 10000 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **LLICV1** | SampType: **CCV1** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296734** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 21.279 | 20 | 20.00 | 0 | 106 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296747** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9989.214 | 20 | 10000 | 0 | 99.9 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296759** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9944.200 | 20 | 10000 | 0 | 99.4 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296771** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9989.542 | 20 | 10000 | 0 | 99.9 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296783** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10060.512 | 20 | 10000 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296796** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10008.134 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296808** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10006.673 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296820** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10007.198 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV8** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296832** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10010.736 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **CCV9** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296846** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9890.568 | 20 | 10000 | 0 | 98.9 | 90 | 110 | | | | |

| Sample ID **CCV10** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296855** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9819.989 | 20 | 10000 | 0 | 98.2 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132152** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132152** | TestNo: **EPA 6010B** | | Analysis Date: **2/27/2019** | SeqNo: **3303584** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10000.926 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **LLICV1** | SampType: **CCV1** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132152** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132152** | TestNo: **EPA 6010B** | | Analysis Date: **2/27/2019** | SeqNo: **3303586** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 23.223 | 20 | 20.00 | 0 | 116 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132152** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132152** | TestNo: **EPA 6010B** | | Analysis Date: **2/27/2019** | SeqNo: **3303598** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9838.209 | 20 | 10000 | 0 | 98.4 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296733** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 1.747 | 20 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296748** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 2.520 | 20 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296760** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 2.787 | 20 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296772** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 3.904 | 20 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296784** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 5.299 | 20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296797** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 4.971 | 20 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296809** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 4.953 | 20 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296821** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 6.332 | 20 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296833** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 6.164 | 20 | | | | | | | | | |

| Sample ID **CCB9** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296847** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 2.979 | 20 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **CCB10** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296856** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 3.499 | 20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132152** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132152** | TestNo: **EPA 6010B** | | Analysis Date: **2/27/2019** | SeqNo: **3303585** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 2.017 | 20 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132152** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132152** | TestNo: **EPA 6010B** | | Analysis Date: **2/27/2019** | SeqNo: **3303599** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 1.624 | 20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **131956**
Client ID: **ICSA** Batch ID: **R131956** TestNo: **EPA 6010B** Analysis Date: **2/19/2019** SeqNo: **3296735**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 483111.104 | 50 | 500000 | 0 | 96.6 | 80 | 120 | | | | |
| Calcium | 492506.541 | 500 | 500000 | 0 | 98.5 | 80 | 120 | | | | |
| Iron | 177757.679 | 20 | 200000 | 0 | 88.9 | 80 | 120 | | | | |
| Magnesium | 461217.797 | 100 | 500000 | 0 | 92.2 | 80 | 120 | | | | |

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **131956**
Client ID: **ICSAB** Batch ID: **R131956** TestNo: **EPA 6010B** Analysis Date: **2/19/2019** SeqNo: **3296736**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 522568.507 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |
| Calcium | 528428.358 | 500 | 500000 | 0 | 106 | 80 | 120 | | | | |
| Iron | 177508.438 | 20 | 200000 | 0 | 88.8 | 80 | 120 | | | | |
| Magnesium | 498096.448 | 100 | 500000 | 0 | 99.6 | 80 | 120 | | | | |

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **131956**
Client ID: **ICSA** Batch ID: **R131956** TestNo: **EPA 6010B** Analysis Date: **2/19/2019** SeqNo: **3296785**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 487725.963 | 50 | 500000 | 0 | 97.5 | 80 | 120 | | | | |
| Calcium | 498905.967 | 500 | 500000 | 0 | 99.8 | 80 | 120 | | | | |
| Iron | 177247.994 | 20 | 200000 | 0 | 88.6 | 80 | 120 | | | | |
| Magnesium | 463124.141 | 100 | 500000 | 0 | 92.6 | 80 | 120 | | | | |

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **131956**
Client ID: **ICSAB** Batch ID: **R131956** TestNo: **EPA 6010B** Analysis Date: **2/19/2019** SeqNo: **3296786**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 528269.912 | 50 | 500000 | 0 | 106 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **131956**
Client ID: **ICSAB** Batch ID: **R131956** TestNo: **EPA 6010B** Analysis Date: **2/19/2019** SeqNo: **3296786**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 536284.742 | 500 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Iron | 177139.490 | 20 | 200000 | 0 | 88.6 | 80 | 120 | | | | |
| Magnesium | 500999.113 | 100 | 500000 | 0 | 100 | 80 | 120 | | | | |

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **131956**
Client ID: **ICSA** Batch ID: **R131956** TestNo: **EPA 6010B** Analysis Date: **2/20/2019** SeqNo: **3296834**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 487382.774 | 50 | 500000 | 0 | 97.5 | 80 | 120 | | | | |
| Calcium | 501397.152 | 500 | 500000 | 0 | 100 | 80 | 120 | | | | |
| Iron | 177072.078 | 20 | 200000 | 0 | 88.5 | 80 | 120 | | | | |
| Magnesium | 470885.539 | 100 | 500000 | 0 | 94.2 | 80 | 120 | | | | |

Sample ID **ICSAB3** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **131956**
Client ID: **ICSAB** Batch ID: **R131956** TestNo: **EPA 6010B** Analysis Date: **2/20/2019** SeqNo: **3296835**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 526235.383 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |
| Calcium | 539557.871 | 500 | 500000 | 0 | 108 | 80 | 120 | | | | |
| Iron | 176360.723 | 20 | 200000 | 0 | 88.2 | 80 | 120 | | | | |
| Magnesium | 507162.806 | 100 | 500000 | 0 | 101 | 80 | 120 | | | | |

Sample ID **ICSA4** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **131956**
Client ID: **ICSA** Batch ID: **R131956** TestNo: **EPA 6010B** Analysis Date: **2/20/2019** SeqNo: **3296857**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 482716.687 | 50 | 500000 | 0 | 96.5 | 80 | 120 | | | | |
| Calcium | 495080.495 | 500 | 500000 | 0 | 99.0 | 80 | 120 | | | | |
| Iron | 174218.103 | 20 | 200000 | 0 | 87.1 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296857** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Magnesium | 464025.085 | 100 | 500000 | 0 | 92.8 | 80 | 120 | | | | |

| Sample ID **ICSAB4** | SampType: **ICSAB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **131956** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R131956** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296858** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 521999.775 | 50 | 500000 | 0 | 104 | 80 | 120 | | | | |
| Calcium | 532032.004 | 500 | 500000 | 0 | 106 | 80 | 120 | | | | |
| Iron | 173659.179 | 20 | 200000 | 0 | 86.8 | 80 | 120 | | | | |
| Magnesium | 500888.413 | 100 | 500000 | 0 | 100 | 80 | 120 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132152** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132152** | TestNo: **EPA 6010B** | | Analysis Date: **2/27/2019** | SeqNo: **3303587** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 476671.204 | 50 | 500000 | 0 | 95.3 | 80 | 120 | | | | |
| Calcium | 488572.589 | 500 | 500000 | 0 | 97.7 | 80 | 120 | | | | |
| Iron | 170985.637 | 20 | 200000 | 0 | 85.5 | 80 | 120 | | | | |
| Magnesium | 444853.042 | 100 | 500000 | 0 | 89.0 | 80 | 120 | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132152** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132152** | TestNo: **EPA 6010B** | | Analysis Date: **2/27/2019** | SeqNo: **3303588** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 525117.108 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |
| Calcium | 538920.267 | 500 | 500000 | 0 | 108 | 80 | 120 | | | | |
| Iron | 178748.802 | 20 | 200000 | 0 | 89.4 | 80 | 120 | | | | |
| Magnesium | 489132.706 | 100 | 500000 | 0 | 97.8 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132152** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132152** | TestNo: **EPA 6010B** | | Analysis Date: **2/27/2019** | SeqNo: **3303600** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 476976.468 | 50 | 500000 | 0 | 95.4 | 80 | 120 | | | | |
| Calcium | 491720.050 | 500 | 500000 | 0 | 98.3 | 80 | 120 | | | | |
| Iron | 169335.592 | 20 | 200000 | 0 | 84.7 | 80 | 120 | | | | |
| Magnesium | 431945.777 | 100 | 500000 | 0 | 86.4 | 80 | 120 | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132152** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132152** | TestNo: **EPA 6010B** | | Analysis Date: **2/27/2019** | SeqNo: **3303601** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 522205.252 | 50 | 500000 | 0 | 104 | 80 | 120 | | | | |
| Calcium | 539079.409 | 500 | 500000 | 0 | 108 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132152** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132152** | TestNo: **EPA 6010B** | | Analysis Date: **2/27/2019** | SeqNo: **3303601** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 176329.878 | 20 | 200000 | 0 | 88.2 | 80 | 120 | | | | |
| Magnesium | 468104.504 | 100 | 500000 | 0 | 93.6 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190219E**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 1.0012 | 100.12 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1.058 | 105.85 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 1.0012 | 100.12 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 1 | 99.75 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 0.99 | 99.33 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 0.99 | 99.44 | 65-125 | PASS |
| Standard7 | ICAL | 1 | 0.98 | 98.27 | 65-125 | PASS |
| ICV | ICV | 1 | 0.99 | 98.88 | 65-125 | PASS |
| ICB | ICB | 1 | 1 | 99.54 | 65-125 | PASS |
| LLICV1 | CCV1 | 1 | 1 | 99.87 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 0.96 | 96.033 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 0.87 | 86.71 | 65-125 | PASS |
| CCV1 | CCV | 1 | 1.0073 | 100.73 | 65-125 | PASS |
| CCB1 | CCB | 1 | 1.007 | 100.7 | 65-125 | PASS |
| CCV2 | CCV | 1 | 1.0093 | 100.93 | 65-125 | PASS |
| CCB2 | CCB | 1 | 1.0093 | 100.93 | 65-125 | PASS |
| MB-72482 | MBLK | 1 | 1.022 | 102.21 | 65-125 | PASS |
| LCS-72482 | LCS | 1 | 0.95 | 94.63 | 65-125 | PASS |
| N034123-013B | SAMP | 1 | 0.98 | 97.87 | 65-125 | PASS |
| CCV3 | CCV | 1 | 1.0059 | 100.59 | 65-125 | PASS |
| CCB3 | CCB | 1 | 1.011 | 101.1 | 65-125 | PASS |
| N034123-013B | SAMP | 5 | 1 | 99.82 | 65-125 | PASS |
| N034123-013B-PS | PS | 1 | 1.0006 | 100.06 | 65-125 | PASS |
| N034123-013B-MS | MS | 1 | 0.99 | 98.75 | 65-125 | PASS |
| N034123-013B-MSD | MSD | 1 | 1 | 99.54 | 65-125 | PASS |
| N034123-014B | SAMP | 1 | 1.026 | 102.63 | 65-125 | PASS |
| N034123-015B | SAMP | 1 | 1.036 | 103.57 | 65-125 | PASS |
| N034123-016B | SAMP | 1 | 1.053 | 105.28 | 65-125 | PASS |
| N034123-017B | SAMP | 1 | 1.041 | 104.13 | 65-125 | PASS |
| N034123-019B | SAMP | 1 | 1.068 | 106.83 | 65-125 | PASS |
| N034129-002D | SAMP | 1 | 1.037 | 103.72 | 65-125 | PASS |
| CCV4 | CCV | 1 | 1.054 | 105.4 | 65-125 | PASS |
| CCB4 | CCB | 1 | 1.058 | 105.8 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 1.0064 | 100.64 | 65-125 | PASS |
| ICSAB2 | ICSAB | 1 | 0.91 | 91.23 | 65-125 | PASS |
| N034129-003D | SAMP | 1 | 1.071 | 107.09 | 65-125 | PASS |
| N034129-004D | SAMP | 1 | 1.061 | 106.08 | 65-125 | PASS |
| N034129-005D | SAMP | 1 | 1.05 | 105.01 | 65-125 | PASS |
| N034129-006D | SAMP | 1 | 1.05 | 104.96 | 65-125 | PASS |
| N034129-007D | SAMP | 1 | 1.041 | 104.1 | 65-125 | PASS |

**INTERNAL STANDARD: 190219E**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| N034129-008D | SAMP | 1 | 1.062 | 106.25 | 65-125 | PASS |
| N034129-009D | SAMP | 1 | 1.052 | 105.22 | 65-125 | PASS |
| N034129-010D | SAMP | 1 | 1.059 | 105.9 | 65-125 | PASS |
| N034129-011D | SAMP | 1 | 1.07 | 106.96 | 65-125 | PASS |
| N034129-012D | SAMP | 1 | 1.079 | 107.88 | 65-125 | PASS |
| CCV5 | CCV | 1 | 1.066 | 106.58 | 65-125 | PASS |
| CCB5 | CCB | 1 | 1.073 | 107.34 | 65-125 | PASS |
| N034129-013D | SAMP | 1 | 1.063 | 106.26 | 65-125 | PASS |
| N034129-014D | SAMP | 1 | 1.067 | 106.67 | 65-125 | PASS |
| CCV6 | CCV | 1 | 1.07 | 106.96 | 65-125 | PASS |
| CCB6 | CCB | 1 | 1.074 | 107.43 | 65-125 | PASS |
| CCV7 | CCV | 1 | 1.071 | 107.06 | 65-125 | PASS |
| CCB7 | CCB | 1 | 1.079 | 107.88 | 65-125 | PASS |
| CCV8 | CCV | 1 | 1.052 | 105.25 | 65-125 | PASS |
| CCB8 | CCB | 1 | 1.065 | 106.55 | 65-125 | PASS |
| ICSA3 | ICSA | 1 | 1.0076 | 100.76 | 65-125 | PASS |
| ICSAB3 | ICSAB | 1 | 0.91 | 91.26 | 65-125 | PASS |
| CCV9 | CCV | 1 | 1.087 | 108.7 | 65-125 | PASS |
| CCB9 | CCB | 1 | 1.11 | 110.84 | 65-125 | PASS |
| CCV10 | CCV | 1 | 1.091 | 109.12 | 65-125 | PASS |
| CCB10 | CCB | 1 | 1.11 | 111.24 | 65-125 | PASS |
| ICSA4 | ICSA | 1 | 1.033 | 103.34 | 65-125 | PASS |
| ICSAB4 | ICSAB | 1 | 0.94 | 94.22 | 65-125 | PASS |

**INTERNAL STANDARD: 190227A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 1.066 | 106.57 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1.071 | 107.13 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 1.077 | 107.66 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 1.097 | 109.75 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 1.077 | 107.65 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 1.051 | 105.11 | 65-125 | PASS |
| Standard7 | ICAL | 1 | 1.037 | 103.67 | 65-125 | PASS |
| ICV | ICV | 1 | 1.045 | 104.48 | 65-125 | PASS |
| ICB | ICB | 1 | 1.026 | 102.64 | 65-125 | PASS |
| LLICV1 | CCV1 | 1 | 1.094 | 109.44 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 1.069 | 106.87 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 0.96 | 96.47 | 65-125 | PASS |
| MB-72664 | MBLK | 1 | 1.039 | 103.94 | 65-125 | PASS |
| LCS-72664 | LCS | 1 | 0.99 | 99.33 | 65-125 | PASS |
| N034104-006C | SAMP | 1 | 1.13 | 113.07 | 65-125 | PASS |
| N034104-006C | SAMP | 5 | 1.054 | 105.38 | 65-125 | PASS |
| N034104-006C-PS | PS | 1 | 1.084 | 108.38 | 65-125 | PASS |
| N034104-006C-MS | MS | 1 | 1.11 | 110.87 | 65-125 | PASS |
| N034104-006C-MSD | MSD | 1 | 1.11 | 111.07 | 65-125 | PASS |
| N034129-003D | SAMP | 1 | 1.026 | 102.57 | 65-125 | PASS |
| N034129-007D | SAMP | 1 | 1.01 | 101.04 | 65-125 | PASS |
| CCV1 | CCV | 1 | 1.084 | 108.4 | 65-125 | PASS |
| CCB1 | CCB | 1 | 1.058 | 105.79 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 1.097 | 109.67 | 65-125 | PASS |
| ICSAB2 | ICSAB | 1 | 0.91 | 91.18 | 65-125 | PASS |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034129
Test Method: EPA 6010
Analysis Date: 2/19/2019

Matrix: Groundwater
Batch No.: 72482

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

| Sample ID | Analyte | Units | Calc Val | OQual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|
| N034123-013B DT 5X | Iron | ug/L | 0 | NA | 0 | | 10 |

Note: NA - Not applicable

**ASSET Laboratories**

**ICP-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034129
Test Method: EPA 6010
Analysis Date: 2/27/2019

Matrix: Groundwater
Batch No.: 72664

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

| Sample ID | Analyte | Units | Calc Val | OQual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|
| N034104-006C DT 5X | Iron | ug/L | 0 | NA | 0 | | 10 |

Note: NA - Not applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID **N034123-013B-PS** | SampType: **PS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | | | RunNo: **131956** | | | | | |
| Client ID: **ZZZZZZ** | Batch ID: **72482** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **2/19/2019** | | | SeqNo: **3296774** | | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Iron | 105.009 | 20 | 100.0 | 0 | 105 | 80 | 120 | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID | N034104-006C-PS | SampType: | PS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | | RunNo: | 132152 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72664 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 2/27/2019 | SeqNo: | 3303593 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 97.711 | 20 | 100.0 | 0 | 97.7 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

**Acceptance Criteria:** MDL < spike < 10XMDL

| Analyte | Wavelength | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Spike Conc., mg/L | SD | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ag | 328.069 | 0.0033 | 0.0031 | 0.0033 | 0.0033 | 0.0031 | 0.0030 | 0.0047 | 0.003 | 0.00061604 | **0.001936** | 0.003 |
| Al | 237.312 | 0.0664 | 0.0603 | 0.0656 | 0.0650 | 0.0658 | 0.0660 | 0.0946 | 0.050 | 0.01254823 | **0.039439** | 0.050 |
| As | 188.983 | 0.0131 | 0.0089 | 0.0120 | 0.0089 | 0.0060 | 0.0102 | 0.0080 | 0.010 | 0.00223806 | **0.007034** | 0.010 |
| B | 249.679 | 0.1491 | 0.1267 | 0.1281 | 0.1467 | 0.1261 | 0.1195 | 0.1015 | 0.100 | 0.01801843 | **0.056632** | 0.100 |
| Ba | 233.529 | 0.0033 | 0.0031 | 0.0033 | 0.0031 | 0.0032 | 0.0030 | 0.0024 | 0.003 | 0.00033070 | **0.001039** | 0.003 |
| Be | 313.104 | 0.0012 | 0.0011 | 0.0012 | 0.0012 | 0.0011 | 0.0011 | 0.0011 | 0.001 | 0.00006873 | **0.000216** | 0.001 |
| Ca | 227.546 | 0.2381 | 0.2231 | 0.2559 | 0.2299 | 0.2194 | 0.2473 | 0.2691 | 0.200 | 0.02202408 | **0.069222** | 0.200 |
| Cd | 214.437 | 0.0031 | 0.0029 | 0.0031 | 0.0032 | 0.0031 | 0.0031 | 0.0025 | 0.003 | 0.00027049 | **0.000850** | 0.003 |
| Co | 228.614 | 0.0030 | 0.0028 | 0.0030 | 0.0031 | 0.0031 | 0.0031 | 0.0027 | 0.003 | 0.00014491 | **0.000455** | 0.003 |
| Cr | 267.719 | 0.0009 | 0.0008 | 0.0009 | 0.0012 | 0.0012 | 0.0013 | 0.0009 | 0.001 | 0.00017120 | **0.000538** | 0.001 |
| Fe | 273.953 | 0.0255 | 0.0226 | 0.0242 | 0.0255 | 0.0252 | 0.0248 | 0.0387 | 0.020 | 0.00552308 | **0.017359** | 0.020 |
| Mg | 279.079 | 0.1124 | 0.1052 | 0.1129 | 0.1315 | 0.1305 | 0.1314 | 0.1435 | 0.100 | 0.01532024 | **0.048152** | 0.100 |
| Mn | 257.607 | 0.0119 | 0.0111 | 0.0120 | 0.0122 | 0.0121 | 0.0122 | 0.0099 | 0.010 | 0.00098403 | **0.003093** | 0.010 |
| Mo | 202.03 | 0.0079 | 0.0068 | 0.0067 | 0.0065 | 0.0065 | 0.0062 | 0.0057 | 0.005 | 0.00083918 | **0.002638** | 0.005 |
| Ni | 231.604 | 0.0061 | 0.0056 | 0.0062 | 0.0060 | 0.0060 | 0.0062 | 0.0045 | 0.005 | 0.00062690 | **0.001970** | 0.005 |
| Pb | 220.351 | 0.0124 | 0.0117 | 0.0127 | 0.0115 | 0.0120 | 0.0118 | 0.0090 | 0.010 | 0.00126325 | **0.003970** | 0.010 |
| Sb | 206.836 | 0.0102 | 0.0095 | 0.0104 | 0.0112 | 0.0117 | 0.0111 | 0.0080 | 0.010 | 0.00117407 | **0.003690** | 0.010 |
| Se | 196.025 | 0.0102 | 0.0087 | 0.0114 | 0.0136 | 0.0144 | 0.0136 | 0.0075 | 0.010 | 0.00251341 | **0.007900** | 0.010 |
| Sn | 189.927 | 0.0095 | 0.0084 | 0.0090 | 0.0124 | 0.0126 | 0.0129 | 0.0099 | 0.010 | 0.00175765 | **0.005524** | 0.010 |
| Ti | 334.943 | 0.0114 | 0.0106 | 0.0115 | 0.0115 | 0.0115 | 0.0115 | 0.0098 | 0.010 | 0.00074093 | **0.002329** | 0.010 |
| Tl | 190.794 | 0.0170 | 0.0150 | 0.0165 | 0.0171 | 0.0180 | 0.0168 | 0.0151 | 0.015 | 0.00116288 | **0.003655** | 0.015 |
| V | 292.404 | 0.0025 | 0.0024 | 0.0025 | 0.0032 | 0.0032 | 0.0032 | 0.0027 | 0.003 | 0.00038496 | **0.001210** | 0.003 |
| Zn | 206.201 | 0.0109 | 0.0100 | 0.0107 | 0.0125 | 0.0124 | 0.0124 | 0.0095 | 0.010 | 0.00123731 | **0.003889** | 0.010 |

## METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

| Analyte | ICP-02 MDL | MDL Blank | Higher MDL | LOD | PQL |
|---|---|---|---|---|---|
| Ag | 0.001936 | 0.002362 | 0.002362 | 0.002 | 0.003 |
| Al | 0.039439 | 0.039859 | 0.039859 | 0.04 | 0.5 |
| As | 0.007034 | 0.007672 | 0.007672 | 0.0075 | 0.01 |
| B | 0.056632 | 0.074419 | 0.074419 | 0.075 | 0.1 |
| Ba | 0.001039 | 0.000433 | 0.001039 | 0.001 | 0.003 |
| Be | 0.000216 | 0.000311 | 0.000311 | 0.0005 | 0.003 |
| Ca | 0.069222 | 0.084832 | 0.084832 | 0.1 | 0.5 |
| Cd | 0.000850 | 0.000592 | 0.000850 | 0.001 | 0.003 |
| Co | 0.000455 | 0.001902 | 0.001902 | 0.001 | 0.003 |
| Cr | 0.000538 | 0.000527 | 0.000538 | 0.001 | 0.003 |
| Fe | 0.017359 | 0.017751 | 0.017751 | 0.018 | 0.1 |
| Mg | 0.048152 | 0.043017 | 0.048152 | 0.05 | 0.1 |
| Mn | 0.003093 | 0.000782 | 0.003093 | 0.005 | 0.5 |
| Mo | 0.002638 | 0.002482 | 0.002638 | 0.0025 | 0.005 |
| Ni | 0.001970 | 0.000822 | 0.001970 | 0.0025 | 0.005 |
| Pb | 0.003970 | 0.002762 | 0.003970 | 0.005 | 0.005 |
| Sb | 0.003690 | 0.004504 | 0.004504 | 0.005 | 0.01 |
| Se | 0.007900 | 0.008549 | 0.008549 | 0.008 | 0.01 |
| Sn | 0.005524 | 0.003415 | 0.005524 | 0.0075 | 0.05 |
| Ti | 0.002329 | 0.001493 | 0.002329 | 0.005 | 0.05 |
| Tl | 0.003655 | 0.005987 | 0.005987 | 0.005 | 0.015 |
| V | 0.001210 | 0.000749 | 0.001210 | 0.002 | 0.003 |
| Zn | 0.003889 | 0.007683 | 0.007683 | 0.008 | 0.01 |

# EPA 6010B

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72479
**ASSET #:** N034129
**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 2/19/2019

**Method:**

[X] EPA 6010B / 200.7 Total
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | X | | | X | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

% Rec of Fe in N034129-002E PS/MS/MSD failed, low bias. However, LCS passed criteria.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: _____

2nd Level Reviewer 2/25/19 Date: —

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA 6010B
**TEST NAME:** Heavy Metals by ICP
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N034129-002E** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.14442 * 1 *(25/25) * 1000

Iron , ug/L = 144.42

Reporting results in two significant figures,

**Iron , ug/L = 140**

NS 2/25/2019

# % RSD SUMMARY

**RSD SUMMARY: 190219E**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Fe | 0 | 6.48 | 15 | PASS |
| Standard1 | ICAL | 1 | Fe | 0.02 | 4.94 | 15 | PASS |
| Standard2 | ICAL | 1 | Fe | 0.05 | 0.42 | 15 | PASS |
| Standard3 | ICAL | 1 | Fe | 2 | 0.26 | 15 | PASS |
| Standard4 | ICAL | 1 | Fe | 5 | 0.21 | 15 | PASS |
| Standard5 | ICAL | 1 | Fe | 7.5 | 0.16 | 15 | PASS |
| Standard6 | ICAL | 1 | Fe | 10 | 0.38 | 15 | PASS |
| Standard7 | ICAL | 1 | Fe | 20 | 0.098 | 15 | PASS |
| ICV | ICV | 1 | Fe | 10.051 | 0.84 | 15 | PASS |
| ICB | ICB | 1 | Fe | 0.0018 | 35.0098 | 15 | <PQL |
| LLICV1 | CCV1 | 1 | Fe | 0.021 | 2.66 | 20 | PASS |
| ICSA1 | ICSA | 1 | Fe | 177.76 | 0.058 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Fe | 177.51 | 0.1 | 15 | PASS |
| CCV1 | CCV | 1 | Fe | 9.99 | 0.19 | 15 | PASS |
| CCB1 | CCB | 1 | Fe | 0.0025 | 3.25 | 15 | PASS |
| CCV2 | CCV | 1 | Fe | 9.94 | 0.45 | 15 | PASS |
| CCB2 | CCB | 1 | Fe | 0.0028 | 36.39 | 15 | <PQL |
| CCV3 | CCV | 1 | Fe | 9.99 | 0.72 | 15 | PASS |
| CCB3 | CCB | 1 | Fe | 0.0039 | 19.27 | 15 | <PQL |
| CCV4 | CCV | 1 | Fe | 10.061 | 0.33 | 15 | PASS |
| CCB4 | CCB | 1 | Fe | 0.0053 | 9.19 | 15 | PASS |
| ICSA2 | ICSA | 1 | Fe | 177.25 | 0.18 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Fe | 177.14 | 0.12 | 15 | PASS |
| CCV5 | CCV | 1 | Fe | 10.008 | 0.66 | 15 | PASS |
| CCB5 | CCB | 1 | Fe | 0.005 | 10.96 | 15 | PASS |
| CCV6 | CCV | 1 | Fe | 10.007 | 0.64 | 15 | PASS |
| CCB6 | CCB | 1 | Fe | 0.005 | 4.46 | 15 | PASS |
| CCV7 | CCV | 1 | Fe | 10.007 | 0.086 | 15 | PASS |
| CCB7 | CCB | 1 | Fe | 0.0063 | 15.33 | 15 | <PQL |
| MB-72479 | MBLK | 1 | Fe | 0.00069 | 40.0063 | 15 | <PQL |
| LCS-72479 | LCS | 1 | Fe | 0.11 | 0.84 | 15 | PASS |
| CCV8 | CCV | 1 | Fe | 10.011 | 0.49 | 15 | PASS |
| CCB8 | CCB | 1 | Fe | 0.0062 | 13.7 | 15 | PASS |
| ICSA3 | ICSA | 1 | Fe | 177.07 | 0.1 | 15 | PASS |
| ICSAB3 | ICSAB | 1 | Fe | 176.36 | 0.059 | 15 | PASS |
| N034129-002E | SAMP | 1 | Fe | 0.14 | 2.84 | 15 | PASS |
| N034129-002E | SAMP | 5 | Fe | 0.031 | 3.054 | 15 | PASS |
| N034129-002E-PS | PS | 1 | Fe | 0.12 | 0.51 | 15 | PASS |
| N034129-002E-MS | MS | 1 | Fe | 0.14 | 1.1 | 15 | PASS |
| N034129-002E-MSD | MSD | 1 | Fe | 0.14 | 0.69 | 15 | PASS |
| N034129-003E | SAMP | 1 | Fe | 0.036 | 1.17 | 15 | PASS |
| N034129-004E | SAMP | 1 | Fe | 0.34 | 0.58 | 15 | PASS |

**RSD SUMMARY: 190219E**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| N034129-005E | SAMP | 1 | Fe | 0.081 | 1.021 | 15 | PASS |
| N034129-006E | SAMP | 1 | Fe | 0.17 | 0.3 | 15 | PASS |
| N034129-007E | SAMP | 1 | Fe | 0.019 | 3.54 | 15 | PASS |
| CCV9 | CCV | 1 | Fe | 9.89 | 0.056 | 15 | PASS |
| CCB9 | CCB | 1 | Fe | 0.003 | 14.12 | 15 | PASS |
| N034129-008E | SAMP | 1 | Fe | 0.022 | 0.22 | 15 | PASS |
| N034129-009E | SAMP | 1 | Fe | 0.023 | 0.59 | 15 | PASS |
| N034129-010E | SAMP | 1 | Fe | 0.022 | 4.3 | 15 | PASS |
| N034129-011E | SAMP | 1 | Fe | 0.02 | 4.7 | 15 | PASS |
| N034129-012E | SAMP | 1 | Fe | 0.036 | 2.74 | 15 | PASS |
| N034129-013E | SAMP | 1 | Fe | 0.024 | 1.42 | 15 | PASS |
| N034129-014E | SAMP | 1 | Fe | 0.037 | 3.81 | 15 | PASS |
| CCV10 | CCV | 1 | Fe | 9.82 | 0.32 | 15 | PASS |
| CCB10 | CCB | 1 | Fe | 0.0035 | 51.17 | 15 | <PQL |
| ICSA4 | ICSA | 1 | Fe | 174.22 | 0.28 | 15 | PASS |
| ICSAB4 | ICSAB | 1 | Fe | 173.66 | 0.24 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190219E**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-181001A,0.5<50mL |
| Standard2 | MWST-181001E |
| Standard3 | MWST-181001J,5<50mL |
| Standard4 | MWST-181001J,12.5<50mL |
| Standard5 | MWST-181001J,15<40mL |
| Standard6 | MWST-181001J,25<50mL |
| Standard7 | MWST-181001J |
| ICV | MWST-181001O |
| CCV | MWST-181001J,25<50mL |
| ICSA/ICSAB | MWST-181001R/MWST-180730A |
| Int. Std. (Y) | MSST-180926A/B |
| PS Spike | MWST-180930D/E/F |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CalBlk | IBLK | 1 | 02/19/2019 | 07:01:38 PM |
| 2 | Standard1 | ICAL | 1 | 02/19/2019 | 07:05:24 PM |
| 3 | Standard2 | ICAL | 1 | 02/19/2019 | 07:09:39 PM |
| 4 | Standard3 | ICAL | 1 | 02/19/2019 | 07:13:56 PM |
| 5 | Standard4 | ICAL | 1 | 02/19/2019 | 07:18:12 PM |
| 6 | Standard5 | ICAL | 1 | 02/19/2019 | 07:22:31 PM |
| 7 | Standard6 | ICAL | 1 | 02/19/2019 | 07:26:49 PM |
| 8 | Standard7 | ICAL | 1 | 02/19/2019 | 07:31:09 PM |
| 250 | ICV | ICV | 1 | 02/19/2019 | 07:36:31 PM |
| 1 | ICB | ICB | 1 | 02/19/2019 | 07:41:52 PM |
| 2 | LLICV1 | CCV1 | 1 | 02/19/2019 | 07:45:36 PM |
| 9 | ICSA1 | ICSA | 1 | 02/19/2019 | 07:49:54 PM |
| 10 | ICSAB1 | ICSAB | 1 | 02/19/2019 | 07:55:19 PM |
| 70 | N034104-015E | SAMP | 1 | 02/19/2019 | 08:00:47 PM |
| 11 | MB-72481 | MBLK | 1 | 02/19/2019 | 08:05:40 PM |
| 12 | LCS-72481 | LCS | 1 | 02/19/2019 | 08:09:25 PM |
| 13 | N034120-001B | SAMP | 1 | 02/19/2019 | 08:13:40 PM |
| 14 | N034120-001B | SAMP | 5 | 02/19/2019 | 08:17:56 PM |
| 15 | N034120-001B-PS | PS | 1 | 02/19/2019 | 08:22:11 PM |
| 16 | N034120-001B-MS | MS | 1 | 02/19/2019 | 08:26:29 PM |
| 17 | N034120-001B-MSD | MSD | 1 | 02/19/2019 | 08:30:45 PM |
| 18 | N034121-004B | SAMP | 1 | 02/19/2019 | 08:35:03 PM |
| 19 | N034121-006B | SAMP | 1 | 02/19/2019 | 08:39:21 PM |
| 7 | CCV1 | CCV | 1 | 02/19/2019 | 08:44:38 PM |
| 1 | CCB1 | CCB | 1 | 02/19/2019 | 08:50:26 PM |
| 20 | N034121-007B | SAMP | 1 | 02/19/2019 | 08:54:12 PM |
| 21 | N034121-008B | SAMP | 1 | 02/19/2019 | 08:59:30 PM |
| 22 | N034121-009B | SAMP | 1 | 02/19/2019 | 09:04:49 PM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 23 | N034121-010B | SAMP | 1 | 02/19/2019 | 09:10:10 PM |
| 24 | N034121-011B | SAMP | 1 | 02/19/2019 | 09:15:26 PM |
| 25 | N034123-001B | SAMP | 1 | 02/19/2019 | 09:19:40 PM |
| 26 | N034123-002B | SAMP | 1 | 02/19/2019 | 09:24:57 PM |
| 27 | N034123-003B | SAMP | 1 | 02/19/2019 | 09:29:14 PM |
| 28 | N034123-004B | SAMP | 1 | 02/19/2019 | 09:34:30 PM |
| 29 | N034123-005B | SAMP | 1 | 02/19/2019 | 09:38:47 PM |
| 7 | CCV2 | CCV | 1 | 02/19/2019 | 09:44:05 PM |
| 1 | CCB2 | CCB | 1 | 02/19/2019 | 09:49:25 PM |
| 30 | N034123-006B | SAMP | 1 | 02/19/2019 | 09:53:10 PM |
| 31 | N034123-007B | SAMP | 1 | 02/19/2019 | 09:58:28 PM |
| 32 | N034123-008B | SAMP | 1 | 02/19/2019 | 10:03:45 PM |
| 33 | N034123-009B | SAMP | 1 | 02/19/2019 | 10:09:01 PM |
| 34 | N034123-010B | SAMP | 1 | 02/19/2019 | 10:14:20 PM |
| 35 | N034123-011B | SAMP | 1 | 02/19/2019 | 10:18:37 PM |
| 36 | N034123-012B | SAMP | 1 | 02/19/2019 | 10:22:52 PM |
| 37 | MB-72482 | MBLK | 1 | 02/19/2019 | 10:28:08 PM |
| 38 | LCS-72482 | LCS | 1 | 02/19/2019 | 10:31:54 PM |
| 39 | N034123-013B | SAMP | 1 | 02/19/2019 | 10:36:10 PM |
| 7 | CCV3 | CCV | 1 | 02/19/2019 | 10:41:27 PM |
| 1 | CCB3 | CCB | 1 | 02/19/2019 | 10:46:46 PM |
| 40 | N034123-013B | SAMP | 5 | 02/19/2019 | 10:50:31 PM |
| 41 | N034123-013B-PS | PS | 1 | 02/19/2019 | 10:54:48 PM |
| 42 | N034123-013B-MS | MS | 1 | 02/19/2019 | 11:00:06 PM |
| 43 | N034123-013B-MSD | MSD | 1 | 02/19/2019 | 11:05:23 PM |
| 44 | N034123-014B | SAMP | 1 | 02/19/2019 | 11:10:41 PM |
| 45 | N034123-015B | SAMP | 1 | 02/19/2019 | 11:15:59 PM |
| 46 | N034123-016B | SAMP | 1 | 02/19/2019 | 11:21:17 PM |
| 47 | N034123-017B | SAMP | 1 | 02/19/2019 | 11:25:35 PM |
| 48 | N034123-019B | SAMP | 1 | 02/19/2019 | 11:29:53 PM |
| 49 | N034129-002D | SAMP | 1 | 02/19/2019 | 11:35:11 PM |
| 7 | CCV4 | CCV | 1 | 02/19/2019 | 11:39:27 PM |
| 1 | CCB4 | CCB | 1 | 02/19/2019 | 11:44:47 PM |
| 9 | ICSA2 | ICSA | 1 | 02/19/2019 | 11:48:34 PM |
| 10 | ICSAB2 | ICSAB | 1 | 02/19/2019 | 11:54:00 PM |
| 50 | N034129-003D | SAMP | 1 | 02/19/2019 | 11:59:27 PM |
| 51 | N034129-004D | SAMP | 1 | 02/20/2019 | 12:03:43 AM |
| 52 | N034129-005D | SAMP | 1 | 02/20/2019 | 12:07:59 AM |
| 53 | N034129-006D | SAMP | 1 | 02/20/2019 | 12:12:15 AM |
| 54 | N034129-007D | SAMP | 1 | 02/20/2019 | 12:16:32 AM |
| 55 | N034129-008D | SAMP | 1 | 02/20/2019 | 12:20:19 AM |
| 56 | N034129-009D | SAMP | 1 | 02/20/2019 | 12:24:07 AM |
| 57 | N034129-010D | SAMP | 1 | 02/20/2019 | 12:27:55 AM |
| 58 | N034129-011D | SAMP | 1 | 02/20/2019 | 12:31:43 AM |
| 59 | N034129-012D | SAMP | 1 | 02/20/2019 | 12:36:03 AM |
| 7 | CCV5 | CCV | 1 | 02/20/2019 | 12:39:50 AM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CCB5 | CCB | 1 | 02/20/2019 | 12:45:11 AM |
| 60 | N034129-013D | SAMP | 1 | 02/20/2019 | 12:48:56 AM |
| 61 | N034129-014D | SAMP | 1 | 02/20/2019 | 12:53:12 AM |
| 71 | MB-72518 | MBLK | 1 | 02/20/2019 | 12:57:29 AM |
| 72 | LCS-72518 | LCS | 1 | 02/20/2019 | 01:01:15 AM |
| 73 | N034182-001B | SAMP | 1 | 02/20/2019 | 01:05:31 AM |
| 74 | N034182-001B | SAMP | 5 | 02/20/2019 | 01:10:49 AM |
| 75 | N034182-001B-PS | PS | 1 | 02/20/2019 | 01:15:05 AM |
| 76 | N034182-001B-MS | MS | 1 | 02/20/2019 | 01:20:23 AM |
| 77 | N034182-001B-MSD | MSD | 1 | 02/20/2019 | 01:25:40 AM |
| 78 | N034182-002B | SAMP | 1 | 02/20/2019 | 01:30:57 AM |
| 7 | CCV6 | CCV | 1 | 02/20/2019 | 01:36:14 AM |
| 1 | CCB6 | CCB | 1 | 02/20/2019 | 01:41:35 AM |
| 79 | N034182-004B | SAMP | 1 | 02/20/2019 | 01:45:21 AM |
| 80 | N034182-005B | SAMP | 1 | 02/20/2019 | 01:50:38 AM |
| 81 | N034182-007B | SAMP | 1 | 02/20/2019 | 01:55:55 AM |
| 82 | N034182-009B | SAMP | 1 | 02/20/2019 | 02:01:16 AM |
| 83 | N034182-010B | SAMP | 1 | 02/20/2019 | 02:05:34 AM |
| 84 | N034182-011B | SAMP | 1 | 02/20/2019 | 02:10:50 AM |
| 85 | N034182-012B | SAMP | 1 | 02/20/2019 | 02:15:07 AM |
| 86 | N034182-013B | SAMP | 1 | 02/20/2019 | 02:20:25 AM |
| 87 | N034183-001B | SAMP | 1 | 02/20/2019 | 02:24:42 AM |
| 88 | N034183-003B | SAMP | 1 | 02/20/2019 | 02:30:00 AM |
| 7 | CCV7 | CCV | 1 | 02/20/2019 | 02:35:17 AM |
| 1 | CCB7 | CCB | 1 | 02/20/2019 | 02:40:38 AM |
| 89 | N034183-004B | SAMP | 1 | 02/20/2019 | 02:44:23 AM |
| 90 | N034183-005B | SAMP | 1 | 02/20/2019 | 02:49:40 AM |
| 91 | N034183-006B | SAMP | 1 | 02/20/2019 | 02:53:57 AM |
| 92 | N034183-007B | SAMP | 1 | 02/20/2019 | 02:58:15 AM |
| 93 | N034183-009B | SAMP | 1 | 02/20/2019 | 03:03:32 AM |
| 94 | N034183-010B | SAMP | 1 | 02/20/2019 | 03:08:52 AM |
| 95 | N034183-011B | SAMP | 1 | 02/20/2019 | 03:14:11 AM |
| 96 | N034183-012B | SAMP | 1 | 02/20/2019 | 03:18:28 AM |
| 97 | MB-72479 | MBLK | 1 | 02/20/2019 | 03:22:46 AM |
| 98 | LCS-72479 | LCS | 1 | 02/20/2019 | 03:26:32 AM |
| 7 | CCV8 | CCV | 1 | 02/20/2019 | 03:30:49 AM |
| 1 | CCB8 | CCB | 1 | 02/20/2019 | 03:36:10 AM |
| 9 | ICSA3 | ICSA | 1 | 02/20/2019 | 03:39:56 AM |
| 10 | ICSAB3 | ICSAB | 1 | 02/20/2019 | 03:45:49 AM |
| 99 | N034129-002E | SAMP | 1 | 02/20/2019 | 03:51:15 AM |
| 100 | N034129-002E | SAMP | 5 | 02/20/2019 | 03:55:31 AM |
| 101 | N034129-002E-PS | PS | 1 | 02/20/2019 | 03:59:47 AM |
| 102 | N034129-002E-MS | MS | 1 | 02/20/2019 | 04:04:04 AM |
| 103 | N034129-002E-MSD | MSD | 1 | 02/20/2019 | 04:08:22 AM |
| 104 | N034129-003E | SAMP | 1 | 02/20/2019 | 04:12:39 AM |
| 105 | N034129-004E | SAMP | 1 | 02/20/2019 | 04:16:26 AM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 106 | N034129-005E | SAMP | 1 | 02/20/2019 | 04:20:44 AM |
| 107 | N034129-006E | SAMP | 1 | 02/20/2019 | 04:25:03 AM |
| 108 | N034129-007E | SAMP | 1 | 02/20/2019 | 04:28:49 AM |
| 3 | CCV9 | CCV | 1 | 02/20/2019 | 04:33:05 AM |
| 2 | CCB9 | CCB | 1 | 02/20/2019 | 04:37:23 AM |
| 109 | N034129-008E | SAMP | 1 | 02/20/2019 | 04:41:08 AM |
| 110 | N034129-009E | SAMP | 1 | 02/20/2019 | 04:44:54 AM |
| 111 | N034129-010E | SAMP | 1 | 02/20/2019 | 04:49:10 AM |
| 112 | N034129-011E | SAMP | 1 | 02/20/2019 | 04:52:58 AM |
| 113 | N034129-012E | SAMP | 1 | 02/20/2019 | 04:57:14 AM |
| 114 | N034129-013E | SAMP | 1 | 02/20/2019 | 05:01:31 AM |
| 115 | N034129-014E | SAMP | 1 | 02/20/2019 | 05:05:48 AM |
| 3 | CCV10 | CCV | 1 | 02/20/2019 | 05:09:34 AM |
| 2 | CCB10 | CCB | 1 | 02/20/2019 | 05:13:52 AM |
| 9 | ICSA4 | ICSA | 1 | 02/20/2019 | 05:17:37 AM |
| 10 | ICSAB4 | ICSAB | 1 | 02/20/2019 | 05:23:02 AM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/14/2019 8:05:30**
Prep End Date: **2/14/2019 3:00:00**
Prep Batch **72479** Prep Code: **3010_W**

Reviewed/ Date: NS 2/25/2019
Initials/ Date: for
Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **Db-2-1** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72479 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-72479 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-002E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-002E-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-002E-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-003E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-004E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-005E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-006E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-007E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-008E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-009E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-010E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-011E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10560 | HYDROCHLORIC ACID |
| 10570 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/14/2019 8:05:30**
Prep End Date: **2/14/2019 3:00:00**
Reviewed/ Date: _____
Initials/ Date: _____
Prep Batch **72479** Prep Code: **3010_W** Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **Db-2-1** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-012E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-013E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-014E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10560 | HYDROCHLORIC ACID |
| 10570 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190219E**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Iron** | | | | | | | | |
| CalBlk | 02/19/2019 | 07:01:38 PM | Fe | 273.953 | -135 | 0.00 | mg/L | |
| Standard1 | 02/19/2019 | 07:05:24 PM | Fe | 273.953 | 324 | 0.0200 | mg/L | |
| Standard2 | 02/19/2019 | 07:09:39 PM | Fe | 273.953 | 1276 | 0.050 | mg/L | |
| Standard3 | 02/19/2019 | 07:13:56 PM | Fe | 273.953 | 33283 | 2.000 | mg/L | |
| Standard4 | 02/19/2019 | 07:18:12 PM | Fe | 273.953 | 83668 | 5.000 | mg/L | |
| Standard5 | 02/19/2019 | 07:22:31 PM | Fe | 273.953 | 125709 | 7.500 | mg/L | |
| Standard6 | 02/19/2019 | 07:26:49 PM | Fe | 273.953 | 163326 | 10.000 | mg/L | |
| Standard7 | 02/19/2019 | 07:31:09 PM | Fe | 273.953 | 324222 | 20.000 | mg/L | 0.9999 |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296866** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10051.362 | 20 | 10000 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **LLICV1** | SampType: **CCV1** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296868** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 21.279 | 20 | 20.00 | 0 | 106 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296881** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9989.214 | 20 | 10000 | 0 | 99.9 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296893** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9944.200 | 20 | 10000 | 0 | 99.4 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296905** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9989.542 | 20 | 10000 | 0 | 99.9 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296917** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10060.512 | 20 | 10000 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296930** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10008.134 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296942** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10006.673 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296954** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10007.198 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV8** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296966** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10010.736 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **CCV9** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296980** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9890.568 | 20 | 10000 | 0 | 98.9 | 90 | 110 | | | | |

| Sample ID **CCV10** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296989** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9819.989 | 20 | 10000 | 0 | 98.2 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296867** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 1.747 | 20 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296882** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 2.520 | 20 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296894** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 2.787 | 20 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296906** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 3.904 | 20 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/19/2019** | SeqNo: **3296918** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 5.299 | 20 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296931** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 4.971 | 20 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296943** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 4.953 | 20 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296955** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 6.332 | 20 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296967** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 6.164 | 20 | | | | | | | | | |

| Sample ID **CCB9** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296981** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 2.979 | 20 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **CCB10** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296990** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 3.499 | 20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132001**
Client ID: **ICSA** Batch ID: **R132001** TestNo: **EPA 6010B** Analysis Date: **2/19/2019** SeqNo: **3296869**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 483111.104 | 50 | 500000 | 0 | 96.6 | 80 | 120 | | | | |
| Calcium | 492506.541 | 500 | 500000 | 0 | 98.5 | 80 | 120 | | | | |
| Iron | 177757.679 | 20 | 200000 | 0 | 88.9 | 80 | 120 | | | | |
| Magnesium | 461217.797 | 100 | 500000 | 0 | 92.2 | 80 | 120 | | | | |

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132001**
Client ID: **ICSAB** Batch ID: **R132001** TestNo: **EPA 6010B** Analysis Date: **2/19/2019** SeqNo: **3296870**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 522568.507 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |
| Calcium | 528428.358 | 500 | 500000 | 0 | 106 | 80 | 120 | | | | |
| Iron | 177508.438 | 20 | 200000 | 0 | 88.8 | 80 | 120 | | | | |
| Magnesium | 498096.448 | 100 | 500000 | 0 | 99.6 | 80 | 120 | | | | |

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132001**
Client ID: **ICSA** Batch ID: **R132001** TestNo: **EPA 6010B** Analysis Date: **2/19/2019** SeqNo: **3296919**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 487725.963 | 50 | 500000 | 0 | 97.5 | 80 | 120 | | | | |
| Calcium | 498905.967 | 500 | 500000 | 0 | 99.8 | 80 | 120 | | | | |
| Iron | 177247.994 | 20 | 200000 | 0 | 88.6 | 80 | 120 | | | | |
| Magnesium | 463124.141 | 100 | 500000 | 0 | 92.6 | 80 | 120 | | | | |

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132001**
Client ID: **ICSAB** Batch ID: **R132001** TestNo: **EPA 6010B** Analysis Date: **2/19/2019** SeqNo: **3296920**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 528269.912 | 50 | 500000 | 0 | 106 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132001**
Client ID: **ICSAB** Batch ID: **R132001** TestNo: **EPA 6010B** Analysis Date: **2/19/2019** SeqNo: **3296920**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 536284.742 | 500 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Iron | 177139.490 | 20 | 200000 | 0 | 88.6 | 80 | 120 | | | | |
| Magnesium | 500999.113 | 100 | 500000 | 0 | 100 | 80 | 120 | | | | |

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132001**
Client ID: **ICSA** Batch ID: **R132001** TestNo: **EPA 6010B** Analysis Date: **2/20/2019** SeqNo: **3296968**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 487382.774 | 50 | 500000 | 0 | 97.5 | 80 | 120 | | | | |
| Calcium | 501397.152 | 500 | 500000 | 0 | 100 | 80 | 120 | | | | |
| Iron | 177072.078 | 20 | 200000 | 0 | 88.5 | 80 | 120 | | | | |
| Magnesium | 470885.539 | 100 | 500000 | 0 | 94.2 | 80 | 120 | | | | |

Sample ID **ICSAB3** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132001**
Client ID: **ICSAB** Batch ID: **R132001** TestNo: **EPA 6010B** Analysis Date: **2/20/2019** SeqNo: **3296969**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 526235.383 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |
| Calcium | 539557.871 | 500 | 500000 | 0 | 108 | 80 | 120 | | | | |
| Iron | 176360.723 | 20 | 200000 | 0 | 88.2 | 80 | 120 | | | | |
| Magnesium | 507162.806 | 100 | 500000 | 0 | 101 | 80 | 120 | | | | |

Sample ID **ICSA4** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132001**
Client ID: **ICSA** Batch ID: **R132001** TestNo: **EPA 6010B** Analysis Date: **2/20/2019** SeqNo: **3296991**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 482716.687 | 50 | 500000 | 0 | 96.5 | 80 | 120 | | | | |
| Calcium | 495080.495 | 500 | 500000 | 0 | 99.0 | 80 | 120 | | | | |
| Iron | 174218.103 | 20 | 200000 | 0 | 87.1 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296991** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Magnesium | 464025.085 | 100 | 500000 | 0 | 92.8 | 80 | 120 | | | | |

| Sample ID **ICSAB4** | SampType: **ICSAB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132001** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132001** | TestNo: **EPA 6010B** | | Analysis Date: **2/20/2019** | SeqNo: **3296992** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 521999.775 | 50 | 500000 | 0 | 104 | 80 | 120 | | | | |
| Calcium | 532032.004 | 500 | 500000 | 0 | 106 | 80 | 120 | | | | |
| Iron | 173659.179 | 20 | 200000 | 0 | 86.8 | 80 | 120 | | | | |
| Magnesium | 500888.413 | 100 | 500000 | 0 | 100 | 80 | 120 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190219E**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 1.0012 | 100.12 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1.058 | 105.85 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 1.0012 | 100.12 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 1 | 99.75 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 0.99 | 99.33 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 0.99 | 99.44 | 65-125 | PASS |
| Standard7 | ICAL | 1 | 0.98 | 98.27 | 65-125 | PASS |
| ICV | ICV | 1 | 0.99 | 98.88 | 65-125 | PASS |
| ICB | ICB | 1 | 1 | 99.54 | 65-125 | PASS |
| LLICV1 | CCV1 | 1 | 1 | 99.87 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 0.96 | 96.033 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 0.87 | 86.71 | 65-125 | PASS |
| CCV1 | CCV | 1 | 1.0073 | 100.73 | 65-125 | PASS |
| CCB1 | CCB | 1 | 1.007 | 100.7 | 65-125 | PASS |
| CCV2 | CCV | 1 | 1.0093 | 100.93 | 65-125 | PASS |
| CCB2 | CCB | 1 | 1.0093 | 100.93 | 65-125 | PASS |
| CCV3 | CCV | 1 | 1.0059 | 100.59 | 65-125 | PASS |
| CCB3 | CCB | 1 | 1.011 | 101.1 | 65-125 | PASS |
| CCV4 | CCV | 1 | 1.054 | 105.4 | 65-125 | PASS |
| CCB4 | CCB | 1 | 1.058 | 105.8 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 1.0064 | 100.64 | 65-125 | PASS |
| ICSAB2 | ICSAB | 1 | 0.91 | 91.23 | 65-125 | PASS |
| CCV5 | CCV | 1 | 1.066 | 106.58 | 65-125 | PASS |
| CCB5 | CCB | 1 | 1.073 | 107.34 | 65-125 | PASS |
| CCV6 | CCV | 1 | 1.07 | 106.96 | 65-125 | PASS |
| CCB6 | CCB | 1 | 1.074 | 107.43 | 65-125 | PASS |
| CCV7 | CCV | 1 | 1.071 | 107.06 | 65-125 | PASS |
| CCB7 | CCB | 1 | 1.079 | 107.88 | 65-125 | PASS |
| MB-72479 | MBLK | 1 | 1.069 | 106.88 | 65-125 | PASS |
| LCS-72479 | LCS | 1 | 1 | 99.74 | 65-125 | PASS |
| CCV8 | CCV | 1 | 1.052 | 105.25 | 65-125 | PASS |
| CCB8 | CCB | 1 | 1.065 | 106.55 | 65-125 | PASS |
| ICSA3 | ICSA | 1 | 1.0076 | 100.76 | 65-125 | PASS |
| ICSAB3 | ICSAB | 1 | 0.91 | 91.26 | 65-125 | PASS |
| N034129-002E | SAMP | 1 | 1.05 | 105.02 | 65-125 | PASS |
| N034129-002E | SAMP | 5 | 1.065 | 106.53 | 65-125 | PASS |
| N034129-002E-PS | PS | 1 | 1.08 | 107.97 | 65-125 | PASS |
| N034129-002E-MS | MS | 1 | 1.036 | 103.56 | 65-125 | PASS |
| N034129-002E-MSD | MSD | 1 | 1.038 | 103.83 | 65-125 | PASS |
| N034129-003E | SAMP | 1 | 1.072 | 107.16 | 65-125 | PASS |

**INTERNAL STANDARD: 190219E**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| N034129-004E | SAMP | 1 | 1.064 | 106.41 | 65-125 | PASS |
| N034129-005E | SAMP | 1 | 1.059 | 105.89 | 65-125 | PASS |
| N034129-006E | SAMP | 1 | 1.073 | 107.26 | 65-125 | PASS |
| N034129-007E | SAMP | 1 | 1.053 | 105.32 | 65-125 | PASS |
| CCV9 | CCV | 1 | 1.087 | 108.7 | 65-125 | PASS |
| CCB9 | CCB | 1 | 1.11 | 110.84 | 65-125 | PASS |
| N034129-008E | SAMP | 1 | 1.051 | 105.1 | 65-125 | PASS |
| N034129-009E | SAMP | 1 | 1.077 | 107.68 | 65-125 | PASS |
| N034129-010E | SAMP | 1 | 1.078 | 107.84 | 65-125 | PASS |
| N034129-011E | SAMP | 1 | 1.081 | 108.1 | 65-125 | PASS |
| N034129-012E | SAMP | 1 | 1.054 | 105.45 | 65-125 | PASS |
| N034129-013E | SAMP | 1 | 1.095 | 109.53 | 65-125 | PASS |
| N034129-014E | SAMP | 1 | 1.074 | 107.36 | 65-125 | PASS |
| CCV10 | CCV | 1 | 1.091 | 109.12 | 65-125 | PASS |
| CCB10 | CCB | 1 | 1.11 | 111.24 | 65-125 | PASS |
| ICSA4 | ICSA | 1 | 1.033 | 103.34 | 65-125 | PASS |
| ICSAB4 | ICSAB | 1 | 0.94 | 94.22 | 65-125 | PASS |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034129
Test Method: EPA 6010
Analysis Date: 2/19/2019

Matrix: Groundwater
Batch No.: 72479

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

| Sample ID | Analyte | Units | Calc Val | OQual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|
| N034129-002E DT 5X | Iron | ug/L | 153.2514 | NA | 144.4221 | 6.11% | 10 |

Note: NA - Not applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID **N034129-002E-PS** | SampType: **PS** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | | | RunNo: **132001** | | | | |
| Client ID: **ZZZZZZ** | Batch ID: **72479** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **2/20/2019** | | | SeqNo: **3296972** | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Iron | 124.864 | 20 | 100.0 | 144.4 | -19.6 | 80 | 120 | | | | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

**Acceptance Criteria:** MDL < spike < 10XMDL

| Analyte | Wavelength | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Spike Conc., mg/L | SD | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ag | 328.069 | 0.0033 | 0.0031 | 0.0033 | 0.0033 | 0.0031 | 0.0030 | 0.0047 | 0.003 | 0.00061604 | **0.001936** | 0.003 |
| Al | 237.312 | 0.0664 | 0.0603 | 0.0656 | 0.0650 | 0.0658 | 0.0660 | 0.0946 | 0.050 | 0.01254823 | **0.039439** | 0.050 |
| As | 188.983 | 0.0131 | 0.0089 | 0.0120 | 0.0089 | 0.0060 | 0.0102 | 0.0080 | 0.010 | 0.00223806 | **0.007034** | 0.010 |
| B | 249.679 | 0.1491 | 0.1267 | 0.1281 | 0.1467 | 0.1261 | 0.1195 | 0.1015 | 0.100 | 0.01801843 | **0.056632** | 0.100 |
| Ba | 233.529 | 0.0033 | 0.0031 | 0.0033 | 0.0031 | 0.0032 | 0.0030 | 0.0024 | 0.003 | 0.00033070 | **0.001039** | 0.003 |
| Be | 313.104 | 0.0012 | 0.0011 | 0.0012 | 0.0012 | 0.0011 | 0.0011 | 0.0011 | 0.001 | 0.00006873 | **0.000216** | 0.001 |
| Ca | 227.546 | 0.2381 | 0.2231 | 0.2559 | 0.2299 | 0.2194 | 0.2473 | 0.2691 | 0.200 | 0.02202408 | **0.069222** | 0.200 |
| Cd | 214.437 | 0.0031 | 0.0029 | 0.0031 | 0.0032 | 0.0031 | 0.0031 | 0.0025 | 0.003 | 0.00027049 | **0.000850** | 0.003 |
| Co | 228.614 | 0.0030 | 0.0028 | 0.0030 | 0.0031 | 0.0031 | 0.0031 | 0.0027 | 0.003 | 0.00014491 | **0.000455** | 0.003 |
| Cr | 267.719 | 0.0009 | 0.0008 | 0.0009 | 0.0012 | 0.0012 | 0.0013 | 0.0009 | 0.001 | 0.00017120 | **0.000538** | 0.001 |
| Fe | 273.953 | 0.0255 | 0.0226 | 0.0242 | 0.0255 | 0.0252 | 0.0248 | 0.0387 | 0.020 | 0.00552308 | **0.017359** | 0.020 |
| Mg | 279.079 | 0.1124 | 0.1052 | 0.1129 | 0.1315 | 0.1305 | 0.1314 | 0.1435 | 0.100 | 0.01532024 | **0.048152** | 0.100 |
| Mn | 257.607 | 0.0119 | 0.0111 | 0.0120 | 0.0122 | 0.0121 | 0.0122 | 0.0099 | 0.010 | 0.00098403 | **0.003093** | 0.010 |
| Mo | 202.03 | 0.0079 | 0.0068 | 0.0067 | 0.0065 | 0.0065 | 0.0062 | 0.0057 | 0.005 | 0.00083918 | **0.002638** | 0.005 |
| Ni | 231.604 | 0.0061 | 0.0056 | 0.0062 | 0.0060 | 0.0060 | 0.0062 | 0.0045 | 0.005 | 0.00062690 | **0.001970** | 0.005 |
| Pb | 220.351 | 0.0124 | 0.0117 | 0.0127 | 0.0115 | 0.0120 | 0.0118 | 0.0090 | 0.010 | 0.00126325 | **0.003970** | 0.010 |
| Sb | 206.836 | 0.0102 | 0.0095 | 0.0104 | 0.0112 | 0.0117 | 0.0111 | 0.0080 | 0.010 | 0.00117407 | **0.003690** | 0.010 |
| Se | 196.025 | 0.0102 | 0.0087 | 0.0114 | 0.0136 | 0.0144 | 0.0136 | 0.0075 | 0.010 | 0.00251341 | **0.007900** | 0.010 |
| Sn | 189.927 | 0.0095 | 0.0084 | 0.0090 | 0.0124 | 0.0126 | 0.0129 | 0.0099 | 0.010 | 0.00175765 | **0.005524** | 0.010 |
| Ti | 334.943 | 0.0114 | 0.0106 | 0.0115 | 0.0115 | 0.0115 | 0.0115 | 0.0098 | 0.010 | 0.00074093 | **0.002329** | 0.010 |
| Tl | 190.794 | 0.0170 | 0.0150 | 0.0165 | 0.0171 | 0.0180 | 0.0168 | 0.0151 | 0.015 | 0.00116288 | **0.003655** | 0.015 |
| V | 292.404 | 0.0025 | 0.0024 | 0.0025 | 0.0032 | 0.0032 | 0.0032 | 0.0027 | 0.003 | 0.00038496 | **0.001210** | 0.003 |
| Zn | 206.201 | 0.0109 | 0.0100 | 0.0107 | 0.0125 | 0.0124 | 0.0124 | 0.0095 | 0.010 | 0.00123731 | **0.003889** | 0.010 |

## METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

| Analyte | ICP-02 MDL | MDL Blank | Higher MDL | LOD | PQL |
|---|---|---|---|---|---|
| Ag | 0.001936 | 0.002362 | 0.002362 | 0.002 | 0.003 |
| Al | 0.039439 | 0.039859 | 0.039859 | 0.04 | 0.5 |
| As | 0.007034 | 0.007672 | 0.007672 | 0.0075 | 0.01 |
| B | 0.056632 | 0.074419 | 0.074419 | 0.075 | 0.1 |
| Ba | 0.001039 | 0.000433 | 0.001039 | 0.001 | 0.003 |
| Be | 0.000216 | 0.000311 | 0.000311 | 0.0005 | 0.003 |
| Ca | 0.069222 | 0.084832 | 0.084832 | 0.1 | 0.5 |
| Cd | 0.000850 | 0.000592 | 0.000850 | 0.001 | 0.003 |
| Co | 0.000455 | 0.001902 | 0.001902 | 0.001 | 0.003 |
| Cr | 0.000538 | 0.000527 | 0.000538 | 0.001 | 0.003 |
| Fe | 0.017359 | 0.017751 | 0.017751 | 0.018 | 0.1 |
| Mg | 0.048152 | 0.043017 | 0.048152 | 0.05 | 0.1 |
| Mn | 0.003093 | 0.000782 | 0.003093 | 0.005 | 0.5 |
| Mo | 0.002638 | 0.002482 | 0.002638 | 0.0025 | 0.005 |
| Ni | 0.001970 | 0.000822 | 0.001970 | 0.0025 | 0.005 |
| Pb | 0.003970 | 0.002762 | 0.003970 | 0.005 | 0.005 |
| Sb | 0.003690 | 0.004504 | 0.004504 | 0.005 | 0.01 |
| Se | 0.007900 | 0.008549 | 0.008549 | 0.008 | 0.01 |
| Sn | 0.005524 | 0.003415 | 0.005524 | 0.0075 | 0.05 |
| Ti | 0.002329 | 0.001493 | 0.002329 | 0.005 | 0.05 |
| Tl | 0.003655 | 0.005987 | 0.005987 | 0.005 | 0.015 |
| V | 0.001210 | 0.000749 | 0.001210 | 0.002 | 0.003 |
| Zn | 0.003889 | 0.007683 | 0.007683 | 0.008 | 0.01 |

# EPA 6020
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72499
**ASSET #:** N034129

**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 2/28/2019

**Method:**

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | X | | | X | | |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

% Rec of Ba in N034128-001A PS/MS/MSD failed, low bias. However, LCS passed criteria.
% Rec of Mn in N034128-001A PS/MS/MSD failed, high bias. However, LCS passed criteria.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: 3/5/2019

2nd Level Reviewer [signature] Date: 3/5/2019

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA 6020
**TEST NAME:** Heavy Metals by ICP-MS
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Barium concentration, in ug/L , in the original sample as follows:

Barium , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N034129-002D** , the concentration in ug/L is calculated as follows:

Barium , ug/L = 113.126 * 1 *(25/25)

Barium , ug/L = 113.126

Reporting results in two significant figures,

**Barium , ug/L = 110**

# % RSD SUMMARY

**PERCENT RSD SUMMARY: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 137 Ba [3] | | | | 52 Cr [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.1 | 16.073 | 15 | <PQL | 0.094 | 8.41 | 15 | PASS |
| Std2-0.5/5 ppb | ICAL | 1 | 0.53 | 2.13 | 15 | PASS | 0.51 | 5.35 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 5.11 | 1.055 | 15 | PASS | 5.12 | 1.93 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.26 | 0.76 | 15 | PASS | 10.29 | 2.5 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.7 | 0.55 | 15 | PASS | 20.57 | 0.39 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.48 | 0.51 | 15 | PASS | 40.7 | 0.8 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.24 | 0.4 | 15 | PASS | 101.5 | 0.53 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.7 | 0.74 | 15 | PASS | 199.037 | 0.45 | 15 | PASS |
| ICV | ICV | 1 | 10.27 | 0.6 | 15 | PASS | 10.43 | 0.7 | 15 | PASS |
| ICB | ICB | 1 | 0.00083 | 1116.38 | 15 | <PQL | 0.078 | 32.88 | 15 | <PQL |
| LLICV | CCV1 | 1 | 1.015 | 6.024 | 20 | PASS | 1 | 2.066 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 17.96 | 0.59 | 15 | PASS | 22.24 | 0.63 | 15 | PASS |
| LLICV | CCV1 | 1 | 1.04 | 0.97 | 20 | PASS | 1.00073 | 1.87 | 20 | PASS |
| CCV1 | CCV | 1 | 21.34 | 0.8 | 15 | PASS | 20.27 | 0.95 | 15 | PASS |
| CCB1 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.011 | 52.53 | 15 | <PQL |
| MB-72499 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LCS-72499 | LCS | 1 | 10.68 | 0.67 | 15 | PASS | 9.91 | 1.3 | 15 | PASS |
| N034128-001A | SAMP | 1 | 117.52 | 1.28 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034128-001A | SAMP | 5 | 25.21 | 1.54 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034128-001A-PS | PS | 1 | 121.56 | 0.4 | 15 | PASS | 9.29 | 0.26 | 15 | PASS |
| N034128-001A-MS | MS | 1 | 121.96 | 0.74 | 15 | PASS | 9.43 | 1.26 | 15 | PASS |
| N034128-001A-MSD | MSD | 1 | 120.39 | 0.44 | 15 | PASS | 9.38 | 1.22 | 15 | PASS |
| CCV2 | CCV | 1 | 21.58 | 0.61 | 15 | PASS | 21.52 | 1.16 | 15 | PASS |
| CCB2 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.021 | 11.75 | 15 | PASS |
| N034128-001A | SAMP | 1 | 115.87 | 0.73 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034129-002D | SAMP | 1 | 113.13 | 0.47 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034129-003D | SAMP | 1 | 112.48 | 1.11 | 15 | PASS | 0.14 | 2.46 | 15 | PASS |
| N034129-004D | SAMP | 1 | 113.87 | 0.22 | 15 | PASS | 0.17 | 13.38 | 15 | PASS |
| N034129-005D | SAMP | 1 | 118.3 | 0.3 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034129-006D | SAMP | 1 | 116.68 | 0.6 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034129-007D | SAMP | 1 | 117.4 | 0.21 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034129-008D | SAMP | 1 | 117.59 | 0.64 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV3 | CCV | 1 | 21.78 | 0.73 | 15 | PASS | 20.59 | 1.033 | 15 | PASS |
| CCB3 | CCB | 1 | 0.014 | 23.0044 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 19.3 | 0.12 | 15 | PASS | 22.28 | 1.61 | 15 | PASS |
| N034129-002D | SAMP | 1 | 117.18 | 1.69 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034129-007D | SAMP | 1 | 117.65 | 0.28 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034129-009D | SAMP | 1 | 123.61 | 7.88 | 15 | PASS | <0.000 | N/A | 15 | <PQL |

**PERCENT RSD SUMMARY: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 137 Ba [3] | | | | 52 Cr [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034129-007D | SAMP | 1 | 117.72 | 0.63 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034129-010D | SAMP | 1 | 116.52 | 0.46 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034129-011D | SAMP | 1 | 113.36 | 0.68 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034129-012D | SAMP | 1 | 118.041 | 0.72 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034129-013D | SAMP | 1 | 119.69 | 0.14 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034129-014D | SAMP | 1 | 115.59 | 0.75 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034128-001A | SAMP | 10 | 12.88 | 0.79 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV4 | CCV | 1 | 21.85 | 1.28 | 15 | PASS | 19.62 | 0.7 | 15 | PASS |
| CCB4 | CCB | 1 | 0.025 | 14.61 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034129-013D | SAMP | 1 | 119.078 | 0.41 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034129-014D | SAMP | 1 | 114.2 | 0.42 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034129-013D | SAMP | 1 | 119.47 | 0.31 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034128-001A | SAMP | 50 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034128-001A-PS | PS | 10 | 14.24 | 1.17 | 15 | PASS | 1.0041 | 3.39 | 15 | PASS |
| N034128-001A-MS | MS | 10 | 14.34 | 0.98 | 15 | PASS | 0.97 | 4.88 | 15 | PASS |
| N034128-001A-MSD | MSD | 10 | 14.57 | 0.12 | 15 | PASS | 1.044 | 2.64 | 15 | PASS |
| CCV5 | CCV | 1 | 21.7 | 1.26 | 15 | PASS | 20.16 | 1.12 | 15 | PASS |
| CCB5 | CCB | 1 | 0.0089 | 100.46 | 15 | <PQL | 0.045 | 11.2 | 15 | PASS |
| N034129-013D | SAMP | 1 | 119.67 | 0.43 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV6 | CCV | 1 | 21.44 | 1.17 | 15 | PASS | 20.2 | 1.31 | 15 | PASS |
| CCB6 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.055 | 26.55 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 19.83 | 0.37 | 15 | PASS | 21.46 | 1.42 | 15 | PASS |
| CCV7 | CCV | 1 | 22.24 | 0.9 | 15 | PASS | 20.14 | 0.82 | 15 | PASS |
| CCB7 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.062 | 10.82 | 15 | PASS |
| CCV8 | CCV | 1 | 22.33 | 1.1 | 15 | PASS | 20.28 | 1.22 | 15 | PASS |
| CCB8 | CCB | 1 | 0.0028 | 282.44 | 15 | <PQL | 0.078 | 26.93 | 15 | <PQL |
| CCV9 | CCV | 1 | 21.97 | 0.9 | 15 | PASS | 19.82 | 0.55 | 15 | PASS |
| CCB9 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA4 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 21.64 | 0.24 | 15 | PASS | 21.45 | 0.3 | 15 | PASS |
| CCV10 | CCV | 1 | 22.28 | 1.53 | 15 | PASS | 19.73 | 0.35 | 15 | PASS |
| CCB10 | CCB | 1 | 0.032 | 14.77 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV11 | CCV | 1 | 22.39 | 0.46 | 15 | PASS | 19.73 | 0.91 | 15 | PASS |
| CCB11 | CCB | 1 | 0.014 | 19.85 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV12 | CCV | 1 | 22.98 | 0.96 | 15 | PASS | 20.12 | 1.081 | 15 | PASS |
| CCB12 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.003 | 226.84 | 15 | <PQL |
| CCV13 | CCV | 1 | 23.038 | 1.68 | 15 | PASS | 19.97 | 0.84 | 15 | PASS |
| CCB13 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA5 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB5 | ICSAB | 1 | 23.69 | 1.62 | 15 | PASS | 21.56 | 0.35 | 15 | PASS |

**PERCENT RSD SUMMARY: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 55 Mn [2] | | | | 75 As [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.13 | 15.76 | 15 | <PQL | 0.088 | 30.84 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.55 | 10.12 | 15 | PASS | 0.46 | 7.91 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 5.16 | 1.76 | 15 | PASS | 4.98 | 2.9 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.44 | 2.11 | 15 | PASS | 10.33 | 1.062 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.44 | 0.58 | 15 | PASS | 20.82 | 1.6 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.48 | 0.93 | 15 | PASS | 41.65 | 1.36 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.98 | 0.26 | 15 | PASS | 100.46 | 0.36 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.35 | 0.36 | 15 | PASS | 199.34 | 0.28 | 15 | PASS |
| ICV | ICV | 1 | 104.71 | 1.64 | 15 | PASS | 9.98 | 1.79 | 15 | PASS |
| ICB | ICB | 1 | 0.0068 | 58.27 | 15 | <PQL | 0.0066 | 302.67 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.5 | 5.73 | 20 | PASS | 0.093 | 19.17 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 19.58 | 0.8 | 15 | PASS | 22.17 | 0.66 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.51 | 5.96 | 20 | PASS | 0.11 | 16.77 | 20 | PASS |
| CCV1 | CCV | 1 | 20.67 | 1.64 | 15 | PASS | 20.36 | 0.98 | 15 | PASS |
| CCB1 | CCB | 1 | 0.0081 | 16.98 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| MB-72499 | MBLK | 1 | 0.005 | 182.78 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LCS-72499 | LCS | 1 | 103.57 | 1.0022 | 15 | PASS | 10.2 | 1.25 | 15 | PASS |
| N034128-001A | SAMP | 1 | 892 | 1.18 | 15 | PASS | 0.79 | 4.44 | 15 | PASS |
| N034128-001A | SAMP | 5 | 194.76 | 0.3 | 15 | PASS | 0.1 | 19.46 | 15 | NR! |
| N034128-001A-PS | PS | 1 | 940.17 | 0.99 | 15 | PASS | 11.42 | 1.93 | 15 | PASS |
| N034128-001A-MS | MS | 1 | 935.74 | 0.98 | 15 | PASS | 11.59 | 1.57 | 15 | PASS |
| N034128-001A-MSD | MSD | 1 | 932.91 | 0.36 | 15 | PASS | 11.32 | 0.56 | 15 | PASS |
| CCV2 | CCV | 1 | 20.64 | 1.48 | 15 | PASS | 20.095 | 1.93 | 15 | PASS |
| CCB2 | CCB | 1 | 0.0045 | 201.79 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034128-001A | SAMP | 1 | 872.63 | 2.45 | 15 | PASS | 0.68 | 5.75 | 15 | PASS |
| N034129-002D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.21 | 5.63 | 15 | PASS |
| N034129-003D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.17 | 7.39 | 15 | PASS |
| N034129-004D | SAMP | 1 | 2.91 | 2.48 | 15 | PASS | 2.33 | 5.8 | 15 | PASS |
| N034129-005D | SAMP | 1 | 1.78 | 2.68 | 15 | PASS | 2.25 | 0.55 | 15 | PASS |
| N034129-006D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.22 | 1.49 | 15 | PASS |
| N034129-007D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.1 | 2.6 | 15 | PASS |
| N034129-008D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.13 | 0.69 | 15 | PASS |
| CCV3 | CCV | 1 | 19.9 | 2.054 | 15 | PASS | 20.085 | 0.94 | 15 | PASS |
| CCB3 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.019 | 65.78 | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 20.74 | 0.56 | 15 | PASS | 22.0012 | 3.57 | 15 | PASS |
| N034129-002D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.19 | 9.27 | 15 | PASS |
| N034129-007D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.23 | 2.54 | 15 | PASS |
| N034129-009D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.16 | 0.77 | 15 | PASS |

**PERCENT RSD SUMMARY: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 55 Mn [2] | | | | 75 As [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034129-007D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.11 | 5.53 | 15 | PASS |
| N034129-010D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.043 | 1.029 | 15 | PASS |
| N034129-011D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.058 | 7.71 | 15 | PASS |
| N034129-012D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.14 | 3.47 | 15 | PASS |
| N034129-013D | SAMP | 1 | 1.95 | 12.96 | 15 | PASS | 2.24 | 6.54 | 15 | PASS |
| N034129-014D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.12 | 5.35 | 15 | PASS |
| N034128-001A | SAMP | 10 | 96.5 | 0.55 | 15 | PASS | 0.037 | 89.09 | 15 | <PQL |
| CCV4 | CCV | 1 | 19.75 | 1.12 | 15 | PASS | 19.51 | 0.54 | 15 | PASS |
| CCB4 | CCB | 1 | 0.0017 | 310.41 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034129-013D | SAMP | 1 | 1.82 | 6.15 | 15 | PASS | 2.15 | 3.33 | 15 | PASS |
| N034129-014D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.12 | 2.95 | 15 | PASS |
| N034129-013D | SAMP | 1 | 1.83 | 8.47 | 15 | PASS | 2.2 | 1.15 | 15 | PASS |
| N034128-001A | SAMP | 50 | 19.53 | 1.2 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034128-001A-PS | PS | 10 | 110.22 | 1.14 | 15 | PASS | 1.12 | 5.57 | 15 | PASS |
| N034128-001A-MS | MS | 10 | 109.41 | 0.93 | 15 | PASS | 1.11 | 3.19 | 15 | PASS |
| N034128-001A-MSD | MSD | 10 | 112.58 | 0.96 | 15 | PASS | 1.16 | 1.62 | 15 | PASS |
| CCV5 | CCV | 1 | 19.79 | 0.61 | 15 | PASS | 18.7 | 1.29 | 15 | PASS |
| CCB5 | CCB | 1 | 0.036 | 45.34 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034129-013D | SAMP | 1 | 1.91 | 1.88 | 15 | PASS | 2.32 | 2.66 | 15 | PASS |
| CCV6 | CCV | 1 | 19.7 | 1.94 | 15 | PASS | 18.74 | 0.81 | 15 | PASS |
| CCB6 | CCB | 1 | 0.027 | 30.65 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 20.42 | 0.61 | 15 | PASS | 22.54 | 2.78 | 15 | PASS |
| CCV7 | CCV | 1 | 19.86 | 1.48 | 15 | PASS | 19.32 | 0.54 | 15 | PASS |
| CCB7 | CCB | 1 | 0.029 | 38.11 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV8 | CCV | 1 | 20.11 | 1.15 | 15 | PASS | 19.62 | 2.51 | 15 | PASS |
| CCB8 | CCB | 1 | 0.037 | 6.14 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV9 | CCV | 1 | 19.87 | 1.23 | 15 | PASS | 19.32 | 1.75 | 15 | PASS |
| CCB9 | CCB | 1 | 0.029 | 43.92 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA4 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 21.19 | 1.13 | 15 | PASS | 21.95 | 1.75 | 15 | PASS |
| CCV10 | CCV | 1 | 20.4 | 0.95 | 15 | PASS | 19.35 | 1.37 | 15 | PASS |
| CCB10 | CCB | 1 | 0.18 | 8.39 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV11 | CCV | 1 | 20.39 | 1.43 | 15 | PASS | 19.44 | 2.81 | 15 | PASS |
| CCB11 | CCB | 1 | 0.054 | 39.023 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV12 | CCV | 1 | 19.93 | 2.27 | 15 | PASS | 19.62 | 0.34 | 15 | PASS |
| CCB12 | CCB | 1 | 0.048 | 25.85 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV13 | CCV | 1 | 20.071 | 0.48 | 15 | PASS | 19.17 | 2.26 | 15 | PASS |
| CCB13 | CCB | 1 | 0.045 | 13.7 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| ICSA5 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB5 | ICSAB | 1 | 21.45 | 1.34 | 15 | PASS | 21.6 | 1.2 | 15 | PASS |

**PERCENT RSD SUMMARY: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.072 | 89.46 | 15 | <PQL | 0.066 | 34.75 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.49 | 27.75 | 15 | <PQL | 0.39 | 5.47 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 4.9 | 11.32 | 15 | PASS | 4.28 | 1.63 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 9.97 | 2.67 | 15 | PASS | 9.13 | 1.4 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20 | 2.44 | 15 | PASS | 19.018 | 1.8 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 39.62 | 3.98 | 15 | PASS | 38.98 | 0.5 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.16 | 2.34 | 15 | PASS | 100.73 | 1.26 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 196.24 | 0.32 | 15 | PASS | 205.32 | 0.23 | 15 | PASS |
| ICV | ICV | 1 | 9.24 | 3.84 | 15 | PASS | 9.23 | 2.38 | 15 | PASS |
| ICB | ICB | 1 | 0.009 | 524.27 | 15 | <PQL | 0.16 | 7.73 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.61 | 24.71 | 20 | NR! | 0.47 | 5.68 | 20 | PASS |
| ICSA1 | ICSA | 1 | 0.0044 | 944.12 | 15 | <PQL | 0.11 | 45.075 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 21.46 | 4.1 | 15 | PASS | 22.049 | 0.5 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.45 | 30.38 | 20 | <PQL | 0.77 | 5.3 | 20 | PASS |
| CCV1 | CCV | 1 | 19.34 | 7.96 | 15 | PASS | 18.48 | 0.41 | 15 | PASS |
| CCB1 | CCB | 1 | 0.06 | 145.43 | 15 | <PQL | 0.17 | 27.92 | 15 | <PQL |
| MB-72499 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | 0.015 | 213.59 | 15 | <PQL |
| LCS-72499 | LCS | 1 | 9.94 | 3.2 | 15 | PASS | 9.18 | 1.36 | 15 | PASS |
| N034128-001A | SAMP | 1 | 0.75 | 41.42 | 15 | NR! | 53.6 | 0.8 | 15 | PASS |
| N034128-001A | SAMP | 5 | 0.052 | 91.58 | 15 | <PQL | 10.44 | 1.14 | 15 | PASS |
| N034128-001A-PS | PS | 1 | 11.13 | 4.41 | 15 | PASS | 63.73 | 1.17 | 15 | PASS |
| N034128-001A-MS | MS | 1 | 11.96 | 10.25 | 15 | PASS | 63.23 | 0.96 | 15 | PASS |
| N034128-001A-MSD | MSD | 1 | 11.093 | 7.99 | 15 | PASS | 64.096 | 1.19 | 15 | PASS |
| CCV2 | CCV | 1 | 20.79 | 4.49 | 15 | PASS | 19.061 | 1.17 | 15 | PASS |
| CCB2 | CCB | 1 | 0.016 | 130.48 | 15 | <PQL | 0.042 | 19.77 | 15 | <PQL |
| N034128-001A | SAMP | 1 | 0.7 | 11.68 | 15 | PASS | 53.35 | 0.7 | 15 | PASS |
| N034129-002D | SAMP | 1 | 1.48 | 16.094 | 15 | NR! | 4.5 | 1.81 | 15 | PASS |
| N034129-003D | SAMP | 1 | 1.81 | 12.48 | 15 | PASS | 4.97 | 1.36 | 15 | PASS |
| N034129-004D | SAMP | 1 | 1.96 | 12.1 | 15 | PASS | 4.9 | 1.65 | 15 | PASS |
| N034129-005D | SAMP | 1 | 1.72 | 6.026 | 15 | PASS | 5.23 | 0.71 | 15 | PASS |
| N034129-006D | SAMP | 1 | 1.68 | 5.23 | 15 | PASS | 5.017 | 1.16 | 15 | PASS |
| N034129-007D | SAMP | 1 | 1.78 | 17.45 | 15 | NR! | 5.0045 | 2.027 | 15 | PASS |
| N034129-008D | SAMP | 1 | 1.71 | 7.6 | 15 | PASS | 4.98 | 0.27 | 15 | PASS |
| CCV3 | CCV | 1 | 19.43 | 3.4 | 15 | PASS | 18.68 | 1.22 | 15 | PASS |
| CCB3 | CCB | 1 | 0.054 | 107.5 | 15 | <PQL | 0.25 | 20.25 | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0.023 | 206.45 | 15 | <PQL | 0.087 | 14.84 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | 20.83 | 4.54 | 15 | PASS | 22.37 | 1.17 | 15 | PASS |
| N034129-002D | SAMP | 1 | 1.69 | 6.23 | 15 | PASS | 5.18 | 2.31 | 15 | PASS |
| N034129-007D | SAMP | 1 | 1.77 | 18.4 | 15 | NR! | 5.27 | 2.45 | 15 | PASS |
| N034129-009D | SAMP | 1 | 1.54 | 13.13 | 15 | PASS | 5.12 | 1.63 | 15 | PASS |

**PERCENT RSD SUMMARY: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034129-007D | SAMP | 1 | 1.79 | 5.34 | 15 | PASS | 5.11 | 0.92 | 15 | PASS |
| N034129-010D | SAMP | 1 | 1.5 | 7.72 | 15 | PASS | 5.026 | 2.51 | 15 | PASS |
| N034129-011D | SAMP | 1 | 1.57 | 12.23 | 15 | PASS | 4.68 | 2.49 | 15 | PASS |
| N034129-012D | SAMP | 1 | 1.77 | 11.64 | 15 | PASS | 5.047 | 1.8 | 15 | PASS |
| N034129-013D | SAMP | 1 | 1.68 | 21.89 | 15 | NR! | 5.26 | 2.066 | 15 | PASS |
| N034129-014D | SAMP | 1 | 1.41 | 17.53 | 15 | NR! | 4.81 | 2.55 | 15 | PASS |
| N034128-001A | SAMP | 10 | <0.000 | N/A | 15 | <PQL | 4.61 | 0.66 | 15 | PASS |
| CCV4 | CCV | 1 | 19.63 | 2.035 | 15 | PASS | 18.1 | 1.059 | 15 | PASS |
| CCB4 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034129-013D | SAMP | 1 | 1.69 | 23.28 | 15 | NR! | 5.14 | 0.99 | 15 | PASS |
| N034129-014D | SAMP | 1 | 1.69 | 11.91 | 15 | PASS | 4.73 | 0.7 | 15 | PASS |
| N034129-013D | SAMP | 1 | 1.9 | 34.75 | 15 | NR! | 5.15 | 2.65 | 15 | PASS |
| N034128-001A | SAMP | 50 | <0.000 | N/A | 15 | <PQL | 0.84 | 4.086 | 15 | PASS |
| N034128-001A-PS | PS | 10 | 1.028 | 11.19 | 15 | PASS | 5.81 | 3.55 | 15 | PASS |
| N034128-001A-MS | MS | 10 | 1.028 | 14.056 | 15 | PASS | 6.075 | 3.8 | 15 | PASS |
| N034128-001A-MSD | MSD | 10 | 1.28 | 14.35 | 15 | PASS | 6.29 | 0.39 | 15 | PASS |
| CCV5 | CCV | 1 | 19.41 | 2.13 | 15 | PASS | 19.0075 | 1.06 | 15 | PASS |
| CCB5 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.00063 | 5493.51 | 15 | <PQL |
| N034129-013D | SAMP | 1 | 1.84 | 13.38 | 15 | PASS | 5.32 | 1.019 | 15 | PASS |
| CCV6 | CCV | 1 | 18.74 | 0.28 | 15 | PASS | 18.99 | 1.14 | 15 | PASS |
| CCB6 | CCB | 1 | <0.000 | 0 | 15 | PASS | 0.022 | 30.3 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.12 | 38.93 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 20.67 | 0.59 | 15 | PASS | 22.22 | 0.59 | 15 | PASS |
| CCV7 | CCV | 1 | 19.48 | 4.16 | 15 | PASS | 19.45 | 0.76 | 15 | PASS |
| CCB7 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.07 | 40.77 | 15 | <PQL |
| CCV8 | CCV | 1 | 19.67 | 1.86 | 15 | PASS | 20.015 | 0.6 | 15 | PASS |
| CCB8 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.1 | 31.77 | 15 | <PQL |
| CCV9 | CCV | 1 | 19.23 | 0.68 | 15 | PASS | 19 | 0.51 | 15 | PASS |
| CCB9 | CCB | 1 | 0.019 | 459.36 | 15 | <PQL | 0.1 | 31.081 | 15 | <PQL |
| ICSA4 | ICSA | 1 | 0.025 | 208.36 | 15 | <PQL | 0.17 | 23.05 | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 21.58 | 2.85 | 15 | PASS | 22.5 | 0.25 | 15 | PASS |
| CCV10 | CCV | 1 | 19.22 | 8.014 | 15 | PASS | 18.47 | 1.87 | 15 | PASS |
| CCB10 | CCB | 1 | 0.051 | 68.29 | 15 | <PQL | 0.27 | 13.32 | 15 | PASS |
| CCV11 | CCV | 1 | 19.42 | 1.79 | 15 | PASS | 18.27 | 0.22 | 15 | PASS |
| CCB11 | CCB | 1 | 0.09 | 58.74 | 15 | <PQL | 0.23 | 16.77 | 15 | <PQL |
| CCV12 | CCV | 1 | 18.65 | 4.43 | 15 | PASS | 19.55 | 2.9 | 15 | PASS |
| CCB12 | CCB | 1 | 0.027 | 287.98 | 15 | <PQL | 0.35 | 18.72 | 15 | <PQL |
| CCV13 | CCV | 1 | 20.042 | 3.66 | 15 | PASS | 19.43 | 1.18 | 15 | PASS |
| CCB13 | CCB | 1 | 0.018 | 95.95 | 15 | <PQL | 0.42 | 5.29 | 15 | PASS |
| ICSA5 | ICSA | 1 | 0.06 | 66.88 | 15 | <PQL | 0.23 | 35.58 | 15 | <PQL |
| ICSAB5 | ICSAB | 1 | 20.28 | 1.75 | 15 | PASS | 23.022 | 0.46 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190228A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0228001.D | RINSE | RINSE | 1 | 02/28/19 1:33 PM |
| A0228002.D | Cal Blank | IBLK | 1 | 02/28/19 1:38 PM |
| A0228003.D | Std1-0.1/1 ppb | ICAL | 1 | 02/28/19 1:44 PM |
| A0228004.D | Std2-0.5/5 ppb | ICAL | 1 | 02/28/19 1:50 PM |
| A0228005.D | Std3-5/50 ppb | ICAL | 1 | 02/28/19 1:56 PM |
| A0228006.D | Std4-10/100 ppb | ICAL | 1 | 02/28/19 2:02 PM |
| A0228007.D | Std5-20/200 ppb | ICAL | 1 | 02/28/19 2:08 PM |
| A0228008.D | Std6-40/400 ppb | ICAL | 1 | 02/28/19 2:14 PM |
| A0228009.D | Std7-100/1000 ppb | ICAL | 1 | 02/28/19 2:20 PM |
| A0228010.D | Std8-200/2000 ppb | ICAL | 1 | 02/28/19 2:26 PM |
| A0228011.D | ICV | ICV | 1 | 02/28/19 2:34 PM |
| A0228012.D | ICB | ICB | 1 | 02/28/19 2:40 PM |
| A0228013.D | LLICV | CCV1 | 1 | 02/28/19 2:46 PM |
| A0228014.D | ICSA1 | ICSA | 1 | 02/28/19 2:52 PM |
| A0228015.D | ICSAB1 | ICSAB | 1 | 02/28/19 3:00 PM |
| A0228016.D | LLICV | CCV1 | 1 | 02/28/19 3:06 PM |
| A0228017.D | N034123-013B | SAMP | 1 | 02/28/19 3:12 PM |
| A0228018.D | MB-72618 | MBLK | 1 | 02/28/19 3:17 PM |
| A0228019.D | LCS-72618 | LCS | 1 | 02/28/19 3:23 PM |
| A0228020.D | N034197-002A | SAMP | 1 | 02/28/19 3:29 PM |
| A0228021.D | N034197-002A | SAMP | 5 | 02/28/19 3:35 PM |
| A0228022.D | N034197-002A-PS | PS | 1 | 02/28/19 3:41 PM |
| A0228023.D | N034197-002A-MS | MS | 1 | 02/28/19 3:47 PM |
| A0228024.D | N034197-002A-MSD | MSD | 1 | 02/28/19 3:53 PM |
| A0228025.D | N034238-002A | SAMP | 1 | 02/28/19 3:59 PM |
| A0228026.D | N034108-001A | SAMP | 25 | 02/28/19 4:05 PM |
| A0228027.D | CCV1 | CCV | 1 | 02/28/19 4:10 PM |
| A0228028.D | CCB1 | CCB | 1 | 02/28/19 4:16 PM |
| A0228029.D | N034108-001A | SAMP | 5 | 02/28/19 4:22 PM |
| A0228030.D | MB-72499 | MBLK | 1 | 02/28/19 4:28 PM |
| A0228031.D | LCS-72499 | LCS | 1 | 02/28/19 4:34 PM |
| A0228032.D | N034128-001A | SAMP | 1 | 02/28/19 4:40 PM |
| A0228033.D | N034128-001A | SAMP | 5 | 02/28/19 4:46 PM |
| A0228034.D | N034128-001A-PS | PS | 1 | 02/28/19 4:52 PM |
| A0228035.D | N034128-001A-MS | MS | 1 | 02/28/19 4:58 PM |
| A0228036.D | N034128-001A-MSD | MSD | 1 | 02/28/19 5:03 PM |
| A0228037.D | N034197-002A-PS | PS | 1 | 02/28/19 5:08 PM |
| A0228038.D | N034197-002A-MS | MS | 1 | 02/28/19 5:14 PM |
| A0228039.D | CCV2 | CCV | 1 | 02/28/19 5:20 PM |
| A0228040.D | CCB2 | CCB | 1 | 02/28/19 5:27 PM |
| A0228041.D | N034197-002A-MSD | MSD | 1 | 02/28/19 5:32 PM |
| A0228042.D | N034238-002A | SAMP | 1 | 02/28/19 5:39 PM |

**INJECTION LOG: 190228A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0228043.D | N034128-001A | SAMP | 1 | 02/28/19 5:45 PM |
| A0228044.D | N034129-002D | SAMP | 1 | 02/28/19 5:52 PM |
| A0228045.D | N034129-003D | SAMP | 1 | 02/28/19 5:58 PM |
| A0228046.D | N034129-004D | SAMP | 1 | 02/28/19 6:05 PM |
| A0228047.D | N034129-005D | SAMP | 1 | 02/28/19 6:11 PM |
| A0228048.D | N034129-006D | SAMP | 1 | 02/28/19 6:17 PM |
| A0228049.D | N034129-007D | SAMP | 1 | 02/28/19 6:23 PM |
| A0228050.D | N034129-008D | SAMP | 1 | 02/28/19 6:29 PM |
| A0228051.D | CCV3 | CCV | 1 | 02/28/19 6:37 PM |
| A0228052.D | CCB3 | CCB | 1 | 02/28/19 6:41 PM |
| A0228053.D | ICSA2 | ICSA | 1 | 02/28/19 6:47 PM |
| A0228054.D | ICSAB2 | ICSAB | 1 | 02/28/19 6:54 PM |
| A0228055.D | N034129-002D | SAMP | 1 | 02/28/19 7:00 PM |
| A0228056.D | N034129-007D | SAMP | 1 | 02/28/19 7:06 PM |
| A0228057.D | N034129-009D | SAMP | 1 | 02/28/19 7:12 PM |
| A0228058.D | N034129-007D | SAMP | 1 | 02/28/19 7:18 PM |
| A0228059.D | N034129-010D | SAMP | 1 | 02/28/19 7:24 PM |
| A0228060.D | N034129-011D | SAMP | 1 | 02/28/19 7:30 PM |
| A0228061.D | N034129-012D | SAMP | 1 | 02/28/19 7:36 PM |
| A0228062.D | N034129-013D | SAMP | 1 | 02/28/19 7:42 PM |
| A0228063.D | N034129-014D | SAMP | 1 | 02/28/19 7:48 PM |
| A0228064.D | N034128-001A | SAMP | 10 | 02/28/19 7:54 PM |
| A0228065.D | CCV4 | CCV | 1 | 02/28/19 7:59 PM |
| A0228066.D | CCB4 | CCB | 1 | 02/28/19 8:07 PM |
| A0228067.D | N034129-013D | SAMP | 1 | 02/28/19 8:12 PM |
| A0228068.D | N034129-014D | SAMP | 1 | 02/28/19 8:18 PM |
| A0228069.D | N034129-013D | SAMP | 1 | 02/28/19 8:25 PM |
| A0228070.D | N034128-001A | SAMP | 50 | 02/28/19 8:31 PM |
| A0228071.D | N034128-001A-PS | PS | 10 | 02/28/19 8:37 PM |
| A0228072.D | N034128-001A-MS | MS | 10 | 02/28/19 8:43 PM |
| A0228073.D | N034128-001A-MSD | MSD | 10 | 02/28/19 8:49 PM |
| A0228074.D | MB-72522 | MBLK | 1 | 02/28/19 8:54 PM |
| A0228075.D | LCS-72522 | LCS | 1 | 02/28/19 9:01 PM |
| A0228076.D | N034160-001A | SAMP | 1 | 02/28/19 9:08 PM |
| A0228077.D | CCV5 | CCV | 1 | 02/28/19 9:16 PM |
| A0228078.D | CCB5 | CCB | 1 | 02/28/19 9:22 PM |
| A0228079.D | N034129-013D | SAMP | 1 | 02/28/19 9:27 PM |
| A0228080.D | N034160-001A | SAMP | 5 | 02/28/19 9:32 PM |
| A0228081.D | N034160-001A-PS | PS | 1 | 02/28/19 9:38 PM |
| A0228082.D | N034160-001A-MS | MS | 1 | 02/28/19 9:44 PM |
| A0228083.D | N034160-001A-MSD | MSD | 1 | 02/28/19 9:50 PM |
| A0228084.D | N034160-001A | SAMP | 25 | 02/28/19 9:56 PM |

**INJECTION LOG: 190228A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0228085.D | N034160-001A-PS | PS | 5 | 02/28/19 10:02 PM |
| A0228086.D | N034160-001A-MS | MS | 5 | 02/28/19 10:08 PM |
| A0228087.D | N034160-001A-MSD | MSD | 5 | 02/28/19 10:14 PM |
| A0228088.D | N034162-001A | SAMP | 1 | 02/28/19 10:20 PM |
| A0228089.D | CCV6 | CCV | 1 | 02/28/19 10:26 PM |
| A0228090.D | CCB6 | CCB | 1 | 02/28/19 10:32 PM |
| A0228091.D | ICSA3 | ICSA | 1 | 02/28/19 10:38 PM |
| A0228092.D | ICSAB3 | ICSAB | 1 | 02/28/19 10:44 PM |
| A0228093.D | N034162-001A | SAMP | 10 | 02/28/19 10:50 PM |
| A0228094.D | N034162-003B | SAMP | 1 | 02/28/19 10:56 PM |
| A0228095.D | N034162-003B | SAMP | 10 | 02/28/19 11:02 PM |
| A0228096.D | N034164-001A | SAMP | 1 | 02/28/19 11:08 PM |
| A0228097.D | N034181-001B | SAMP | 1 | 02/28/19 11:14 PM |
| A0228098.D | N034191-001B | SAMP | 1 | 02/28/19 11:19 PM |
| A0228099.D | N034195-001A | SAMP | 5 | 02/28/19 11:25 PM |
| A0228100.D | N034178-003B | SAMP | 1 | 02/28/19 11:31 PM |
| A0228101.D | N034178-004B | SAMP | 1 | 02/28/19 11:37 PM |
| A0228102.D | N034178-005B | SAMP | 1 | 02/28/19 11:43 PM |
| A0228103.D | CCV7 | CCV | 1 | 02/28/19 11:49 PM |
| A0228104.D | CCB7 | CCB | 1 | 02/28/19 11:55 PM |
| A0228105.D | N034178-006B | SAMP | 1 | 03/01/19 12:01 AM |
| A0228106.D | N034178-007B | SAMP | 1 | 03/01/19 12:07 AM |
| A0228107.D | N034178-007B | SAMP | 5 | 03/01/19 12:13 AM |
| A0228108.D | N034178-008B | SAMP | 1 | 03/01/19 12:19 AM |
| A0228109.D | N034178-009B | SAMP | 1 | 03/01/19 12:25 AM |
| A0228110.D | N034178-010B | SAMP | 1 | 03/01/19 12:31 AM |
| A0228111.D | N034178-011B | SAMP | 1 | 03/01/19 12:37 AM |
| A0228112.D | N034196-002B | SAMP | 1 | 03/01/19 12:43 AM |
| A0228113.D | N034196-002B | SAMP | 5 | 03/01/19 12:49 AM |
| A0228114.D | N034196-003B | SAMP | 1 | 03/01/19 12:55 AM |
| A0228115.D | CCV8 | CCV | 1 | 03/01/19 1:01 AM |
| A0228116.D | CCB8 | CCB | 1 | 03/01/19 1:08 AM |
| A0228117.D | N034196-003B | SAMP | 5 | 03/01/19 1:12 AM |
| A0228118.D | N034196-004B | SAMP | 1 | 03/01/19 1:18 AM |
| A0228119.D | N034196-004B | SAMP | 5 | 03/01/19 1:24 AM |
| A0228120.D | MB-72540 | MBLK | 1 | 03/01/19 1:31 AM |
| A0228121.D | LCS-72540 | LCS | 1 | 03/01/19 1:36 AM |
| A0228122.D | N034182-001B | SAMP | 1 | 03/01/19 1:42 AM |
| A0228123.D | N034182-001B | SAMP | 5 | 03/01/19 1:48 AM |
| A0228124.D | N034182-001B-PS | PS | 1 | 03/01/19 1:54 AM |
| A0228125.D | N034182-001B-MS | MS | 1 | 03/01/19 2:00 AM |
| A0228126.D | N034182-001B-MSD | MSD | 1 | 03/01/19 2:06 AM |

**INJECTION LOG: 190228A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0228127.D | CCV9 | CCV | 1 | 03/01/19 2:12 AM |
| A0228128.D | CCB9 | CCB | 1 | 03/01/19 2:19 AM |
| A0228129.D | ICSA4 | ICSA | 1 | 03/01/19 2:24 AM |
| A0228130.D | ICSAB4 | ICSAB | 1 | 03/01/19 2:29 AM |
| A0228131.D | N034182-002B | SAMP | 1 | 03/01/19 2:35 AM |
| A0228132.D | N034182-002B | SAMP | 5 | 03/01/19 2:41 AM |
| A0228133.D | N034182-004B | SAMP | 1 | 03/01/19 2:47 AM |
| A0228134.D | N034182-005B | SAMP | 1 | 03/01/19 2:53 AM |
| A0228135.D | N034182-006B | SAMP | 1 | 03/01/19 2:59 AM |
| A0228136.D | N034182-007B | SAMP | 1 | 03/01/19 3:05 AM |
| A0228137.D | N034182-007B | SAMP | 10 | 03/01/19 3:11 AM |
| A0228138.D | N034182-008B | SAMP | 1 | 03/01/19 3:17 AM |
| A0228139.D | N034182-009B | SAMP | 1 | 03/01/19 3:23 AM |
| A0228140.D | N034182-009B | SAMP | 5 | 03/01/19 3:29 AM |
| A0228141.D | CCV10 | CCV | 1 | 03/01/19 3:35 AM |
| A0228142.D | CCB10 | CCB | 1 | 03/01/19 3:41 AM |
| A0228143.D | N034182-010B | SAMP | 1 | 03/01/19 3:47 AM |
| A0228144.D | N034182-010B | SAMP | 25 | 03/01/19 3:52 AM |
| A0228145.D | N034182-011B | SAMP | 1 | 03/01/19 3:58 AM |
| A0228146.D | N034182-012B | SAMP | 1 | 03/01/19 4:04 AM |
| A0228147.D | N034182-012B | SAMP | 50 | 03/01/19 4:10 AM |
| A0228148.D | N034182-013B | SAMP | 1 | 03/01/19 4:16 AM |
| A0228149.D | N034190-001B | SAMP | 1 | 03/01/19 4:22 AM |
| A0228150.D | N034190-002B | SAMP | 1 | 03/01/19 4:28 AM |
| A0228151.D | N034190-003B | SAMP | 1 | 03/01/19 4:34 AM |
| A0228152.D | N034190-003B | SAMP | 5 | 03/01/19 4:40 AM |
| A0228153.D | CCV11 | CCV | 1 | 03/01/19 4:46 AM |
| A0228154.D | CCB11 | CCB | 1 | 03/01/19 4:52 AM |
| A0228155.D | N034190-004B | SAMP | 1 | 03/01/19 4:58 AM |
| A0228156.D | N034190-004B | SAMP | 5 | 03/01/19 5:04 AM |
| A0228157.D | N034190-005B | SAMP | 1 | 03/01/19 5:10 AM |
| A0228158.D | N034190-005B | SAMP | 10 | 03/01/19 5:16 AM |
| A0228159.D | N034190-006B | SAMP | 1 | 03/01/19 5:22 AM |
| A0228160.D | N034190-006B | SAMP | 5 | 03/01/19 5:28 AM |
| A0228161.D | N034190-007B | SAMP | 1 | 03/01/19 5:34 AM |
| A0228162.D | N034190-008B | SAMP | 1 | 03/01/19 5:40 AM |
| A0228163.D | N034178-003B | SAMP | 1 | 03/01/19 5:46 AM |
| A0228164.D | N034178-005B | SAMP | 1 | 03/01/19 5:52 AM |
| A0228165.D | CCV12 | CCV | 1 | 03/01/19 5:58 AM |
| A0228166.D | CCB12 | CCB | 1 | 03/01/19 6:04 AM |
| A0228167.D | N034178-006B | SAMP | 1 | 03/01/19 6:10 AM |
| A0228168.D | N034178-008B | SAMP | 1 | 03/01/19 6:16 AM |

**INJECTION LOG: 190228A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0228169.D | N034178-010B | SAMP | 1 | 03/01/19 6:22 AM |
| A0228170.D | N034196-003B | SAMP | 1 | 03/01/19 6:28 AM |
| A0228171.D | N034196-004B | SAMP | 1 | 03/01/19 6:34 AM |
| A0228172.D | N034178-006B | SAMP | 1 | 03/01/19 6:40 AM |
| A0228173.D | N034196-003B | SAMP | 1 | 03/01/19 6:46 AM |
| A0228174.D | N034196-004B | SAMP | 1 | 03/01/19 6:52 AM |
| A0228175.D | N034196-004B | SAMP | 1 | 03/01/19 6:58 AM |
| A0228176.D | N034182-008B | SAMP | 25 | 03/01/19 7:04 AM |
| A0228177.D | CCV13 | CCV | 1 | 03/01/19 7:10 AM |
| A0228178.D | CCB13 | CCB | 1 | 03/01/19 7:16 AM |
| A0228179.D | ICSA5 | ICSA | 1 | 03/01/19 7:22 AM |
| A0228180.D | ICSAB5 | ICSAB | 1 | 03/01/19 7:28 AM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/14/2019 4:00:00**
Prep End Date: **2/14/2019 8:45:00**

Reviewed/ Date: 3/5/2019

Initials/ Date: 3/5/2019

Prep Batch **72499** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.5** | **01-1** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72499 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-72499 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034128-001A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034128-001A-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034128-001A-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-002D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-003D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-004D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-005D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-006D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-007D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-008D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-009D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-010D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10549 | NITRIC ACID |
| 10553 | HYDROCHLORIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/14/2019 4:00:00**
Prep End Date: **2/14/2019 8:45:00**

Reviewed/ Date: 3/5/2019

Initials/ Date: 3/5/2019

Prep Batch **72499** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.5** | **01-1** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| N034129-011D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-012D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-013D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034129-014D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10549 | NITRIC ACID |
| 10553 | HYDROCHLORIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

# INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 28 Feb 2019 10:51:16 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 128404.00 | 0.00 | |
| 24 Mg | 250654.00 | 0.00 | |
| 25 Mg | 32559.40 | 0.00 | |
| 26 Mg | 38379.50 | 0.00 | |
| 59 Co | 258493.00 | 0.00 | |
| 115 In | 365584.00 | 0.00 | |
| 206 Pb | 138314.00 | 0.00 | |
| 207 Pb | 121247.00 | 0.00 | |
| 208 Pb | 298012.00 | 0.00 | |

RSD (%)

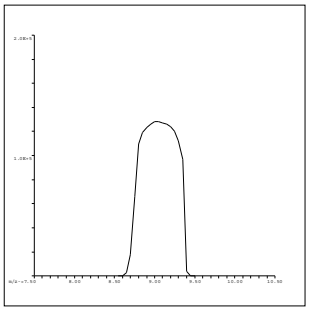
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 2.75 | 5.00 | |
| 24 Mg | 1.71 | 5.00 | |
| 25 Mg | 1.66 | 5.00 | |
| 26 Mg | 1.47 | 5.00 | |
| 59 Co | 1.31 | 5.00 | |
| 115 In | 0.58 | 5.00 | |
| 206 Pb | 1.33 | 5.00 | |
| 207 Pb | 1.88 | 5.00 | |
| 208 Pb | 0.75 | 5.00 | |

Ion Ratio

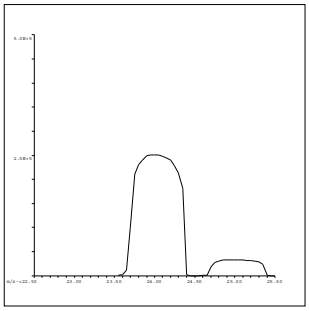
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | | | |
| 24 Mg | | | |
| 25 Mg | | | |
| 26 Mg | | | |
| 59 Co | | | |
| 115 In | | | |
| 206 Pb | | | |
| 207 Pb | | | |
| 208 Pb | | | |

Maximum Bkg. Count(CPS)

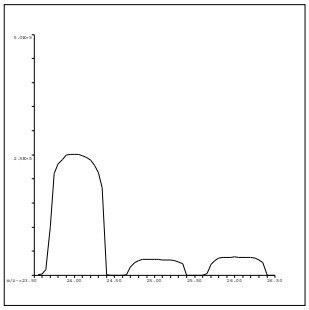
| Element | Actual | Required | Flag |
|---|---|---|---|



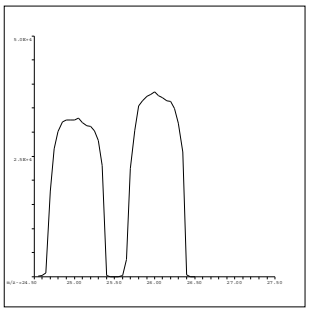
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



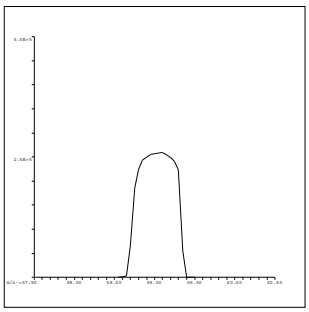
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



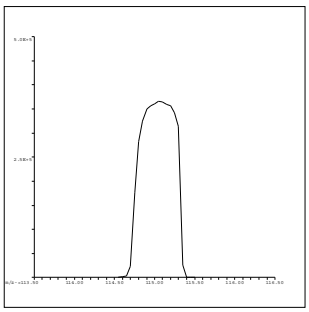
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



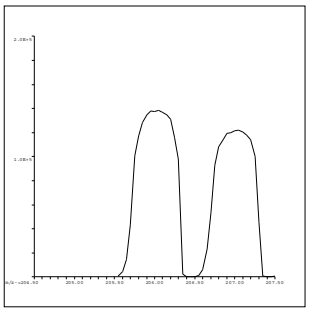
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



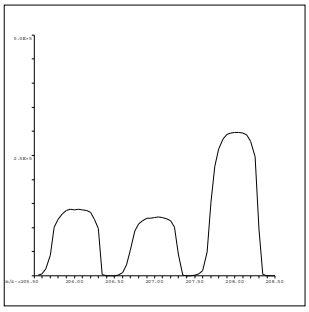
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



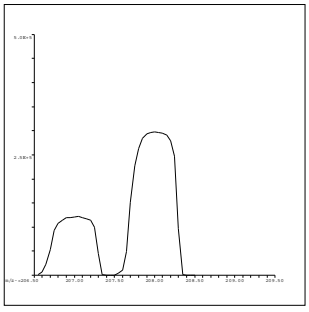
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190228A**

**Instrument ID: ICPMS-02**

| Analyte | Data File | A0228002.D | A0228003.D | A0228004.D | A0228005.D | A0228006.D | A0228007.D | A0228008.D | A0228009.D | A0228010.D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 02/28/2019 01:38 PM | 02/28/2019 01:44 PM | 02/28/2019 01:50 PM | 02/28/2019 01:56 PM | 02/28/2019 02:02 PM | 02/28/2019 02:08 PM | 02/28/2019 02:14 PM | 02/28/2019 02:20 PM | 02/28/2019 02:26 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std1-0.1/1 ppb | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.1/1 ug/L | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 45 Sc ( ISTD ) [ 2 ] | CPS | 57600.9 | | 58267.8 | 58460.7 | 58369.7 | 58498.5 | 58318.1 | 57529.8 | 57108.5 | |
| 55 Mn [ 2 ] | CPS | 38.9 | | 1156.4 | 10631.4 | 21425.7 | 42004.4 | 82888.4 | 203925.3 | 399597.4 | 1.0000 |
| 52 Cr [ 2 ] | CPS | 496.6 | | 2615.8 | 21790.1 | 43148.3 | 86021.8 | 169140.5 | 415394.1 | 808168 | 1.0000 |
| 72 Ge ( ISTD ) [ 1 ] | CPS | 31005.6 | | 32002.1 | 31943.1 | 31414.2 | 31541.2 | 31811.6 | 31231.6 | 31552.3 | |
| 78 Se [ 1 ] | CPS | 3.3 | | 55.6 | 525.6 | 1047.9 | 2108 | 4207.4 | 10439.2 | 20660.4 | 1.0000 |
| 72 Ge ( ISTD ) [ 2 ] | CPS | 31373.1 | 32061 | 32027.6 | 32231.4 | 32243.6 | 31969.9 | 31574.5 | 31807.3 | 31768.3 | |
| 75 As [ 2 ] | CPS | 44 | 81.3 | 233.8 | 2121 | 4356.2 | 8662.3 | 17063.6 | 41404.1 | 82018.1 | 1.0000 |
| 103 Rh ( ISTD ) [ 2 ] | CPS | 944944.1 | | 951170.3 | 947943.6 | 948700.1 | 942146.6 | 942533.6 | 934043.6 | 910903.3 | |
| 95 Mo [ 2 ] | CPS | 297.8 | | 1089 | 8953.9 | 18761.6 | 38489 | 78597.8 | 200836.8 | 398920.6 | 0.9999 |
| 159 Tb ( ISTD ) [ 3 ] | CPS | 2859830.1 | | 2887941.8 | 2882249.5 | 2873220.1 | 2849380.1 | 2856321.9 | 2854364 | 2788561.4 | |
| 137 Ba [ 3 ] | CPS | 46.8 | | 2162.3 | 20337.3 | 40691.3 | 81323.7 | 159386.7 | 394336 | 767411.6 | 1.0000 |

| Standard Code |
|---|
| ICAL: 2MSST-180608B |
| ICAL: 2MSST-180205B |
| ICAL: 2MWST-181001C |
| IS Mix: 2MWST-181126B |

Calibration Acceptance Criteria: > 0.995 Correlation

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305642** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.980 | 0.10 | 10.00 | 0 | 99.8 | 90 | 110 | | | | |
| Barium | 10.269 | 1.0 | 10.00 | 0 | 103 | 90 | 110 | | | | |
| Manganese | 104.708 | 0.50 | 100.0 | 0 | 105 | 90 | 110 | | | | |
| Molybdenum | 9.226 | 0.50 | 10.00 | 0 | 92.3 | 90 | 110 | | | | |
| Selenium | 9.241 | 0.50 | 10.00 | 0 | 92.4 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305644** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.093 | 0.10 | 0.1000 | 0 | 93.2 | 80 | 120 | | | | |
| Barium | 1.015 | 1.0 | 1.000 | 0 | 101 | 80 | 120 | | | | |
| Manganese | 0.503 | 0.50 | 0.5000 | 0 | 101 | 80 | 120 | | | | |
| Molybdenum | 0.471 | 0.50 | 0.5000 | 0 | 94.1 | 80 | 120 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305647** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 0.450 | 0.50 | 0.5000 | 0 | 90.1 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305658** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.356 | 0.10 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Barium | 21.341 | 1.0 | 20.00 | 0 | 107 | 90 | 110 | | | | |
| Manganese | 20.671 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132217**
Client ID: **CCV** Batch ID: **R132217** TestNo: **EPA 6020** Analysis Date: **2/28/2019** SeqNo: **3305658**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 18.483 | 0.50 | 20.00 | 0 | 92.4 | 90 | 110 | | | | |
| Selenium | 19.338 | 0.50 | 20.00 | 0 | 96.7 | 90 | 110 | | | | |

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132217**
Client ID: **CCV** Batch ID: **R132217** TestNo: **EPA 6020** Analysis Date: **2/28/2019** SeqNo: **3305670**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.095 | 0.10 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Barium | 21.579 | 1.0 | 20.00 | 0 | 108 | 90 | 110 | | | | |
| Manganese | 20.638 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |
| Molybdenum | 19.061 | 0.50 | 20.00 | 0 | 95.3 | 90 | 110 | | | | |
| Selenium | 20.790 | 0.50 | 20.00 | 0 | 104 | 90 | 110 | | | | |

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132217**
Client ID: **CCV** Batch ID: **R132217** TestNo: **EPA 6020** Analysis Date: **2/28/2019** SeqNo: **3305682**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.085 | 0.10 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Barium | 21.780 | 1.0 | 20.00 | 0 | 109 | 90 | 110 | | | | |
| Manganese | 19.901 | 0.50 | 20.00 | 0 | 99.5 | 90 | 110 | | | | |
| Molybdenum | 18.685 | 0.50 | 20.00 | 0 | 93.4 | 90 | 110 | | | | |
| Selenium | 19.427 | 0.50 | 20.00 | 0 | 97.1 | 90 | 110 | | | | |

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132217**
Client ID: **CCV** Batch ID: **R132217** TestNo: **EPA 6020** Analysis Date: **2/28/2019** SeqNo: **3305992**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.506 | 0.10 | 20.00 | 0 | 97.5 | 90 | 110 | | | | |
| Barium | 21.854 | 1.0 | 20.00 | 0 | 109 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132217**
Client ID: **CCV** Batch ID: **R132217** TestNo: **EPA 6020** Analysis Date: **2/28/2019** SeqNo: **3305992**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 19.754 | 0.50 | 20.00 | 0 | 98.8 | 90 | 110 | | | | |
| Molybdenum | 18.101 | 0.50 | 20.00 | 0 | 90.5 | 90 | 110 | | | | |
| Selenium | 19.632 | 0.50 | 20.00 | 0 | 98.2 | 90 | 110 | | | | |

Sample ID **CCV5** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132217**
Client ID: **CCV** Batch ID: **R132217** TestNo: **EPA 6020** Analysis Date: **2/28/2019** SeqNo: **3306004**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 18.703 | 0.10 | 20.00 | 0 | 93.5 | 90 | 110 | | | | |
| Barium | 21.699 | 1.0 | 20.00 | 0 | 108 | 90 | 110 | | | | |
| Manganese | 19.793 | 0.50 | 20.00 | 0 | 99.0 | 90 | 110 | | | | |
| Molybdenum | 19.008 | 0.50 | 20.00 | 0 | 95.0 | 90 | 110 | | | | |
| Selenium | 19.412 | 0.50 | 20.00 | 0 | 97.1 | 90 | 110 | | | | |

Sample ID **CCV6** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132217**
Client ID: **CCV** Batch ID: **R132217** TestNo: **EPA 6020** Analysis Date: **2/28/2019** SeqNo: **3306016**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 18.739 | 0.10 | 20.00 | 0 | 93.7 | 90 | 110 | | | | |
| Barium | 21.437 | 1.0 | 20.00 | 0 | 107 | 90 | 110 | | | | |
| Manganese | 19.696 | 0.50 | 20.00 | 0 | 98.5 | 90 | 110 | | | | |
| Molybdenum | 18.989 | 0.50 | 20.00 | 0 | 94.9 | 90 | 110 | | | | |
| Selenium | 18.736 | 0.50 | 20.00 | 0 | 93.7 | 90 | 110 | | | | |

Sample ID **CCV7** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132217**
Client ID: **CCV** Batch ID: **R132217** TestNo: **EPA 6020** Analysis Date: **2/28/2019** SeqNo: **3306030**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.319 | 0.10 | 20.00 | 0 | 96.6 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **CCV7** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132217**
Client ID: **CCV** Batch ID: **R132217** TestNo: **EPA 6020** Analysis Date: **2/28/2019** SeqNo: **3306030**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 19.861 | 0.50 | 20.00 | 0 | 99.3 | 90 | 110 | | | | |
| Molybdenum | 19.450 | 0.50 | 20.00 | 0 | 97.2 | 90 | 110 | | | | |
| Selenium | 19.484 | 0.50 | 20.00 | 0 | 97.4 | 90 | 110 | | | | |

Sample ID **CCV8** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132217**
Client ID: **CCV** Batch ID: **R132217** TestNo: **EPA 6020** Analysis Date: **3/1/2019** SeqNo: **3306042**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.615 | 0.10 | 20.00 | 0 | 98.1 | 90 | 110 | | | | |
| Manganese | 20.112 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Molybdenum | 20.015 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Selenium | 19.667 | 0.50 | 20.00 | 0 | 98.3 | 90 | 110 | | | | |

Sample ID **CCV9** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132217**
Client ID: **CCV** Batch ID: **R132217** TestNo: **EPA 6020** Analysis Date: **3/1/2019** SeqNo: **3306054**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.319 | 0.10 | 20.00 | 0 | 96.6 | 90 | 110 | | | | |
| Manganese | 19.870 | 0.50 | 20.00 | 0 | 99.4 | 90 | 110 | | | | |
| Molybdenum | 18.999 | 0.50 | 20.00 | 0 | 95.0 | 90 | 110 | | | | |
| Selenium | 19.232 | 0.50 | 20.00 | 0 | 96.2 | 90 | 110 | | | | |

Sample ID **CCV10** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132217**
Client ID: **CCV** Batch ID: **R132217** TestNo: **EPA 6020** Analysis Date: **3/1/2019** SeqNo: **3306068**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.351 | 0.10 | 20.00 | 0 | 96.8 | 90 | 110 | | | | |
| Manganese | 20.404 | 0.50 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Molybdenum | 18.469 | 0.50 | 20.00 | 0 | 92.3 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV10** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306068** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 19.222 | 0.50 | 20.00 | 0 | 96.1 | 90 | 110 | | | | |

| Sample ID **CCV11** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306080** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.444 | 0.10 | 20.00 | 0 | 97.2 | 90 | 110 | | | | |
| Manganese | 20.393 | 0.50 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Molybdenum | 18.272 | 0.50 | 20.00 | 0 | 91.4 | 90 | 110 | | | | |
| Selenium | 19.420 | 0.50 | 20.00 | 0 | 97.1 | 90 | 110 | | | | |

| Sample ID **CCV12** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306092** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.622 | 0.10 | 20.00 | 0 | 98.1 | 90 | 110 | | | | |
| Manganese | 19.931 | 0.50 | 20.00 | 0 | 99.7 | 90 | 110 | | | | |
| Molybdenum | 19.547 | 0.50 | 20.00 | 0 | 97.7 | 90 | 110 | | | | |
| Selenium | 18.649 | 0.50 | 20.00 | 0 | 93.2 | 90 | 110 | | | | |

| Sample ID **CCV13** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306104** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.167 | 0.10 | 20.00 | 0 | 95.8 | 90 | 110 | | | | |
| Manganese | 20.071 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Molybdenum | 19.433 | 0.50 | 20.00 | 0 | 97.2 | 90 | 110 | | | | |
| Selenium | 20.042 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306108** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.430 | 1.0 | 10.00 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306110** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 0.996 | 1.0 | 1.000 | 0 | 99.6 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306124** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.266 | 1.0 | 20.00 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306136** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 21.521 | 1.0 | 20.00 | 0 | 108 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306148** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.590 | 1.0 | 20.00 | 0 | 103 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306162** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.625 | 1.0 | 20.00 | 0 | 98.1 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306174** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.157 | 1.0 | 20.00 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306186** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.197 | 1.0 | 20.00 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306200** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.137 | 1.0 | 20.00 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV8** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306212** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.276 | 1.0 | 20.00 | 0 | 101 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCV9** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306224** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.818 | 1.0 | 20.00 | 0 | 99.1 | 90 | 110 | | | | |

| Sample ID **CCV10** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306238** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.728 | 1.0 | 20.00 | 0 | 98.6 | 90 | 110 | | | | |

| Sample ID **CCV11** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306250** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.728 | 1.0 | 20.00 | 0 | 98.6 | 90 | 110 | | | | |

| Sample ID **CCV12** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306262** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.117 | 1.0 | 20.00 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV13** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306274** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.971 | 1.0 | 20.00 | 0 | 99.9 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305643** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305659** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305671** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305683** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.248 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305993** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306005** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306017** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306031** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306043** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB9** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306055** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB9** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306055** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB10** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306069** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.274 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB11** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306081** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.228 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB12** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306093** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.350 | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | CCB12 | SampType: | CCB | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | CCB | Batch ID: | R132217 | TestNo: | EPA 6020 | | | Analysis Date: | 3/1/2019 | SeqNo: | 3306093 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID | CCB13 | SampType: | CCB | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | CCB | Batch ID: | R132217 | TestNo: | EPA 6020 | | | Analysis Date: | 3/1/2019 | SeqNo: | 3306105 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.424 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

Mo in CCB10, CCB12 and CCB13 is >1/2 RL however no samples for this analyte were affected by these QCs.

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

3/5/2019

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306109** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306125** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306137** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306149** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306163** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306175** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306187** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306201** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306213** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB9** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306225** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCB10** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306239** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB11** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306251** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB12** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306263** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB13** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306275** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132217**
Client ID: **ICSA** Batch ID: **R132217** TestNo: **EPA 6020** Analysis Date: **2/28/2019** SeqNo: **3305645**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132217**
Client ID: **ICSAB** Batch ID: **R132217** TestNo: **EPA 6020** Analysis Date: **2/28/2019** SeqNo: **3305646**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 22.170 | 0.10 | 20.00 | 0 | 111 | 80 | 120 | | | | |
| Barium | 17.964 | 1.0 | 20.00 | 0 | 89.8 | 80 | 120 | | | | |
| Manganese | 19.576 | 0.50 | 20.00 | 0 | 97.9 | 80 | 120 | | | | |
| Molybdenum | 22.049 | 0.50 | 20.00 | 0 | 110 | 80 | 120 | | | | |
| Selenium | 21.458 | 0.50 | 20.00 | 0 | 107 | 80 | 120 | | | | |

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132217**
Client ID: **ICSA** Batch ID: **R132217** TestNo: **EPA 6020** Analysis Date: **2/28/2019** SeqNo: **3305684**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305685** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 22.001 | 0.10 | 20.00 | 0 | 110 | 80 | 120 | | | | |
| Barium | 19.304 | 1.0 | 20.00 | 0 | 96.5 | 80 | 120 | | | | |
| Manganese | 20.735 | 0.50 | 20.00 | 0 | 104 | 80 | 120 | | | | |
| Molybdenum | 22.370 | 0.50 | 20.00 | 0 | 112 | 80 | 120 | | | | |
| Selenium | 20.832 | 0.50 | 20.00 | 0 | 104 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306018** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306019** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 22.542 | 0.10 | 20.00 | 0 | 113 | 80 | 120 | | | | |
| Barium | 19.828 | 1.0 | 20.00 | 0 | 99.1 | 80 | 120 | | | | |
| Manganese | 20.421 | 0.50 | 20.00 | 0 | 102 | 80 | 120 | | | | |
| Molybdenum | 22.220 | 0.50 | 20.00 | 0 | 111 | 80 | 120 | | | | |
| Selenium | 20.675 | 0.50 | 20.00 | 0 | 103 | 80 | 120 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306056** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB4** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306057** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 21.947 | 0.10 | 20.00 | 0 | 110 | 80 | 120 | | | | |
| Manganese | 21.188 | 0.50 | 20.00 | 0 | 106 | 80 | 120 | | | | |
| Molybdenum | 22.501 | 0.50 | 20.00 | 0 | 113 | 80 | 120 | | | | |
| Selenium | 21.584 | 0.50 | 20.00 | 0 | 108 | 80 | 120 | | | | |

| Sample ID **ICSA5** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306106** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.227 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB5** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306107** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 21.605 | 0.10 | 20.00 | 0 | 108 | 80 | 120 | | | | |
| Manganese | 21.452 | 0.50 | 20.00 | 0 | 107 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSAB5** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306107** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 23.022 | 0.50 | 20.00 | 0 | 115 | 80 | 120 | | | | |
| Selenium | 20.275 | 0.50 | 20.00 | 0 | 101 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306111** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306112** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 22.242 | 1.0 | 20.00 | 0 | 111 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306150** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306151** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 22.280 | 1.0 | 20.00 | 0 | 111 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306188** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306189** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 21.456 | 1.0 | 20.00 | 0 | 107 | 80 | 120 | | | | |

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306226** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB4** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306227** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 21.452 | 1.0 | 20.00 | 0 | 107 | 80 | 120 | | | | |

| Sample ID **ICSA5** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306276** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB5** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306277** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 21.561 | 1.0 | 20.00 | 0 | 108 | 80 | 120 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 159 Tb ( ISTD ) [ 3 ] | | | | | 45 Sc ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 2859830.1 | 2859830.1 | 100 | PASS | 70-125 | 57600.9 | 57600.9 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 2853395 | 2859830.1 | 99.77 | PASS | 70-125 | 58069.6 | 57600.9 | 100.81 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 2887941.8 | 2859830.1 | 100.98 | PASS | 70-125 | 58267.8 | 57600.9 | 101.16 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 2882249.5 | 2859830.1 | 100.78 | PASS | 70-125 | 58460.7 | 57600.9 | 101.49 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 2873220.1 | 2859830.1 | 100.47 | PASS | 70-125 | 58369.7 | 57600.9 | 101.33 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 2849380.1 | 2859830.1 | 99.63 | PASS | 70-125 | 58498.5 | 57600.9 | 101.56 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 2856321.9 | 2859830.1 | 99.88 | PASS | 70-125 | 58318.1 | 57600.9 | 101.25 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 2854364 | 2859830.1 | 99.81 | PASS | 70-125 | 57529.8 | 57600.9 | 99.88 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 2788561.4 | 2859830.1 | 97.51 | PASS | 70-125 | 57108.5 | 57600.9 | 99.15 | PASS | 70-125 |
| ICV | ICV | 1 | 3032556.8 | 2859830.1 | 106.04 | PASS | 70-125 | 63243.7 | 57600.9 | 109.8 | PASS | 70-125 |
| ICB | ICB | 1 | 3006594.4 | 2859830.1 | 105.13 | PASS | 70-125 | 60841.5 | 57600.9 | 105.63 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 2942650.7 | 2859830.1 | 102.9 | PASS | 70-125 | 60737.9 | 57600.9 | 105.45 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 3016349.5 | 2859830.1 | 105.47 | PASS | 70-125 | 68200.9 | 57600.9 | 118.4 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 2947016.3 | 2859830.1 | 103.05 | PASS | 70-125 | 60061.2 | 57600.9 | 104.27 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 3051430.2 | 2859830.1 | 106.7 | PASS | 70-125 | 65385.5 | 57600.9 | 113.51 | PASS | 70-125 |
| CCV1 | CCV | 1 | 3090500.1 | 2859830.1 | 108.07 | PASS | 70-125 | 61785 | 57600.9 | 107.26 | PASS | 70-125 |
| CCB1 | CCB | 1 | 3106205.6 | 2859830.1 | 108.62 | PASS | 70-125 | 61444.8 | 57600.9 | 106.67 | PASS | 70-125 |
| MB-72499 | MBLK | 1 | 3093098 | 2859830.1 | 108.16 | PASS | 70-125 | 61973.2 | 57600.9 | 107.59 | PASS | 70-125 |
| LCS-72499 | LCS | 1 | 3026279.4 | 2859830.1 | 105.82 | PASS | 70-125 | 61129.2 | 57600.9 | 106.13 | PASS | 70-125 |
| N034128-001A | SAMP | 1 | 2591231.6 | 2859830.1 | 90.61 | PASS | 70-125 | 65499.1 | 57600.9 | 113.71 | PASS | 70-125 |
| N034128-001A | SAMP | 5 | 2874755.4 | 2859830.1 | 100.52 | PASS | 70-125 | 64557.4 | 57600.9 | 112.08 | PASS | 70-125 |
| N034128-001A-PS | PS | 1 | 2665787.9 | 2859830.1 | 93.21 | PASS | 70-125 | 66931.2 | 57600.9 | 116.2 | PASS | 70-125 |
| N034128-001A-MS | MS | 1 | 2604207.4 | 2859830.1 | 91.062 | PASS | 70-125 | 65762.5 | 57600.9 | 114.17 | PASS | 70-125 |
| N034128-001A-MSD | MSD | 1 | 2739782.6 | 2859830.1 | 95.8 | PASS | 70-125 | 67317.2 | 57600.9 | 116.87 | PASS | 70-125 |
| CCV2 | CCV | 1 | 3128647.8 | 2859830.1 | 109.4 | PASS | 70-125 | 59304.8 | 57600.9 | 102.96 | PASS | 70-125 |
| CCB2 | CCB | 1 | 3049022 | 2859830.1 | 106.62 | PASS | 70-125 | 58196.6 | 57600.9 | 101.03 | PASS | 70-125 |
| N034128-001A | SAMP | 1 | 2329197.7 | 2859830.1 | 81.45 | PASS | 70-125 | 59971.8 | 57600.9 | 104.12 | PASS | 70-125 |
| N034129-002D | SAMP | 1 | 2960233.8 | 2859830.1 | 103.51 | PASS | 70-125 | 54457.3 | 57600.9 | 94.54 | PASS | 70-125 |
| N034129-003D | SAMP | 1 | 2992399.9 | 2859830.1 | 104.64 | PASS | 70-125 | 56311.2 | 57600.9 | 97.76 | PASS | 70-125 |
| N034129-004D | SAMP | 1 | 3243586.3 | 2859830.1 | 113.42 | PASS | 70-125 | 58819.7 | 57600.9 | 102.12 | PASS | 70-125 |
| N034129-005D | SAMP | 1 | 3293534.2 | 2859830.1 | 115.17 | PASS | 70-125 | 60763.6 | 57600.9 | 105.49 | PASS | 70-125 |
| N034129-006D | SAMP | 1 | 3295610.4 | 2859830.1 | 115.24 | PASS | 70-125 | 62338 | 57600.9 | 108.22 | PASS | 70-125 |
| N034129-007D | SAMP | 1 | 3330470.1 | 2859830.1 | 116.46 | PASS | 70-125 | 62516.7 | 57600.9 | 108.53 | PASS | 70-125 |
| N034129-008D | SAMP | 1 | 3252790.1 | 2859830.1 | 113.74 | PASS | 70-125 | 60999.9 | 57600.9 | 105.9 | PASS | 70-125 |
| CCV3 | CCV | 1 | 3133253 | 2859830.1 | 109.56 | PASS | 70-125 | 58787.4 | 57600.9 | 102.06 | PASS | 70-125 |
| CCB3 | CCB | 1 | 3316508.7 | 2859830.1 | 115.97 | PASS | 70-125 | 62803.2 | 57600.9 | 109.03 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 3260476.5 | 2859830.1 | 114.01 | PASS | 70-125 | 67745.8 | 57600.9 | 117.61 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 2955828.6 | 2859830.1 | 103.36 | PASS | 70-125 | 59250.2 | 57600.9 | 102.86 | PASS | 70-125 |
| N034129-002D | SAMP | 1 | 2888764.9 | 2859830.1 | 101.01 | PASS | 70-125 | 60820.3 | 57600.9 | 105.59 | PASS | 70-125 |
| N034129-007D | SAMP | 1 | 3263570.6 | 2859830.1 | 114.12 | PASS | 70-125 | 60442.2 | 57600.9 | 104.93 | PASS | 70-125 |
| N034129-009D | SAMP | 1 | 2312219.1 | 2859830.1 | 80.85 | PASS | 70-125 | 62233.6 | 57600.9 | 108.04 | PASS | 70-125 |

**INTERNAL STANDARD: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 159 Tb ( ISTD ) [ 3 ] | | | | | 45 Sc ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| N034129-007D | SAMP | 1 | 3267673.3 | 2859830.1 | 114.26 | PASS | 70-125 | 60717.8 | 57600.9 | 105.41 | PASS | 70-125 |
| N034129-010D | SAMP | 1 | 3310239.4 | 2859830.1 | 115.75 | PASS | 70-125 | 61274.4 | 57600.9 | 106.38 | PASS | 70-125 |
| N034129-011D | SAMP | 1 | 3251031.1 | 2859830.1 | 113.68 | PASS | 70-125 | 60893 | 57600.9 | 105.72 | PASS | 70-125 |
| N034129-012D | SAMP | 1 | 3254981.2 | 2859830.1 | 113.82 | PASS | 70-125 | 60637.3 | 57600.9 | 105.27 | PASS | 70-125 |
| N034129-013D | SAMP | 1 | 3266149.4 | 2859830.1 | 114.21 | PASS | 70-125 | 61242.9 | 57600.9 | 106.32 | PASS | 70-125 |
| N034129-014D | SAMP | 1 | 3216903.6 | 2859830.1 | 112.49 | PASS | 70-125 | 60631.8 | 57600.9 | 105.26 | PASS | 70-125 |
| N034128-001A | SAMP | 10 | 3153437.5 | 2859830.1 | 110.27 | PASS | 70-125 | 62741.5 | 57600.9 | 108.92 | PASS | 70-125 |
| CCV4 | CCV | 1 | 3162133.5 | 2859830.1 | 110.57 | PASS | 70-125 | 62116.1 | 57600.9 | 107.84 | PASS | 70-125 |
| CCB4 | CCB | 1 | 3221072.7 | 2859830.1 | 112.63 | PASS | 70-125 | 58007.2 | 57600.9 | 100.71 | PASS | 70-125 |
| N034129-013D | SAMP | 1 | 3233704.7 | 2859830.1 | 113.07 | PASS | 70-125 | 58484.3 | 57600.9 | 101.53 | PASS | 70-125 |
| N034129-014D | SAMP | 1 | 3257974.2 | 2859830.1 | 113.92 | PASS | 70-125 | 59719.8 | 57600.9 | 103.68 | PASS | 70-125 |
| N034129-013D | SAMP | 1 | 3148920.9 | 2859830.1 | 110.11 | PASS | 70-125 | 58746.4 | 57600.9 | 101.99 | PASS | 70-125 |
| N034128-001A | SAMP | 50 | 3263450.8 | 2859830.1 | 114.11 | PASS | 70-125 | 62401.7 | 57600.9 | 108.33 | PASS | 70-125 |
| N034128-001A-PS | PS | 10 | 3135166.2 | 2859830.1 | 109.63 | PASS | 70-125 | 61961.4 | 57600.9 | 107.57 | PASS | 70-125 |
| N034128-001A-MS | MS | 10 | 3170195.8 | 2859830.1 | 110.85 | PASS | 70-125 | 63535.8 | 57600.9 | 110.3 | PASS | 70-125 |
| N034128-001A-MSD | MSD | 10 | 3199315.7 | 2859830.1 | 111.87 | PASS | 70-125 | 63812.6 | 57600.9 | 110.78 | PASS | 70-125 |
| CCV5 | CCV | 1 | 2822820.4 | 2859830.1 | 98.71 | PASS | 70-125 | 44045.7 | 57600.9 | 76.47 | PASS | 70-125 |
| CCB5 | CCB | 1 | 3129345.7 | 2859830.1 | 109.42 | PASS | 70-125 | 49031.6 | 57600.9 | 85.12 | PASS | 70-125 |
| N034129-013D | SAMP | 1 | 3125815.4 | 2859830.1 | 109.3 | PASS | 70-125 | 58484.4 | 57600.9 | 101.53 | PASS | 70-125 |
| CCV6 | CCV | 1 | 2829912.5 | 2859830.1 | 98.95 | PASS | 70-125 | 43444 | 57600.9 | 75.42 | PASS | 70-125 |
| CCB6 | CCB | 1 | 3183864.7 | 2859830.1 | 111.33 | PASS | 70-125 | 51524.8 | 57600.9 | 89.45 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 3067873.2 | 2859830.1 | 107.27 | PASS | 70-125 | 63405.3 | 57600.9 | 110.08 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 3014321.5 | 2859830.1 | 105.4 | PASS | 70-125 | 65427.9 | 57600.9 | 113.59 | PASS | 70-125 |
| CCV7 | CCV | 1 | 3275401.6 | 2859830.1 | 114.53 | PASS | 70-125 | 61531.9 | 57600.9 | 106.82 | PASS | 70-125 |
| CCB7 | CCB | 1 | 3184823 | 2859830.1 | 111.36 | PASS | 70-125 | 52775.3 | 57600.9 | 91.62 | PASS | 70-125 |
| CCV8 | CCV | 1 | 3318034.6 | 2859830.1 | 116.02 | PASS | 70-125 | 61767.3 | 57600.9 | 107.23 | PASS | 70-125 |
| CCB8 | CCB | 1 | 3304601.9 | 2859830.1 | 115.55 | PASS | 70-125 | 55294.5 | 57600.9 | 96 | PASS | 70-125 |
| CCV9 | CCV | 1 | 3100484.7 | 2859830.1 | 108.41 | PASS | 70-125 | 55301.2 | 57600.9 | 96.008 | PASS | 70-125 |
| CCB9 | CCB | 1 | 3404991.9 | 2859830.1 | 119.06 | PASS | 70-125 | 57857.9 | 57600.9 | 100.45 | PASS | 70-125 |
| ICSA4 | ICSA | 1 | 2998656.7 | 2859830.1 | 104.85 | PASS | 70-125 | 55072.6 | 57600.9 | 95.61 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 2981291.2 | 2859830.1 | 104.25 | PASS | 70-125 | 58245.6 | 57600.9 | 101.12 | PASS | 70-125 |
| CCV10 | CCV | 1 | 3056405.3 | 2859830.1 | 106.87 | PASS | 70-125 | 53031.7 | 57600.9 | 92.067 | PASS | 70-125 |
| CCB10 | CCB | 1 | 3232412.7 | 2859830.1 | 113.03 | PASS | 70-125 | 54701.4 | 57600.9 | 94.97 | PASS | 70-125 |
| CCV11 | CCV | 1 | 3036325.5 | 2859830.1 | 106.17 | PASS | 70-125 | 51727.6 | 57600.9 | 89.8 | PASS | 70-125 |
| CCB11 | CCB | 1 | 3270093.2 | 2859830.1 | 114.35 | PASS | 70-125 | 53825.2 | 57600.9 | 93.45 | PASS | 70-125 |
| CCV12 | CCV | 1 | 3202889 | 2859830.1 | 112 | PASS | 70-125 | 58415.2 | 57600.9 | 101.41 | PASS | 70-125 |
| CCB12 | CCB | 1 | 3276127.2 | 2859830.1 | 114.56 | PASS | 70-125 | 60458.9 | 57600.9 | 104.96 | PASS | 70-125 |
| CCV13 | CCV | 1 | 3276428.6 | 2859830.1 | 114.57 | PASS | 70-125 | 57252.3 | 57600.9 | 99.39 | PASS | 70-125 |
| CCB13 | CCB | 1 | 3401154.9 | 2859830.1 | 118.93 | PASS | 70-125 | 58446.3 | 57600.9 | 101.47 | PASS | 70-125 |
| ICSA5 | ICSA | 1 | 2992619 | 2859830.1 | 104.64 | PASS | 70-125 | 54417.3 | 57600.9 | 94.47 | PASS | 70-125 |
| ICSAB5 | ICSAB | 1 | 2933920.8 | 2859830.1 | 102.59 | PASS | 70-125 | 55702.5 | 57600.9 | 96.7 | PASS | 70-125 |

**INTERNAL STANDARD: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 31373.1 | 31373.1 | 100 | PASS | 70-125 | 31005.6 | 31005.6 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 32061 | 31373.1 | 102.19 | PASS | 70-125 | 31979.8 | 31005.6 | 103.14 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 32027.6 | 31373.1 | 102.09 | PASS | 70-125 | 32002.1 | 31005.6 | 103.21 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 32231.4 | 31373.1 | 102.74 | PASS | 70-125 | 31943.1 | 31005.6 | 103.02 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 32243.6 | 31373.1 | 102.77 | PASS | 70-125 | 31414.2 | 31005.6 | 101.32 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 31969.9 | 31373.1 | 101.9 | PASS | 70-125 | 31541.2 | 31005.6 | 101.73 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 31574.5 | 31373.1 | 100.64 | PASS | 70-125 | 31811.6 | 31005.6 | 102.6 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 31807.3 | 31373.1 | 101.38 | PASS | 70-125 | 31231.6 | 31005.6 | 100.73 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 31768.3 | 31373.1 | 101.26 | PASS | 70-125 | 31552.3 | 31005.6 | 101.76 | PASS | 70-125 |
| ICV | ICV | 1 | 35252.1 | 31373.1 | 112.36 | PASS | 70-125 | 33049.7 | 31005.6 | 106.59 | PASS | 70-125 |
| ICB | ICB | 1 | 34613 | 31373.1 | 110.33 | PASS | 70-125 | 32291.6 | 31005.6 | 104.15 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 34084.1 | 31373.1 | 108.64 | PASS | 70-125 | 33616.3 | 31005.6 | 108.42 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 37798.8 | 31373.1 | 120.48 | PASS | 70-125 | 36354.5 | 31005.6 | 117.25 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 34444.9 | 31373.1 | 109.79 | PASS | 70-125 | 27267.8 | 31005.6 | 87.94 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 37316.6 | 31373.1 | 118.94 | PASS | 70-125 | 37307.7 | 31005.6 | 120.33 | PASS | 70-125 |
| CCV1 | CCV | 1 | 35228.8 | 31373.1 | 112.29 | PASS | 70-125 | 35236.5 | 31005.6 | 113.65 | PASS | 70-125 |
| CCB1 | CCB | 1 | 35715.3 | 31373.1 | 113.84 | PASS | 70-125 | 29015.4 | 31005.6 | 93.58 | PASS | 70-125 |
| MB-72499 | MBLK | 1 | 35586.1 | 31373.1 | 113.43 | PASS | 70-125 | 35806.5 | 31005.6 | 115.48 | PASS | 70-125 |
| LCS-72499 | LCS | 1 | 34935.9 | 31373.1 | 111.36 | PASS | 70-125 | 34762.2 | 31005.6 | 112.12 | PASS | 70-125 |
| N034128-001A | SAMP | 1 | 34917 | 31373.1 | 111.3 | PASS | 70-125 | 29693.1 | 31005.6 | 95.77 | PASS | 70-125 |
| N034128-001A | SAMP | 5 | 35939.2 | 31373.1 | 114.55 | PASS | 70-125 | 31603.5 | 31005.6 | 101.93 | PASS | 70-125 |
| N034128-001A-PS | PS | 1 | 35479.4 | 31373.1 | 113.09 | PASS | 70-125 | 27366.9 | 31005.6 | 88.26 | PASS | 70-125 |
| N034128-001A-MS | MS | 1 | 35158.5 | 31373.1 | 112.07 | PASS | 70-125 | 26930.6 | 31005.6 | 86.86 | PASS | 70-125 |
| N034128-001A-MSD | MSD | 1 | 36272.1 | 31373.1 | 115.62 | PASS | 70-125 | 27203.3 | 31005.6 | 87.74 | PASS | 70-125 |
| CCV2 | CCV | 1 | 34843.5 | 31373.1 | 111.06 | PASS | 70-125 | 28762.6 | 31005.6 | 92.77 | PASS | 70-125 |
| CCB2 | CCB | 1 | 34006.2 | 31373.1 | 108.39 | PASS | 70-125 | 27528.3 | 31005.6 | 88.78 | PASS | 70-125 |
| N034128-001A | SAMP | 1 | 31930.7 | 31373.1 | 101.78 | PASS | 70-125 | 23088 | 31005.6 | 74.46 | PASS | 70-125 |
| N034129-002D | SAMP | 1 | 31559.1 | 31373.1 | 100.59 | PASS | 70-125 | 25413.7 | 31005.6 | 81.96 | PASS | 70-125 |
| N034129-003D | SAMP | 1 | 32524.2 | 31373.1 | 103.67 | PASS | 70-125 | 28049.1 | 31005.6 | 90.46 | PASS | 70-125 |
| N034129-004D | SAMP | 1 | 33722.2 | 31373.1 | 107.49 | PASS | 70-125 | 30273.1 | 31005.6 | 97.64 | PASS | 70-125 |
| N034129-005D | SAMP | 1 | 35540.5 | 31373.1 | 113.28 | PASS | 70-125 | 32972.9 | 31005.6 | 106.34 | PASS | 70-125 |
| N034129-006D | SAMP | 1 | 35993.9 | 31373.1 | 114.73 | PASS | 70-125 | 33538.5 | 31005.6 | 108.17 | PASS | 70-125 |
| N034129-007D | SAMP | 1 | 36807.8 | 31373.1 | 117.32 | PASS | 70-125 | 34675.3 | 31005.6 | 111.84 | PASS | 70-125 |
| N034129-008D | SAMP | 1 | 35797.7 | 31373.1 | 114.1 | PASS | 70-125 | 34267.8 | 31005.6 | 110.52 | PASS | 70-125 |
| CCV3 | CCV | 1 | 35061.9 | 31373.1 | 111.76 | PASS | 70-125 | 31238.4 | 31005.6 | 100.75 | PASS | 70-125 |
| CCB3 | CCB | 1 | 37413.6 | 31373.1 | 119.25 | PASS | 70-125 | 34931.3 | 31005.6 | 112.66 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 39058.4 | 31373.1 | 124.5 | PASS | 70-125 | 35768.7 | 31005.6 | 115.36 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 34955.8 | 31373.1 | 111.42 | PASS | 70-125 | 29568.6 | 31005.6 | 95.37 | PASS | 70-125 |
| N034129-002D | SAMP | 1 | 35561.6 | 31373.1 | 113.35 | PASS | 70-125 | 33855.8 | 31005.6 | 109.19 | PASS | 70-125 |
| N034129-007D | SAMP | 1 | 35076.2 | 31373.1 | 111.8 | PASS | 70-125 | 33853.5 | 31005.6 | 109.19 | PASS | 70-125 |
| N034129-009D | SAMP | 1 | 36244.3 | 31373.1 | 115.53 | PASS | 70-125 | 34521.7 | 31005.6 | 111.34 | PASS | 70-125 |

**INTERNAL STANDARD: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| N034129-007D | SAMP | 1 | 36221.9 | 31373.1 | 115.46 | PASS | 70-125 | 34441.5 | 31005.6 | 111.08 | PASS | 70-125 |
| N034129-010D | SAMP | 1 | 36189.7 | 31373.1 | 115.35 | PASS | 70-125 | 34666.4 | 31005.6 | 111.81 | PASS | 70-125 |
| N034129-011D | SAMP | 1 | 35640.8 | 31373.1 | 113.6 | PASS | 70-125 | 34812.3 | 31005.6 | 112.28 | PASS | 70-125 |
| N034129-012D | SAMP | 1 | 35346.7 | 31373.1 | 112.67 | PASS | 70-125 | 34623 | 31005.6 | 111.67 | PASS | 70-125 |
| N034129-013D | SAMP | 1 | 35810 | 31373.1 | 114.14 | PASS | 70-125 | 34395.9 | 31005.6 | 110.93 | PASS | 70-125 |
| N034129-014D | SAMP | 1 | 35616.2 | 31373.1 | 113.52 | PASS | 70-125 | 34641.8 | 31005.6 | 111.73 | PASS | 70-125 |
| N034128-001A | SAMP | 10 | 36196.5 | 31373.1 | 115.37 | PASS | 70-125 | 33178.8 | 31005.6 | 107.01 | PASS | 70-125 |
| CCV4 | CCV | 1 | 36422.4 | 31373.1 | 116.09 | PASS | 70-125 | 35164.1 | 31005.6 | 113.41 | PASS | 70-125 |
| CCB4 | CCB | 1 | 34976 | 31373.1 | 111.48 | PASS | 70-125 | 31454.4 | 31005.6 | 101.45 | PASS | 70-125 |
| N034129-013D | SAMP | 1 | 34505.1 | 31373.1 | 109.98 | PASS | 70-125 | 32042.1 | 31005.6 | 103.34 | PASS | 70-125 |
| N034129-014D | SAMP | 1 | 35822.4 | 31373.1 | 114.18 | PASS | 70-125 | 32824.8 | 31005.6 | 105.87 | PASS | 70-125 |
| N034129-013D | SAMP | 1 | 34335.7 | 31373.1 | 109.44 | PASS | 70-125 | 32365.1 | 31005.6 | 104.38 | PASS | 70-125 |
| N034128-001A | SAMP | 50 | 36298.9 | 31373.1 | 115.7 | PASS | 70-125 | 33103.2 | 31005.6 | 106.77 | PASS | 70-125 |
| N034128-001A-PS | PS | 10 | 35722 | 31373.1 | 113.86 | PASS | 70-125 | 31737.1 | 31005.6 | 102.36 | PASS | 70-125 |
| N034128-001A-MS | MS | 10 | 36202.1 | 31373.1 | 115.39 | PASS | 70-125 | 32342.8 | 31005.6 | 104.31 | PASS | 70-125 |
| N034128-001A-MSD | MSD | 10 | 36766.5 | 31373.1 | 117.19 | PASS | 70-125 | 32426.2 | 31005.6 | 104.58 | PASS | 70-125 |
| CCV5 | CCV | 1 | 27737.6 | 31373.1 | 88.41 | PASS | 70-125 | 22783.1 | 31005.6 | 73.48 | PASS | 70-125 |
| CCB5 | CCB | 1 | 31742.8 | 31373.1 | 101.18 | PASS | 70-125 | 26082.6 | 31005.6 | 84.12 | PASS | 70-125 |
| N034129-013D | SAMP | 1 | 34030.6 | 31373.1 | 108.47 | PASS | 70-125 | 32450.8 | 31005.6 | 104.66 | PASS | 70-125 |
| CCV6 | CCV | 1 | 27922.3 | 31373.1 | 89.001 | PASS | 70-125 | 22788.8 | 31005.6 | 73.5 | PASS | 70-125 |
| CCB6 | CCB | 1 | 32657.8 | 31373.1 | 104.1 | PASS | 70-125 | 27106.5 | 31005.6 | 87.42 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 36718.5 | 31373.1 | 117.04 | PASS | 70-125 | 32859.4 | 31005.6 | 105.98 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 37588.5 | 31373.1 | 119.81 | PASS | 70-125 | 34152.1 | 31005.6 | 110.15 | PASS | 70-125 |
| CCV7 | CCV | 1 | 36585.1 | 31373.1 | 116.61 | PASS | 70-125 | 33138.8 | 31005.6 | 106.88 | PASS | 70-125 |
| CCB7 | CCB | 1 | 33225.8 | 31373.1 | 105.91 | PASS | 70-125 | 27960.2 | 31005.6 | 90.18 | PASS | 70-125 |
| CCV8 | CCV | 1 | 37334.6 | 31373.1 | 119 | PASS | 70-125 | 33482.9 | 31005.6 | 107.99 | PASS | 70-125 |
| CCB8 | CCB | 1 | 35198.7 | 31373.1 | 112.19 | PASS | 70-125 | 30127.4 | 31005.6 | 97.17 | PASS | 70-125 |
| CCV9 | CCV | 1 | 33214.6 | 31373.1 | 105.87 | PASS | 70-125 | 30257.6 | 31005.6 | 97.59 | PASS | 70-125 |
| CCB9 | CCB | 1 | 36435.8 | 31373.1 | 116.14 | PASS | 70-125 | 32047.8 | 31005.6 | 103.36 | PASS | 70-125 |
| ICSA4 | ICSA | 1 | 33714.4 | 31373.1 | 107.46 | PASS | 70-125 | 29211.3 | 31005.6 | 94.21 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 34790.1 | 31373.1 | 110.89 | PASS | 70-125 | 30308.8 | 31005.6 | 97.75 | PASS | 70-125 |
| CCV10 | CCV | 1 | 32969.5 | 31373.1 | 105.09 | PASS | 70-125 | 30400.1 | 31005.6 | 98.047 | PASS | 70-125 |
| CCB10 | CCB | 1 | 33902.6 | 31373.1 | 108.06 | PASS | 70-125 | 32019.8 | 31005.6 | 103.27 | PASS | 70-125 |
| CCV11 | CCV | 1 | 32217 | 31373.1 | 102.69 | PASS | 70-125 | 30480.3 | 31005.6 | 98.31 | PASS | 70-125 |
| CCB11 | CCB | 1 | 34204.3 | 31373.1 | 109.02 | PASS | 70-125 | 32606.6 | 31005.6 | 105.16 | PASS | 70-125 |
| CCV12 | CCV | 1 | 36078.4 | 31373.1 | 115 | PASS | 70-125 | 32565.5 | 31005.6 | 105.03 | PASS | 70-125 |
| CCB12 | CCB | 1 | 37344.5 | 31373.1 | 119.03 | PASS | 70-125 | 33515.1 | 31005.6 | 108.09 | PASS | 70-125 |
| CCV13 | CCV | 1 | 36119.5 | 31373.1 | 115.13 | PASS | 70-125 | 32470.8 | 31005.6 | 104.73 | PASS | 70-125 |
| CCB13 | CCB | 1 | 36831.2 | 31373.1 | 117.4 | PASS | 70-125 | 33075.4 | 31005.6 | 106.68 | PASS | 70-125 |
| ICSA5 | ICSA | 1 | 33309.1 | 31373.1 | 106.17 | PASS | 70-125 | 29070 | 31005.6 | 93.76 | PASS | 70-125 |
| ICSAB5 | ICSAB | 1 | 34526.1 | 31373.1 | 110.05 | PASS | 70-125 | 30162 | 31005.6 | 97.28 | PASS | 70-125 |

**INTERNAL STANDARD: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 944944.1 | 944944.1 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 955429.8 | 944944.1 | 101.11 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 951170.3 | 944944.1 | 100.66 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 947943.6 | 944944.1 | 100.32 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 948700.1 | 944944.1 | 100.4 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 942146.6 | 944944.1 | 99.7 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 942533.6 | 944944.1 | 99.74 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 934043.6 | 944944.1 | 98.85 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 910903.3 | 944944.1 | 96.4 | PASS | 70-125 |
| ICV | ICV | 1 | 1036786.3 | 944944.1 | 109.72 | PASS | 70-125 |
| ICB | ICB | 1 | 1009556.5 | 944944.1 | 106.84 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 995677.6 | 944944.1 | 105.37 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 1012150.8 | 944944.1 | 107.11 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 933154.6 | 944944.1 | 98.75 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 1071359.2 | 944944.1 | 113.38 | PASS | 70-125 |
| CCV1 | CCV | 1 | 1003043.3 | 944944.1 | 106.15 | PASS | 70-125 |
| CCB1 | CCB | 1 | 1056191.9 | 944944.1 | 111.77 | PASS | 70-125 |
| MB-72499 | MBLK | 1 | 1018396.5 | 944944.1 | 107.77 | PASS | 70-125 |
| LCS-72499 | LCS | 1 | 990030.9 | 944944.1 | 104.77 | PASS | 70-125 |
| N034128-001A | SAMP | 1 | 893036.2 | 944944.1 | 94.51 | PASS | 70-125 |
| N034128-001A | SAMP | 5 | 965977.7 | 944944.1 | 102.23 | PASS | 70-125 |
| N034128-001A-PS | PS | 1 | 909856.9 | 944944.1 | 96.29 | PASS | 70-125 |
| N034128-001A-MS | MS | 1 | 916721 | 944944.1 | 97.013 | PASS | 70-125 |
| N034128-001A-MSD | MSD | 1 | 932461.2 | 944944.1 | 98.68 | PASS | 70-125 |
| CCV2 | CCV | 1 | 1027728.7 | 944944.1 | 108.76 | PASS | 70-125 |
| CCB2 | CCB | 1 | 1019839.9 | 944944.1 | 107.93 | PASS | 70-125 |
| N034128-001A | SAMP | 1 | 811341 | 944944.1 | 85.86 | PASS | 70-125 |
| N034129-002D | SAMP | 1 | 880266.2 | 944944.1 | 93.16 | PASS | 70-125 |
| N034129-003D | SAMP | 1 | 887369.7 | 944944.1 | 93.91 | PASS | 70-125 |
| N034129-004D | SAMP | 1 | 931969.2 | 944944.1 | 98.63 | PASS | 70-125 |
| N034129-005D | SAMP | 1 | 953654.1 | 944944.1 | 100.92 | PASS | 70-125 |
| N034129-006D | SAMP | 1 | 959546.2 | 944944.1 | 101.55 | PASS | 70-125 |
| N034129-007D | SAMP | 1 | 966861.2 | 944944.1 | 102.32 | PASS | 70-125 |
| N034129-008D | SAMP | 1 | 946885.9 | 944944.1 | 100.21 | PASS | 70-125 |
| CCV3 | CCV | 1 | 1011071.9 | 944944.1 | 107 | PASS | 70-125 |
| CCB3 | CCB | 1 | 1062788.8 | 944944.1 | 112.47 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 1024755.8 | 944944.1 | 108.45 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 923880 | 944944.1 | 97.77 | PASS | 70-125 |
| N034129-002D | SAMP | 1 | 953550.6 | 944944.1 | 100.91 | PASS | 70-125 |
| N034129-007D | SAMP | 1 | 942053.5 | 944944.1 | 99.69 | PASS | 70-125 |
| N034129-009D | SAMP | 1 | 964194.6 | 944944.1 | 102.04 | PASS | 70-125 |

**INTERNAL STANDARD: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| N034129-007D | SAMP | 1 | 945781.7 | 944944.1 | 100.09 | PASS | 70-125 |
| N034129-010D | SAMP | 1 | 948516.5 | 944944.1 | 100.38 | PASS | 70-125 |
| N034129-011D | SAMP | 1 | 939014.4 | 944944.1 | 99.37 | PASS | 70-125 |
| N034129-012D | SAMP | 1 | 937640.9 | 944944.1 | 99.23 | PASS | 70-125 |
| N034129-013D | SAMP | 1 | 938120.9 | 944944.1 | 99.28 | PASS | 70-125 |
| N034129-014D | SAMP | 1 | 936454.1 | 944944.1 | 99.1 | PASS | 70-125 |
| N034128-001A | SAMP | 10 | 948380.5 | 944944.1 | 100.36 | PASS | 70-125 |
| CCV4 | CCV | 1 | 1022448 | 944944.1 | 108.2 | PASS | 70-125 |
| CCB4 | CCB | 1 | 1004712.4 | 944944.1 | 106.33 | PASS | 70-125 |
| N034129-013D | SAMP | 1 | 917079.1 | 944944.1 | 97.051 | PASS | 70-125 |
| N034129-014D | SAMP | 1 | 931952.1 | 944944.1 | 98.63 | PASS | 70-125 |
| N034129-013D | SAMP | 1 | 910307.6 | 944944.1 | 96.33 | PASS | 70-125 |
| N034128-001A | SAMP | 50 | 990506.5 | 944944.1 | 104.82 | PASS | 70-125 |
| N034128-001A-PS | PS | 10 | 945673 | 944944.1 | 100.08 | PASS | 70-125 |
| N034128-001A-MS | MS | 10 | 964953 | 944944.1 | 102.12 | PASS | 70-125 |
| N034128-001A-MSD | MSD | 10 | 968644.2 | 944944.1 | 102.51 | PASS | 70-125 |
| CCV5 | CCV | 1 | 828726.8 | 944944.1 | 87.7 | PASS | 70-125 |
| CCB5 | CCB | 1 | 930761.1 | 944944.1 | 98.5 | PASS | 70-125 |
| N034129-013D | SAMP | 1 | 909885.5 | 944944.1 | 96.29 | PASS | 70-125 |
| CCV6 | CCV | 1 | 820627.6 | 944944.1 | 86.84 | PASS | 70-125 |
| CCB6 | CCB | 1 | 955171.5 | 944944.1 | 101.08 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 963219.6 | 944944.1 | 101.93 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 978849.9 | 944944.1 | 103.59 | PASS | 70-125 |
| CCV7 | CCV | 1 | 1053397 | 944944.1 | 111.48 | PASS | 70-125 |
| CCB7 | CCB | 1 | 963738.9 | 944944.1 | 101.99 | PASS | 70-125 |
| CCV8 | CCV | 1 | 1073331.7 | 944944.1 | 113.59 | PASS | 70-125 |
| CCB8 | CCB | 1 | 1019272.8 | 944944.1 | 107.87 | PASS | 70-125 |
| CCV9 | CCV | 1 | 956596.5 | 944944.1 | 101.23 | PASS | 70-125 |
| CCB9 | CCB | 1 | 1055728.1 | 944944.1 | 111.72 | PASS | 70-125 |
| ICSA4 | ICSA | 1 | 886961.3 | 944944.1 | 93.86 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 912242.5 | 944944.1 | 96.54 | PASS | 70-125 |
| CCV10 | CCV | 1 | 935328 | 944944.1 | 98.98 | PASS | 70-125 |
| CCB10 | CCB | 1 | 979920.8 | 944944.1 | 103.7 | PASS | 70-125 |
| CCV11 | CCV | 1 | 911388.7 | 944944.1 | 96.45 | PASS | 70-125 |
| CCB11 | CCB | 1 | 969119 | 944944.1 | 102.56 | PASS | 70-125 |
| CCV12 | CCV | 1 | 1014008.2 | 944944.1 | 107.31 | PASS | 70-125 |
| CCB12 | CCB | 1 | 1043676.7 | 944944.1 | 110.45 | PASS | 70-125 |
| CCV13 | CCV | 1 | 1015016 | 944944.1 | 107.42 | PASS | 70-125 |
| CCB13 | CCB | 1 | 1046539.7 | 944944.1 | 110.75 | PASS | 70-125 |
| ICSA5 | ICSA | 1 | 888467.8 | 944944.1 | 94.023 | PASS | 70-125 |
| ICSAB5 | ICSAB | 1 | 889946.6 | 944944.1 | 94.18 | PASS | 70-125 |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-MS-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034129
Test Method: EPA 6020
Analysis Date: 2/28/2019

Matrix: Groundwater
Batch No.: 72499

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to several analytes. The calculated concentration is <25RL.

| Sample ID | Analyte | Units | Calc Val | OQual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|
| N034128-001A DT 5X | Arsenic | ug/L | 0.519595 | NA | 0.676703 | 23.22% | 10 |
| N034128-001A DT 5X | Barium | ug/L | 126.062 | PASS | 115.8725 | 8.79% | 10 |
| N034128-001A DT 5X | Chromium | ug/L | 0 | NA | 0 | | 10 |
| N034128-001A DT 50X | Manganese | ug/L | 976.6767 | PASS | 965.0074 | 1.21% | 10 |
| N034128-001A DT 5X | Molybdenum | ug/L | 52.22001 | PASS | 53.34709 | 2.11% | 10 |
| N034128-001A DT 5X | Selenium | ug/L | 0 | NA | 0.704138 | 100.00% | 10 |

Note: NA - Not applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | N034128-001A-PS | SampType: | PS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72499 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3305665 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.421 | 0.10 | 10.00 | 0.6767 | 107 | 80 | 120 | | | | |
| Barium | 121.558 | 1.0 | 10.00 | 115.9 | 56.9 | 80 | 120 | | | | S |
| Molybdenum | 63.726 | 0.50 | 10.00 | 53.35 | 104 | 80 | 120 | | | | |
| Selenium | 11.127 | 0.50 | 10.00 | 0.7041 | 104 | 80 | 120 | | | | |

| Sample ID | N034128-001A-PS | SampType: | PS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72499 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3305998 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 1102.156 | 5.0 | 100.0 | 965.0 | 137 | 80 | 120 | | | | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034129
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | N034128-001A-PS | SampType: | PS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | | RunNo: | 132224 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72499 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306131 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.293 | 1.0 | 10.00 | 0 | 92.9 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Amount of Sample:** 25 mL
**Units:** ug/L

| Analyte | AMT SPIKED, ppb | 1 | 2 | 3 | 4 | 5 | 6 | 7 | SD | MDL | LOD | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANTIMONY | 0.50 | 0.525 | 0.514 | 0.473 | 0.500 | 0.492 | 0.486 | 0.530 | 0.0210 | 0.0660 | 0.100 | 0.50 |
| ARSENIC | 0.10 | 0.099 | 0.104 | 0.087 | 0.048 | 0.060 | 0.069 | 0.120 | 0.0259 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 1.00 | 1.041 | 1.059 | 1.052 | 1.011 | 0.967 | 0.957 | 1.023 | 0.0403 | 0.1264 | 0.250 | 1.00 |
| BERYLLIUM | 0.50 | 0.469 | 0.476 | 0.473 | 0.495 | 0.480 | 0.488 | 0.507 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.50 | 0.515 | 0.513 | 0.492 | 0.534 | 0.499 | 0.483 | 0.508 | 0.0168 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 1.00 | 0.979 | 0.986 | 0.940 | 0.990 | 0.946 | 0.978 | 0.977 | 0.0197 | 0.0618 | 0.250 | 1.00 |
| COBALT | 0.50 | 0.499 | 0.489 | 0.486 | 0.488 | 0.465 | 0.502 | 0.505 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| COPPER | 1.00 | 1.110 | 0.667 | 1.039 | 1.060 | 1.006 | 1.099 | 1.075 | 0.1544 | 0.4850 | 0.500 | 1.00 |
| IRON | 10.00 | 10.873 | 10.802 | 10.142 | 9.991 | 9.846 | 9.852 | 10.596 | 0.4463 | 1.4014 | 2.500 | 10.00 |
| LEAD | 1.00 | 0.928 | 0.931 | 0.899 | 0.996 | 0.990 | 0.987 | 0.997 | 0.0406 | 0.1274 | 0.250 | 1.00 |
| MANGANESE | 0.50 | 0.577 | 0.588 | 0.561 | 0.566 | 0.517 | 0.541 | 0.520 | 0.0276 | 0.0866 | 0.100 | 0.50 |
| MOLYBDENUM | 0.50 | 0.514 | 0.504 | 0.467 | 0.478 | 0.456 | 0.433 | 0.527 | 0.0338 | 0.1061 | 0.250 | 0.50 |
| NICKEL | 1.00 | 0.961 | 0.965 | 0.977 | 0.907 | 0.914 | 0.962 | 1.075 | 0.0551 | 0.1731 | 0.250 | 1.00 |
| SELENIUM | 0.50 | 0.450 | 0.478 | 0.419 | 0.693 | 0.707 | 0.495 | 0.555 | 0.1155 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.50 | 0.558 | 0.511 | 0.490 | 0.542 | 0.458 | 0.490 | 0.684 | 0.0745 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.50 | 0.437 | 0.428 | 0.408 | 0.538 | 0.446 | 0.438 | 0.525 | 0.0504 | 0.1583 | 0.250 | 0.50 |
| URANIUM | 0.50 | 0.478 | 0.467 | 0.461 | 0.517 | 0.510 | 0.521 | 0.521 | 0.0267 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 1.00 | 0.950 | 0.969 | 0.900 | 0.844 | 0.829 | 0.848 | 1.053 | 0.0820 | 0.2574 | 0.500 | 1.00 |
| ZINC | 10.00 | 11.259 | 11.279 | 10.915 | 9.620 | 9.849 | 9.745 | 10.241 | 0.7235 | 2.2717 | 2.500 | 10.00 |

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Units:** ug/L

| Analyte | MDLs | MDLb | MDL | LOD | PQL |
|---|---|---|---|---|---|
| ANTIMONY | 0.0660 | 0.1564 | 0.1564 | 0.300 | 0.50 |
| ARSENIC | 0.0813 | 0.0387 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 0.1264 | 0.1497 | 0.1497 | 0.300 | 1.00 |
| BERYLLIUM | 0.0424 | 0.0153 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.0527 | 0.0060 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 0.0618 | 0.1298 | 0.1298 | 0.300 | 1.00 |
| COBALT | 0.0424 | 0.0339 | 0.0424 | 0.100 | 0.50 |
| COPPER | 0.4850 | 0.5459 | 0.5459 | 0.600 | 1.00 |
| IRON | 1.4014 | 4.3484 | 4.3484 | 5.000 | 10.00 |
| LEAD | 0.1274 | 0.1008 | 0.1274 | 0.300 | 1.00 |
| MANGANESE | 0.0866 | 0.2552 | 0.2552 | 0.300 | 0.50 |
| MOLYBDENUM | 0.1061 | 0.2149 | 0.2149 | 0.300 | 0.50 |
| NICKEL | 0.1731 | 0.2606 | 0.2606 | 0.300 | 1.00 |
| SELENIUM | 0.3628 | 0.0953 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.2340 | 0.2023 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.1583 | 0.1924 | 0.1924 | 0.300 | 0.50 |
| URANIUM | 0.0838 | 0.0020 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 0.2574 | 0.2768 | 0.2768 | 0.600 | 1.00 |
| ZINC | 2.2717 | 0.4511 | 2.2717 | 3.000 | 10.00 |

February 28, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034177

RE: PG&E Topock - PMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on February 14, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Litucas for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling;sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N034177-002B-MS2 and N034177-002B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium in QC samples N034177-001B-MS1 and N034177-001B-MSD1 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron in QC samples N034177-001B-MS1 and N034177-001B-MSD1 possibly due to matrix interference. Dilution Test was performed but not applicable since the result is less than 25x the reporting limit (RL). Post Spike was also performed and passed the acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8_Dissolved:

Matrix Spike (MS) is outside recovery criteria for Manganese in QC sample N034177-001B-MS since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed and both passed the acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Since the actual result of total dissolved chromium (519 ug/L) differs with hexavalent chromium (425 ug/L) by no more than 20% for sample N034177-002 (TW-03D-0219), reanalysis of the sample was not necessary.

Analytical Comments for EPA 218.6:

Since the actual result of total dissolved chromium (519 ug/L) differs with hexavalent chromium (425 ug/L) by no more than 20% for sample N034177-002 (TW-03D-0219), reanalysis of the sample was not necessary.

Analytical Comments for EPA 300.0:

Method Blank (MB) has detect greater than 1/2 the reporting limit for Sulfate. Sample result for this analyte was greater than 5x the Method Blank concentration therefore reanalysis of the sample was not necessary.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab Order:** N034177
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034177-001A | PE-01-0219 | Groundwater | 2/14/2019 9:15:00 AM | 2/14/2019 | 2/28/2019 |
| N034177-001B | PE-01-0219 | Groundwater | 2/14/2019 9:15:00 AM | 2/14/2019 | 2/28/2019 |
| N034177-001C | PE-01-0219 | Groundwater | 2/14/2019 9:15:00 AM | 2/14/2019 | 2/28/2019 |
| N034177-001D | PE-01-0219 | Groundwater | 2/14/2019 9:15:00 AM | 2/14/2019 | 2/28/2019 |
| N034177-002A | TW-03D-0219 | Groundwater | 2/14/2019 9:10:00 AM | 2/14/2019 | 2/28/2019 |
| N034177-002B | TW-03D-0219 | Groundwater | 2/14/2019 9:10:00 AM | 2/14/2019 | 2/28/2019 |
| N034177-002C | TW-03D-0219 | Groundwater | 2/14/2019 9:10:00 AM | 2/14/2019 | 2/28/2019 |
| N034177-002D | TW-03D-0219 | Groundwater | 2/14/2019 9:10:00 AM | 2/14/2019 | 2/28/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:15:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 2200 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 7600 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID | **N034177-001CDUP** | SampType: **DUP** | TestCode: **120.1_WPGE** | Units: **umhos/cm** | Prep Date: | RunNo: **131888** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **R131888** | TestNo: **EPA 120.1** | | Analysis Date: **2/15/2019** | SeqNo: **3291690** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 2260.000 | 0.10 | | | | | | 2230 | 1.34 | 2 | |

| Sample ID | **N034178-011CDUP** | SampType: **DUP** | TestCode: **120.1_WPGE** | Units: **umhos/cm** | Prep Date: | RunNo: **131888** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **R131888** | TestNo: **EPA 120.1** | | Analysis Date: **2/15/2019** | SeqNo: **3291702** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 11100.000 | 0.10 | | | | | | 10980 | 1.09 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:15:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190215D** | QC Batch: **R131889** | | | PrepDate | | | Analyst: **MG** |
| pH | 7.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/15/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/15/2019 02:00 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190215D** | QC Batch: **R131889** | | | PrepDate | | | Analyst: **MG** |
| pH | 7.2 | 0.10 | 0.10 | H | pH Units | 1 | 2/15/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/15/2019 02:00 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 150.1_4500H+B_W**

Sample ID **N034177-001CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **131889**
Client ID: **ZZZZZZ** Batch ID: **R131889** TestNo: **SM4500-H+B** Analysis Date: **2/15/2019** SeqNo: **3291704**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 7.310 | 0.10 | | | | | | 7.280 | 0.411 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:15:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190218D** | QC Batch: **72545** | | | PrepDate | **2/18/2019** | | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 1400 | 17 | 17 | | mg/L | 1 | 2/18/2019 12:56 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190218D** | QC Batch: **72545** | | | PrepDate | **2/18/2019** | | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 4300 | 50 | 50 | | mg/L | 1 | 2/18/2019 12:56 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.1_2540C_W**

| Sample ID **LCS-72545** | SampType: **LCS** | TestCode: **160.1_2540C** | Units: **mg/L** | Prep Date: **2/18/2019** | RunNo: **131939** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72545** | TestNo: **SM2540C** | | Analysis Date: **2/18/2019** | SeqNo: **3293223** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 972.000 | 10 | 1000 | 0 | 97.2 | 80 | 120 | | | | |

| Sample ID **MB-72545** | SampType: **MBLK** | TestCode: **160.1_2540C** | Units: **mg/L** | Prep Date: **2/18/2019** | RunNo: **131939** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72545** | TestNo: **SM2540C** | | Analysis Date: **2/18/2019** | SeqNo: **3293224** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | ND | 10 | | | | | | | | | |

| Sample ID **N034177-002CDUP** | SampType: **DUP** | TestCode: **160.1_2540C** | Units: **mg/L** | Prep Date: **2/18/2019** | RunNo: **131939** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72545** | TestNo: **SM2540C** | | Analysis Date: **2/18/2019** | SeqNo: **3293233** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 4300.000 | 50 | | | | | | 4255 | 1.05 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034177-001

**Client Sample ID:** PE-01-0219
**Collection Date:** 2/14/2019 9:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | | | **EPA 200.7** | | | | |
| RunID: **NV00922-ICP2_190222C** | QC Batch: **72530** | | | | PrepDate | **2/18/2019** | Analyst: **CEI** |
| Calcium | 130000 | 85 | 500 | | µg/L | 1 | 2/22/2019 10:38 AM |
| Iron | ND | 18 | 20 | | µg/L | 1 | 2/22/2019 10:38 AM |
| Magnesium | 32000 | 48 | 100 | | µg/L | 1 | 2/22/2019 10:38 AM |
| Sodium | 260000 | 4800 | 25000 | | µg/L | 50 | 2/26/2019 05:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | | | **EPA 200.7** | | | | |
| RunID: **NV00922-ICP2_190222C** | QC Batch: **72530** | | | PrepDate | **2/18/2019** | Analyst: **CEI** | |
| Calcium | 220000 | 85 | 500 | | µg/L | 1 | 2/22/2019 11:03 AM |
| Iron | ND | 18 | 20 | | µg/L | 1 | 2/22/2019 11:03 AM |
| Magnesium | 31000 | 48 | 100 | | µg/L | 1 | 2/22/2019 11:03 AM |
| Sodium | 1400000 | 4800 | 25000 | | µg/L | 50 | 2/26/2019 05:21 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference |
| | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **MB-72530** | SampType: **MBLK** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: **2/18/2019** | RunNo: **132065** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72530** | TestNo: **EPA 200.7** | | Analysis Date: **2/22/2019** | SeqNo: **3299622** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | ND | 500 | | | | | | | | | |
| Iron | ND | 20 | | | | | | | | | |
| Magnesium | ND | 100 | | | | | | | | | |

| Sample ID **LCS1-72530** | SampType: **LCS** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: **2/18/2019** | RunNo: **132065** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72530** | TestNo: **EPA 200.7** | | Analysis Date: **2/22/2019** | SeqNo: **3299623** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 5050.179 | 500 | 5000 | 0 | 101 | 85 | 115 | | | | |
| Iron | 111.030 | 20 | 100.0 | 0 | 111 | 85 | 115 | | | | |
| Magnesium | 5217.105 | 100 | 5000 | 0 | 104 | 85 | 115 | | | | |

| Sample ID **N034177-001B-MS1** | SampType: **MS** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: **2/18/2019** | RunNo: **132065** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72530** | TestNo: **EPA 200.7** | | Analysis Date: **2/22/2019** | SeqNo: **3299627** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 141680.263 | 500 | 5000 | 130600 | 221 | 75 | 125 | | | | S |
| Iron | 131.101 | 20 | 100.0 | 0 | 131 | 75 | 125 | | | | S |
| Magnesium | 37981.402 | 100 | 5000 | 31950 | 121 | 75 | 125 | | | | |

| Sample ID **N034177-001B-MSD** | SampType: **MSD** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: **2/18/2019** | RunNo: **132065** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72530** | TestNo: **EPA 200.7** | | Analysis Date: **2/22/2019** | SeqNo: **3299628** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 141293.882 | 500 | 5000 | 130600 | 214 | 75 | 125 | 141700 | 0.273 | 20 | S |
| Iron | 131.015 | 20 | 100.0 | 0 | 131 | 75 | 125 | 131.1 | 0.0656 | 20 | S |
| Magnesium | 38012.524 | 100 | 5000 | 31950 | 121 | 75 | 125 | 37980 | 0.0819 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID | MB-72530 | SampType: | MBLK | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 2/18/2019 | RunNo: | 132137 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72530 | TestNo: | EPA 200.7 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3302679 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Sodium | | ND | 500 | | | | | | | | | | |

| Sample ID | LCS2-72530 | SampType: | LCS | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 2/18/2019 | RunNo: | 132137 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72530 | TestNo: | EPA 200.7 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3302682 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Sodium | | 19871.817 | 500 | 20000 | 0 | 99.4 | 85 | 115 | | | | | |

| Sample ID | N034177-002B-MS2 | SampType: | MS | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 2/18/2019 | RunNo: | 132137 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72530 | TestNo: | EPA 200.7 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3302689 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Sodium | | 1534379.583 | 25000 | 20000 | 1447000 | 439 | 75 | 125 | | | | S | |

| Sample ID | N034177-002B-MSD | SampType: | MSD | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 2/18/2019 | RunNo: | 132137 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72530 | TestNo: | EPA 200.7 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3302690 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Sodium | | 1520811.956 | 25000 | 20000 | 1447000 | 371 | 75 | 125 | 1534000 | 0.888 | 20 | S | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:15:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICPMS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_190226C** | QC Batch: **72617** | | | PrepDate | **2/22/2019** | | Analyst: **CEI** |
| Manganese | 500 | 1.3 | 2.5 | | µg/L | 5 | 2/26/2019 05:20 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICPMS** | | | | | | | |
| **EPA 200.8** | | | | | | | |
| RunID: **NV00922-ICP7_190226C** QC Batch: **72617** PrepDate **2/22/2019** Analyst: **CEI** | | | | | | | |
| Manganese | 18 | 0.26 | 0.50 | | µg/L | 1 | 2/26/2019 06:25 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

| Sample ID **MB-72617** | SampType: **MBLK** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **2/22/2019** | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72617** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303705** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **LCS-72617** | SampType: **LCS** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **2/22/2019** | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72617** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303706** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 104.941 | 0.50 | 100.0 | 0 | 105 | 85 | 115 | | | | |

| Sample ID **N034177-001B-MS** | SampType: **MS** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **2/22/2019** | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72617** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303725** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 574.344 | 2.5 | 100.0 | 500.8 | 73.5 | 75 | 125 | | | | S |

| Sample ID **N034177-001B-MSD** | SampType: **MSD** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **2/22/2019** | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72617** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303726** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 578.741 | 2.5 | 100.0 | 500.8 | 77.9 | 75 | 125 | 574.3 | 0.763 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034177-001

**Client Sample ID:** PE-01-0219
**Collection Date:** 2/14/2019 9:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190219A** | QC Batch: **R131932** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/19/2019 12:40 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_190226C** | QC Batch: **72617** | | | PrepDate | **2/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/26/2019 05:14 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034177-002

**Client Sample ID:** TW-03D-0219
**Collection Date:** 2/14/2019 9:10:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190219A** | QC Batch: **R131932** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 420 | 3.3 | 20 | | µg/L | 100 | 2/19/2019 12:50 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_190226C** | QC Batch: **72617** | | | PrepDate | **2/22/2019** | | Analyst: **CEI** |
| Chromium | 520 | 0.65 | 5.0 | | µg/L | 5 | 2/26/2019 04:26 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID | MB-72617 | SampType: | MBLK | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | 2/22/2019 | RunNo: | 132154 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72617 | TestNo: | EPA 200.8 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303662 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-72617 | SampType: | LCS | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | 2/22/2019 | RunNo: | 132154 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72617 | TestNo: | EPA 200.8 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303663 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.466 | 1.0 | 10.00 | 0 | 105 | 85 | 115 | | | | |

| Sample ID | N034177-001B-MS | SampType: | MS | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | 2/22/2019 | RunNo: | 132154 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72617 | TestNo: | EPA 200.8 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303675 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.387 | 1.0 | 10.00 | 0.4265 | 89.6 | 75 | 125 | | | | |

| Sample ID | N034177-001B-MSD | SampType: | MSD | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | 2/22/2019 | RunNo: | 132154 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72617 | TestNo: | EPA 200.8 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303676 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.608 | 1.0 | 10.00 | 0.4265 | 91.8 | 75 | 125 | 9.387 | 2.33 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | MB-R131932 | SampType: | MBLK | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293122 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Hexavalent Chromium | | ND | 0.20 | | | | | | | | | | |

| Sample ID | LCS-R131932 | SampType: | LCS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293123 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Hexavalent Chromium | | 4.662 | 0.20 | 5.000 | 0 | 93.2 | 90 | 110 | | | | | |

| Sample ID | N034217-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293126 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Hexavalent Chromium | | 0.996 | 0.20 | 1.000 | 0 | 99.6 | 90 | 110 | | | | | |

| Sample ID | N034218-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293127 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Hexavalent Chromium | | 1.025 | 0.20 | 1.000 | 0 | 103 | 90 | 110 | | | | | |

| Sample ID | N034217-001AMSD | SampType: | MSD | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293130 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Hexavalent Chromium | | 1.041 | 0.20 | 1.000 | 0 | 104 | 90 | 110 | 0.9959 | 4.38 | 20 | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034218-002ADUP | SampType: | DUP | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293131 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.062 | 0.20 | | | | | | 0 | 0 | 20 | |

| Sample ID | N034219-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293133 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 9.570 | 2.0 | 10.00 | 0 | 95.7 | 90 | 110 | | | | |

| Sample ID | N034177-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293136 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.009 | 0.20 | 1.000 | 0 | 101 | 90 | 110 | | | | |

| Sample ID | N034177-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293137 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 901.270 | 20 | 500.0 | 424.6 | 95.3 | 90 | 110 | | | | |

| Sample ID | N034102-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293756 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.147 | 0.20 | 1.000 | 0.1720 | 97.5 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034102-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293757 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.792 | 1.0 | 5.000 | 0 | 95.8 | 90 | 110 | | | | |

| Sample ID | N034102-003AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293758 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.016 | 1.0 | 5.000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID | N034102-004AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293759 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.036 | 1.0 | 5.000 | 5.275 | 95.2 | 90 | 110 | | | | |

| Sample ID | N034192-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293768 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 2.391 | 0.20 | 1.000 | 1.338 | 105 | 90 | 110 | | | | |

| Sample ID | N034192-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293769 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 2.890 | 0.20 | 1.000 | 1.925 | 96.6 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034192-003AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293770 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 3.359 | 0.20 | 1.000 | 2.309 | 105 | 90 | 110 | | | | |

| Sample ID | N034192-004AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293771 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.512 | 0.20 | 1.000 | 0.5615 | 95.0 | 90 | 110 | | | | |

| Sample ID | N034192-005AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293772 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.465 | 0.20 | 1.000 | 0.4419 | 102 | 90 | 110 | | | | |

| Sample ID | N034109-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293773 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.018 | 0.20 | 1.000 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:15:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190220F** | QC Batch: **R131990** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 210 | 1.2 | 5.0 | | mg/L | 1 | 2/20/2019 05:30 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190220F** | QC Batch: **R131990** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 160 | 1.2 | 5.0 | | mg/L | 1 | 2/20/2019 05:30 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 2320_W_SP**

| Sample ID | LCS-R131990 | SampType: | LCS | TestCode: | 2320_W_SP | Units: | mg/L | Prep Date: | | RunNo: | 131990 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R131990 | TestNo: | SM 2320 B | | | Analysis Date: | 2/20/2019 | SeqNo: | 3295435 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 102.620 | 5.0 | 100.0 | 0 | 103 | 85 | 115 | | | | |

| Sample ID | MB-R131990 | SampType: | MBLK | TestCode: | 2320_W_SP | Units: | mg/L | Prep Date: | | RunNo: | 131990 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R131990 | TestNo: | SM 2320 B | | | Analysis Date: | 2/20/2019 | SeqNo: | 3295436 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | ND | 5.0 | | | | | | | | | |

| Sample ID | N034178-008CDUP | SampType: | DUP | TestCode: | 2320_W_SP | Units: | mg/L | Prep Date: | | RunNo: | 131990 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131990 | TestNo: | SM 2320 B | | | Analysis Date: | 2/20/2019 | SeqNo: | 3295440 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 85.153 | 5.0 | | | | | | 85.15 | 0 | 30 | |

| Sample ID | N034178-008CMS | SampType: | MS | TestCode: | 2320_W_SP | Units: | mg/L | Prep Date: | | RunNo: | 131990 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131990 | TestNo: | SM 2320 B | | | Analysis Date: | 2/20/2019 | SeqNo: | 3295441 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 181.223 | 5.0 | 100.0 | 85.15 | 96.1 | 75 | 125 | | | | |

| Sample ID | N034178-008CMSD | SampType: | MSD | TestCode: | 2320_W_SP | Units: | mg/L | Prep Date: | | RunNo: | 131990 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131990 | TestNo: | SM 2320 B | | | Analysis Date: | 2/20/2019 | SeqNo: | 3295442 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 183.406 | 5.0 | 100.0 | 85.15 | 98.3 | 75 | 125 | 181.2 | 1.20 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034177-001

**Client Sample ID:** PE-01-0219
**Collection Date:** 2/14/2019 9:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190218A** QC Batch: **R131955** | | | | PrepDate | | | Analyst: **HG** |
| Chloride | 460 | 1.8 | 100 | | mg/L | 200 | 2/18/2019 12:37 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190220A** QC Batch: **R131992** | | | | PrepDate | | | Analyst: **HG** |
| Sulfate | 260 | 1.1 | 25 | | mg/L | 50 | 2/20/2019 05:56 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190218A** | QC Batch: **R131955** | | | PrepDate | | | Analyst: **HG** |
| Chloride | 2200 | 4.6 | 250 | | mg/L | 500 | 2/18/2019 12:52 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190220A** | QC Batch: **R131992** | | | PrepDate | | | Analyst: **HG** |
| Sulfate | 520 | 1.1 | 25 | | mg/L | 50 | 2/20/2019 06:11 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID | MB-R131955_CL | SampType: | MBLK | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 131955 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R131955 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/18/2019 | SeqNo: | 3294337 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.161 | 0.50 | | | | | | | | | |

| Sample ID | LCS-R131955_CL | SampType: | LCS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 131955 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R131955 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/18/2019 | SeqNo: | 3294338 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 2.004 | 0.50 | 2.000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID | N034178-008CDUP | SampType: | DUP | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 131955 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131955 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/18/2019 | SeqNo: | 3294346 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1233.850 | 250 | | | | | | 1234 | 0.0122 | 20 | |

| Sample ID | N034177-001CMS | SampType: | MS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 131955 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131955 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/18/2019 | SeqNo: | 3294349 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 850.740 | 100 | 400.0 | 461.3 | 97.4 | 80 | 120 | | | | |

| Sample ID | N034177-001CMSD | SampType: | MSD | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 131955 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131955 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/18/2019 | SeqNo: | 3294350 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 858.520 | 100 | 400.0 | 461.3 | 99.3 | 80 | 120 | 850.7 | 0.910 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID | MB-R131992_SO4 | SampType: | MBLK | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296105 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.273 | 0.50 | | | | | | | | | |

| Sample ID | LCS-R131992_SO4 | SampType: | LCS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296106 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.877 | 0.50 | 4.000 | 0 | 96.9 | 90 | 110 | | | | |

| Sample ID | N034107-002CMS | SampType: | MS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296114 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 91.407 | 5.0 | 40.00 | 52.18 | 98.1 | 80 | 120 | | | | |

| Sample ID | N034107-002CMSD | SampType: | MSD | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296117 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 90.904 | 5.0 | 40.00 | 52.18 | 96.8 | 80 | 120 | 91.41 | 0.552 | 20 | |

| Sample ID | N034178-008CDUP | SampType: | DUP | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296119 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 262.965 | 25 | | | | | | 262.8 | 0.0818 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID | N034183-001CMS | SampType: | MS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296121 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 45.655 | 2.5 | 20.00 | 25.79 | 99.3 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:15:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190227C** | QC Batch: **R132167** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | ND | 0.032 | 0.050 | | mg/L | 1 | 2/27/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190227C** | QC Batch: **R132167** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 2.8 | 0.16 | 0.25 | | mg/L | 5 | 2/27/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **MB-R132167** | SampType: **MBLK** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132167** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304083** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **LCS-R132167** | SampType: **LCS** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132167** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304084** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.498 | 0.050 | 0.5000 | 0 | 99.6 | 85 | 115 | | | | |

| Sample ID **N034126-005DMS** | SampType: **MS** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132167** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304087** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 25.382 | 1.0 | 10.00 | 15.49 | 99.0 | 75 | 125 | | | | |

| Sample ID **N034126-005DMSD** | SampType: **MSD** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132167** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304088** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 25.708 | 1.0 | 10.00 | 15.49 | 102 | 75 | 125 | 25.38 | 1.28 | 20 | |

| Sample ID **N034126-007DDUP** | SampType: **DUP** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132167** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304091** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 32.065 | 2.5 | | | | | | 33.33 | 3.87 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: | |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@pivox.com | P.O.# SWA-ASSET-C9817-057 |
| Submitted By: JOE GATEL | | Phone: 949-727-1400, ext 200 | Fax: |
| Title: SCIENTIST 1 | Phone: 916-786-3302 Fax: | | |
| Signature: Date: 2/14/2019 | Sampled By: Jordan Tramp | | |
| *I hereby authorize ASSET Labs to perform the tests indicated below.* | *I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for* | | |
| Project Name: PG&E Topock - PMP | Signature: Date: 2/14/2019 | | |
| Project Number: RC000753.801D | | | |

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

| EDD Requirement | | QA/QC | | Sample Receipt Condition | Y | N |
|---|---|---|---|---|---|---|
| Excel EDD | | RTNE | | 1. Chilled | ✓ | |
| Geotracker | | RWQCB | ✓ | 2. Headspace | | |
| Labspec | | CalTrans | | 3. Container Intact | ✓ | |
| Others | ✓ | LEVEL III | | 4. Seal Present | | ✓ |
| Specify: RWQCB | | LEVEL IV | | 5. IR number | | ✓ |
| Global ID: | | Regulatory | | 6. Method of Cooling: | ICE | |
| | | Specify State: | | Sample Temp: | 2.4°C | |

Courier:

Tracking No.:

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly) | Dissolved metals (EPA 200.8) FF; HNO3, 500 mL poly Cr, Mn (1 L poly) | Dissolved metals (EPA200.7) FF; HNO3 Ca, Mg, Fe, Na, (1 L poly) | (1 L poly) | (500 mL poly) | Anions (E300.0); Cl, SO4 (1 liter poly) | Specific Conductance (E120.1) (1 liter poly) | pH (SM4500HB) (1 liter poly) | TDS (SM2540C) (1 liter poly) | Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly) | TDS (SM2540C) (1 liter poly) | Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034177-01 | PE-01-0219 | 2/14/2019 | 9:15 | | X | X | X | | | X | X | X | X | X | X | X | E | 4 | P | BNS | |
| 2 | -02 | TW-03D-0219 | 2/14/2019 | 9:10 | | X | X | X | | | X | X | X | X | X | X | X | E | 4 | P | BNS | |
| 3 | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | |

| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| Jordan Tramp | 2/14/19 1600 | JORDAN IGC | 2-14-19 1610 |
| JORDAN IGC | 2-14-19 1650 | JORDAN IGC | 2-14-19 1850 |
| | | | |

**Turn Around Time (TAT)**

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

**Preservatives:**

| | | | |
|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C |
| Z=Zn(AC)$_2$ | O=NaOH | T=$Na_2S_2O_3$ | |
| Others/Specify: | B | (NH4)2SO4/NH4OH | |

**Container Type:**

| | | |
|---|---|---|
| T=Tube | V=VOA | P=Plnt |
| J=Jar | B=Tedlar | G=Glass |
| M=Metal | M=Metal | C=Can |

**Terms**
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy

Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 2/14/2019 | Workorder: | N034177 |
| Rep sample Temp (Deg C): | 2.4 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | N/A | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☐ | No ☑ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☑ | No ☐ | NA ☐ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments: Samples for pH were past holding time upon receipt.

For:

Checklist Completed By: RM 2/19/2019

Reviewed By: LG 022019

# ASSET Laboratories

## WORK ORDER Summary

*15-Feb-19*

**WorkOrder:** N034177

**Client ID:** ARCUS02

**Project:** PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/14/2019

**Comments:** EDD RWQCB

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034177-001A | PE-01-0219 | 2/14/2019 9:15:00 AM | 2/28/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034177-001B | | | 2/28/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 200.7 | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 200.8 | DISSOLVED METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 200.8 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034177-001C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | WW |
| N034177-001D | | | 2/28/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034177-002A | TW-03D-0219 | 2/14/2019 9:10:00 AM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034177-002B | | | 2/28/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 200.7 | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 200.8 | DISSOLVED METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 200.8 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034177-002C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*15-Feb-19*

**WorkOrder:** N034177

**Client ID:** ARCUS02

**Project:** PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/14/2019

**Comments:** EDD RWQCB

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034177-002C | TW-03D-0219 | 2/14/2019 9:10:00 AM | 2/28/2019 | Groundwater | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | WW |
| N034177-002D | | | 2/28/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034177-003A | FOLDER | 2/28/2019 | 2/28/2019 | | EDD | RWQCB | ☐ | ☐ | ☐ | LAB |
| | | | 2/28/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 2/28/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

Subject: Fwd: RE: PG&E Topock - PMP, RC000753.801D (Asset Labs No. N034177)
From: Yoandra Rodriguez <yoandra@assetlaboratories.com>
Date: 2/21/2019 12:52 PM
To: "nancy@assetlaboratories.com" <nancy@assetlaboratories.com>
CC: "'Marlon B. Cartin'" <marlon@assetlaboratories.com>

-------- Forwarded Message --------
Subject:RE: PG&E Topock - PMP, RC000753.801D (Asset Labs No. N034177)
Date:Thu, 21 Feb 2019 20:47:45 +0000
From:Madsen, Laura <Laura.Madsen@arcadis.com>
To:Yoandra Rodriguez <yoandra@assetlaboratories.com>
CC:maryann.balilu@assetlaboratoriesph.com <maryann.balilu@assetlaboratoriesph.com>, 'Andreafe. Gallardo' <andrea.gallardo@assetlaboratories.com>, 'Sonny. Lorenzo' <sonny.lorenzo@assetlaboratories.com>, Lucille Golosinda <lucille.golosinda@assetlaboratories.com>

I see what you are saying. The second TDS on the COC is a duplicate. TDS only needs to be run once.

Thanks,
Laura

---

From: Yoandra Rodriguez <yoandra@assetlaboratories.com>
Sent: Thursday, February 21, 2019 2:42 PM
To: Madsen, Laura <Laura.Madsen@arcadis.com>
Cc: maryann.balilu@assetlaboratoriesph.com; 'Andreafe. Gallardo' <andrea.gallardo@assetlaboratories.com>; 'Sonny. Lorenzo' <sonny.lorenzo@assetlaboratories.com>; Lucille Golosinda <lucille.golosinda@assetlaboratories.com>
Subject: PG&E Topock - PMP, RC000753.801D (Asset Labs No. N034177)

Hi Laura,

Please, I'd like to confirm that TDS was requested twice on the attached COC and we don't need to run any other test.

--
Thanks,

Yoandra Rodriguez
Sample Control Officer
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436

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--

Thanks,

Yoandra Rodriguez
Sample Control Officer
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436

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# *ARCADIS*

Project: PG&E Topock - PMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N034177

## *ANALYTICAL and QC RESULTS*
## *SAMPLE RECEIVING ITEMS*

*PRIVILEGED AND CONFIDENTIAL*

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February 28, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034177

RE: PG&E Topock - PMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on February 14, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Litucas for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab Order:** N034177

# CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling;sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N034177-002B-MS2 and N034177-002B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium in QC samples N034177-001B-MS1 and N034177-001B-MSD1 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron in QC samples N034177-001B-MS1 and N034177-001B-MSD1 possibly due to matrix interference. Dilution Test was performed but not applicable since the result is less than 25x the reporting limit (RL). Post Spike was also performed and passed the acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8_Dissolved:

Matrix Spike (MS) is outside recovery criteria for Manganese in QC sample N034177-001B-MS since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed and both passed the acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Since the actual result of total dissolved chromium (519 ug/L) differs with hexavalent chromium (425 ug/L) by no more than 20% for sample N034177-002 (TW-03D-0219), reanalysis of the sample was not necessary.

Analytical Comments for EPA 218.6:

Since the actual result of total dissolved chromium (519 ug/L) differs with hexavalent chromium (425 ug/L) by no more than 20% for sample N034177-002 (TW-03D-0219), reanalysis of the sample was not necessary.

Analytical Comments for EPA 300.0:

Method Blank (MB) has detect greater than 1/2 the reporting limit for Sulfate. Sample result for this analyte was greater than 5x the Method Blank concentration therefore reanalysis of the sample was not necessary.

## ASSET Laboratories

**Date:** *28-Feb-19*

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab Order:** N034177
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034177-001A | PE-01-0219 | Groundwater | 2/14/2019 9:15:00 AM | 2/14/2019 | 2/28/2019 |
| N034177-001B | PE-01-0219 | Groundwater | 2/14/2019 9:15:00 AM | 2/14/2019 | 2/28/2019 |
| N034177-001C | PE-01-0219 | Groundwater | 2/14/2019 9:15:00 AM | 2/14/2019 | 2/28/2019 |
| N034177-001D | PE-01-0219 | Groundwater | 2/14/2019 9:15:00 AM | 2/14/2019 | 2/28/2019 |
| N034177-002A | TW-03D-0219 | Groundwater | 2/14/2019 9:10:00 AM | 2/14/2019 | 2/28/2019 |
| N034177-002B | TW-03D-0219 | Groundwater | 2/14/2019 9:10:00 AM | 2/14/2019 | 2/28/2019 |
| N034177-002C | TW-03D-0219 | Groundwater | 2/14/2019 9:10:00 AM | 2/14/2019 | 2/28/2019 |
| N034177-002D | TW-03D-0219 | Groundwater | 2/14/2019 9:10:00 AM | 2/14/2019 | 2/28/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:15:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 2200 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 7600 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID **N034177-001CDUP** | SampType: **DUP** | TestCode: **120.1_WPGE** | Units: **umhos/cm** | Prep Date: | RunNo: **131888** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131888** | TestNo: **EPA 120.1** | | Analysis Date: **2/15/2019** | SeqNo: **3291690** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 2260.000 | 0.10 | | | | | | 2230 | 1.34 | 2 | |

| Sample ID **N034178-011CDUP** | SampType: **DUP** | TestCode: **120.1_WPGE** | Units: **umhos/cm** | Prep Date: | RunNo: **131888** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131888** | TestNo: **EPA 120.1** | | Analysis Date: **2/15/2019** | SeqNo: **3291702** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 11100.000 | 0.10 | | | | | | 10980 | 1.09 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034177-001

**Client Sample ID:** PE-01-0219
**Collection Date:** 2/14/2019 9:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190215D** | QC Batch: **R131889** | | | PrepDate | | | Analyst: **MG** |
| pH | 7.3 | 0.10 | 0.10 | H | pH Units | 1 | 2/15/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/15/2019 02:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034177-002

**Client Sample ID:** TW-03D-0219
**Collection Date:** 2/14/2019 9:10:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190215D** | QC Batch: **R131889** | | | PrepDate | | | Analyst: **MG** |
| pH | 7.2 | 0.10 | 0.10 | H | pH Units | 1 | 2/15/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 2/15/2019 02:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 150.1_4500H+B_W**

Sample ID **N034177-001CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **131889**
Client ID: **ZZZZZZ** Batch ID: **R131889** TestNo: **SM4500-H+B** Analysis Date: **2/15/2019** SeqNo: **3291704**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 7.310 | 0.10 | | | | | | 7.280 | 0.411 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:15:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190218D** | QC Batch: **72545** | | | PrepDate | **2/18/2019** | | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 1400 | 17 | 17 | | mg/L | 1 | 2/18/2019 12:56 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190218D** | QC Batch: **72545** | | | PrepDate | **2/18/2019** | | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 4300 | 50 | 50 | | mg/L | 1 | 2/18/2019 12:56 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.1_2540C_W**

| Sample ID **LCS-72545** | SampType: **LCS** | TestCode: **160.1_2540C** | Units: **mg/L** | Prep Date: **2/18/2019** | RunNo: **131939** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72545** | TestNo: **SM2540C** | | Analysis Date: **2/18/2019** | SeqNo: **3293223** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 972.000 | 10 | 1000 | 0 | 97.2 | 80 | 120 | | | | |

| Sample ID **MB-72545** | SampType: **MBLK** | TestCode: **160.1_2540C** | Units: **mg/L** | Prep Date: **2/18/2019** | RunNo: **131939** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72545** | TestNo: **SM2540C** | | Analysis Date: **2/18/2019** | SeqNo: **3293224** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | ND | 10 | | | | | | | | | |

| Sample ID **N034177-002CDUP** | SampType: **DUP** | TestCode: **160.1_2540C** | Units: **mg/L** | Prep Date: **2/18/2019** | RunNo: **131939** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72545** | TestNo: **SM2540C** | | Analysis Date: **2/18/2019** | SeqNo: **3293233** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 4300.000 | 50 | | | | | | 4255 | 1.05 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:15:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | | | **EPA 200.7** | | | | |
| RunID: **NV00922-ICP2_190222C** | QC Batch: **72530** | | | | PrepDate | **2/18/2019** | Analyst: **CEI** |
| Calcium | 130000 | 85 | 500 | | µg/L | 1 | 2/22/2019 10:38 AM |
| Iron | ND | 18 | 20 | | µg/L | 1 | 2/22/2019 10:38 AM |
| Magnesium | 32000 | 48 | 100 | | µg/L | 1 | 2/22/2019 10:38 AM |
| Sodium | 260000 | 4800 | 25000 | | µg/L | 50 | 2/26/2019 05:10 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034177-002

**Client Sample ID:** TW-03D-0219
**Collection Date:** 2/14/2019 9:10:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | | | **EPA 200.7** | | | | |
| RunID: **NV00922-ICP2_190222C** | QC Batch: **72530** | | | | PrepDate | **2/18/2019** | Analyst: **CEI** |
| Calcium | 220000 | 85 | 500 | | µg/L | 1 | 2/22/2019 11:03 AM |
| Iron | ND | 18 | 20 | | µg/L | 1 | 2/22/2019 11:03 AM |
| Magnesium | 31000 | 48 | 100 | | µg/L | 1 | 2/22/2019 11:03 AM |
| Sodium | 1400000 | 4800 | 25000 | | µg/L | 50 | 2/26/2019 05:21 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **MB-72530** | SampType: **MBLK** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: **2/18/2019** | RunNo: **132065** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72530** | TestNo: **EPA 200.7** | | Analysis Date: **2/22/2019** | SeqNo: **3299622** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | ND | 500 | | | | | | | | | |
| Iron | ND | 20 | | | | | | | | | |
| Magnesium | ND | 100 | | | | | | | | | |

| Sample ID **LCS1-72530** | SampType: **LCS** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: **2/18/2019** | RunNo: **132065** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72530** | TestNo: **EPA 200.7** | | Analysis Date: **2/22/2019** | SeqNo: **3299623** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 5050.179 | 500 | 5000 | 0 | 101 | 85 | 115 | | | | |
| Iron | 111.030 | 20 | 100.0 | 0 | 111 | 85 | 115 | | | | |
| Magnesium | 5217.105 | 100 | 5000 | 0 | 104 | 85 | 115 | | | | |

| Sample ID **N034177-001B-MS1** | SampType: **MS** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: **2/18/2019** | RunNo: **132065** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72530** | TestNo: **EPA 200.7** | | Analysis Date: **2/22/2019** | SeqNo: **3299627** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 141680.263 | 500 | 5000 | 130600 | 221 | 75 | 125 | | | | S |
| Iron | 131.101 | 20 | 100.0 | 0 | 131 | 75 | 125 | | | | S |
| Magnesium | 37981.402 | 100 | 5000 | 31950 | 121 | 75 | 125 | | | | |

| Sample ID **N034177-001B-MSD** | SampType: **MSD** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: **2/18/2019** | RunNo: **132065** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72530** | TestNo: **EPA 200.7** | | Analysis Date: **2/22/2019** | SeqNo: **3299628** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 141293.882 | 500 | 5000 | 130600 | 214 | 75 | 125 | 141700 | 0.273 | 20 | S |
| Iron | 131.015 | 20 | 100.0 | 0 | 131 | 75 | 125 | 131.1 | 0.0656 | 20 | S |
| Magnesium | 38012.524 | 100 | 5000 | 31950 | 121 | 75 | 125 | 37980 | 0.0819 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID | MB-72530 | SampType: | MBLK | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 2/18/2019 | RunNo: | 132137 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72530 | TestNo: | EPA 200.7 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3302679 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Sodium | | ND | 500 | | | | | | | | | | |

| Sample ID | LCS2-72530 | SampType: | LCS | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 2/18/2019 | RunNo: | 132137 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72530 | TestNo: | EPA 200.7 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3302682 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Sodium | | 19871.817 | 500 | 20000 | 0 | 99.4 | 85 | 115 | | | | | |

| Sample ID | N034177-002B-MS2 | SampType: | MS | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 2/18/2019 | RunNo: | 132137 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72530 | TestNo: | EPA 200.7 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3302689 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Sodium | | 1534379.583 | 25000 | 20000 | 1447000 | 439 | 75 | 125 | | | | S | |

| Sample ID | N034177-002B-MSD | SampType: | MSD | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 2/18/2019 | RunNo: | 132137 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72530 | TestNo: | EPA 200.7 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3302690 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Sodium | | 1520811.956 | 25000 | 20000 | 1447000 | 371 | 75 | 125 | 1534000 | 0.888 | 20 | S | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034177-001

**Client Sample ID:** PE-01-0219
**Collection Date:** 2/14/2019 9:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICPMS** | | | | | | | |
| **EPA 200.8** | | | | | | | |
| RunID: **NV00922-ICP7_190226C** QC Batch: **72617** PrepDate **2/22/2019** Analyst: **CEI** | | | | | | | |
| Manganese | 500 | 1.3 | 2.5 | | µg/L | 5 | 2/26/2019 05:20 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICPMS** | | | | | | | |
| **EPA 200.8** | | | | | | | |
| RunID: **NV00922-ICP7_190226C** QC Batch: **72617** | | | | PrepDate | | **2/22/2019** | Analyst: **CEI** |
| Manganese | 18 | 0.26 | 0.50 | | µg/L | 1 | 2/26/2019 06:25 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

| Sample ID **MB-72617** | SampType: **MBLK** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **2/22/2019** | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72617** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303705** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **LCS-72617** | SampType: **LCS** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **2/22/2019** | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72617** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303706** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 104.941 | 0.50 | 100.0 | 0 | 105 | 85 | 115 | | | | |

| Sample ID **N034177-001B-MS** | SampType: **MS** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **2/22/2019** | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72617** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303725** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 574.344 | 2.5 | 100.0 | 500.8 | 73.5 | 75 | 125 | | | | S |

| Sample ID **N034177-001B-MSD** | SampType: **MSD** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **2/22/2019** | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72617** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303726** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 578.741 | 2.5 | 100.0 | 500.8 | 77.9 | 75 | 125 | 574.3 | 0.763 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034177-001

**Client Sample ID:** PE-01-0219
**Collection Date:** 2/14/2019 9:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190219A** | QC Batch: **R131932** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/19/2019 12:40 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_190226C** | QC Batch: **72617** | | | PrepDate | **2/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 2/26/2019 05:14 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190219A** | QC Batch: **R131932** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 420 | 3.3 | 20 | | µg/L | 100 | 2/19/2019 12:50 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_190226C** | QC Batch: **72617** | | | PrepDate | **2/22/2019** | | Analyst: **CEI** |
| Chromium | 520 | 0.65 | 5.0 | | µg/L | 5 | 2/26/2019 04:26 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID | MB-72617 | SampType: | MBLK | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | 2/22/2019 | RunNo: | 132154 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72617 | TestNo: | EPA 200.8 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303662 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-72617 | SampType: | LCS | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | 2/22/2019 | RunNo: | 132154 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72617 | TestNo: | EPA 200.8 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303663 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.466 | 1.0 | 10.00 | 0 | 105 | 85 | 115 | | | | |

| Sample ID | N034177-001B-MS | SampType: | MS | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | 2/22/2019 | RunNo: | 132154 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72617 | TestNo: | EPA 200.8 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303675 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.387 | 1.0 | 10.00 | 0.4265 | 89.6 | 75 | 125 | | | | |

| Sample ID | N034177-001B-MSD | SampType: | MSD | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | 2/22/2019 | RunNo: | 132154 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72617 | TestNo: | EPA 200.8 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303676 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.608 | 1.0 | 10.00 | 0.4265 | 91.8 | 75 | 125 | 9.387 | 2.33 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | MB-R131932 | SampType: | MBLK | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293122 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID | LCS-R131932 | SampType: | LCS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293123 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.662 | 0.20 | 5.000 | 0 | 93.2 | 90 | 110 | | | | |

| Sample ID | N034217-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293126 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.996 | 0.20 | 1.000 | 0 | 99.6 | 90 | 110 | | | | |

| Sample ID | N034218-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293127 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.025 | 0.20 | 1.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID | N034217-001AMSD | SampType: | MSD | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 131932 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131932 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/19/2019 | SeqNo: | 3293130 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.041 | 0.20 | 1.000 | 0 | 104 | 90 | 110 | 0.9959 | 4.38 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **N034218-002ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293131**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.062 | 0.20 | | | | | | 0 | 0 | 20 | |

Sample ID **N034219-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293133**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 9.570 | 2.0 | 10.00 | 0 | 95.7 | 90 | 110 | | | | |

Sample ID **N034177-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293136**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.009 | 0.20 | 1.000 | 0 | 101 | 90 | 110 | | | | |

Sample ID **N034177-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293137**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 901.270 | 20 | 500.0 | 424.6 | 95.3 | 90 | 110 | | | | |

Sample ID **N034102-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293756**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.147 | 0.20 | 1.000 | 0.1720 | 97.5 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **N034102-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293757**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.792 | 1.0 | 5.000 | 0 | 95.8 | 90 | 110 | | | | |

Sample ID **N034102-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293758**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.016 | 1.0 | 5.000 | 0 | 100 | 90 | 110 | | | | |

Sample ID **N034102-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293759**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.036 | 1.0 | 5.000 | 5.275 | 95.2 | 90 | 110 | | | | |

Sample ID **N034192-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293768**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 2.391 | 0.20 | 1.000 | 1.338 | 105 | 90 | 110 | | | | |

Sample ID **N034192-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293769**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 2.890 | 0.20 | 1.000 | 1.925 | 96.6 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **N034192-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293770**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 3.359 | 0.20 | 1.000 | 2.309 | 105 | 90 | 110 | | | | |

Sample ID **N034192-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293771**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.512 | 0.20 | 1.000 | 0.5615 | 95.0 | 90 | 110 | | | | |

Sample ID **N034192-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293772**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.465 | 0.20 | 1.000 | 0.4419 | 102 | 90 | 110 | | | | |

Sample ID **N034109-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **131932**
Client ID: **ZZZZZZ** Batch ID: **R131932** TestNo: **EPA 218.6** Analysis Date: **2/19/2019** SeqNo: **3293773**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.018 | 0.20 | 1.000 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:15:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190220F** | QC Batch: **R131990** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 210 | 1.2 | 5.0 | | mg/L | 1 | 2/20/2019 05:30 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190220F** | QC Batch: **R131990** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 160 | 1.2 | 5.0 | | mg/L | 1 | 2/20/2019 05:30 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 2320_W_SP**

| Sample ID | LCS-R131990 | SampType: | LCS | TestCode: | 2320_W_SP | Units: | mg/L | Prep Date: | | RunNo: | 131990 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R131990 | TestNo: | SM 2320 B | | | Analysis Date: | 2/20/2019 | SeqNo: | 3295435 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 102.620 | 5.0 | 100.0 | 0 | 103 | 85 | 115 | | | | |

| Sample ID | MB-R131990 | SampType: | MBLK | TestCode: | 2320_W_SP | Units: | mg/L | Prep Date: | | RunNo: | 131990 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R131990 | TestNo: | SM 2320 B | | | Analysis Date: | 2/20/2019 | SeqNo: | 3295436 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | ND | 5.0 | | | | | | | | | |

| Sample ID | N034178-008CDUP | SampType: | DUP | TestCode: | 2320_W_SP | Units: | mg/L | Prep Date: | | RunNo: | 131990 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131990 | TestNo: | SM 2320 B | | | Analysis Date: | 2/20/2019 | SeqNo: | 3295440 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 85.153 | 5.0 | | | | | | 85.15 | 0 | 30 | |

| Sample ID | N034178-008CMS | SampType: | MS | TestCode: | 2320_W_SP | Units: | mg/L | Prep Date: | | RunNo: | 131990 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131990 | TestNo: | SM 2320 B | | | Analysis Date: | 2/20/2019 | SeqNo: | 3295441 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 181.223 | 5.0 | 100.0 | 85.15 | 96.1 | 75 | 125 | | | | |

| Sample ID | N034178-008CMSD | SampType: | MSD | TestCode: | 2320_W_SP | Units: | mg/L | Prep Date: | | RunNo: | 131990 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131990 | TestNo: | SM 2320 B | | | Analysis Date: | 2/20/2019 | SeqNo: | 3295442 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 183.406 | 5.0 | 100.0 | 85.15 | 98.3 | 75 | 125 | 181.2 | 1.20 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034177-001

**Client Sample ID:** PE-01-0219
**Collection Date:** 2/14/2019 9:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190218A** QC Batch: **R131955** | | | | PrepDate | | | Analyst: **HG** |
| Chloride | 460 | 1.8 | 100 | | mg/L | 200 | 2/18/2019 12:37 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190220A** QC Batch: **R131992** | | | | PrepDate | | | Analyst: **HG** |
| Sulfate | 260 | 1.1 | 25 | | mg/L | 50 | 2/20/2019 05:56 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190218A** | QC Batch: **R131955** | | | PrepDate | | | Analyst: **HG** |
| Chloride | 2200 | 4.6 | 250 | | mg/L | 500 | 2/18/2019 12:52 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190220A** | QC Batch: **R131992** | | | PrepDate | | | Analyst: **HG** |
| Sulfate | 520 | 1.1 | 25 | | mg/L | 50 | 2/20/2019 06:11 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID | MB-R131955_CL | SampType: | MBLK | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 131955 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R131955 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/18/2019 | SeqNo: | 3294337 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.161 | 0.50 | | | | | | | | | |

| Sample ID | LCS-R131955_CL | SampType: | LCS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 131955 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R131955 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/18/2019 | SeqNo: | 3294338 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 2.004 | 0.50 | 2.000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID | N034178-008CDUP | SampType: | DUP | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 131955 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131955 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/18/2019 | SeqNo: | 3294346 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1233.850 | 250 | | | | | | 1234 | 0.0122 | 20 | |

| Sample ID | N034177-001CMS | SampType: | MS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 131955 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131955 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/18/2019 | SeqNo: | 3294349 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 850.740 | 100 | 400.0 | 461.3 | 97.4 | 80 | 120 | | | | |

| Sample ID | N034177-001CMSD | SampType: | MSD | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 131955 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131955 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/18/2019 | SeqNo: | 3294350 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 858.520 | 100 | 400.0 | 461.3 | 99.3 | 80 | 120 | 850.7 | 0.910 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID | MB-R131992_SO4 | SampType: | MBLK | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296105 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.273 | 0.50 | | | | | | | | | |

| Sample ID | LCS-R131992_SO4 | SampType: | LCS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296106 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.877 | 0.50 | 4.000 | 0 | 96.9 | 90 | 110 | | | | |

| Sample ID | N034107-002CMS | SampType: | MS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296114 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 91.407 | 5.0 | 40.00 | 52.18 | 98.1 | 80 | 120 | | | | |

| Sample ID | N034107-002CMSD | SampType: | MSD | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296117 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 90.904 | 5.0 | 40.00 | 52.18 | 96.8 | 80 | 120 | 91.41 | 0.552 | 20 | |

| Sample ID | N034178-008CDUP | SampType: | DUP | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296119 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 262.965 | 25 | | | | | | 262.8 | 0.0818 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID | N034183-001CMS | SampType: | MS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296121 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 45.655 | 2.5 | 20.00 | 25.79 | 99.3 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:15:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190227C** | QC Batch: **R132167** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | ND | 0.032 | 0.050 | | mg/L | 1 | 2/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0219 |
| **Lab Order:** | N034177 | **Collection Date:** | 2/14/2019 9:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034177-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190227C** | QC Batch: **R132167** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 2.8 | 0.16 | 0.25 | | mg/L | 5 | 2/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **MB-R132167** | **MBLK** | **4500N03F_W** | **mg/L** | | **132167** |
| Client ID: **PBW** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304083** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **LCS-R132167** | **LCS** | **4500N03F_W** | **mg/L** | | **132167** |
| Client ID: **LCSW** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304084** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.498 | 0.050 | 0.5000 | 0 | 99.6 | 85 | 115 | | | | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **N034126-005DMS** | **MS** | **4500N03F_W** | **mg/L** | | **132167** |
| Client ID: **ZZZZZZ** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304087** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 25.382 | 1.0 | 10.00 | 15.49 | 99.0 | 75 | 125 | | | | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **N034126-005DMSD** | **MSD** | **4500N03F_W** | **mg/L** | | **132167** |
| Client ID: **ZZZZZZ** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304088** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 25.708 | 1.0 | 10.00 | 15.49 | 102 | 75 | 125 | 25.38 | 1.28 | 20 | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **N034126-007DDUP** | **DUP** | **4500N03F_W** | **mg/L** | | **132167** |
| Client ID: **ZZZZZZ** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304091** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 32.065 | 2.5 | | | | | | 33.33 | 3.87 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: | |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@pivox.com | P.O.# SWA-ASSET-C9817-057 |
| Submitted By: JOE GATEL | | Phone: 949-727-1400, ext 200 | Fax: |
| Title: SCIENTIST 1 | Phone: 916-786-3302 Fax: | | |
| Signature: Date: 2/14/2019 | Sampled By: Jordan Tramp | | |
| I hereby authorize ASSET Labs to perform the tests indicated below. | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | | |
| Project Name: PG&E Topock - PMP | Signature: Date: 2/14/2019 | | |
| Project Number: RC000753.801D | | | |

Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid

| EDD Requirement | | QA/QC | | Sample Receipt Condition | Y | N |
|---|---|---|---|---|---|---|
| Excel EDD | | RTNE | | 1. Chilled | ✓ | |
| Geotracker | | RWQCB | ✓ | 2. Headspace | | |
| Labspec | | CalTrans | | 3. Container Intact | ✓ | |
| Others | ✓ | LEVEL III | | 4. Seal Present | | ✓ |
| Specify: RWQCB | | LEVEL IV | | 5. IR number | | 2 |
| Global ID: | | Regulatory | | 6. Method of Cooling: | | |
| | | Specify State: | | Sample Temp: | | |

Courier:

Tracking No.:

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly) | Dissolved metals (EPA 200.8) FF; HNO3, 500 mL poly Cr, Mn (1 L poly) | Dissolved metals (EPA200.7) FF; HNO3 Ca, Mg, Fe, Na, (1 L poly) | (1 L poly) | 500 mL poly | Anions (E300.0); Cl, SO4 (1 liter poly) | Specific Conductance (E120.1) (1 liter poly) | pH (SM4500HB) (1 liter poly) | TDS (SM2540C) (1 liter poly) | Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly) | TDS (SM2540C) (1 liter poly) | Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034177-01 | PE-01-0219 | 2/14/2019 | 9:15 | | X | X | X | | | X | X | X | X | X | X | X | E | 4 | P | BNS | |
| 2 | -02 | TW-03D-0219 | 2/14/2019 | 9:10 | | X | X | X | | | X | X | X | X | X | X | X | E | 4 | P | BNS | |
| 3 | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | |

| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| Jordan Tramp | 2/14/19 1600 | JORDAN LEE | 2-14-19 1610 |
| JORDAN LEE | 2-14-19 1650 | JORDAN LEE | 2-14-19 1850 |
| | | | |

**Turn Around Time (TAT)**

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

**Terms**
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

**Preservatives:**

| | | | |
|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C |
| Z=Zn(AC)$_2$ | O=NaOH | T=$Na_2S_2O_3$ | |
| Others/Specify: | B | (NH4)2SO4/NH4OH | |

**Container Type:**

| | | |
|---|---|---|
| T=Tube | V=VOA | P=Plnt |
| J=Jar | B=Tedlar | G=Glass |
| M=Metal | M=Metal | C=Can |

White=Laboratory Copy
Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 2/14/2019 | Workorder: | N034177 |
| Rep sample Temp (Deg C): | 2.4 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | N/A | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☐ | No ☑ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☑ | No ☐ | NA ☐ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments: Samples for pH were past holding time upon receipt.

For:

Checklist Completed By: RM 2/19/2019

Reviewed By: LG 022019

Subject: Fwd: RE: PG&E Topock - PMP, RC000753.801D (Asset Labs No. N034177)
From: Yoandra Rodriguez <yoandra@assetlaboratories.com>
Date: 2/21/2019 12:52 PM
To: "nancy@assetlaboratories.com" <nancy@assetlaboratories.com>
CC: "'Marlon B. Cartin'" <marlon@assetlaboratories.com>

-------- Forwarded Message --------
Subject:RE: PG&E Topock - PMP, RC000753.801D (Asset Labs No. N034177)
Date:Thu, 21 Feb 2019 20:47:45 +0000
From:Madsen, Laura <Laura.Madsen@arcadis.com>
To:Yoandra Rodriguez <yoandra@assetlaboratories.com>
CC:maryann.balilu@assetlaboratoriesph.com <maryann.balilu@assetlaboratoriesph.com>, 'Andreafe. Gallardo' <andrea.gallardo@assetlaboratories.com>, 'Sonny. Lorenzo' <sonny.lorenzo@assetlaboratories.com>, Lucille Golosinda <lucille.golosinda@assetlaboratories.com>

I see what you are saying. The second TDS on the COC is a duplicate. TDS only needs to be run once.

Thanks,
Laura

---

From: Yoandra Rodriguez <yoandra@assetlaboratories.com>
Sent: Thursday, February 21, 2019 2:42 PM
To: Madsen, Laura <Laura.Madsen@arcadis.com>
Cc: maryann.balilu@assetlaboratoriesph.com; 'Andreafe. Gallardo' <andrea.gallardo@assetlaboratories.com>; 'Sonny. Lorenzo' <sonny.lorenzo@assetlaboratories.com>; Lucille Golosinda <lucille.golosinda@assetlaboratories.com>
Subject: PG&E Topock - PMP, RC000753.801D (Asset Labs No. N034177)

Hi Laura,

Please, I'd like to confirm that TDS was requested twice on the attached COC and we don't need to run any other test.

--
Thanks,

Yoandra Rodriguez
Sample Control Officer
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436

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Thanks,

Yoandra Rodriguez
Sample Control Officer
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436

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# ASSET Laboratories

## WORK ORDER Summary

*15-Feb-19*

**WorkOrder:** N034177

**Client ID:** ARCUS02

**Project:** PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/14/2019

**Comments:** EDD RWQCB

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034177-001A | PE-01-0219 | 2/14/2019 9:15:00 AM | 2/28/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034177-001B | | | 2/28/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 200.7 | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 200.8 | DISSOLVED METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 200.8 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034177-001C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | WW |
| N034177-001D | | | 2/28/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034177-002A | TW-03D-0219 | 2/14/2019 9:10:00 AM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034177-002B | | | 2/28/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 200.7 | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 200.8 | DISSOLVED METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 200.8 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034177-002C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*15-Feb-19*

**WorkOrder:** N034177

**Client ID:** ARCUS02

**Project:** PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/14/2019

**Comments:** EDD RWQCB

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034177-002C | TW-03D-0219 | 2/14/2019 9:10:00 AM | 2/28/2019 | Groundwater | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | WW |
| N034177-002D | | | 2/28/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034177-003A | FOLDER | 2/28/2019 | 2/28/2019 | | EDD | RWQCB | ☐ | ☐ | ☐ | LAB |
| | | | 2/28/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 2/28/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# List of Analysts

## ASSET Laboratories Work Order: N034177

| NAME | TEST METHOD |
|---|---|
| Quennie Manimtim | SM 4500-NO3F |
| Claire Ignacio | EPA 200.7_Dissolved, EPA 200.8_Dissolved |
| Lilia Ramit | SM 2540C, SM 2320 B |
| Mark Gesmundo | EPA 120.1, SM 4500-H+B |
| Hanah Glodoviza | EPA 218.6, EPA 300.0 |

# EPA 120.1

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R131888 **Analyst:** MG

**ASSET #:** N034177 **Date Analyzed:** 15-Feb

**Method:** EPA 120.1

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | | | X | | | |
| 11. LCS compounds within control limits. | | | X | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 2/25/2019

2nd Level Reviewer: Mary 2/28/2019 Date:

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

# Conductivity Logbook

**Date:** 2/15/19 1300

**Analyst:** MG

| Standard | Std ID | Reading | Comments |
|---|---|---|---|
| 11.26 uS/cm | CINV-181011A | 11.8 @ 20.0°C | % Rec: (90-110%) |
| 1410 " | 190107D | 1408 @ 19.9°C | |
| 9988 " | 160731I | 9970 @ 19.8°C | |
| 99001 " | 181121B | 99400 @ 20.1°C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | N034177-1C | $H_2O$ | 2230 @ 19.1°C | |
| 2 | " 1CDUP | " | 2280 @ 18.8°C | |
| 3 | " 2C | " | 7650 @ 18.4°C | |
| 4 | N034176-3C | " | 16340 @ 19.8°C | |
| 5 | " 4C | " | 16280 @ 19.3°C | |
| 6 | " 5C | " | 16410 @ 19.3°C | |
| 7 | " 6C | " | 6650 @ 18.2°C | |
| 8 | " 7C | " | 8320 @ 18.9°C | |
| 9 | " 8C | " | 4290 @ 18.6°C | |
| 10 | " 9C | " | 4180 @ 18.6°C | |
| Dup | " 10C | " | 11130 @ 18.2°C | Accept: 10% water, 20% soil |
| | Std Chk: | | | % Rec: (90-110%) |

Julia Ramit 2/25/2019

**Date:**

**Analyst:** Cont'd

| Standard | Std ID | Reading | Comments |
|---|---|---|---|
| 1413 uS/cm | CINV-181022A | 1406 @ 20.2°C | % Rec: (90-110%) |
| 10000 " | " B | 9830 @ 20.4°C | |
| 99922 " | " C | 96900 @ 20.5°C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | N034178-11C | $H_2O$ | 10980 @ 20.3°C | |
| 2 | " 11CDUP | " | 11100 @ 19.9°C | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | 1413 uS/cm | CINV-181022A | 1410 @ 20.3°C | |
| 7 | 10000 " | " B | 9910 @ 20.5°C | |
| 8 | 99922 " | " C | 97400 @ 20.6°C | |
| 9 | | | | |
| 10 | | | | |
| Dup | | | | Accept: 10% water, 20% soil |
| | Std Chk: | | | % Rec: (90-110%) |

Logbook # 6

# SM 4500-H+B

# pH Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R131889 **Instrument ID:** pH meter

**ASSET #:** N034177 **Analyst:** LSR

**Date Analyzed:** 15-Feb

**Method:** EPA 150.1/ SM 4500H+B

| pH Meter Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. Was the meter calibrated using 3 buffers (4,7 and 10)? | X | | | | | |
| 2. Was a closing buffer used at the end of analysis? | X | | | | | |
| 3. Was the meter checked every 10 samples? | | | X | | | |
| **Sample Information** | | | | | | |
| 4. Are all samples analyzed within hold time. | | X | | | | |
| **QC Items** | | | | | | |
| 5. Was a duplicate sample analyzed? | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 6. Are Non-Conformances documented | | | X | | | |
| 7. Runlog complete and included in package. | X | | | | | |
| **Preliminary Report** | | | | | | |
| 8. Does the raw data match the preliminary report? | X | | | | | |
| 9. Are analytical results correct? | X | | | | | |
| 10. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer Silia Ramit Date: 2/27/2019

2nd Level Reviewer 2/28/2019 Date:

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

# pH Logbook

**Date:** 2/15/19 1400
**Analyst:** MH

| Standard | Std ID | pH | Comments |
|---|---|---|---|
| Buffer 7 | CINV-190107A | 7.01 @ 25°C | |
| Buffer 4 | " B | 4.02 @ 25°C | |
| Buffer 10 | " 190111G | 10.01 @ 25°C | |
| Slope | | 96.7% | Acceptance Criteria: 95%-105% |

| | Sample ID | Matrix | pH | Comments |
|---|---|---|---|---|
| 1 | N034177-1C | H2O | 7.28 @ 25°C | |
| 2 | 1CDUP | " | 7.31 @ 25°C | |
| 3 | 2C | " | 7.19 @ 25°C | |
| 4 | N034150-4A | " | 9.22 @ 25°C | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| Dup | | | | Accept: 10% water, 20% soil |
| | Buffer (7), 4, 10 (Circle one) | CINV-1809141C | 7.01 @ 25°C | Accept: +/-0.05 pH units from expected value |

**Date:** 2/20/19 1325
**Analyst:** USR

Julia Ramit 2/27/2019

| Standard | Std ID | pH | Comments |
|---|---|---|---|
| Buffer 7 | CINV-190107A | 6.97 @ 25°C | |
| Buffer 4 | " B | 4.03 @ 25°C | |
| Buffer 10 | " 190111G | 10.02 @ 25°C | |
| Slope | | 96.2% | Acceptance Criteria: 95%-105% |

| | Sample ID | Matrix | pH | Comments |
|---|---|---|---|---|
| 1 | N034231-01A | H2O | 6.76 @ 25°C | |
| 2 | 1ADUP | " | 6.79 @ 25°C | |
| 3 | 2A | " | 8.16 @ 25°C | |
| 4 | 3A | " | 6.57 @ 25°C | |
| 5 | 4A | " | 6.89 @ 25°C | |
| 6 | 5A | " | 7.74 @ 25°C | |
| 7 | 6A | " | 7.76 @ 25°C | AN |
| 8 | 7A | " | 7.53 @ 25°C | Buffer 7 CINV-1809218A = 6.95 @ 25°C |
| 9 | | | | |
| 10 | | | | |
| Dup | | | | Accept: 10% water, 20% soil |
| | Buffer 7, 4, 10 (Circle one) | | | Accept: +/-0.05 pH units from expected value |

# SM 2540C

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72545 **Analyst:** LSR

**ASSET #:** N034177 **Date Analyzed:** 18-Feb

**Method:** EPA 160.1 / SM 2540C

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | | | |
| 11. LCS compounds within control limits. | X | | | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 2/28/2019

2nd Level Reviewer: Jenny 2/28/2019 Date: —

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** SM 2540C
**TEST NAME:** Total Filterable Residue
**MATRIX:** Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N034177-001C,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(69.8612-69.7785)*1000000}{60}$$
$$= 1378.3333 \text{ mg/L}$$

Reporting result in two significant figures,

TDS= 1400 mg/L

Silvia Ramit 2/28/2019

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/18/2019 12:56:52**
Prep End Date: **2/19/2019 10:25:00**

Reviewed/ Date: 2/28/2019

Initials/ Date: Lilia Ramit 2/28/2019

Prep Batch **72545** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Temp. (°C): **180**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72545 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-72545 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034121-006C | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034121-007C | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034121-008C | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034121-009C | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034121-010C | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034123-012E | Groundwater | | 75 | ☐ | 0 | 0 | 100 | 1.333 | | |
| N034177-001C | Groundwater | | 60 | ☐ | 0 | 0 | 100 | 1.667 | | |
| N034177-002C | Groundwater | | 20 | ☐ | 0 | 0 | 100 | 5.000 | | |
| N034177-002C-DU | Groundwater | | 20 | ☐ | 0 | 0 | 100 | 5.000 | | |
| N034178-008C | Groundwater | | 30 | ☐ | 0 | 0 | 100 | 3.333 | | |
| N034178-009C | Groundwater | | 30 | ☐ | 0 | 0 | 100 | 3.333 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10404 | Glass Fiber Filter, 47mm |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| IWST190107C | 1000 ppm NaCl | LCS | 100 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/18/2019 12:56:52**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Julia Ramit 2/28/2019

Prep Batch **72545** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72545 | Water | IWS190107C | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-72545 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034121-006C | Groundwater | 1186 | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034121-007C | Groundwater | 1173 | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034121-008C | Groundwater | 1175 | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034121-009C | Groundwater | 1193 | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034121-010C | Groundwater | 1168 | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034123-012E | Groundwater | 1544 | 100 / 75 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034177-001C | Groundwater | 2230 | 100 / 60 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034177-002C | Groundwater | 7650 | 100 / 20 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034177-002C-DU | Groundwater | 1 | 100 / 20 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034178-008C | Groundwater | 4290 | 100 / 30 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034178-009C | Groundwater | 4180 | 100 / 30 | ☐ | 0 | 0 | 100 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10404

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

## SOLIDS RAW DATA

TEST :TSS/ TDS/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 2/18/19 1252 FF | MB 72545 | 100 | 68.1234 68.1238 | 68.1241 68.1240 | |
| EE | LCS " 72541 | 100 | 68.0953 68.0955 | 68.1929 68.1927 | |
| HH | N034121-006C | 100 | 69.8097 69.8101 | 69.8817 69.8815 | |
| GG | 7C | 100 | 67.7171 67.7175 | 67.7905 67.7902 | |
| IW | 8C | 100 | 76.4784 76.4787 | 76.5499 76.5498 | |
| KK | 9C | 100 | 70.6767 70.6770 | 70.7480 70.7477 | |
| AA | 10C | 100 | 68.3138 68.3142 | 68.3856 68.3853 | |
| LL | N034123-012E | 75 | 76.4106 76.4110 | 76.4814 76.4817 | |
| CC | N034177-00[illegible]C | 60 | 69.7781 69.7785 | 69.8613 69.8612 | |
| DD | 2C | 20 | 53.7372 53.7375 | 53.8226 53.8226 | |

Julia Ramit 2/28/2019



ASSET LABORATORIES
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3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922

# SOLIDS RAW DATA

TEST : TSS/ TDS/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 2/18/19 12 | N034177-002C DUP | 20 | 53.6019 53.6023 | 53.6885 53.6883 | |
| 9 | N034178-008C " | 30 | 61.0470 61.0475 | 61.1228 61.1226 | |
| 10 | 9C | 30 | 63.9564 63.9568 | 64.0310 64.0308 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | Julia Ramit 2/28/2019 | | | | |
| | 49.9997 @ 1025 2/19/19 | | | | |

ASSET Laboratories

Logbook#14

# TOTAL DISSOLVED SOLIDS, TDS

## TDS, mg/L = (A-B) X 10000*PF

where:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
PF = 100/volume of sample used in mL

| Date Finished: | vol of sample (mL) | weight of dish in grams (B) | weight in grams of dish + residue after drying (A) | (A-B)*10000 | prep fact (PF) | TDS, mg/L | CONDUCTIVITY | RATIO | Sample Type |
|---|---|---|---|---|---|---|---|---|---|
| 2/19/2019 | | | | | | | | | |
| MB-72545 | 100 | 68.1238 | 68.124 | 2 | 1 | 2 | | | MBLK |
| LCS-72545 | 100 | 68.0955 | 68.1927 | 972 | 1 | 972 | | | LCS |
| N034121-006C | 100 | 69.8101 | 69.8815 | 714 | 1 | 714 | 1186 | 0.602 | SAMP |
| N034121-007C | 100 | 67.7175 | 67.7902 | 727 | 1 | 727 | 1173 | 0.620 | SAMP |
| N034121-008C | 100 | 76.4787 | 76.5498 | 711 | 1 | 711 | 1175 | 0.605 | SAMP |
| N034121-009C | 100 | 70.677 | 70.7477 | 707 | 1 | 707 | 1193 | 0.593 | SAMP |
| N034121-010C | 100 | 68.3142 | 68.3853 | 711 | 1 | 711 | 1168 | 0.609 | SAMP |
| N034123-012E | 75 | 76.411 | 76.4817 | 707 | 1.33333333 | 942.666667 | 1544 | 0.611 | SAMP |
| N034177-001C | 60 | 69.7785 | 69.8612 | 827 | 1.66666667 | 1378.33333 | 2230 | 0.618 | SAMP |
| N034177-002C | 20 | 53.7375 | 53.8226 | 851 | 5 | 4255 | 7650 | 0.556 | SAMP |
| N034177-002CDUP | 20 | 53.6023 | 53.6883 | 860 | 5 | 4300 | 7650 | 0.562 | DUP |
| N034178-008C | 30 | 61.0475 | 61.1226 | 751 | 3.33333333 | 2503.33333 | 4290 | 0.584 | SAMP |
| N034178-009C | 30 | 63.9568 | 64.0308 | 740 | 3.33333333 | 2466.66667 | 4180 | 0.590 | SAMP |

Silvia Ramit 2/28/2019

# EPA 200.7
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72530
**ASSET #:** N034177
**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 2/22/2019

**Method:**

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | X | | | X | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

% Rec of Ca in N034177-001B PS failed, low bias. However, LCS passed criteria.
% Rec of Ca and Fe in N034177-001B MS/MSD failed, high bias. However, LCS passed criteria.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: —

2nd Level Reviewer 2/28/2019 Date: —

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72530
**ASSET #:** N034177
**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 2/26/2019

**Method:**

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | X | | | X | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

Na run
% Rec of Na in N034177-002B PS/MS/MSD failed, high bias. However, LCS passed criteria.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: 2/28/2019
2nd Level Reviewer [signature] Date: —

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA ~~6010B~~ 200.7
**TEST NAME:** Heavy Metals by ICP
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Sodium concentration, in ug/L , in the original sample as follows:

Sodium , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N034177-002B** , the concentration in ug/L is calculated as follows:

Sodium , ug/L = 28.9322 * 50 *(25/25) *

Sodium , ug/L = 1446610

Reporting results in two significant figures,

**Sodium , ug/L = 1400000**

NS 2/28/2019

# % RSD SUMMARY

**RSD SUMMARY: 190222B**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Ca | 0 | 5.69 | 15 | PASS |
| Standard1 | ICAL | 1 | Ca | 0.2 | 0.62 | 15 | PASS |
| Standard2 | ICAL | 1 | Ca | 1 | 1.25 | 15 | PASS |
| Standard3 | ICAL | 1 | Ca | 2 | 1.97 | 15 | PASS |
| Standard4 | ICAL | 1 | Ca | 5 | 0.81 | 15 | PASS |
| Standard5 | ICAL | 1 | Ca | 7.5 | 0.61 | 15 | PASS |
| Standard6 | ICAL | 1 | Ca | 10 | 0.65 | 15 | PASS |
| Standard7 | ICAL | 1 | Ca | 20 | 0.64 | 15 | PASS |
| ICV | ICV | 1 | Ca | 9.93 | 0.81 | 15 | PASS |
| ICB | ICB | 1 | Ca | 0.045 | 78.67 | 15 | <PQL |
| LLICV1 | CCV1 | 1 | Ca | 0.19 | 6.043 | 20 | PASS |
| ICSA1 | ICSA | 1 | Ca | 525.85 | 0.39 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Ca | 569.8 | 0.17 | 15 | PASS |
| MB-72530 | MBLK | 1 | Ca | 1365 | 8.5 | 15 | PASS |
| MB-72530 | MBLK | 1 | Ca | -0.041 | 38.71 | 15 | <PQL |
| LCS1-72530 | LCS | 1 | Ca | 5.05 | 1.14 | 15 | PASS |
| N034177-001B | SAMP | 1 | Ca | 130.61 | 0.22 | 15 | PASS |
| N034177-001B | SAMP | 5 | Ca | 27.073 | 0.82 | 15 | PASS |
| N034177-001B-PS | PS | 1 | Ca | 133.81 | 0.44 | 15 | PASS |
| N034177-001B-MS1 | MS | 1 | Ca | 141.68 | 0.14 | 15 | PASS |
| N034177-001B-MSD1 | MSD | 1 | Ca | 141.29 | 0.4 | 15 | PASS |
| N034177-002B | SAMP | 1 | Ca | 222.51 | 0.18 | 15 | PASS |
| CCV1 | CCV | 1 | Ca | 9.93 | 0.53 | 15 | PASS |
| CCB1 | CCB | 1 | Ca | 0.013 | 196.27 | 15 | <PQL |
| CCV2 | CCV | 1 | Ca | 9.89 | 0.29 | 15 | PASS |
| CCB2 | CCB | 1 | Ca | 0.0026 | 488.49 | 15 | <PQL |
| CCV3 | CCV | 1 | Ca | 9.87 | 0.3 | 15 | PASS |
| CCB3 | CCB | 1 | Ca | 0.046 | 60.56 | 15 | <PQL |
| ICSA2 | ICSA | 1 | Ca | 525.05 | 0.26 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Ca | 567.71 | 0.045 | 15 | PASS |
| CalBlk | IBLK | 1 | Fe | 0 | 10.32 | 15 | PASS |
| Standard1 | ICAL | 1 | Fe | 0.02 | 12.94 | 15 | PASS |
| Standard2 | ICAL | 1 | Fe | 0.05 | 0.31 | 15 | PASS |
| Standard3 | ICAL | 1 | Fe | 2 | 0.41 | 15 | PASS |
| Standard4 | ICAL | 1 | Fe | 5 | 0.31 | 15 | PASS |
| Standard5 | ICAL | 1 | Fe | 7.5 | 0.17 | 15 | PASS |
| Standard6 | ICAL | 1 | Fe | 10 | 0.63 | 15 | PASS |
| Standard7 | ICAL | 1 | Fe | 20 | 0.21 | 15 | PASS |
| ICV | ICV | 1 | Fe | 9.98 | 0.26 | 15 | PASS |
| ICB | ICB | 1 | Fe | 0.0012 | 30.65 | 15 | <PQL |
| LLICV1 | CCV1 | 1 | Fe | 0.022 | 1.71 | 20 | PASS |
| ICSA1 | ICSA | 1 | Fe | 181.2 | 0.14 | 15 | PASS |

**RSD SUMMARY: 190222B**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| ICSAB1 | ICSAB | 1 | Fe | 184.87 | 0.17 | 15 | PASS |
| MB-72530 | MBLK | 1 | Fe | 22.29 | 10.049 | 15 | PASS |
| MB-72530 | MBLK | 1 | Fe | 0.0014 | 65.65 | 15 | <PQL |
| LCS1-72530 | LCS | 1 | Fe | 0.11 | 0.41 | 15 | PASS |
| N034177-001B | SAMP | 1 | Fe | 0.015 | 4.32 | 15 | PASS |
| N034177-001B | SAMP | 5 | Fe | 0.002 | 46.92 | 15 | <PQL |
| N034177-001B-PS | PS | 1 | Fe | 0.11 | 0.52 | 15 | PASS |
| N034177-001B-MS1 | MS | 1 | Fe | 0.13 | 0.38 | 15 | PASS |
| N034177-001B-MSD1 | MSD | 1 | Fe | 0.13 | 1.42 | 15 | PASS |
| N034177-002B | SAMP | 1 | Fe | 0.01 | 10.55 | 15 | PASS |
| CCV1 | CCV | 1 | Fe | 9.96 | 0.3 | 15 | PASS |
| CCB1 | CCB | 1 | Fe | 0.00098 | 47.86 | 15 | <PQL |
| CCV2 | CCV | 1 | Fe | 9.94 | 0.34 | 15 | PASS |
| CCB2 | CCB | 1 | Fe | 0.00093 | 63.032 | 15 | <PQL |
| CCV3 | CCV | 1 | Fe | 9.91 | 0.35 | 15 | PASS |
| CCB3 | CCB | 1 | Fe | 0.0023 | 34.35 | 15 | <PQL |
| ICSA2 | ICSA | 1 | Fe | 179.12 | 0.12 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Fe | 183.51 | 0.16 | 15 | PASS |
| CalBlk | IBLK | 1 | Mg | 0 | 8.33 | 15 | PASS |
| Standard1 | ICAL | 1 | Mg | 0.1 | 1.76 | 15 | PASS |
| Standard2 | ICAL | 1 | Mg | 1 | 0.09 | 15 | PASS |
| Standard3 | ICAL | 1 | Mg | 2 | 0.29 | 15 | PASS |
| Standard4 | ICAL | 1 | Mg | 5 | 0.43 | 15 | PASS |
| Standard5 | ICAL | 1 | Mg | 7.5 | 0.22 | 15 | PASS |
| Standard6 | ICAL | 1 | Mg | 10 | 0.6 | 15 | PASS |
| Standard7 | ICAL | 1 | Mg | 20 | 0.2 | 15 | PASS |
| ICV | ICV | 1 | Mg | 9.92 | 0.31 | 15 | PASS |
| ICB | ICB | 1 | Mg | 0.00023 | 160.17 | 15 | <PQL |
| LLICV1 | CCV1 | 1 | Mg | 0.11 | 0.22 | 20 | PASS |
| ICSA1 | ICSA | 1 | Mg | 482.22 | 0.14 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Mg | 521.85 | 0.2 | 15 | PASS |
| MB-72530 | MBLK | 1 | Mg | -10.86 | 29.022 | 15 | <PQL |
| MB-72530 | MBLK | 1 | Mg | -0.0011 | 42.89 | 15 | <PQL |
| LCS1-72530 | LCS | 1 | Mg | 5.22 | 0.29 | 15 | PASS |
| N034177-001B | SAMP | 1 | Mg | 31.95 | 0.28 | 15 | PASS |
| N034177-001B | SAMP | 5 | Mg | 7.0066 | 0.8 | 15 | PASS |
| N034177-001B-PS | PS | 1 | Mg | 36.068 | 0.19 | 15 | PASS |
| N034177-001B-MS1 | MS | 1 | Mg | 37.98 | 0.016 | 15 | PASS |
| N034177-001B-MSD1 | MSD | 1 | Mg | 38.013 | 0.079 | 15 | PASS |
| N034177-002B | SAMP | 1 | Mg | 30.61 | 0.17 | 15 | PASS |
| CCV1 | CCV | 1 | Mg | 9.8 | 0.26 | 15 | PASS |
| CCB1 | CCB | 1 | Mg | 0.00097 | 23.18 | 15 | <PQL |

**RSD SUMMARY: 190222B**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CCV2 | CCV | 1 | Mg | 9.72 | 0.33 | 15 | PASS |
| CCB2 | CCB | 1 | Mg | 0.00098 | 36.28 | 15 | <PQL |
| CCV3 | CCV | 1 | Mg | 9.68 | 0.32 | 15 | PASS |
| CCB3 | CCB | 1 | Mg | 0.0018 | 26.17 | 15 | <PQL |
| ICSA2 | ICSA | 1 | Mg | 467.8 | 0.18 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Mg | 508.35 | 0.24 | 15 | PASS |

**RSD SUMMARY: 190226D**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Na | 0 | 14.49 | 15 | PASS |
| Standard1 | ICAL | 1 | Na | 0.1 | 7.49 | 15 | PASS |
| Standard2 | ICAL | 1 | Na | 1 | 0.65 | 15 | PASS |
| Standard3 | ICAL | 1 | Na | 5 | 0.13 | 15 | PASS |
| Standard4 | ICAL | 1 | Na | 10 | 0.15 | 15 | PASS |
| Standard5 | ICAL | 1 | Na | 20 | 0.041 | 15 | PASS |
| Standard6 | ICAL | 1 | Na | 40 | 0.2 | 15 | PASS |
| ICV | ICV | 1 | Na | 10.022 | 0.11 | 15 | PASS |
| ICB | ICB | 1 | Na | -0.0054 | 157.6 | 15 | <PQL |
| LLICV | CCV | 1 | Na | 0.12 | 1.59 | 20 | PASS |
| ICSA1 | ICSA | 1 | Na | -0.0062 | 127.071 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | Na | 9.98 | 0.12 | 15 | PASS |
| MB-72530 | MBLK | 1 | Na | -0.00081 | 370.47 | 15 | <PQL |
| CCV1 | CCV | 1 | Na | 10.045 | 0.039 | 15 | PASS |
| CCB1 | CCB | 1 | Na | -0.0045 | 14.076 | 15 | PASS |
| LCS2-72530 | LCS | 1 | Na | 19.87 | 0.072 | 15 | PASS |
| N034177-001B | SAMP | 25 | Na | 5.2 | 0.41 | 15 | PASS |
| N034177-002B | SAMP | 25 | Na | 36.52 | 0.097 | 15 | PASS |
| N034177-002B | SAMP | 5 | Na | 40.44 | 0.06 | 15 | PASS |
| N034177-002B | SAMP | 50 | Na | 28.93 | 0.25 | 15 | PASS |
| N034177-002B | SAMP | 250 | Na | 5.89 | 0.064 | 15 | PASS |
| N034177-002B-PS | PS | 50 | Na | 30.81 | 0.21 | 15 | PASS |
| N034177-002B-MS2 | MS | 50 | Na | 30.69 | 0.11 | 15 | PASS |
| N034177-002B-MSD2 | MSD | 50 | Na | 30.42 | 0.15 | 15 | PASS |
| CCV2 | CCV | 1 | Na | 10.051 | 0.092 | 15 | PASS |
| CCB2 | CCB | 1 | Na | -0.0081 | 67.017 | 15 | <PQL |
| CCV3 | CCV | 1 | Na | 10.005 | 0.08 | 15 | PASS |
| CCB3 | CCB | 1 | Na | -0.00004 | 9302.67 | 15 | <PQL |
| CCV4 | CCV | 1 | Na | 10.081 | 0.19 | 15 | PASS |
| CCB4 | CCB | 1 | Na | 0.014 | 41.67 | 15 | <PQL |
| ICSA2 | ICSA | 1 | Na | 0.0038 | 139.5 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | Na | 10.094 | 0.12 | 15 | PASS |
| CCV5 | CCV | 1 | Na | 10.052 | 0.28 | 15 | PASS |
| CCB5 | CCB | 1 | Na | 0.035 | 18.24 | 15 | <PQL |
| CCV6 | CCV | 1 | Na | 10.11 | 0.19 | 15 | PASS |
| CCB6 | CCB | 1 | Na | 0.039 | 10.61 | 15 | PASS |
| CCV7 | CCV | 1 | Na | 10.12 | 0.27 | 15 | PASS |
| CCB7 | CCB | 1 | Na | 0.046 | 14.87 | 15 | PASS |
| CCV8 | CCV | 1 | Na | 10.084 | 0.25 | 15 | PASS |
| CCB8 | CCB | 1 | Na | 0.035 | 8.003 | 15 | PASS |
| CCV9 | CCV | 1 | Na | 10.093 | 0.11 | 15 | PASS |
| CCB9 | CCB | 1 | Na | 0.024 | 25.23 | 15 | <PQL |

**RSD SUMMARY: 190226D**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| ICSA3 | ICSA | 1 | Na | 0.014 | 48.93 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | Na | 10.073 | 0.12 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190222B**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-181001A,0.5<50mL |
| Standard2 | MWST-181001E |
| Standard3 | MWST-181001J,5<50mL |
| Standard4 | MWST-181001J,12.5<50mL |
| Standard5 | MWST-181001J,15<40mL |
| Standard6 | MWST-181001J,25<50mL |
| Standard7 | MWST-181001J |
| ICV | MWST-181001O |
| CCV | MWST-181001J,25<50mL |
| ICSA/ICSAB | MWST-181001R/MWST-180730A |
| Int. Std. (Y) | MSST-180926A/B |
| PS Spike | MWST-180930D/E/F |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CalBlk | IBLK | 1 | 02/22/2019 | 09:22:57 AM |
| 2 | Standard1 | ICAL | 1 | 02/22/2019 | 09:26:44 AM |
| 3 | Standard2 | ICAL | 1 | 02/22/2019 | 09:30:30 AM |
| 4 | Standard3 | ICAL | 1 | 02/22/2019 | 09:34:46 AM |
| 5 | Standard4 | ICAL | 1 | 02/22/2019 | 09:39:02 AM |
| 6 | Standard5 | ICAL | 1 | 02/22/2019 | 09:43:20 AM |
| 7 | Standard6 | ICAL | 1 | 02/22/2019 | 09:47:40 AM |
| 8 | Standard7 | ICAL | 1 | 02/22/2019 | 09:52:01 AM |
| 250 | ICV | ICV | 1 | 02/22/2019 | 09:59:35 AM |
| 1 | ICB | ICB | 1 | 02/22/2019 | 10:04:58 AM |
| 2 | LLICV1 | CCV1 | 1 | 02/22/2019 | 10:08:42 AM |
| 9 | ICSA1 | ICSA | 1 | 02/22/2019 | 10:12:29 AM |
| 10 | ICSAB1 | ICSAB | 1 | 02/22/2019 | 10:17:54 AM |
| 71 | MB-72530 | MBLK | 1 | 02/22/2019 | 10:23:20 AM |
| 71 | MB-72530 | MBLK | 1 | 02/22/2019 | 10:30:14 AM |
| 72 | LCS1-72530 | LCS | 1 | 02/22/2019 | 10:34:00 AM |
| 73 | N034177-001B | SAMP | 1 | 02/22/2019 | 10:38:16 AM |
| 74 | N034177-001B | SAMP | 5 | 02/22/2019 | 10:43:33 AM |
| 75 | N034177-001B-PS | PS | 1 | 02/22/2019 | 10:47:49 AM |
| 76 | N034177-001B-MS1 | MS | 1 | 02/22/2019 | 10:53:06 AM |
| 77 | N034177-001B-MSD1 | MSD | 1 | 02/22/2019 | 10:58:23 AM |
| 78 | N034177-002B | SAMP | 1 | 02/22/2019 | 11:03:40 AM |
| 79 | MB-72533 | MBLK | 1 | 02/22/2019 | 11:08:57 AM |
| 7 | CCV1 | CCV | 1 | 02/22/2019 | 11:12:43 AM |
| 1 | CCB1 | CCB | 1 | 02/22/2019 | 11:18:03 AM |
| 80 | LCS-72533 | LCS | 1 | 02/22/2019 | 11:21:50 AM |
| 81 | N034183-013B | SAMP | 1 | 02/22/2019 | 11:26:08 AM |
| 82 | N034183-013B | SAMP | 5 | 02/22/2019 | 11:31:28 AM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 83 | N034183-013B-PS | PS | 1 | 02/22/2019 | 11:35:46 AM |
| 84 | N034183-013B-MS | MS | 1 | 02/22/2019 | 11:41:03 AM |
| 85 | N034183-013B-MSD | MSD | 1 | 02/22/2019 | 11:46:21 AM |
| 86 | N034183-014B | SAMP | 1 | 02/22/2019 | 11:51:38 AM |
| 87 | N034183-020B | SAMP | 1 | 02/22/2019 | 11:56:55 AM |
| 88 | N034190-001B | SAMP | 1 | 02/22/2019 | 12:02:11 PM |
| 89 | N034190-002B | SAMP | 1 | 02/22/2019 | 12:06:28 PM |
| 7 | CCV2 | CCV | 1 | 02/22/2019 | 12:10:44 PM |
| 1 | CCB2 | CCB | 1 | 02/22/2019 | 12:16:15 PM |
| 90 | N034190-003B | SAMP | 1 | 02/22/2019 | 12:19:59 PM |
| 91 | N034190-004B | SAMP | 1 | 02/22/2019 | 12:24:15 PM |
| 92 | N034190-005B | SAMP | 1 | 02/22/2019 | 12:29:32 PM |
| 93 | N034190-006B | SAMP | 1 | 02/22/2019 | 12:34:51 PM |
| 94 | N034190-007B | SAMP | 1 | 02/22/2019 | 12:40:09 PM |
| 95 | N034190-008B | SAMP | 1 | 02/22/2019 | 12:44:26 PM |
| 96 | N034191-001B | SAMP | 1 | 02/22/2019 | 12:49:41 PM |
| 7 | CCV3 | CCV | 1 | 02/22/2019 | 12:53:57 PM |
| 1 | CCB3 | CCB | 1 | 02/22/2019 | 12:59:18 PM |
| 9 | ICSA2 | ICSA | 1 | 02/22/2019 | 01:03:02 PM |
| 10 | ICSAB2 | ICSAB | 1 | 02/22/2019 | 01:08:28 PM |

**INJECTION LOG: 190226D**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-181001P,0.025<50mL |
| Standard2 | MWST-181001P,0.25<50mL |
| Standard3 | MWST-181001P,1.25<50mL |
| Standard4 | MWST-181001P,2.5<50mL |
| Standard5 | MWST-181001P,5<50mL |
| Standard6 | MWST-181001P,10<50mL |
| ICV | MWST-180615A |
| CCV | MWST-181001P,2.5<50mL |
| ICSA/ICSAB | MWST-181001R/Q |
| Int. Std. (Sc): | MSST-180926A/B |
| PS Spike | MSST-140120B/ -180608B/A |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CalBlk | IBLK | 1 | 02/26/2019 | 03:41:23 PM |
| 11 | Standard1 | ICAL | 1 | 02/26/2019 | 03:44:37 PM |
| 12 | Standard2 | ICAL | 1 | 02/26/2019 | 03:47:51 PM |
| 13 | Standard3 | ICAL | 1 | 02/26/2019 | 03:51:35 PM |
| 14 | Standard4 | ICAL | 1 | 02/26/2019 | 03:55:20 PM |
| 15 | Standard5 | ICAL | 1 | 02/26/2019 | 03:59:07 PM |
| 16 | Standard6 | ICAL | 1 | 02/26/2019 | 04:02:58 PM |
| 17 | ICV | ICV | 1 | 02/26/2019 | 04:05:52 PM |
| 1 | ICB | ICB | 1 | 02/26/2019 | 04:09:41 PM |
| 11 | LLICV | CCV | 1 | 02/26/2019 | 04:12:57 PM |
| 18 | ICSA1 | ICSA | 1 | 02/26/2019 | 04:16:12 PM |
| 19 | ICSAB1 | ICSAB | 1 | 02/26/2019 | 04:19:28 PM |
| 23 | MB-72627 | MBLK | 1 | 02/26/2019 | 04:23:18 PM |
| 24 | LCS-72627 | LCS | 1 | 02/26/2019 | 04:26:32 PM |
| 25 | N034238-001A | SAMP | 1 | 02/26/2019 | 04:30:19 PM |
| 26 | N034238-001A | SAMP | 5 | 02/26/2019 | 04:34:03 PM |
| 27 | N034238-001A-PS | PS | 1 | 02/26/2019 | 04:37:18 PM |
| 28 | N034238-001A-MS | MS | 1 | 02/26/2019 | 04:41:06 PM |
| 29 | N034238-001A-MSD | MSD | 1 | 02/26/2019 | 04:44:55 PM |
| 30 | N034250-001B | SAMP | 1 | 02/26/2019 | 04:48:44 PM |
| 31 | N034250-001B | SAMP | 5 | 02/26/2019 | 04:52:33 PM |
| 71 | MB-72530 | MBLK | 1 | 02/26/2019 | 04:56:21 PM |
| 14 | CCV1 | CCV | 1 | 02/26/2019 | 04:59:37 PM |
| 1 | CCB1 | CCB | 1 | 02/26/2019 | 05:03:25 PM |
| 72 | LCS2-72530 | LCS | 1 | 02/26/2019 | 05:06:39 PM |
| 73 | N034177-001B | SAMP | 25 | 02/26/2019 | 05:10:31 PM |
| 74 | N034177-002B | SAMP | 25 | 02/26/2019 | 05:13:46 PM |
| 75 | N034177-002B | SAMP | 5 | 02/26/2019 | 05:17:24 PM |
| 76 | N034177-002B | SAMP | 50 | 02/26/2019 | 05:21:10 PM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 77 | N034177-002B | SAMP | 250 | 02/26/2019 | 05:24:25 PM |
| 78 | N034177-002B-PS | PS | 50 | 02/26/2019 | 05:27:40 PM |
| 79 | N034177-002B-MS2 | MS | 50 | 02/26/2019 | 05:30:56 PM |
| 80 | N034177-002B-MSD2 | MSD | 50 | 02/26/2019 | 05:34:11 PM |
| 95 | MB-72611 | MBLK | 1 | 02/26/2019 | 05:37:28 PM |
| 14 | CCV2 | CCV | 1 | 02/26/2019 | 05:40:43 PM |
| 1 | CCB2 | CCB | 1 | 02/26/2019 | 05:44:31 PM |
| 96 | LCS2-72611 | LCS | 1 | 02/26/2019 | 05:48:11 PM |
| 97 | N034197-002A | SAMP | 1 | 02/26/2019 | 05:52:01 PM |
| 98 | N034197-002A | SAMP | 5 | 02/26/2019 | 05:55:16 PM |
| 99 | N034197-002A-PS | PS | 1 | 02/26/2019 | 05:58:31 PM |
| 100 | N034197-002A-MS2 | MS | 1 | 02/26/2019 | 06:02:24 PM |
| 101 | N034197-002A-MSD2 | MSD | 1 | 02/26/2019 | 06:06:15 PM |
| 102 | N034238-002A | SAMP | 1 | 02/26/2019 | 06:10:04 PM |
| 103 | N034256-001A | SAMP | 1 | 02/26/2019 | 06:13:20 PM |
| 104 | N034257-001A | SAMP | 1 | 02/26/2019 | 06:16:36 PM |
| 105 | N034258-001A | SAMP | 10 | 02/26/2019 | 06:19:52 PM |
| 14 | CCV3 | CCV | 1 | 02/26/2019 | 06:23:26 PM |
| 1 | CCB3 | CCB | 1 | 02/26/2019 | 06:27:13 PM |
| 106 | N034259-001A | SAMP | 10 | 02/26/2019 | 06:30:27 PM |
| 107 | N034260-001A | SAMP | 10 | 02/26/2019 | 06:33:44 PM |
| 108 | N034261-001A | SAMP | 10 | 02/26/2019 | 06:36:59 PM |
| 109 | N034262-001A | SAMP | 10 | 02/26/2019 | 06:40:14 PM |
| 110 | N034263-001A | SAMP | 10 | 02/26/2019 | 06:43:30 PM |
| 111 | N034264-001A | SAMP | 10 | 02/26/2019 | 06:46:46 PM |
| 112 | N034265-001A | SAMP | 10 | 02/26/2019 | 06:50:02 PM |
| 113 | MB-72634 | MBLK | 1 | 02/26/2019 | 06:53:17 PM |
| 114 | LCS2-72634 | LCS | 1 | 02/26/2019 | 06:56:32 PM |
| 115 | N034311-001A | SAMP | 100 | 02/26/2019 | 07:00:24 PM |
| 14 | CCV4 | CCV | 1 | 02/26/2019 | 07:05:12 PM |
| 1 | CCB4 | CCB | 1 | 02/26/2019 | 07:09:01 PM |
| 18 | ICSA2 | ICSA | 1 | 02/26/2019 | 07:12:16 PM |
| 19 | ICSAB2 | ICSAB | 1 | 02/26/2019 | 07:15:32 PM |
| 116 | N034301-001A | SAMP | 100 | 02/26/2019 | 07:19:20 PM |
| 117 | N034302-001A | SAMP | 100 | 02/26/2019 | 07:23:06 PM |
| 118 | N034303-001A | SAMP | 100 | 02/26/2019 | 07:26:53 PM |
| 119 | N034304-001A | SAMP | 100 | 02/26/2019 | 07:31:11 PM |
| 120 | N034305-001A | SAMP | 100 | 02/26/2019 | 07:34:28 PM |
| 121 | N034306-001A | SAMP | 100 | 02/26/2019 | 07:39:15 PM |
| 122 | N034307-001A | SAMP | 100 | 02/26/2019 | 07:43:01 PM |
| 123 | N034308-001A | SAMP | 100 | 02/26/2019 | 07:46:17 PM |
| 124 | N034309-001A | SAMP | 100 | 02/26/2019 | 07:49:33 PM |
| 125 | N034310-001A | SAMP | 100 | 02/26/2019 | 07:53:19 PM |
| 14 | CCV5 | CCV | 1 | 02/26/2019 | 07:58:08 PM |
| 1 | CCB5 | CCB | 1 | 02/26/2019 | 08:01:56 PM |
| 35 | MB-72655 | MBLK | 1 | 02/26/2019 | 08:05:11 PM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 36 | LCS2-72655 | LCS | 1 | 02/26/2019 | 08:08:24 PM |
| 37 | N034241-003A | SAMP | 1 | 02/26/2019 | 08:12:15 PM |
| 38 | N034299-001A | SAMP | 10 | 02/26/2019 | 08:16:31 PM |
| 39 | N034300-001A | SAMP | 10 | 02/26/2019 | 08:19:45 PM |
| 40 | N034241-003A | SAMP | 5 | 02/26/2019 | 08:23:00 PM |
| 41 | N034241-003A-PS | PS | 1 | 02/26/2019 | 08:26:15 PM |
| 42 | N034241-003AMS2 | MS | 1 | 02/26/2019 | 08:29:15 PM |
| 43 | N034241-003AMSD2 | MSD | 1 | 02/26/2019 | 08:34:07 PM |
| 44 | N034241-003A | SAMP | 10 | 02/26/2019 | 08:38:57 PM |
| 14 | CCV6 | CCV | 1 | 02/26/2019 | 08:42:12 PM |
| 1 | CCB6 | CCB | 1 | 02/26/2019 | 08:46:01 PM |
| 45 | N034241-003A | SAMP | 50 | 02/26/2019 | 08:49:14 PM |
| 46 | N034241-003A-PS | PS | 10 | 02/26/2019 | 08:52:31 PM |
| 47 | N034241-003AMS2 | MS | 10 | 02/26/2019 | 08:56:18 PM |
| 48 | N034241-003AMSD2 | MSD | 10 | 02/26/2019 | 09:00:03 PM |
| 126 | N034311-001A | SAMP | 500 | 02/26/2019 | 09:03:49 PM |
| 127 | N034311-001A-PS | PS | 100 | 02/26/2019 | 09:07:33 PM |
| 128 | N034311-001A-MS2 | MS | 100 | 02/26/2019 | 09:12:19 PM |
| 129 | N034311-001A-MSD2 | MSD | 100 | 02/26/2019 | 09:17:07 PM |
| 130 | N034311-001A | SAMP | 1000 | 02/26/2019 | 09:21:55 PM |
| 131 | N034311-001A | SAMP | 5000 | 02/26/2019 | 09:25:12 PM |
| 14 | CCV7 | CCV | 1 | 02/26/2019 | 09:28:27 PM |
| 1 | CCB7 | CCB | 1 | 02/26/2019 | 09:32:14 PM |
| 132 | N034311-001A-PS | PS | 1000 | 02/26/2019 | 09:35:28 PM |
| 133 | N034311-001A-MS2 | MS | 1000 | 02/26/2019 | 09:39:07 PM |
| 134 | N034311-001A-MSD | MSD | 1000 | 02/26/2019 | 09:42:22 PM |
| 135 | N034301-001A | SAMP | 1000 | 02/26/2019 | 09:45:39 PM |
| 136 | N034302-001A | SAMP | 1000 | 02/26/2019 | 09:48:55 PM |
| 137 | N034303-001A | SAMP | 1000 | 02/26/2019 | 09:52:11 PM |
| 138 | N034304-001A | SAMP | 10 | 02/26/2019 | 09:55:27 PM |
| 139 | N034305-001A | SAMP | 1000 | 02/26/2019 | 10:00:14 PM |
| 140 | N034306-001A | SAMP | 1000 | 02/26/2019 | 10:03:30 PM |
| 141 | N034307-001A | SAMP | 1000 | 02/26/2019 | 10:06:46 PM |
| 14 | CCV8 | CCV | 1 | 02/26/2019 | 10:10:02 PM |
| 1 | CCB8 | CCB | 1 | 02/26/2019 | 10:13:49 PM |
| 142 | N034308-001A | SAMP | 10 | 02/26/2019 | 10:17:03 PM |
| 143 | N034309-001A | SAMP | 1000 | 02/26/2019 | 10:20:21 PM |
| 144 | N034310-001A | SAMP | 1000 | 02/26/2019 | 10:23:37 PM |
| 49 | N034177-001B | SAMP | 5 | 02/26/2019 | 10:26:54 PM |
| 50 | N034177-002B | SAMP | 50 | 02/26/2019 | 10:30:39 PM |
| 51 | N034177-002B | SAMP | 250 | 02/26/2019 | 10:33:54 PM |
| 52 | N034177-002B-PS | PS | 50 | 02/26/2019 | 10:37:09 PM |
| 53 | N034177-002B-MS2 | MS | 50 | 02/26/2019 | 10:40:31 PM |
| 54 | N034177-002B-MSD2 | MSD | 50 | 02/26/2019 | 10:43:46 PM |
| 14 | CCV9 | CCV | 1 | 02/26/2019 | 10:47:03 PM |
| 1 | CCB9 | CCB | 1 | 02/26/2019 | 10:50:49 PM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 18 | ICSA3 | ICSA | 1 | 02/26/2019 | 10:54:03 PM |
| 19 | ICSAB3 | ICSAB | 1 | 02/26/2019 | 10:57:20 PM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/18/2019 7:57:41**
Prep End Date: **2/18/2019 12:00:00**
Prep Batch **72530** Prep Code: **200.7_PR**

Reviewed/ Date: NS 2/28/2019
Initials/ Date: for
Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **Db-1-5** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS1-72530 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| LCS2-72530 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-72530 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034177-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034177-001B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034177-001B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034177-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034177-002B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034177-002B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10560 | HYDROCHLORIC ACID |
| 10570 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MSST-140120B | Sodium | LCS,MS,MSD | 0.05 |
| MSST-180608A | Strontium | LCS,MS,MSD | 0.125 |
| MSST-180608B | Potassium | LCS,MS,MSD | 0.05 |
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190222B**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Magnesium** | | | | | | | | |
| CalBlk | 02/22/2019 | 09:22:57 AM | Mg | 279.079 | 76 | 0.00 | mg/L | |
| Standard1 | 02/22/2019 | 09:26:44 AM | Mg | 279.079 | 1020 | 0.1000 | mg/L | |
| Standard2 | 02/22/2019 | 09:30:30 AM | Mg | 279.079 | 9705 | 1.000 | mg/L | |
| Standard3 | 02/22/2019 | 09:34:46 AM | Mg | 279.079 | 19628 | 2.000 | mg/L | |
| Standard4 | 02/22/2019 | 09:39:02 AM | Mg | 279.079 | 49265 | 5.000 | mg/L | |
| Standard5 | 02/22/2019 | 09:43:20 AM | Mg | 279.079 | 73982 | 7.500 | mg/L | |
| Standard6 | 02/22/2019 | 09:47:40 AM | Mg | 279.079 | 95449 | 10.000 | mg/L | |
| Standard7 | 02/22/2019 | 09:52:01 AM | Mg | 279.079 | 190042 | 20.000 | mg/L | 0.9999 |
| **Calcium** | | | | | | | | |
| CalBlk | 02/22/2019 | 09:22:57 AM | Ca | 227.546 | -79 | 0.00 | mg/L | |
| Standard1 | 02/22/2019 | 09:26:44 AM | Ca | 227.546 | 33 | 0.2000 | mg/L | |
| Standard2 | 02/22/2019 | 09:30:30 AM | Ca | 227.546 | 167 | 1.000 | mg/L | |
| Standard3 | 02/22/2019 | 09:34:46 AM | Ca | 227.546 | 327 | 2.000 | mg/L | |
| Standard4 | 02/22/2019 | 09:39:02 AM | Ca | 227.546 | 840 | 5.000 | mg/L | |
| Standard5 | 02/22/2019 | 09:43:20 AM | Ca | 227.546 | 1255 | 7.500 | mg/L | |
| Standard6 | 02/22/2019 | 09:47:40 AM | Ca | 227.546 | 1636 | 10.000 | mg/L | |
| Standard7 | 02/22/2019 | 09:52:01 AM | Ca | 227.546 | 3266 | 20.000 | mg/L | 1.0000 |
| **Iron** | | | | | | | | |
| CalBlk | 02/22/2019 | 09:22:57 AM | Fe | 273.953 | -95 | 0.00 | mg/L | |
| Standard1 | 02/22/2019 | 09:26:44 AM | Fe | 273.953 | 324 | 0.0200 | mg/L | |
| Standard2 | 02/22/2019 | 09:30:30 AM | Fe | 273.953 | 1144 | 0.050 | mg/L | |
| Standard3 | 02/22/2019 | 09:34:46 AM | Fe | 273.953 | 31593 | 2.000 | mg/L | |
| Standard4 | 02/22/2019 | 09:39:02 AM | Fe | 273.953 | 79469 | 5.000 | mg/L | |
| Standard5 | 02/22/2019 | 09:43:20 AM | Fe | 273.953 | 119054 | 7.500 | mg/L | |
| Standard6 | 02/22/2019 | 09:47:40 AM | Fe | 273.953 | 153764 | 10.000 | mg/L | |
| Standard7 | 02/22/2019 | 09:52:01 AM | Fe | 273.953 | 303742 | 20.000 | mg/L | 0.9999 |

**INITIAL CALIBRATION SUMMARY: 190226D**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Sodium** | | | | | | | | |
| CalBlk | 02/26/2019 | 03:41:23 PM | Na | 589.594 | 149 | 0.00 | mg/L | |
| Standard1 | 02/26/2019 | 03:44:37 PM | Na | 589.594 | 330 | 0.1000 | mg/L | |
| Standard2 | 02/26/2019 | 03:47:51 PM | Na | 589.594 | 2875 | 1.000 | mg/L | |
| Standard3 | 02/26/2019 | 03:51:35 PM | Na | 589.594 | 14155 | 5.000 | mg/L | |
| Standard4 | 02/26/2019 | 03:55:20 PM | Na | 589.594 | 27608 | 10.000 | mg/L | |
| Standard5 | 02/26/2019 | 03:59:07 PM | Na | 589.594 | 55189 | 20.000 | mg/L | |
| Standard6 | 02/26/2019 | 04:02:58 PM | Na | 589.594 | 110969 | 40.000 | mg/L | 1.0000 |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

Sample ID **ICV** SampType: **ICV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132065**
Client ID: **ICV** Batch ID: **R132065** TestNo: **EPA 200.7** Analysis Date: **2/22/2019** SeqNo: **3299616**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 9932.725 | 500 | 10000 | 0 | 99.3 | 90 | 110 | | | | |
| Iron | 9976.719 | 20 | 10000 | 0 | 99.8 | 90 | 110 | | | | |
| Magnesium | 9924.341 | 100 | 10000 | 0 | 99.2 | 90 | 110 | | | | |

Sample ID **LLICV1** SampType: **CCV1** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132065**
Client ID: **ZZZZZZ** Batch ID: **R132065** TestNo: **EPA 200.7** Analysis Date: **2/22/2019** SeqNo: **3299618**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 185.391 | 500 | 200.0 | 0 | 92.7 | 80 | 120 | | | | |
| Iron | 22.470 | 20 | 20.00 | 0 | 112 | 80 | 120 | | | | |
| Magnesium | 107.890 | 100 | 100.0 | 0 | 108 | 80 | 120 | | | | |

Sample ID **CCV1** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132065**
Client ID: **CCV** Batch ID: **R132065** TestNo: **EPA 200.7** Analysis Date: **2/22/2019** SeqNo: **3299631**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 9933.564 | 500 | 10000 | 0 | 99.3 | 90 | 110 | | | | |
| Iron | 9964.651 | 20 | 10000 | 0 | 99.6 | 90 | 110 | | | | |
| Magnesium | 9799.332 | 100 | 10000 | 0 | 98.0 | 90 | 110 | | | | |

Sample ID **CCV2** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132065**
Client ID: **CCV** Batch ID: **R132065** TestNo: **EPA 200.7** Analysis Date: **2/22/2019** SeqNo: **3299643**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 9887.626 | 500 | 10000 | 0 | 98.9 | 90 | 110 | | | | |
| Iron | 9938.170 | 20 | 10000 | 0 | 99.4 | 90 | 110 | | | | |
| Magnesium | 9723.175 | 100 | 10000 | 0 | 97.2 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132065** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132065** | TestNo: **EPA 200.7** | | Analysis Date: **2/22/2019** | SeqNo: **3299652** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 9865.302 | 500 | 10000 | 0 | 98.7 | 90 | 110 | | | | |
| Iron | 9914.899 | 20 | 10000 | 0 | 99.1 | 90 | 110 | | | | |
| Magnesium | 9682.827 | 100 | 10000 | 0 | 96.8 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132137** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132137** | TestNo: **EPA 200.7** | | Analysis Date: **2/26/2019** | SeqNo: **3302665** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10022.015 | 500 | 10000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132137** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132137** | TestNo: **EPA 200.7** | | Analysis Date: **2/26/2019** | SeqNo: **3302667** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 115.964 | 500 | 100.0 | 0 | 116 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132137** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132137** | TestNo: **EPA 200.7** | | Analysis Date: **2/26/2019** | SeqNo: **3302680** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10045.321 | 500 | 10000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132137** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132137** | TestNo: **EPA 200.7** | | Analysis Date: **2/26/2019** | SeqNo: **3302692** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10051.229 | 500 | 10000 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132137** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132137** | TestNo: **EPA 200.7** | | Analysis Date: **2/26/2019** | SeqNo: **3302704** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10004.783 | 500 | 10000 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132137** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132137** | TestNo: **EPA 200.7** | | Analysis Date: **2/26/2019** | SeqNo: **3302716** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10081.191 | 500 | 10000 | 0 | 101 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

Sample ID **ICB** SampType: **ICB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132065**
Client ID: **ICB** Batch ID: **R132065** TestNo: **EPA 200.7** Analysis Date: **2/22/2019** SeqNo: **3299617**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 44.751 | 500 | | | | | | | | | |
| Iron | 1.192 | 20 | | | | | | | | | |
| Magnesium | 0.229 | 100 | | | | | | | | | |

Sample ID **CCB1** SampType: **CCB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132065**
Client ID: **CCB** Batch ID: **R132065** TestNo: **EPA 200.7** Analysis Date: **2/22/2019** SeqNo: **3299632**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 12.528 | 500 | | | | | | | | | |
| Iron | 0.985 | 20 | | | | | | | | | |
| Magnesium | 0.967 | 100 | | | | | | | | | |

Sample ID **CCB2** SampType: **CCB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132065**
Client ID: **CCB** Batch ID: **R132065** TestNo: **EPA 200.7** Analysis Date: **2/22/2019** SeqNo: **3299644**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 2.642 | 500 | | | | | | | | | |
| Iron | 0.933 | 20 | | | | | | | | | |
| Magnesium | 0.979 | 100 | | | | | | | | | |

Sample ID **CCB3** SampType: **CCB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132065**
Client ID: **CCB** Batch ID: **R132065** TestNo: **EPA 200.7** Analysis Date: **2/22/2019** SeqNo: **3299653**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 45.907 | 500 | | | | | | | | | |
| Iron | 2.307 | 20 | | | | | | | | | |
| Magnesium | 1.823 | 100 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132137** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132137** | TestNo: **EPA 200.7** | | Analysis Date: **2/26/2019** | SeqNo: **3302666** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | -5.394999 | 500 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132137** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132137** | TestNo: **EPA 200.7** | | Analysis Date: **2/26/2019** | SeqNo: **3302681** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | -4.516515 | 500 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132137** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132137** | TestNo: **EPA 200.7** | | Analysis Date: **2/26/2019** | SeqNo: **3302693** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | -8.129333 | 500 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132137** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132137** | TestNo: **EPA 200.7** | | Analysis Date: **2/26/2019** | SeqNo: **3302705** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | -0.043471 | 500 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132137** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132137** | TestNo: **EPA 200.7** | | Analysis Date: **2/26/2019** | SeqNo: **3302717** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 14.154 | 500 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

Sample ID **ICSA1** SampType: **ICSA** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132065**
Client ID: **ICSA** Batch ID: **R132065** TestNo: **EPA 200.7** Analysis Date: **2/22/2019** SeqNo: **3299619**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 517430.427 | 50 | 500000 | 0 | 103 | 80 | 120 | | | | |
| Calcium | 525845.473 | 500 | 500000 | 0 | 105 | 80 | 120 | | | | |
| Iron | 181204.770 | 20 | 200000 | 0 | 90.6 | 80 | 120 | | | | |
| Magnesium | 482219.288 | 100 | 500000 | 0 | 96.4 | 80 | 120 | | | | |

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132065**
Client ID: **ICSAB** Batch ID: **R132065** TestNo: **EPA 200.7** Analysis Date: **2/22/2019** SeqNo: **3299620**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 560574.875 | 50 | 500000 | 0 | 112 | 80 | 120 | | | | |
| Calcium | 569802.113 | 500 | 500000 | 0 | 114 | 80 | 120 | | | | |
| Iron | 184869.596 | 20 | 200000 | 0 | 92.4 | 80 | 120 | | | | |
| Magnesium | 521853.297 | 100 | 500000 | 0 | 104 | 80 | 120 | | | | |

Sample ID **ICSA2** SampType: **ICSA** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132065**
Client ID: **ICSA** Batch ID: **R132065** TestNo: **EPA 200.7** Analysis Date: **2/22/2019** SeqNo: **3299654**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 514018.270 | 50 | 500000 | 0 | 103 | 80 | 120 | | | | |
| Calcium | 525045.905 | 500 | 500000 | 0 | 105 | 80 | 120 | | | | |
| Iron | 179122.175 | 20 | 200000 | 0 | 89.6 | 80 | 120 | | | | |
| Magnesium | 467796.642 | 100 | 500000 | 0 | 93.6 | 80 | 120 | | | | |

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132065**
Client ID: **ICSAB** Batch ID: **R132065** TestNo: **EPA 200.7** Analysis Date: **2/22/2019** SeqNo: **3299655**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 557634.408 | 50 | 500000 | 0 | 112 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132065** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132065** | TestNo: **EPA 200.7** | | Analysis Date: **2/22/2019** | SeqNo: **3299655** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 567713.081 | 500 | 500000 | 0 | 114 | 80 | 120 | | | | |
| Iron | 183513.600 | 20 | 200000 | 0 | 91.8 | 80 | 120 | | | | |
| Magnesium | 508350.788 | 100 | 500000 | 0 | 102 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132137** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132137** | TestNo: **EPA 200.7** | | Analysis Date: **2/26/2019** | SeqNo: **3302668** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | -6.249977 | 500 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132137** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132137** | TestNo: **EPA 200.7** | | Analysis Date: **2/26/2019** | SeqNo: **3302669** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 9982.683 | 500 | 10000 | 0 | 99.8 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132137** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132137** | TestNo: **EPA 200.7** | | Analysis Date: **2/26/2019** | SeqNo: **3302718** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 3.750 | 500 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132137** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132137** | TestNo: **EPA 200.7** | | Analysis Date: **2/26/2019** | SeqNo: **3302719** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10093.728 | 500 | 10000 | 0 | 101 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190222B**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 1 | 99.52 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1.031 | 103.09 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 1.033 | 103.29 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 1.039 | 103.94 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 1.047 | 104.69 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 1.036 | 103.58 | 65-125 | PASS |
| Standard7 | ICAL | 1 | 1.036 | 103.58 | 65-125 | PASS |
| ICV | ICV | 1 | 1.066 | 106.65 | 65-125 | PASS |
| ICB | ICB | 1 | 1 | 99.93 | 65-125 | PASS |
| LLICV1 | CCV1 | 1 | 1.0032 | 100.32 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 0.98 | 97.59 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 0.88 | 87.72 | 65-125 | PASS |
| MB-72530 | MBLK | 1 | -0.00018 | -0.018 | 65-125 | NR! |
| MB-72530 | MBLK | 1 | 1.0092 | 100.92 | 65-125 | PASS |
| LCS1-72530 | LCS | 1 | 0.94 | 94.17 | 65-125 | PASS |
| N034177-001B | SAMP | 1 | 0.98 | 98.11 | 65-125 | PASS |
| N034177-001B | SAMP | 5 | 0.98 | 98.22 | 65-125 | PASS |
| N034177-001B-PS | PS | 1 | 0.99 | 99.19 | 65-125 | PASS |
| N034177-001B-MS1 | MS | 1 | 0.97 | 97.37 | 65-125 | PASS |
| N034177-001B-MSD1 | MSD | 1 | 0.97 | 97.29 | 65-125 | PASS |
| N034177-002B | SAMP | 1 | 0.88 | 87.7 | 65-125 | PASS |
| CCV1 | CCV | 1 | 1.031 | 103.06 | 65-125 | PASS |
| CCB1 | CCB | 1 | 1.0025 | 100.25 | 65-125 | PASS |
| CCV2 | CCV | 1 | 1.036 | 103.61 | 65-125 | PASS |
| CCB2 | CCB | 1 | 1.0068 | 100.68 | 65-125 | PASS |
| CCV3 | CCV | 1 | 1.035 | 103.49 | 65-125 | PASS |
| CCB3 | CCB | 1 | 1.0061 | 100.61 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 0.98 | 98.45 | 65-125 | PASS |
| ICSAB2 | ICSAB | 1 | 0.88 | 88.28 | 65-125 | PASS |

**INTERNAL STANDARD: 190226D**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Scandium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 1 | 99.91 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1.016 | 101.56 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 1.013 | 101.33 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 1.011 | 101.1 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 1.0079 | 100.79 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 1.012 | 101.21 | 65-125 | PASS |
| ICV | ICV | 1 | 1.014 | 101.37 | 65-125 | PASS |
| ICB | ICB | 1 | 1.0071 | 100.71 | 65-125 | PASS |
| LLICV | CCV | 1 | 1.0011 | 100.11 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 1.0082 | 100.82 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 1.005 | 100.5 | 65-125 | PASS |
| MB-72530 | MBLK | 1 | 1.022 | 102.2 | 65-125 | PASS |
| CCV1 | CCV | 1 | 1.017 | 101.69 | 65-125 | PASS |
| CCB1 | CCB | 1 | 1.0084 | 100.84 | 65-125 | PASS |
| LCS2-72530 | LCS | 1 | 1.08 | 108.02 | 65-125 | PASS |
| N034177-001B | SAMP | 25 | 1.011 | 101.08 | 65-125 | PASS |
| N034177-002B | SAMP | 25 | 1.0084 | 100.84 | 65-125 | PASS |
| N034177-002B | SAMP | 5 | 1.027 | 102.67 | 65-125 | PASS |
| N034177-002B | SAMP | 50 | 1.012 | 101.23 | 65-125 | PASS |
| N034177-002B | SAMP | 250 | 1.016 | 101.55 | 65-125 | PASS |
| N034177-002B-PS | PS | 50 | 1.014 | 101.4 | 65-125 | PASS |
| N034177-002B-MS2 | MS | 50 | 1.0091 | 100.91 | 65-125 | PASS |
| N034177-002B-MSD2 | MSD | 50 | 1.0085 | 100.85 | 65-125 | PASS |
| CCV2 | CCV | 1 | 1.016 | 101.63 | 65-125 | PASS |
| CCB2 | CCB | 1 | 1.013 | 101.29 | 65-125 | PASS |
| CCV3 | CCV | 1 | 1.0085 | 100.85 | 65-125 | PASS |
| CCB3 | CCB | 1 | 1.0044 | 100.44 | 65-125 | PASS |
| CCV4 | CCV | 1 | 1.024 | 102.39 | 65-125 | PASS |
| CCB4 | CCB | 1 | 1.019 | 101.93 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 1.041 | 104.1 | 65-125 | PASS |
| ICSAB2 | ICSAB | 1 | 1.017 | 101.74 | 65-125 | PASS |
| CCV5 | CCV | 1 | 0.99 | 99.47 | 65-125 | PASS |
| CCB5 | CCB | 1 | 1 | 99.95 | 65-125 | PASS |
| CCV6 | CCV | 1 | 1.0079 | 100.79 | 65-125 | PASS |
| CCB6 | CCB | 1 | 1.0006 | 100.06 | 65-125 | PASS |
| CCV7 | CCV | 1 | 1.036 | 103.64 | 65-125 | PASS |
| CCB7 | CCB | 1 | 1.032 | 103.25 | 65-125 | PASS |
| CCV8 | CCV | 1 | 1.039 | 103.92 | 65-125 | PASS |
| CCB8 | CCB | 1 | 1.041 | 104.14 | 65-125 | PASS |
| CCV9 | CCV | 1 | 1.02 | 102.02 | 65-125 | PASS |

**INTERNAL STANDARD: 190226D**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Scandium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CCB9 | CCB | 1 | 1.02 | 102.04 | 65-125 | PASS |
| ICSA3 | ICSA | 1 | 1.036 | 103.57 | 65-125 | PASS |
| ICSAB3 | ICSAB | 1 | 1.031 | 103.07 | 65-125 | PASS |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034177
Test Method: EPA 200.7
Analysis Date: 02 / 22 & 26 / 2019

Matrix: Groundwater'
Batch No.: 72530

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

| Sample ID | Analyte | Units | Calc Val | OQual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|
| N034177-001B DT 5X | Calcium | ug/L | 135364.2 | PASS | 130606.1 | 3.64% | 10 |
| N034177-001B DT 5X | Iron | ug/L | 0 | NA | 0 | | 10 |
| N034177-001B DT 5X | Magnesium | ug/L | 35032.87 | PASS | 31952.34 | 9.64% | 10 |
| N034177-002B DT 250X | Sodium | ug/L | 1472371 | PASS | 1446611 | 1.78% | 10 |

Note: NA - Not applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

Sample ID **N034177-001B-PS** SampType: **PS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132065**
Client ID: **ZZZZZZ** Batch ID: **72530** TestNo: **EPA 200.7** Analysis Date: **2/22/2019** SeqNo: **3299626**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 133805.318 | 500 | 5000 | 130600 | 64.0 | 80 | 120 | | | | S |
| Iron | 107.546 | 20 | 100.0 | 0 | 108 | 80 | 120 | | | | |
| Magnesium | 36067.989 | 100 | 5000 | 31950 | 82.3 | 80 | 120 | | | | |

Sample ID **N034177-002B-PS** SampType: **PS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132137**
Client ID: **ZZZZZZ** Batch ID: **72530** TestNo: **EPA 200.7** Analysis Date: **2/26/2019** SeqNo: **3302688**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 1540388.501 | 25000 | 20000 | 1447000 | 469 | 80 | 120 | | | | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

**Acceptance Criteria:** MDL < spike < 10XMDL

| Analyte | Wavelength | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Spike Conc., mg/L | SD | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ag | 328.069 | 0.0033 | 0.0031 | 0.0033 | 0.0033 | 0.0031 | 0.0030 | 0.0047 | 0.003 | 0.00061604 | **0.001936** | 0.003 |
| Al | 237.312 | 0.0664 | 0.0603 | 0.0656 | 0.0650 | 0.0658 | 0.0660 | 0.0946 | 0.050 | 0.01254823 | **0.039439** | 0.050 |
| As | 188.983 | 0.0131 | 0.0089 | 0.0120 | 0.0089 | 0.0060 | 0.0102 | 0.0080 | 0.010 | 0.00223806 | **0.007034** | 0.010 |
| B | 249.679 | 0.1491 | 0.1267 | 0.1281 | 0.1467 | 0.1261 | 0.1195 | 0.1015 | 0.100 | 0.01801843 | **0.056632** | 0.100 |
| Ba | 233.529 | 0.0033 | 0.0031 | 0.0033 | 0.0031 | 0.0032 | 0.0030 | 0.0024 | 0.003 | 0.00033070 | **0.001039** | 0.003 |
| Be | 313.104 | 0.0012 | 0.0011 | 0.0012 | 0.0012 | 0.0011 | 0.0011 | 0.0011 | 0.001 | 0.00006873 | **0.000216** | 0.001 |
| Ca | 227.546 | 0.2381 | 0.2231 | 0.2559 | 0.2299 | 0.2194 | 0.2473 | 0.2691 | 0.200 | 0.02202408 | **0.069222** | 0.200 |
| Cd | 214.437 | 0.0031 | 0.0029 | 0.0031 | 0.0032 | 0.0031 | 0.0031 | 0.0025 | 0.003 | 0.00027049 | **0.000850** | 0.003 |
| Co | 228.614 | 0.0030 | 0.0028 | 0.0030 | 0.0031 | 0.0031 | 0.0031 | 0.0027 | 0.003 | 0.00014491 | **0.000455** | 0.003 |
| Cr | 267.719 | 0.0009 | 0.0008 | 0.0009 | 0.0012 | 0.0012 | 0.0013 | 0.0009 | 0.001 | 0.00017120 | **0.000538** | 0.001 |
| Fe | 273.953 | 0.0255 | 0.0226 | 0.0242 | 0.0255 | 0.0252 | 0.0248 | 0.0387 | 0.020 | 0.00552308 | **0.017359** | 0.020 |
| Mg | 279.079 | 0.1124 | 0.1052 | 0.1129 | 0.1315 | 0.1305 | 0.1314 | 0.1435 | 0.100 | 0.01532024 | **0.048152** | 0.100 |
| Mn | 257.607 | 0.0119 | 0.0111 | 0.0120 | 0.0122 | 0.0121 | 0.0122 | 0.0099 | 0.010 | 0.00098403 | **0.003093** | 0.010 |
| Mo | 202.03 | 0.0079 | 0.0068 | 0.0067 | 0.0065 | 0.0065 | 0.0062 | 0.0057 | 0.005 | 0.00083918 | **0.002638** | 0.005 |
| Ni | 231.604 | 0.0061 | 0.0056 | 0.0062 | 0.0060 | 0.0060 | 0.0062 | 0.0045 | 0.005 | 0.00062690 | **0.001970** | 0.005 |
| Pb | 220.351 | 0.0124 | 0.0117 | 0.0127 | 0.0115 | 0.0120 | 0.0118 | 0.0090 | 0.010 | 0.00126325 | **0.003970** | 0.010 |
| Sb | 206.836 | 0.0102 | 0.0095 | 0.0104 | 0.0112 | 0.0117 | 0.0111 | 0.0080 | 0.010 | 0.00117407 | **0.003690** | 0.010 |
| Se | 196.025 | 0.0102 | 0.0087 | 0.0114 | 0.0136 | 0.0144 | 0.0136 | 0.0075 | 0.010 | 0.00251341 | **0.007900** | 0.010 |
| Sn | 189.927 | 0.0095 | 0.0084 | 0.0090 | 0.0124 | 0.0126 | 0.0129 | 0.0099 | 0.010 | 0.00175765 | **0.005524** | 0.010 |
| Ti | 334.943 | 0.0114 | 0.0106 | 0.0115 | 0.0115 | 0.0115 | 0.0115 | 0.0098 | 0.010 | 0.00074093 | **0.002329** | 0.010 |
| Tl | 190.794 | 0.0170 | 0.0150 | 0.0165 | 0.0171 | 0.0180 | 0.0168 | 0.0151 | 0.015 | 0.00116288 | **0.003655** | 0.015 |
| V | 292.404 | 0.0025 | 0.0024 | 0.0025 | 0.0032 | 0.0032 | 0.0032 | 0.0027 | 0.003 | 0.00038496 | **0.001210** | 0.003 |
| Zn | 206.201 | 0.0109 | 0.0100 | 0.0107 | 0.0125 | 0.0124 | 0.0124 | 0.0095 | 0.010 | 0.00123731 | **0.003889** | 0.010 |

## METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

| Analyte | ICP-02 MDL | MDL Blank | Higher MDL | LOD | PQL |
|---|---|---|---|---|---|
| Ag | 0.001936 | 0.002362 | 0.002362 | 0.002 | 0.003 |
| Al | 0.039439 | 0.039859 | 0.039859 | 0.04 | 0.5 |
| As | 0.007034 | 0.007672 | 0.007672 | 0.0075 | 0.01 |
| B | 0.056632 | 0.074419 | 0.074419 | 0.075 | 0.1 |
| Ba | 0.001039 | 0.000433 | 0.001039 | 0.001 | 0.003 |
| Be | 0.000216 | 0.000311 | 0.000311 | 0.0005 | 0.003 |
| Ca | 0.069222 | 0.084832 | 0.084832 | 0.1 | 0.5 |
| Cd | 0.000850 | 0.000592 | 0.000850 | 0.001 | 0.003 |
| Co | 0.000455 | 0.001902 | 0.001902 | 0.001 | 0.003 |
| Cr | 0.000538 | 0.000527 | 0.000538 | 0.001 | 0.003 |
| Fe | 0.017359 | 0.017751 | 0.017751 | 0.018 | 0.1 |
| Mg | 0.048152 | 0.043017 | 0.048152 | 0.05 | 0.1 |
| Mn | 0.003093 | 0.000782 | 0.003093 | 0.005 | 0.5 |
| Mo | 0.002638 | 0.002482 | 0.002638 | 0.0025 | 0.005 |
| Ni | 0.001970 | 0.000822 | 0.001970 | 0.0025 | 0.005 |
| Pb | 0.003970 | 0.002762 | 0.003970 | 0.005 | 0.005 |
| Sb | 0.003690 | 0.004504 | 0.004504 | 0.005 | 0.01 |
| Se | 0.007900 | 0.008549 | 0.008549 | 0.008 | 0.01 |
| Sn | 0.005524 | 0.003415 | 0.005524 | 0.0075 | 0.05 |
| Ti | 0.002329 | 0.001493 | 0.002329 | 0.005 | 0.05 |
| Tl | 0.003655 | 0.005987 | 0.005987 | 0.005 | 0.015 |
| V | 0.001210 | 0.000749 | 0.001210 | 0.002 | 0.003 |
| Zn | 0.003889 | 0.007683 | 0.007683 | 0.008 | 0.01 |

**Method Detection Limit**

**Analytical Method:** EPA 6010B / 200.7
**Digestion Method:** EPA 200.7
**Date of Analysis:** 4/26/2018,4/27/18, 4/28/18
**Instrument Name:** ICP2
**Analysts:** MEI

**Matrix:** Water
**Amount of Sample:** 25 mL
**Units:** mg/L

| Analyte | 1 | 2 | 3 | 4 | 5 | 6 | 7 | SD | Ave | AMT SPIKED | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | 0.52047 | 0.51468 | 0.50982 | 0.46507 | 0.46016 | 0.45873 | 0.49093 | 0.02710 | 0.48855 | 0.5000 | 0.08509 | 0.5 |
| Sodium | 0.55314 | 0.5464 | 0.5354 | 0.4861 | 0.49466 | 0.48423 | 0.49053 | 0.03061 | 0.51292 | 0.5000 | 0.09611 | 0.5 |
| Strontium | 0.0543 | 0.05418 | 0.05429 | 0.05295 | 0.05353 | 0.05251 | 0.05341 | 0.00070 | 0.05360 | 0.0250 | 0.00220 | 0.05 |

MBLK

| Analyte | 1 | 2 | 3 | 4 | 5 | 6 | 7 | SD | Ave | MDL |
|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | 0.046 | 0.02365 | 0.01213 | -0.00541 | -0.0022 | -0.00535 | 0.03047 | 0.02002 | 0.01418 | 0.0771 |
| Sodium | 0.04731 | 0.03661 | 0.02294 | -0.0006 | -0.00135 | -0.00646 | -0.00911 | 0.02270 | 0.01276 | 0.0841 |
| Strontium | 0.00006 | -0.0006 | -0.0002 | 0.00003 | -0.00002 | 0.00001 | 0.00035 | 0.00029 | -0.00005 | 0.0009 |

Note: MDL spike is used since its value is greater than the MDL blank.

## LOD & PQL VERIFICATION

**Analytical Method:** EPA 6010B / 200.7
**Date of Analysis:** 4/30/2018
**Instrument Name:** ICP2
**Analyst:** MI

**Matrix:** Water
**Units:** mg/L

| Compound | MDL | LOD | | PQL | | |
|---|---|---|---|---|---|---|
| | | Spike | Recovered | Spike | Recovered | % Recovery |
| Potassium | 0.08509 | 0.250 | 0.304 | 0.500 | 0.544 | 108.9 |
| Sodium | 0.09611 | 0.250 | 0.274 | 0.500 | 0.521 | 104.1 |
| Strontium | 0.00220 | 0.025 | 0.027 | 0.050 | 0.054 | 108.0 |

# EPA 200.8
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72617
**ASSET #:** N034177

**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 2/26/2019

**Method:**

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | X | | | X | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

% Rec of Mn in N034177-001B MS failed, low bias. However, LCS passed criteria.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: —

2nd Level Reviewer 2/28/2019 Date: _____

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA ~~6020~~ 200.8
**TEST NAME:** Heavy Metals by ICP-MS
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Manganese concentration, in ug/L , in the original sample as follows:

Manganese , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N034177-001B** , the concentration in ug/L is calculated as follows:

Manganese , ug/L = 100.161 * 5 *(25/25)

Manganese , ug/L = 500.805

Reporting results in two significant figures,

**Manganese , ug/L = 500**

NS 2/28/2019

# % RSD SUMMARY

**PERCENT RSD SUMMARY: 190226A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 52 Cr [2] | | | | 55 Mn [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.11 | 11.54 | 15 | PASS | 0.12 | 17.41 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.51 | 4.57 | 15 | PASS | 0.59 | 8.11 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 5.1 | 3.93 | 15 | PASS | 5.13 | 7.02 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.021 | 0.83 | 15 | PASS | 10.29 | 2.74 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.79 | 0.88 | 15 | PASS | 20.48 | 1.55 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.73 | 1.31 | 15 | PASS | 40.44 | 1.13 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 102.46 | 1.69 | 15 | PASS | 101.97 | 1.86 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 198.54 | 1.22 | 15 | PASS | 198.86 | 1.51 | 15 | PASS |
| ICV | ICV | 1 | 10.7 | 2.82 | 15 | PASS | 107.92 | 1.64 | 15 | PASS |
| ICB | ICB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LLICV | CCV1 | 1 | 1.0095 | 2.75 | 20 | PASS | 0.55 | 5.78 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 19.8 | 1.38 | 15 | PASS | 17.036 | 3.66 | 15 | PASS |
| LLICV | CCV1 | 1 | 1.041 | 2.027 | 20 | PASS | 0.54 | 4.58 | 20 | PASS |
| MB-72617 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | 0.032 | 49.89 | 15 | <PQL |
| LCS-72617 | LCS | 1 | 10.47 | 2.55 | 15 | PASS | 104.94 | 2.21 | 15 | PASS |
| N034177-002B | SAMP | 5 | 103.74 | 1.75 | 15 | PASS | 4.0053 | 4.51 | 15 | PASS |
| CCV1 | CCV | 1 | 20.84 | 0.16 | 15 | PASS | 20.42 | 1.25 | 15 | PASS |
| CCB1 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034106-002B | SAMP | 1 | 2.62 | 3.041 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034106-005B | SAMP | 1 | 9.92 | 1.22 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034106-008B | SAMP | 1 | 9.62 | 2.74 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034109-001B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 81.3 | 1.73 | 15 | PASS |
| N034123-012B | SAMP | 1 | 27.43 | 0.85 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034177-001B | SAMP | 1 | 0.43 | 8.81 | 15 | PASS | 463.58 | 1.16 | 15 | PASS |
| N034177-001B | SAMP | 5 | 0.042 | 43.048 | 15 | <PQL | 100.16 | 1.44 | 15 | PASS |
| N034177-001B-PS | PS | 1 | 9.28 | 2.12 | 15 | PASS | 562.93 | 2.21 | 15 | PASS |
| N034177-001B-MS | MS | 1 | 9.39 | 1.68 | 15 | PASS | 518.72 | 0.78 | 15 | PASS |
| N034177-001B-MSD | MSD | 1 | 9.61 | 1.053 | 15 | PASS | 538.33 | 1.42 | 15 | PASS |
| CCV2 | CCV | 1 | 20.89 | 2.99 | 15 | PASS | 20.51 | 1.54 | 15 | PASS |
| CCB2 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.0033 | 199.83 | 15 | <PQL |
| N034182-006B | SAMP | 1 | 16.92 | 1.81 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034177-001B | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 20.73 | 2.99 | 15 | PASS |
| N034177-001B-PS | PS | 5 | 1.93 | 0.66 | 15 | PASS | 119.23 | 1.09 | 15 | PASS |
| N034177-001B-MS | MS | 5 | 2.037 | 4.28 | 15 | PASS | 114.87 | 0.53 | 15 | PASS |
| N034177-001B-MSD | MSD | 5 | 1.98 | 4.39 | 15 | PASS | 115.75 | 0.67 | 15 | PASS |
| N034177-002B | SAMP | 1 | 469.98 | 0.99 | 15 | PASS | 17.91 | 0.27 | 15 | PASS |
| CCV3 | CCV | 1 | 21.014 | 0.72 | 15 | PASS | 21.35 | 2.16 | 15 | PASS |
| CCB3 | CCB | 1 | 0.0083 | 606.14 | 15 | <PQL | 0.01 | 163.55 | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |

**PERCENT RSD SUMMARY: 190226A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 52 Cr [2] | | | | 55 Mn [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| ICSAB2 | ICSAB | 1 | 20.16 | 3.43 | 15 | PASS | 20.16 | 1.29 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190226A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0226001.D | RINSE | RINSE | 1 | 02/26/19 1:58 PM |
| A0226002.D | Cal Blank | IBLK | 1 | 02/26/19 2:04 PM |
| A0226003.D | Std1-0.1/1 ppb | ICAL | 1 | 02/26/19 2:10 PM |
| A0226004.D | Std2-0.5/5 ppb | ICAL | 1 | 02/26/19 2:16 PM |
| A0226005.D | Std3-5/50 ppb | ICAL | 1 | 02/26/19 2:22 PM |
| A0226006.D | Std4-10/100 ppb | ICAL | 1 | 02/26/19 2:27 PM |
| A0226007.D | Std5-20/200 ppb | ICAL | 1 | 02/26/19 2:33 PM |
| A0226008.D | Std6-40/400 ppb | ICAL | 1 | 02/26/19 2:39 PM |
| A0226009.D | Std7-100/1000 ppb | ICAL | 1 | 02/26/19 2:45 PM |
| A0226010.D | Std8-200/2000 ppb | ICAL | 1 | 02/26/19 2:51 PM |
| A0226011.D | ICV | ICV | 1 | 02/26/19 2:57 PM |
| A0226012.D | ICB | ICB | 1 | 02/26/19 3:04 PM |
| A0226013.D | LLICV | CCV1 | 1 | 02/26/19 3:10 PM |
| A0226014.D | ICSA1 | ICSA | 1 | 02/26/19 3:15 PM |
| A0226015.D | ICSAB1 | ICSAB | 1 | 02/26/19 3:21 PM |
| A0226016.D | LLICV | CCV1 | 1 | 02/26/19 3:27 PM |
| A0226017.D | MB-72654 | MBLK | 1 | 02/26/19 3:34 PM |
| A0226018.D | LCS-72654 | LCS | 1 | 02/26/19 3:39 PM |
| A0226019.D | N034295-001A | SAMP | 1 | 02/26/19 3:45 PM |
| A0226020.D | N034295-001A | SAMP | 5 | 02/26/19 3:51 PM |
| A0226021.D | N034295-001A-PS | PS | 1 | 02/26/19 3:57 PM |
| A0226022.D | N034295-001A-MS | MS | 1 | 02/26/19 4:03 PM |
| A0226023.D | N034295-001A-MSD | MSD | 1 | 02/26/19 4:09 PM |
| A0226024.D | MB-72617 | MBLK | 1 | 02/26/19 4:15 PM |
| A0226025.D | LCS-72617 | LCS | 1 | 02/26/19 4:20 PM |
| A0226026.D | N034177-002B | SAMP | 5 | 02/26/19 4:26 PM |
| A0226027.D | CCV1 | CCV | 1 | 02/26/19 4:32 PM |
| A0226028.D | CCB1 | CCB | 1 | 02/26/19 4:38 PM |
| A0226029.D | N034106-002B | SAMP | 1 | 02/26/19 4:44 PM |
| A0226030.D | N034106-005B | SAMP | 1 | 02/26/19 4:50 PM |
| A0226031.D | N034106-008B | SAMP | 1 | 02/26/19 4:56 PM |
| A0226032.D | N034109-001B | SAMP | 1 | 02/26/19 5:02 PM |
| A0226033.D | N034123-012B | SAMP | 1 | 02/26/19 5:08 PM |
| A0226034.D | N034177-001B | SAMP | 1 | 02/26/19 5:14 PM |
| A0226035.D | N034177-001B | SAMP | 5 | 02/26/19 5:20 PM |
| A0226036.D | N034177-001B-PS | PS | 1 | 02/26/19 5:26 PM |
| A0226037.D | N034177-001B-MS | MS | 1 | 02/26/19 5:32 PM |
| A0226038.D | N034177-001B-MSD | MSD | 1 | 02/26/19 5:38 PM |
| A0226039.D | CCV2 | CCV | 1 | 02/26/19 5:44 PM |
| A0226040.D | CCB2 | CCB | 1 | 02/26/19 5:50 PM |
| A0226041.D | N034182-006B | SAMP | 1 | 02/26/19 5:55 PM |
| A0226042.D | N034177-001B | SAMP | 25 | 02/26/19 6:01 PM |

**INJECTION LOG: 190226A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0226043.D | N034177-001B-PS | PS | 5 | 02/26/19 6:07 PM |
| A0226044.D | N034177-001B-MS | MS | 5 | 02/26/19 6:13 PM |
| A0226045.D | N034177-001B-MSD | MSD | 5 | 02/26/19 6:19 PM |
| A0226046.D | N034177-002B | SAMP | 1 | 02/26/19 6:25 PM |
| A0226047.D | MB-72618 | MBLK | 1 | 02/26/19 7:00 PM |
| A0226048.D | LCS-72618 | LCS | 1 | 02/26/19 7:06 PM |
| A0226049.D | CCV3 | CCV | 1 | 02/26/19 7:15 PM |
| A0226050.D | CCB3 | CCB | 1 | 02/26/19 7:33 PM |
| B0226051.D | ICSA2 | ICSA | 1 | 02/26/19 7:39 PM |
| B0226052.D | ICSAB2 | ICSAB | 1 | 02/26/19 7:45 PM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/22/2019 8:02:52**
Prep End Date: **2/22/2019 12:30:00**
Reviewed/ Date: NS 2/28/2019
Initials/ Date: for

Prep Batch **72617** Prep Code: **200.8_PR** Technician **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.5** | **02-1** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72617 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-72617 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034106-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034106-005B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034106-008B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034109-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034123-012B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034177-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034177-001B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034177-001B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034177-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034182-006B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034191-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10549 ~~10029~~ | HYDROCHLORIC ACID |
| 10553 ~~10235~~ | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

# INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 26 Feb 2019 07:59:52 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 74690.40 | 0.00 | |
| 24 Mg | 206995.00 | 0.00 | |
| 25 Mg | 26050.20 | 0.00 | |
| 26 Mg | 29521.80 | 0.00 | |
| 59 Co | 112434.00 | 0.00 | |
| 115 In | 160330.00 | 0.00 | |
| 206 Pb | 60600.00 | 0.00 | |
| 207 Pb | 53133.30 | 0.00 | |
| 208 Pb | 130759.00 | 0.00 | |

RSD (%)

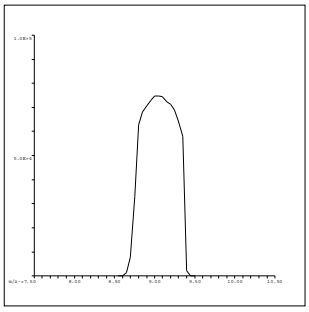
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 0.99 | 5.00 | |
| 24 Mg | 2.77 | 5.00 | |
| 25 Mg | 0.90 | 5.00 | |
| 26 Mg | 4.94 | 5.00 | |
| 59 Co | 1.74 | 5.00 | |
| 115 In | 0.55 | 5.00 | |
| 206 Pb | 0.66 | 5.00 | |
| 207 Pb | 1.16 | 5.00 | |
| 208 Pb | 0.85 | 5.00 | |

Ion Ratio

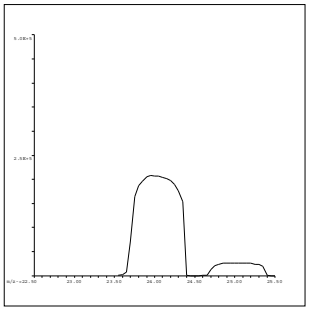
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | | | |
| 24 Mg | | | |
| 25 Mg | | | |
| 26 Mg | | | |
| 59 Co | | | |
| 115 In | | | |
| 206 Pb | | | |
| 207 Pb | | | |
| 208 Pb | | | |

Maximum Bkg. Count(CPS)

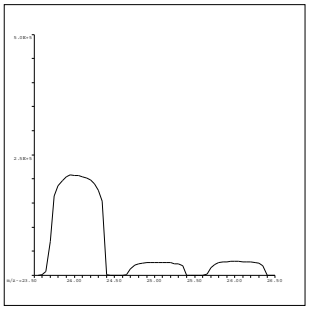
| Element | Actual | Required | Flag |
|---|---|---|---|



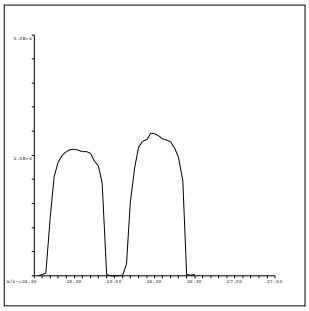
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



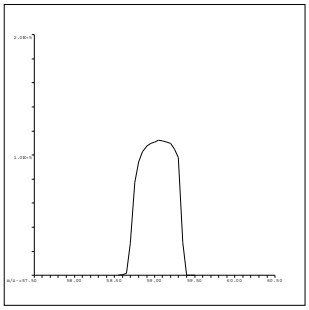
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



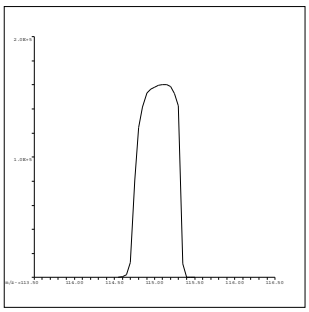
25 Mg
Mass Calib.
Actual: 25.05
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



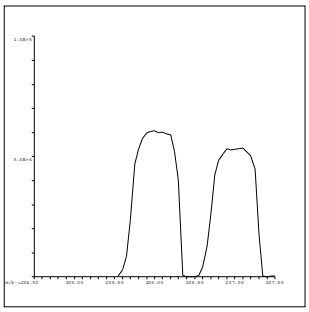
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



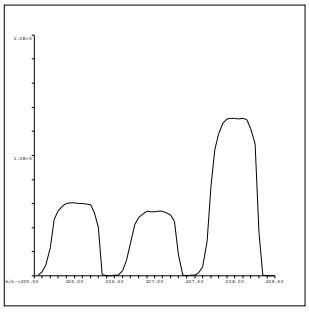
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



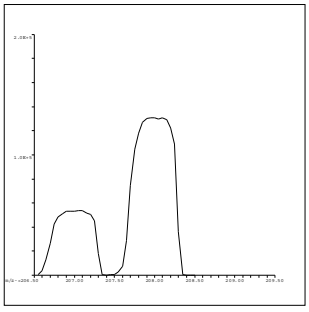
115 In
Mass Calib.
Actual: 115.10
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190226A**

**Instrument ID: ICPMS-02**

| Analyte | Data File | A0226002.D | A0226004.D | A0226005.D | A0226006.D | A0226007.D | A0226008.D | A0226009.D | A0226010.D | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 02/26/2019 02:04 PM | 02/26/2019 02:16 PM | 02/26/2019 02:22 PM | 02/26/2019 02:27 PM | 02/26/2019 02:33 PM | 02/26/2019 02:39 PM | 02/26/2019 02:45 PM | 02/26/2019 02:51 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 45 Sc ( ISTD ) [ 2 ] | CPS | 20644.4 | 21058.3 | 21143.9 | 20714.5 | 20773.4 | 20647.8 | 20110.4 | 20972.6 | |
| 55 Mn [ 2 ] | CPS | 9.5 | 394.9 | 3366.5 | 6610.7 | 13190.5 | 25879.8 | 63523 | 129191.4 | 0.9999 |
| 52 Cr [ 2 ] | CPS | 249.9 | 934.4 | 7129.3 | 13476.6 | 27763.2 | 53824.2 | 131482 | 265490.6 | 0.9999 |

| Standard Code |
|---|
| ICAL: 2MSST-180608B |
| ICAL: 2MSST-180205B |
| ICAL: 2MWST-181001C |
| IS Mix: 2MWST-181126B |

Calibration Acceptance Criteria: > 0.995 Correlation

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303692** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 107.918 | 0.50 | 100.0 | 0 | 108 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303694** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 0.551 | 0.50 | 0.5000 | 0 | 110 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303708** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 20.422 | 0.50 | 20.00 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303720** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 20.505 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303730** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 21.350 | 0.50 | 20.00 | 0 | 107 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303649** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.696 | 1.0 | 10.00 | 0 | 107 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303651** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 1.010 | 1.0 | 1.000 | 0 | 101 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303665** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.838 | 1.0 | 20.00 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303677** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.895 | 1.0 | 20.00 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303687** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 21.014 | 1.0 | 20.00 | 0 | 105 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303693** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303709** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303721** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303731** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303650** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303666** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303678** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303688** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303695** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303696** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 17.036 | 0.50 | 20.00 | 0 | 85.2 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303732** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303733** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 20.162 | 0.50 | 20.00 | 0 | 101 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303652** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303653** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.796 | 1.0 | 20.00 | 0 | 99.0 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303689** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132154** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303690** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.156 | 1.0 | 20.00 | 0 | 101 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190226A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 20644.4 | 20644.4 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 21151.7 | 20644.4 | 102.46 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 21058.3 | 20644.4 | 102 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 21143.9 | 20644.4 | 102.42 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 20714.5 | 20644.4 | 100.34 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 20773.4 | 20644.4 | 100.62 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 20647.8 | 20644.4 | 100.02 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 20110.4 | 20644.4 | 97.41 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 20972.6 | 20644.4 | 101.59 | PASS | 70-125 |
| ICV | ICV | 1 | 20771.2 | 20644.4 | 100.61 | PASS | 70-125 |
| ICB | ICB | 1 | 23043.1 | 20644.4 | 111.62 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 18290.5 | 20644.4 | 88.6 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 23223.4 | 20644.4 | 112.49 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 22617 | 20644.4 | 109.56 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 21319.7 | 20644.4 | 103.27 | PASS | 70-125 |
| MB-72617 | MBLK | 1 | 23495 | 20644.4 | 113.81 | PASS | 70-125 |
| LCS-72617 | LCS | 1 | 23023.2 | 20644.4 | 111.52 | PASS | 70-125 |
| N034177-002B | SAMP | 5 | 23052 | 20644.4 | 111.66 | PASS | 70-125 |
| CCV1 | CCV | 1 | 23612.9 | 20644.4 | 114.38 | PASS | 70-125 |
| CCB1 | CCB | 1 | 17869 | 20644.4 | 86.56 | PASS | 70-125 |
| N034106-002B | SAMP | 1 | 20472 | 20644.4 | 99.16 | PASS | 70-125 |
| N034106-005B | SAMP | 1 | 20568.8 | 20644.4 | 99.63 | PASS | 70-125 |
| N034106-008B | SAMP | 1 | 20920.3 | 20644.4 | 101.34 | PASS | 70-125 |
| N034109-001B | SAMP | 1 | 22274.3 | 20644.4 | 107.9 | PASS | 70-125 |
| N034123-012B | SAMP | 1 | 21897.2 | 20644.4 | 106.07 | PASS | 70-125 |
| N034177-001B | SAMP | 1 | 22543.6 | 20644.4 | 109.2 | PASS | 70-125 |
| N034177-001B | SAMP | 5 | 21751.4 | 20644.4 | 105.36 | PASS | 70-125 |
| N034177-001B-PS | PS | 1 | 22055.2 | 20644.4 | 106.83 | PASS | 70-125 |
| N034177-001B-MS | MS | 1 | 23900 | 20644.4 | 115.77 | PASS | 70-125 |
| N034177-001B-MSD | MSD | 1 | 23402.6 | 20644.4 | 113.36 | PASS | 70-125 |
| CCV2 | CCV | 1 | 22739.5 | 20644.4 | 110.15 | PASS | 70-125 |
| CCB2 | CCB | 1 | 18547.5 | 20644.4 | 89.84 | PASS | 70-125 |
| N034182-006B | SAMP | 1 | 20460.9 | 20644.4 | 99.11 | PASS | 70-125 |
| N034177-001B | SAMP | 25 | 20512 | 20644.4 | 99.36 | PASS | 70-125 |
| N034177-001B-PS | PS | 5 | 20217.2 | 20644.4 | 97.93 | PASS | 70-125 |
| N034177-001B-MS | MS | 5 | 20436.4 | 20644.4 | 98.99 | PASS | 70-125 |
| N034177-001B-MSD | MSD | 5 | 20223.9 | 20644.4 | 97.96 | PASS | 70-125 |
| N034177-002B | SAMP | 1 | 20547.7 | 20644.4 | 99.53 | PASS | 70-125 |
| CCV3 | CCV | 1 | 15998.1 | 20644.4 | 77.49 | PASS | 70-125 |
| CCB3 | CCB | 1 | 16905.7 | 20644.4 | 81.89 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 16966.8 | 20644.4 | 82.19 | PASS | 70-125 |

**INTERNAL STANDARD: 190226A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| ICSAB2 | ICSAB | 1 | 16648.8 | 20644.4 | 80.65 | PASS | 70-125 |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-MS-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034177
Test Method: EPA 200.8
Analysis Date: 2/26/2019

Matrix: Groundwater
Batch No.: 72617

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr. The calculated concentration is <25RL.

| Sample ID | Analyte | Units | Calc Val | OQual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|
| N034177-001B DT 5X | Chromium | ug/L | 0 | NA | 0.426489 | 100.00% | 10 |
| N034177-001B DT 25X | Manganese | ug/L | 518.2309 | PASS | 500.8026 | 3.48% | 10 |

Note: NA - Not applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

Sample ID **N034177-001B-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **132154**
Client ID: **ZZZZZZ** Batch ID: **72617** TestNo: **EPA 200.8** Analysis Date: **2/26/2019** SeqNo: **3303724**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 596.142 | 2.5 | 100.0 | 500.8 | 95.3 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID | **N034177-001B-PS** | SampType: **PS** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132154** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **72617** | TestNo: **EPA 200.8** | | Analysis Date: **2/26/2019** | SeqNo: **3303674** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.284 | 1.0 | 10.00 | 0.4265 | 88.6 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Amount of Sample:** 25 mL
**Units:** ug/L

| Analyte | AMT SPIKED, ppb | 1 | 2 | 3 | 4 | 5 | 6 | 7 | SD | MDL | LOD | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANTIMONY | 0.50 | 0.525 | 0.514 | 0.473 | 0.500 | 0.492 | 0.486 | 0.530 | 0.0210 | 0.0660 | 0.100 | 0.50 |
| ARSENIC | 0.10 | 0.099 | 0.104 | 0.087 | 0.048 | 0.060 | 0.069 | 0.120 | 0.0259 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 1.00 | 1.041 | 1.059 | 1.052 | 1.011 | 0.967 | 0.957 | 1.023 | 0.0403 | 0.1264 | 0.250 | 1.00 |
| BERYLLIUM | 0.50 | 0.469 | 0.476 | 0.473 | 0.495 | 0.480 | 0.488 | 0.507 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.50 | 0.515 | 0.513 | 0.492 | 0.534 | 0.499 | 0.483 | 0.508 | 0.0168 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 1.00 | 0.979 | 0.986 | 0.940 | 0.990 | 0.946 | 0.978 | 0.977 | 0.0197 | 0.0618 | 0.250 | 1.00 |
| COBALT | 0.50 | 0.499 | 0.489 | 0.486 | 0.488 | 0.465 | 0.502 | 0.505 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| COPPER | 1.00 | 1.110 | 0.667 | 1.039 | 1.060 | 1.006 | 1.099 | 1.075 | 0.1544 | 0.4850 | 0.500 | 1.00 |
| IRON | 10.00 | 10.873 | 10.802 | 10.142 | 9.991 | 9.846 | 9.852 | 10.596 | 0.4463 | 1.4014 | 2.500 | 10.00 |
| LEAD | 1.00 | 0.928 | 0.931 | 0.899 | 0.996 | 0.990 | 0.987 | 0.997 | 0.0406 | 0.1274 | 0.250 | 1.00 |
| MANGANESE | 0.50 | 0.577 | 0.588 | 0.561 | 0.566 | 0.517 | 0.541 | 0.520 | 0.0276 | 0.0866 | 0.100 | 0.50 |
| MOLYBDENUM | 0.50 | 0.514 | 0.504 | 0.467 | 0.478 | 0.456 | 0.433 | 0.527 | 0.0338 | 0.1061 | 0.250 | 0.50 |
| NICKEL | 1.00 | 0.961 | 0.965 | 0.977 | 0.907 | 0.914 | 0.962 | 1.075 | 0.0551 | 0.1731 | 0.250 | 1.00 |
| SELENIUM | 0.50 | 0.450 | 0.478 | 0.419 | 0.693 | 0.707 | 0.495 | 0.555 | 0.1155 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.50 | 0.558 | 0.511 | 0.490 | 0.542 | 0.458 | 0.490 | 0.684 | 0.0745 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.50 | 0.437 | 0.428 | 0.408 | 0.538 | 0.446 | 0.438 | 0.525 | 0.0504 | 0.1583 | 0.250 | 0.50 |
| URANIUM | 0.50 | 0.478 | 0.467 | 0.461 | 0.517 | 0.510 | 0.521 | 0.521 | 0.0267 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 1.00 | 0.950 | 0.969 | 0.900 | 0.844 | 0.829 | 0.848 | 1.053 | 0.0820 | 0.2574 | 0.500 | 1.00 |
| ZINC | 10.00 | 11.259 | 11.279 | 10.915 | 9.620 | 9.849 | 9.745 | 10.241 | 0.7235 | 2.2717 | 2.500 | 10.00 |

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Units:** ug/L

| Analyte | MDLs | MDLb | MDL | LOD | PQL |
|---|---|---|---|---|---|
| ANTIMONY | 0.0660 | 0.1564 | 0.1564 | 0.300 | 0.50 |
| ARSENIC | 0.0813 | 0.0387 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 0.1264 | 0.1497 | 0.1497 | 0.300 | 1.00 |
| BERYLLIUM | 0.0424 | 0.0153 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.0527 | 0.0060 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 0.0618 | 0.1298 | 0.1298 | 0.300 | 1.00 |
| COBALT | 0.0424 | 0.0339 | 0.0424 | 0.100 | 0.50 |
| COPPER | 0.4850 | 0.5459 | 0.5459 | 0.600 | 1.00 |
| IRON | 1.4014 | 4.3484 | 4.3484 | 5.000 | 10.00 |
| LEAD | 0.1274 | 0.1008 | 0.1274 | 0.300 | 1.00 |
| MANGANESE | 0.0866 | 0.2552 | 0.2552 | 0.300 | 0.50 |
| MOLYBDENUM | 0.1061 | 0.2149 | 0.2149 | 0.300 | 0.50 |
| NICKEL | 0.1731 | 0.2606 | 0.2606 | 0.300 | 1.00 |
| SELENIUM | 0.3628 | 0.0953 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.2340 | 0.2023 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.1583 | 0.1924 | 0.1924 | 0.300 | 0.50 |
| URANIUM | 0.0838 | 0.0020 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 0.2574 | 0.2768 | 0.2768 | 0.600 | 1.00 |
| ZINC | 2.2717 | 0.4511 | 2.2717 | 3.000 | 10.00 |

# EPA 218.6

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R131932
**ASSET #:** N034177

**Instrument ID:** IC-07
**Analyst:** HSG
**Date Analyzed:** 2/19/2019

**Method:**

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | x | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | x | | |
| 3. ICV within ± 10% of expected value. | X | | | x | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | x | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | x | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | x | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | X | | | x | | |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | x | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | X | | | x | | |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | x | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | X | | | | | |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | x |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | X | | | x | | |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | x |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | X | | | | | x |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | X | | | x | | |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | x |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | X | | | x | | |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | x |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | x | | |
| 21. Are all samples analyzed within hold time? | X | | | x | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | X | | | x | | |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | x | | |
| 24. LCS compounds are within control limits. | X | | | x | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | x | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | x |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | x | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | x |
| 29. All manual integrations initialed, date and reasons included. | X | | | x | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | x | | |
| 31. All samples and QC raw data present in package. | X | | | x | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | x | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | x | | |
| 34 Is the QC summary report present and complete? | X | | | x | | |

Comments:

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: HSG Date: 3/1/2019

2nd Level Reviewer: 3/1/2019 Date: —

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 218.6
**TEST NAME:** HEXAVALENT CHROMIUM BY IC
**MATRIX:** Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N034177-002A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 4.2463 * 100$$

$$Cr^{+6}, \mu g/L = 424.6300$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 420}$$

NS 3/1/2019

# ANALYSIS RUN LOG

**INJECTION LOG: 190204A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:31 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:41 AM | Not Reported |
| 3 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:54 AM | Not Reported |
| 4 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/04/19 10:22 AM | Reported |
| 5 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:35 AM | Reported |
| 6 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:47 AM | Reported |
| 7 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:56 AM | Reported |
| 8 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:06 AM | Reported |
| 9 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:15 AM | Reported |
| 10 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:25 AM | Reported |
| 11 | ICV | ICV | 1 | Hexavalent Chromium | 02/04/19 11:45 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/04/19 11:56 AM | Reported |
| 13 | ICB | ICB | 1 | Hexavalent Chromium | 02/04/19 12:06 PM | Not Reported |
| 14 | ICB | ICB | 1 | Hexavalent Chromium | 02/04/19 12:19 PM | Reported |
| 15 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 12:32 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190204A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **04/Feb/19 15:07:18** |
| *No. of Injections:* | **18** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:31 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 02/04/2019 09:41 | Finished | BLANK |
| 3 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:54 | Finished | BLANK |
| 4 | iBLANK | 2 | 1000 | Unknown | | 02/04/2019 10:22 | Finished | INSTRUMENT BLANK |
| 5 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/04/2019 10:35 | Finished | 0.2 ppb, IWST-181022C |
| 6 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/04/2019 10:47 | Finished | 1.0 ppb, IWST-181022C |
| 7 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/04/2019 10:56 | Finished | 5.0 ppb, IWST-181022C |
| 8 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/04/2019 11:06 | Finished | 10 ppb, IWST-181022C |
| 9 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/04/2019 11:15 | Finished | 15 ppb, IWST-181022C |
| 10 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/04/2019 11:25 | Finished | 20 ppb, IWST-181022C |
| 11 | ICV,ICV,1, | 9 | 1000 | Unknown | | 02/04/2019 11:45 | Finished | ICV @5ppb, IWST-181022D |
| 12 | PQL@0.2ppb,CCV2,1 | 10 | 1000 | Unknown | | 02/04/2019 11:56 | Finished | PQL @ 0.2ppb |
| 13 | ICB,ICB,1, | 11 | 1000 | Unknown | | 02/04/2019 12:06 | Finished | ICB R190115A |
| 14 | ICB,ICB,1, | 12 | 1000 | Unknown | | 02/04/2019 12:19 | Finished | ICB R190115A |
| 15 | BLANK | 13 | 1000 | Unknown | | 02/04/2019 12:32 | Finished | BLANK |
| 16 | SHUTDOWN | 14 | 1000 | Unknown | | 02/04/2019 14:44 | Finished | |
| 17 | Eluent: R190130B | 15 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 18 | PCR: R190130A | 16 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

**INJECTION LOG: 190219A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:31 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:41 AM | Not Reported |
| 3 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:54 AM | Not Reported |
| 4 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/04/19 10:22 AM | Reported |
| 5 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:35 AM | Reported |
| 6 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:47 AM | Reported |
| 7 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:56 AM | Reported |
| 8 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:06 AM | Reported |
| 9 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:15 AM | Reported |
| 10 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:25 AM | Reported |
| 11 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/19/19 8:33 AM | Not Reported |
| 12 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/19/19 8:44 AM | Not Reported |
| 13 | CCV-1 | CCV | 1 | Hexavalent Chromium | 02/19/19 8:58 AM | Reported |
| 14 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/19/19 9:09 AM | Reported |
| 15 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/19/19 9:18 AM | Reported |
| 16 | MB-R131932 | MBLK | 1 | Hexavalent Chromium | 02/19/19 9:42 AM | Reported |
| 17 | LCS-R131932 | LCS | 1 | Hexavalent Chromium | 02/19/19 9:54 AM | Reported |
| 18 | N034217-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 10:12 AM | Reported |
| 19 | N034219-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 10:24 AM | Not Reported |
| 20 | N034218-~~001A~~ -002A | SAMP | 1 | Hexavalent Chromium | 02/19/19 10:33 AM | Reported |
| 21 | N034217-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 10:50 AM | Reported |
| 22 | N034219-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 11:01 AM | Not Reported |
| 23 | N034218-00~~1~~2AMS | MS | 1 | Hexavalent Chromium | 02/19/19 11:11 AM | Reported |
| 24 | N034219-001A | SAMP | 5 | Hexavalent Chromium | 02/19/19 11:20 AM | Not Reported |
| 25 | N034219-001AMS | MS | 5 | Hexavalent Chromium | 02/19/19 11:30 AM | Not Reported |
| 26 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 02/19/19 11:39 AM | Reported |
| 27 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/19/19 11:49 AM | Reported |
| 28 | N034217-001AMSD | MSD | 1 | Hexavalent Chromium | 02/19/19 12:00 PM | Reported |
| 29 | N034218-001ADUP | DUP | 1 | Hexavalent Chromium | 02/19/19 12:12 PM | Reported |
| 30 | N034219-001A | SAMP | 10 | Hexavalent Chromium | 02/19/19 12:21 PM | Reported |
| 31 | N034219-001AMS | MS | 10 | Hexavalent Chromium | 02/19/19 12:31 PM | Reported |
| 32 | N034177-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 12:40 PM | Reported |
| 33 | N034177-002A | SAMP | 100 | Hexavalent Chromium | 02/19/19 12:50 PM | Reported |
| 34 | N034177-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 12:59 PM | Reported |
| 35 | N034177-002AMS | MS | 100 | Hexavalent Chromium | 02/19/19 1:09 PM | Reported |
| 36 | N034102-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 1:18 PM | Reported |
| 37 | N034102-002A | SAMP | 5 | Hexavalent Chromium | 02/19/19 1:28 PM | Reported |
| 38 | CCV-3 | CCV | 1 | Hexavalent Chromium | 02/19/19 1:37 PM | Reported |
| 39 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/19/19 1:47 PM | Reported |
| 40 | N034102-003A | SAMP | 5 | Hexavalent Chromium | 02/19/19 1:56 PM | Reported |
| 41 | N034102-004A | SAMP | 5 | Hexavalent Chromium | 02/19/19 2:05 PM | Reported |
| 42 | N034102-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 2:15 PM | Reported |

2/22/2019 2/22/2019

**INJECTION LOG: 190219A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034102-002AMS | MS | 5 | Hexavalent Chromium | 02/19/19 2:24 PM | Reported |
| 44 | N034102-003AMS | MS | 5 | Hexavalent Chromium | 02/19/19 2:34 PM | Reported |
| 45 | N034102-004AMS | MS | 5 | Hexavalent Chromium | 02/19/19 2:43 PM | Reported |
| 46 | N034192-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 2:53 PM | Reported |
| 47 | N034192-002A | SAMP | 1 | Hexavalent Chromium | 02/19/19 3:02 PM | Reported |
| 48 | N034192-003A | SAMP | 1 | Hexavalent Chromium | 02/19/19 3:12 PM | Reported |
| 49 | N034192-004A | SAMP | 1 | Hexavalent Chromium | 02/19/19 3:21 PM | Reported |
| 50 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/19/19 3:31 PM | Reported |
| 51 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/19/19 3:40 PM | Reported |
| 52 | N034192-005A | SAMP | 1 | Hexavalent Chromium | 02/19/19 3:50 PM | Reported |
| 53 | N034109-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 3:59 PM | Reported |
| 54 | N034192-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 4:15 PM | Reported |
| 55 | N034192-002AMS | MS | 1 | Hexavalent Chromium | 02/19/19 4:26 PM | Reported |
| 56 | N034192-003AMS | MS | 1 | Hexavalent Chromium | 02/19/19 4:35 PM | Reported |
| 57 | N034192-004AMS | MS | 1 | Hexavalent Chromium | 02/19/19 4:45 PM | Reported |
| 58 | N034192-005AMS | MS | 1 | Hexavalent Chromium | 02/19/19 4:54 PM | Reported |
| 59 | N034109-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 5:04 PM | Reported |
| 60 | N034120-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 5:13 PM | Reported |
| 61 | N034120-002A | SAMP | 1 | Hexavalent Chromium | 02/19/19 5:23 PM | Reported |
| 62 | CCV-5 | CCV | 1 | Hexavalent Chromium | 02/19/19 5:32 PM | Reported |
| 63 | CCB-5 | CCB | 1 | Hexavalent Chromium | 02/19/19 5:42 PM | Reported |
| 64 | N034120-003A | SAMP | 1 | Hexavalent Chromium | 02/19/19 5:51 PM | Reported |
| 65 | N034120-004A | SAMP | 1 | Hexavalent Chromium | 02/19/19 6:00 PM | Reported |
| 66 | N034120-005A | SAMP | 1 | Hexavalent Chromium | 02/19/19 6:10 PM | Reported |
| 67 | N034102-002A | SAMP | 1 | Hexavalent Chromium | 02/19/19 6:19 PM | Not Reported |
| 68 | N034102-002AMS | MS | 1 | Hexavalent Chromium | 02/19/19 6:29 PM | Not Reported |
| 69 | N034102-003A | SAMP | 1 | Hexavalent Chromium | 02/19/19 6:38 PM | Not Reported |
| 70 | N034102-003AMS | MS | 1 | Hexavalent Chromium | 02/19/19 6:48 PM | Not Reported |
| 71 | N034102-004A | SAMP | 1 | Hexavalent Chromium | 02/19/19 6:57 PM | Not Reported |
| 72 | N034102-004AMS | MS | 1 | Hexavalent Chromium | 02/19/19 7:07 PM | Not Reported |
| 73 | CCV-6 | CCV | 1 | Hexavalent Chromium | 02/19/19 7:16 PM | Reported |
| 74 | CCB-6 | CCB | 1 | Hexavalent Chromium | 02/19/19 7:26 PM | Reported |
| 75 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/19/19 7:35 PM | Not Reported |

2/22/2019

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190219A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **19/Feb/19 20:05:53** |
| *No. of Injections:* | **78** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:31 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 02/04/2019 09:41 | Finished | BLANK |
| 3 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:54 | Finished | BLANK |
| 4 | iBLANK | 2 | 1000 | Unknown | | 02/04/2019 10:22 | Finished | INSTRUMENT BLANK |
| 5 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/04/2019 10:35 | Finished | 0.2 ppb, IWST-181022C |
| 6 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/04/2019 10:47 | Finished | 1.0 ppb, IWST-181022C |
| 7 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/04/2019 10:56 | Finished | 5.0 ppb, IWST-181022C |
| 8 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/04/2019 11:06 | Finished | 10 ppb, IWST-181022C |
| 9 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/04/2019 11:15 | Finished | 15 ppb, IWST-181022C |
| 10 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/04/2019 11:25 | Finished | 20 ppb, IWST-181022C |
| 11 | BLANK | 1 | 1000 | Unknown | | 02/19/2019 08:33 | Finished | BLANK |
| 12 | BLANK | 2 | 1000 | Unknown | | 02/19/2019 08:44 | Finished | BLANK |
| 13 | CCV-1,CCV,1, | 4 | 1000 | Unknown | | 02/19/2019 08:58 | Finished | CCV @5ppb, IWST-181022C |
| 14 | PQL@0.2ppb,CCV2,1 | 5 | 1000 | Unknown | | 02/19/2019 09:09 | Finished | PQL @ 0.2ppb |
| 15 | CCB-1,CCB,1, | 6 | 1000 | Unknown | | 02/19/2019 09:18 | Finished | CCB R190115A |
| 16 | MB-H2O,MBLK,1, | 7 | 1000 | Unknown | | 02/19/2019 09:42 | Finished | MB R190115A |
| 17 | LCS-H2O,LCS,1, | 8 | 1000 | Unknown | | 02/19/2019 09:54 | Finished | LCS @5ppb, IWST-181022D |
| 18 | N034217-001A,SAMF | 9 | 1000 | Unknown | | 02/19/2019 10:12 | Finished | SAMP,10mL |
| 19 | N034219-001A,SAMF | 10 | 1000 | Unknown | | 02/19/2019 10:24 | Finished | SAMP,10mL |
| 20 | N034218-001Ã,SAMF | 11 | 1000 | Unknown | | 02/19/2019 10:33 | Finished | SAMP,10mL |
| 21 | N034217-001AMS,MS | 13 | 1000 | Unknown | | 02/19/2019 10:50 | Finished | MS (1ppb), IWST-181022D,10 |
| 22 | N034219-001AMS,MS | 14 | 1000 | Unknown | | 02/19/2019 11:01 | Finished | MS (1ppb), IWST-181022D,10 |
| 23 | N034218-001ÃMS,MS | 15 | 1000 | Unknown | | 02/19/2019 11:11 | Finished | MS (1ppb), IWST-181022D,10 |
| 24 | N034219-001A,SAMF | 16 | 1000 | Unknown | | 02/19/2019 11:20 | Finished | SAMP,2>10mL |
| 25 | N034219-001AMS,MS | 17 | 1000 | Unknown | | 02/19/2019 11:30 | Finished | MS (1ppb), IWST-181022D,2>1 |
| 26 | CCV-2,CCV1,1, | 18 | 1000 | Unknown | | 02/19/2019 11:39 | Finished | CCV @10ppb, IWST-181022C |
| 27 | CCB-2,CCB,1, | 19 | 1000 | Unknown | | 02/19/2019 11:49 | Finished | CCB R190115A |
| 28 | N034217-001AMSD,M | 20 | 1000 | Unknown | | 02/19/2019 12:00 | Finished | MSD (1ppb), IWST-181022D,1( |
| 29 | N034218-001ADUP,D | 21 | 1000 | Unknown | | 02/19/2019 12:12 | Finished | DUP,10 mL |
| 30 | N034219-001A,SAMF | 22 | 1000 | Unknown | | 02/19/2019 12:21 | Finished | SAMP,1>10mL |
| 31 | N034219-001AMS,MS | 23 | 1000 | Unknown | | 02/19/2019 12:31 | Finished | MS (1ppb), IWST-181022D,1>1 |
| 32 | N034177-001A,SAMF | 24 | 1000 | Unknown | | 02/19/2019 12:40 | Finished | SAMP,10mL |
| 33 | N034177-002A,SAMF | 25 | 1000 | Unknown | | 02/19/2019 12:50 | Finished | SAMP,0.1>10mL |
| 34 | N034177-001AMS,MS | 26 | 1000 | Unknown | | 02/19/2019 12:59 | Finished | MS (1ppb), IWST-181022D,10 |
| 35 | N034177-002AMS,MS | 27 | 1000 | Unknown | | 02/19/2019 13:09 | Finished | MS (5ppb), IWST-181022D,0.1 |
| 36 | N034102-001A,SAMF | 28 | 1000 | Unknown | | 02/19/2019 13:18 | Finished | SAMP,10mL |
| 37 | N034102-002A,SAMF | 29 | 1000 | Unknown | | 02/19/2019 13:28 | Finished | SAMP,2>10mL |
| 38 | CCV-3,CCV,1, | 30 | 1000 | Unknown | | 02/19/2019 13:37 | Finished | CCV @5ppb, IWST-181022C |
| 39 | CCB-3,CCB,1, | 31 | 1000 | Unknown | | 02/19/2019 13:47 | Finished | CCB R190115A |
| 40 | N034102-003A,SAMF | 32 | 1000 | Unknown | | 02/19/2019 13:56 | Finished | SAMP,2>10mL |
| 41 | N034102-004A,SAMF | 33 | 1000 | Unknown | | 02/19/2019 14:05 | Finished | SAMP,2>10mL |
| 42 | N034102-001AMS,MS | 34 | 1000 | Unknown | | 02/19/2019 14:15 | Finished | MS (1ppb), IWST-181022D,10 |
| 43 | N034102-002AMS,MS | 35 | 1000 | Unknown | | 02/19/2019 14:24 | Finished | MS (1ppb), IWST-181022D,2>1 |
| 44 | N034102-003AMS,MS | 36 | 1000 | Unknown | | 02/19/2019 14:34 | Finished | SAMP,10mL |
| 45 | N034102-004AMS,MS | 37 | 1000 | Unknown | | 02/19/2019 14:43 | Finished | SAMP,10mL |
| 46 | N034192-001A,SAMF | 38 | 1000 | Unknown | | 02/19/2019 14:53 | Finished | SAMP,10mL |
| 47 | N034192-002A,SAMF | 39 | 1000 | Unknown | | 02/19/2019 15:02 | Finished | SAMP,10mL |
| 48 | N034192-003A,SAMF | 40 | 1000 | Unknown | | 02/19/2019 15:12 | Finished | SAMP,10mL |
| 49 | N034192-004A,SAMF | 41 | 1000 | Unknown | | 02/19/2019 15:21 | Finished | SAMP,10mL |
| 50 | CCV-4,CCV1,1, | 42 | 1000 | Unknown | | 02/19/2019 15:31 | Finished | CCV @10ppb, IWST-181022C |
| 51 | CCB-4,CCB,1, | 43 | 1000 | Unknown | | 02/19/2019 15:40 | Finished | CCB R190115A |
| 52 | N034192-005A,SAMF | 44 | 1000 | Unknown | | 02/19/2019 15:50 | Finished | SAMP,10mL |
| 53 | N034109-001A,SAMF | 45 | 1000 | Unknown | | 02/19/2019 15:59 | Finished | SAMP,10mL |
| 54 | N034192-001AMS,MS | 1 | 1000 | Unknown | | 02/19/2019 16:15 | Finished | MS (1ppb), IWST-181022D,10 |
| 55 | N034192-002AMS,MS | 2 | 1000 | Unknown | | 02/19/2019 16:26 | Finished | MS (1ppb), IWST-181022D,10 |
| 56 | N034192-003AMS,MS | 3 | 1000 | Unknown | | 02/19/2019 16:35 | Finished | MS (1ppb), IWST-181022D,10 |
| 57 | N034192-004AMS,MS | 4 | 1000 | Unknown | | 02/19/2019 16:45 | Finished | MS (1ppb), IWST-181022D,10 |
| 58 | N034192-005AMS,MS | 5 | 1000 | Unknown | | 02/19/2019 16:54 | Finished | MS (1ppb), IWST-181022D,10 |
| 59 | N034109-001AMS,MS | 6 | 1000 | Unknown | | 02/19/2019 17:04 | Finished | MS (1ppb), IWST-181022D,10 |
| 60 | N034120-001A,SAMF | 7 | 1000 | Unknown | | 02/19/2019 17:13 | Finished | SAMP,10mL |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | N034120-002A,SAMF | 8 | 1000 | Unknown | | 02/19/2019 17:23 | Finished | SAMP,10mL |
| 62 | CCV-5,CCV,1, | 9 | 1000 | Unknown | | 02/19/2019 17:32 | Finished | CCV @5ppb, IWST-181022C |
| 63 | CCB-5,CCB,1, | 10 | 1000 | Unknown | | 02/19/2019 17:42 | Finished | CCB R190115A |
| 64 | N034120-003A,SAMF | 11 | 1000 | Unknown | | 02/19/2019 17:51 | Finished | SAMP,10mL |
| 65 | N034120-004A,SAMF | 12 | 1000 | Unknown | | 02/19/2019 18:00 | Finished | SAMP,10mL |
| 66 | N034120-005A,SAMF | 13 | 1000 | Unknown | | 02/19/2019 18:10 | Finished | SAMP,10mL |
| 67 | N034102-002A,SAMF | 14 | 1000 | Unknown | | 02/19/2019 18:19 | Finished | SAMP,10mL |
| 68 | N034102-002AMS,MS | 15 | 1000 | Unknown | | 02/19/2019 18:29 | Finished | MS (1ppb), IWST-181022D,10 |
| 69 | N034102-003A,SAMF | 16 | 1000 | Unknown | | 02/19/2019 18:38 | Finished | SAMP,10mL |
| 70 | N034102-003AMS,MS | 17 | 1000 | Unknown | | 02/19/2019 18:48 | Finished | MS (1ppb), IWST-181022D,10 |
| 71 | N034102-004A,SAMF | 18 | 1000 | Unknown | | 02/19/2019 18:57 | Finished | SAMP,10mL |
| 72 | N034102-004AMS,MS | 19 | 1000 | Unknown | | 02/19/2019 19:07 | Finished | MS (1ppb), IWST-181022D,10 |
| 73 | CCV-6,CCV,1, | 20 | 1000 | Unknown | | 02/19/2019 19:16 | Finished | CCV @10ppb, IWST-181022C |
| 74 | CCB-6,CCB,1, | 21 | 1000 | Unknown | | 02/19/2019 19:26 | Finished | CCB R190115A |
| 75 | BLANK | 22 | 1000 | Unknown | | 02/19/2019 19:35 | Finished | BLANK |
| 76 | SHUTDOWN | 23 | 1000 | Unknown | | 02/19/2019 19:45 | Finished | |
| 77 | Eluent: R190218C | 24 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 78 | PCR: R190218B | 25 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# SAMPLE PREPARATION LOG

# Hexavalent Chromium Preparation and Runlog

## Sample Preparation

Date Prepared: 2/15/19
Time Prepared: 1500
Prepared By: MG

Slope - 96.7%
pH4 - 4.02 @ 25°C
pH7 - 7.01 @ 25°C
pH10 - 10.01 @ 25°C

Reagent ID:
Sulfuric Acid: 0563
Diphenylcarbazide: CINV-181102A
NH4OH + NH4SO4 eluent: R1902216B
NH4OH + NH4SO4 buffer: M901158A

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | M034182-1A | 9.33 | - | ~250mL | ~250mL | | |
| 2) | 2A | 9.30 | - | | | | |
| 3) | 4A | 9.36 | - | | | | |
| 4) | 5A | 9.34 | - | | | | |
| 5) | 6A | 9.41 | - | | | | |
| 6) | 7A | 9.36 | - | | | | |
| 7) | 8A | 9.32 | - | | | | |
| 8) | 9A | 9.31 | - | | | | |
| 9) | 10A | 9.35 | - | | | | |
| 10) | 11A | 9.51 | - | | | | |
| 11) | 12A | 9.30 | - | | | | |
| 12) | 13A | 9.35 | - | | | | |
| 13) | M034183-1A | 9.33 | - | | | | |
| 14) | 2A | 9.31 | - | | | | |
| 15) | 3A | 9.36 | - | | | | |
| | 5A | 9.35 | - | - | - | | |

## Sample Preparation

Date Prepared: 2/15/19
Time Prepared: 1500
Prepared By: MG

Reagent ID:
Sulfuric Acid: 0563
Diphenylcarbazide: CINV-181102A
NH4OH + NH4SO4 eluent: R1902186/R1902216B
NH4OH + NH4SO4 buffer: M901158A

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | M034183-6A | 9.30 | - | ~250mL | ~250mL | | |
| 2) | 7A | 9.41 | - | | | | |
| 3) | 9A | 9.34 | - | | | | |
| 4) | 10A | 9.30 | - | | | | |
| 5) | 11A | 9.41 | - | | | | |
| 6) | 12A | 9.36 | - | | | | |
| 7) | 13A | 9.35 | - | | | | |
| 8) | 14A | 9.45 | - | | | | |
| 9) | 15A | 9.03 | - | | | | |
| 10) | 16A | 9.03 | - | | | | |
| 11) | 17A | 9.05 | - | | | | |
| 12) | 18A | 9.05 | - | | | | |
| 13) | 19A | 9.72 | - | | | | |
| 14) | 20A | 9.46 | - | | | | |
| 15) | M034177-1A | 9.46 | - | | | | |
| | 2A | 9.44 | - | - | - | | |

Logbook No. 15

# INITIAL CALIBRATION DATA SUMMARY

**(EPA 218.6) - INITIAL CALIBRATION**

Instrument ID: IC-07
Date Calibrated: 2/4/2019

Initial Calibration:

| Hexavalent Chromium | STD1 | STD2 | STD3 | STD4 | STD5 | STD6 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0.2 | 1 | 5 | 10 | 15 | 20 | $R^2$ |
| Area,mAU*min | 0.0689 | 0.3011 | 1.4144 | 2.8548 | 4.3509 | 5.7324 | 0.9999 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock | Working |
|---|---|---|
| Standard Concentration: | 1,000,000 PPB | 1,000 PPB |
| Standard ID: | ISST-170814H | IWST-181022C |

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/4/2019** | SeqNo: **3293116** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.780 | 0.20 | 5.000 | 0 | 95.6 | 90 | 110 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/4/2019** | SeqNo: **3293117** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.231 | 0.20 | 0.2000 | 0 | 115 | 80 | 120 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293119** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.091 | 0.20 | 5.000 | 0 | 102 | 95 | 105 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293120** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.232 | 0.20 | 0.2000 | 0 | 116 | 80 | 120 | | | | |

| Sample ID **CCV-2** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293128** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.281 | 0.20 | 10.00 | 0 | 103 | 95 | 105 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293140** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.189 | 0.20 | 5.000 | 0 | 104 | 95 | 105 | | | | |

| Sample ID **CCV-4** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293764** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.385 | 0.20 | 10.00 | 0 | 104 | 95 | 105 | | | | |

| Sample ID **CCV-5** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293776** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.147 | 0.20 | 5.000 | 0 | 103 | 95 | 105 | | | | |

| Sample ID **CCV-6** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293781** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.311 | 0.20 | 10.00 | 0 | 103 | 95 | 105 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/4/2019** | SeqNo: **3293118** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293121** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293129** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293141** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293765** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCB-5** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293777** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-6** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **131932** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131932** | TestNo: **EPA 218.6** | | Analysis Date: **2/19/2019** | SeqNo: **3293782** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# RETENTION TIME SUMMARY

## RETENTION TIME (RT) SUMMARY

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/19/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.131 | |
| CCV-1 | 4.106 | |
| CCV-2 | 4.106 | |
| CCV-3 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-5 | 4.106 | |
| CCV-6 | 4.115 | |

| | |
|---|---|
| **Average** | 4.108 |
| **Actual RT Window** | 4.028 - 4.188 |
| **Applied RT Window** | 3.908 - 4.308 |

| | | |
|---|---|---|
| MB-R131932 | N.A. | N.A. |
| LCS-R131932 | 4.123 | PASS |
| N034217-001A | N.A. | N.A. |
| N034219-001A | N.A. | N.A. |
| N034218-001A | N.A. | N.A. |
| N034217-001AMS | 4.056 | PASS |
| N034219-001AMS | N.A. | N.A. |
| N034218-001AMS | 4.065 | PASS |
| N034219-001A | N.A. | N.A. |
| N034219-001AMS | 3.998 | PASS |
| N034217-001AMSD | 4.065 | PASS |
| N034218-001ADUP | 4.048 | PASS |
| N034219-001A | N.A. | N.A. |
| N034219-001AMS | 4.048 | PASS |
| N034177-001A | N.A. | N.A. |
| N034177-002A | 4.098 | PASS |
| N034177-001AMS | 4.081 | PASS |
| N034177-002AMS | 4.106 | PASS |
| N034102-001A | 4.073 | PASS |
| N034102-002A | N.A. | N.A. |
| N034102-003A | N.A. | N.A. |

## RETENTION TIME (RT) SUMMARY

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/19/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.131 | |
| CCV-1 | 4.106 | |
| CCV-2 | 4.106 | |
| CCV-3 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-5 | 4.106 | |
| CCV-6 | 4.115 | |
| **Average** | 4.108 | |
| **Actual RT Window** | 4.028 - 4.188 | |
| **Applied RT Window** | 3.908 - 4.308 | |
| N034102-004A | 4.048 | PASS |
| N034102-001AMS | 4.106 | PASS |
| N034102-002AMS | 4.048 | PASS |
| N034102-003AMS | 4.040 | PASS |
| N034102-004AMS | 4.048 | PASS |
| N034192-001A | 4.090 | PASS |
| N034192-002A | 4.090 | PASS |
| N034192-003A | 4.098 | PASS |
| N034192-004A | 4.098 | PASS |
| N034192-005A | 4.090 | PASS |
| N034109-001A | N.A. | N.A. |
| N034192-001AMS | 4.090 | PASS |
| N034192-002AMS | 4.098 | PASS |
| N034192-003AMS | 4.098 | PASS |
| N034192-004AMS | 4.106 | PASS |
| N034192-005AMS | 4.098 | PASS |
| N034109-001AMS | 4.098 | PASS |
| N034120-001A | 4.098 | PASS |
| N034120-002A | N.A. | N.A. |
| N034120-003A | N.A. | N.A. |
| N034120-004A | 4.090 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/19/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.131 | |
| CCV-1 | 4.106 | |
| CCV-2 | 4.106 | |
| CCV-3 | 4.106 | |
| CCV-4 | 4.106 | |
| CCV-5 | 4.106 | |
| CCV-6 | 4.115 | |

| | | |
|---|---|---|
| **Average** | 4.108 | |
| **Actual RT Window** | 4.028 - | 4.188 |
| **Applied RT Window** | 3.908 - | 4.308 |

| | | |
|---|---|---|
| N034120-005A | 4.098 | PASS |
| N034102-002A | N.A. | N.A. |
| N034102-002AMS | N.A. | N.A. |
| N034102-003A | N.A. | N.A. |
| N034102-003AMS | N.A. | N.A. |
| N034102-004A | 3.673 | FAIL |
| N034102-004AMS | 3.698 | FAIL |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

| Datafile | 170505 | 170508 | 170509 | 170510 | 170511 | 170512 | 170515 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte** | **#1** | **#2** | **#3** | **#4** | **#5** | **#6** | **#7** | **Spike Conc., mg/L** | **SD** | **$t_{(n-1)}$ value** | **MDL** | **PQL** | **Remarks** |
| Hexavalent Chromium | 0.1949 | 0.2135 | 0.1840 | 0.1828 | 0.2011 | 0.1936 | 0.1911 | 0.20 | 0.0105 | 3.143 | **0.0331** | **0.20** | OK,meets criteria |

Students' **t** Values at 99% CL

| # | $t_{(n-1)}$ |
|---|---|
| 10 | 2.821 |
| 9 | 2.896 |
| 8 | 2.998 |
| 7 | 3.143 |

## LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

| Compound | MDL | LOD Spike Conc., µg/L | LOD actual Conc., µg/L |
|---|---|---|---|
| Hexavalent Chromium | 0.0331 | 0.100 | 0.116 |

| Compound | PQL | PQL Spike Conc., µg/L | PQL actual Conc., µg/L | % Recovery |
|---|---|---|---|---|
| Hexavalent Chromium | 0.200 | 0.200 | 0.201 | **100** |

# RAW DATA

# INITIAL CALIBRATION

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190204A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **04/Feb/19 15:07:18** |
| *No. of Injections:* | **18** | *Updated By:* | **ics 5000** |

## Injection Details

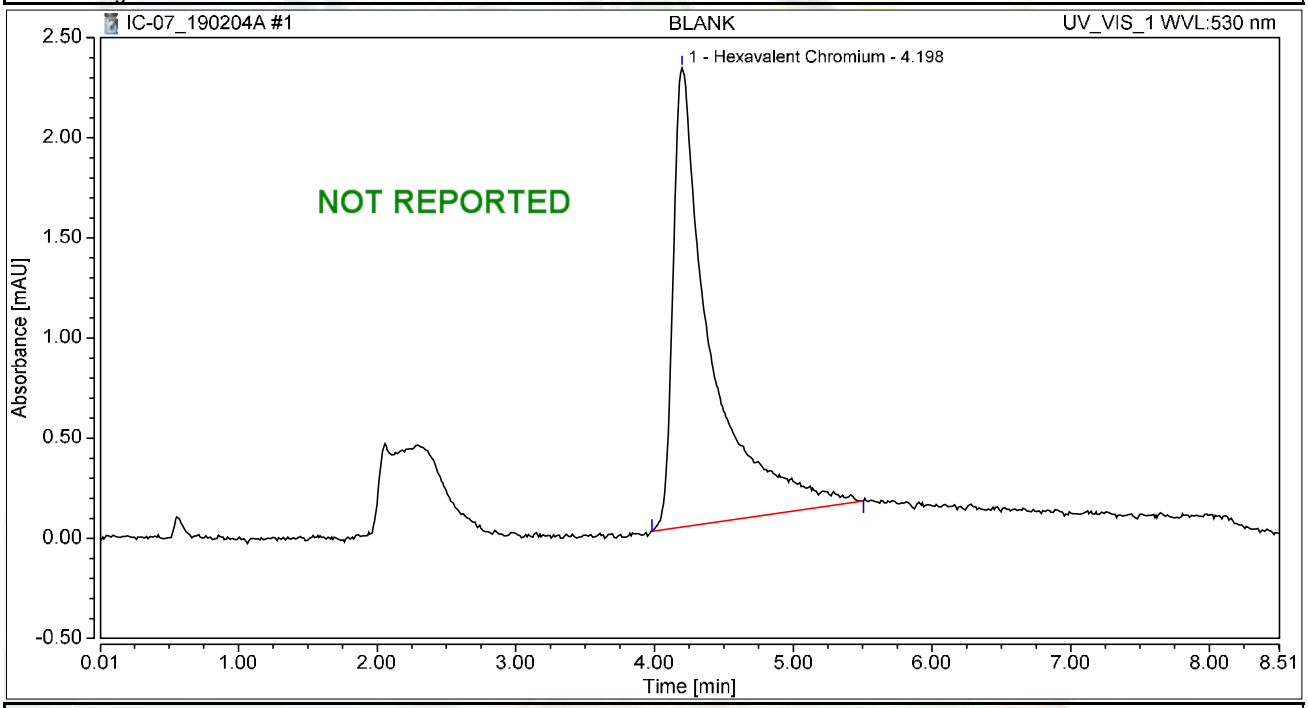
| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:31 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 02/04/2019 09:41 | Finished | BLANK |
| 3 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:54 | Finished | BLANK |
| 4 | iBLANK | 2 | 1000 | Unknown | | 02/04/2019 10:22 | Finished | INSTRUMENT BLANK |
| 5 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/04/2019 10:35 | Finished | 0.2 ppb, IWST-181022C |
| 6 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/04/2019 10:47 | Finished | 1.0 ppb, IWST-181022C |
| 7 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/04/2019 10:56 | Finished | 5.0 ppb, IWST-181022C |
| 8 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/04/2019 11:06 | Finished | 10 ppb, IWST-181022C |
| 9 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/04/2019 11:15 | Finished | 15 ppb, IWST-181022C |
| 10 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/04/2019 11:25 | Finished | 20 ppb, IWST-181022C |
| 11 | ICV,ICV,1, | 9 | 1000 | Unknown | | 02/04/2019 11:45 | Finished | ICV @5ppb, IWST-181022D |
| 12 | PQL@0.2ppb,CCV2,1 | 10 | 1000 | Unknown | | 02/04/2019 11:56 | Finished | PQL @ 0.2ppb |
| 13 | ICB,ICB,1, | 11 | 1000 | Unknown | | 02/04/2019 12:06 | Finished | ICB R190115A |
| 14 | ICB,ICB,1, | 12 | 1000 | Unknown | | 02/04/2019 12:19 | Finished | ICB R190115A |
| 15 | BLANK | 13 | 1000 | Unknown | | 02/04/2019 12:32 | Finished | BLANK |
| 16 | SHUTDOWN | 14 | 1000 | Unknown | | 02/04/2019 14:44 | Finished | |
| 17 | Eluent: R190130B | 15 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 18 | PCR: R190130A | 16 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 09:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

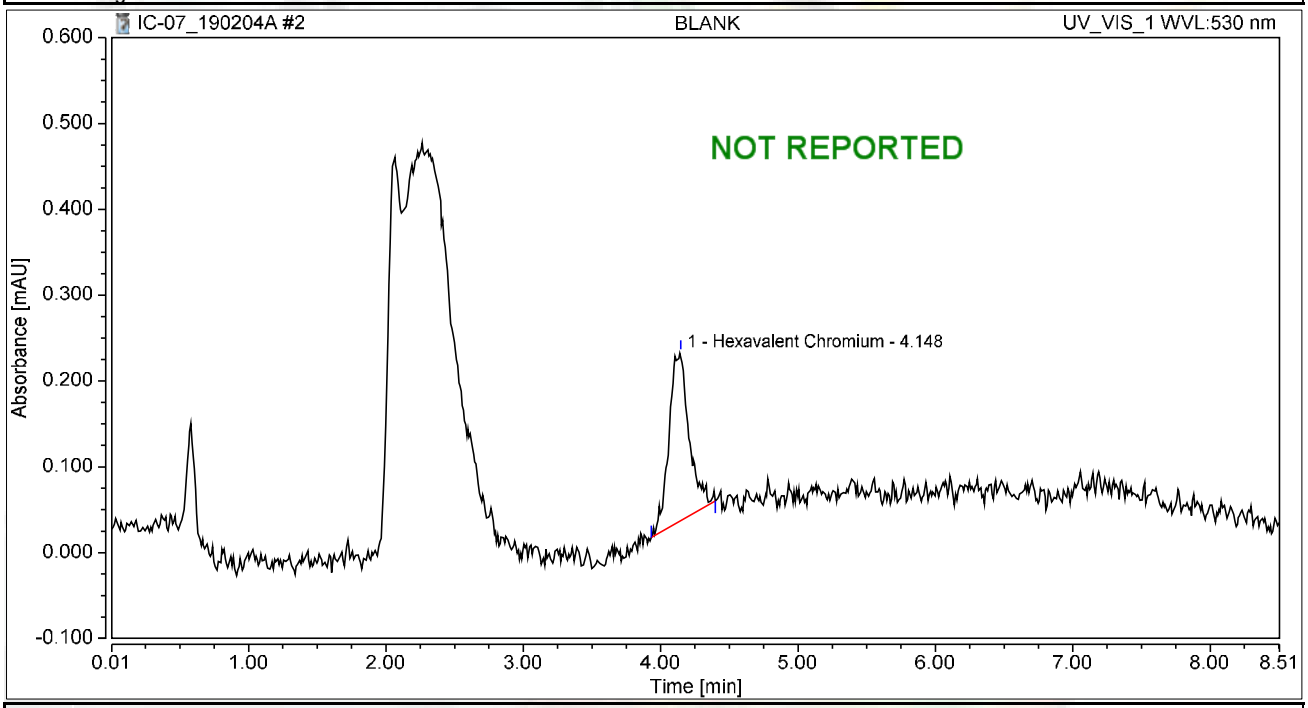
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.720 | 2.292 | 100.00 | 100.00 | 2.5055 |
| **Total:** | | | **0.720** | **2.292** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 09:41** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

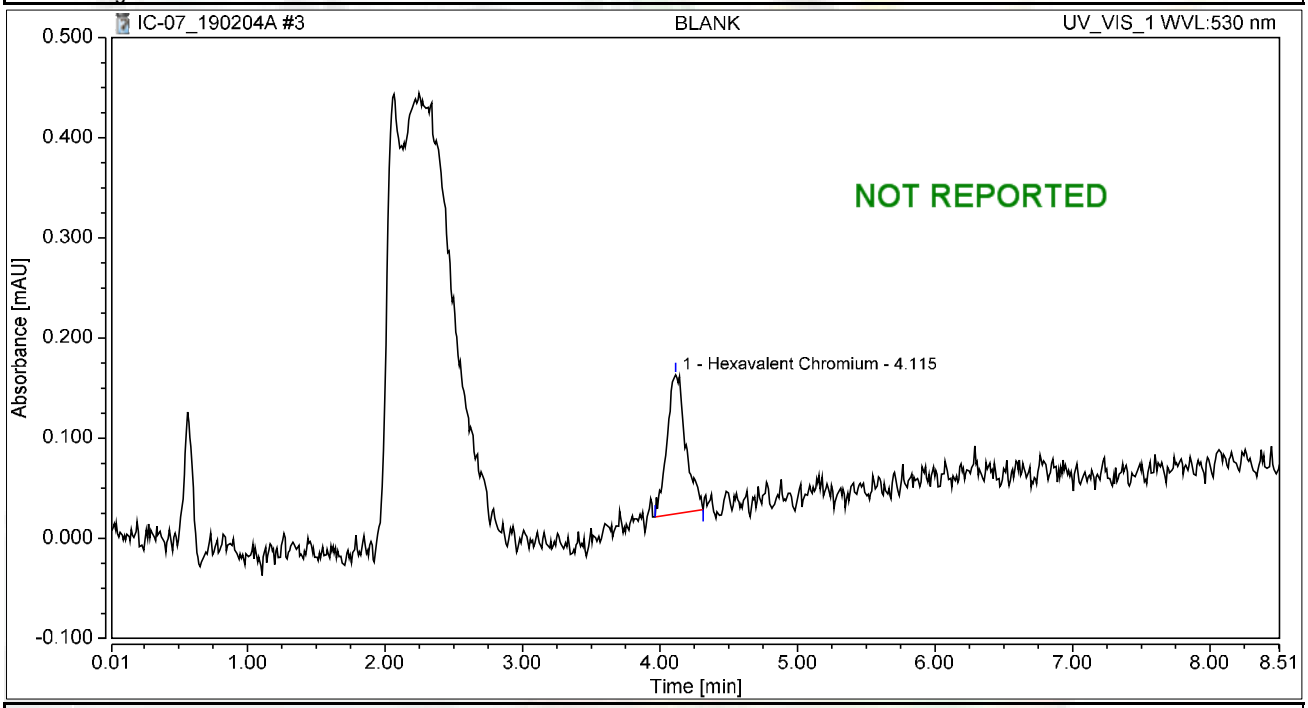
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.148 | 0.034 | 0.196 | 100.00 | 100.00 | 0.1167 |
| **Total:** | | | **0.034** | **0.196** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 09:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

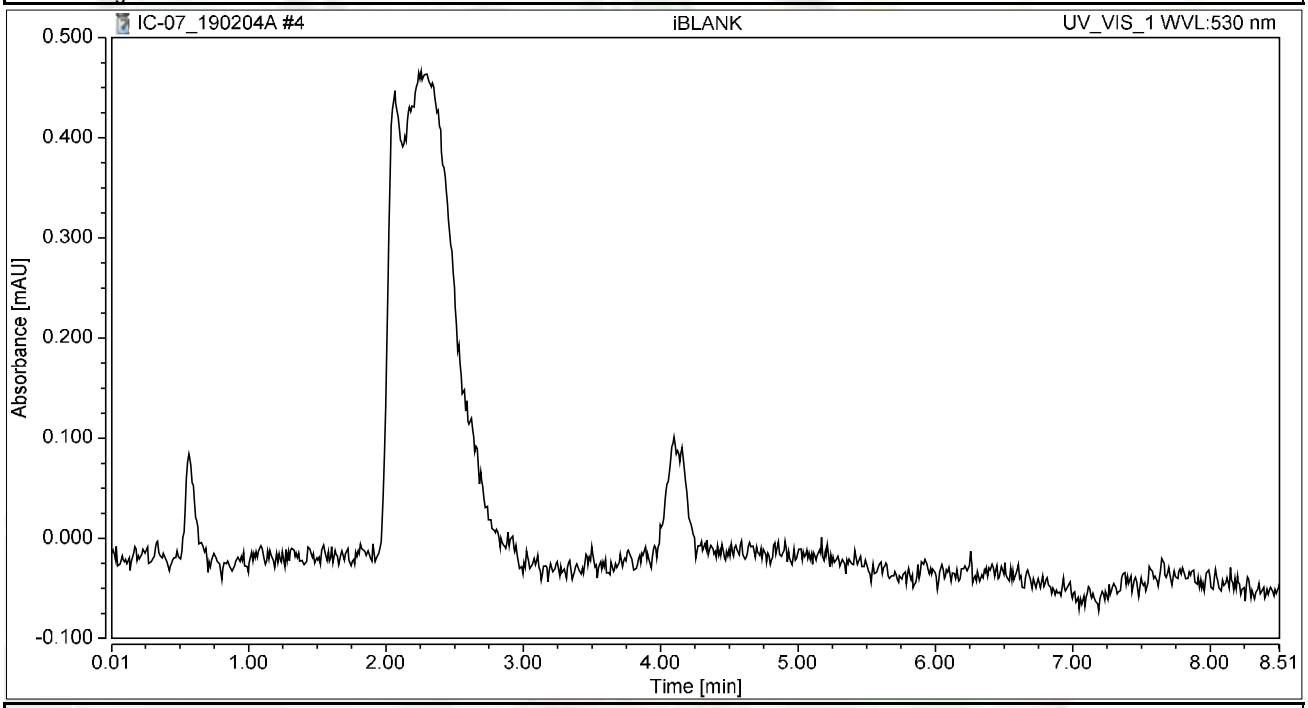
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 0.022 | 0.139 | 100.00 | 100.00 | 0.0765 |
| **Total:** | | | **0.022** | **0.139** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **iBLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 10:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

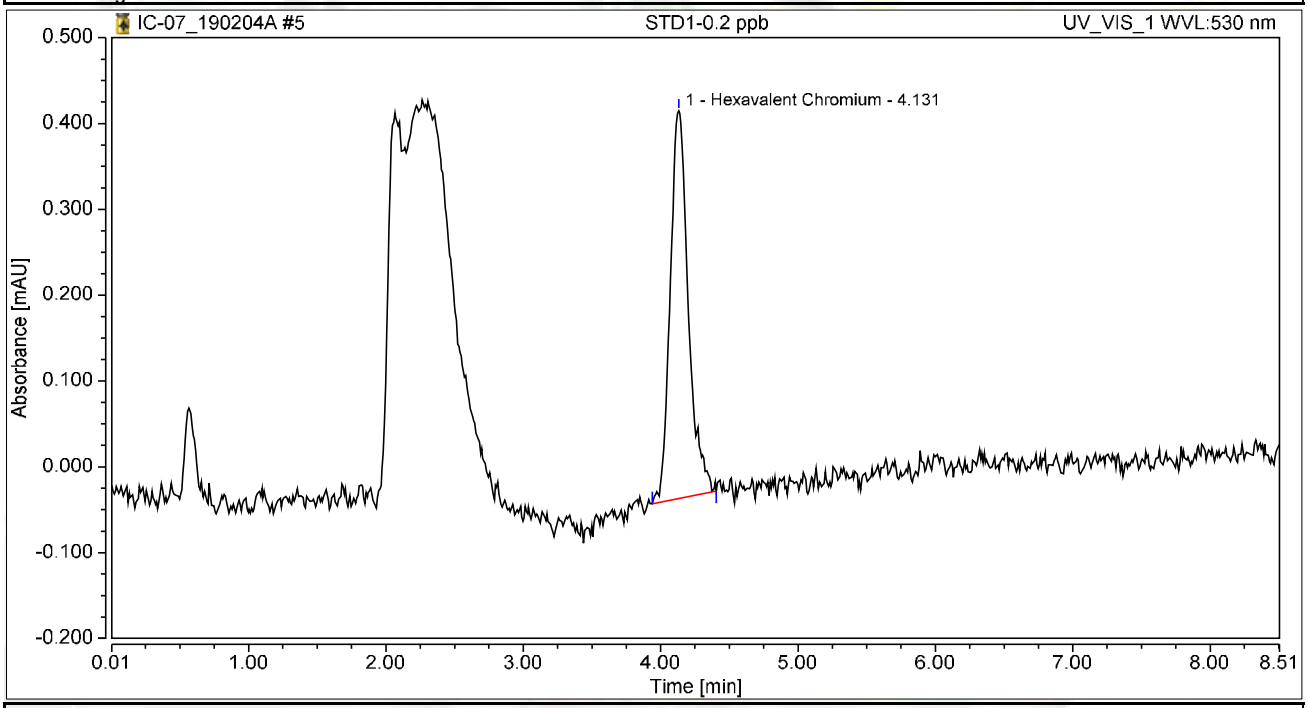
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD1-0.2 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **01** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 10:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

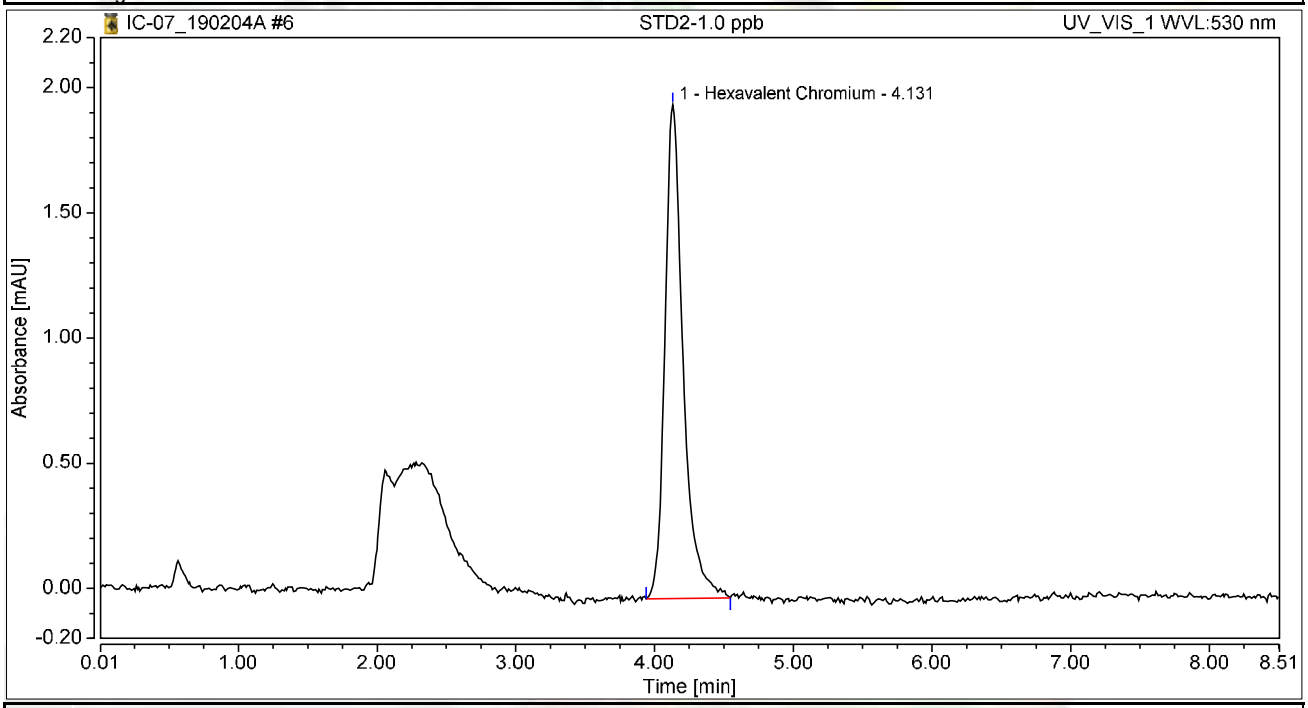
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 0.069 | 0.451 | 100.00 | 100.00 | 0.2397 |
| **Total:** | | | **0.069** | **0.451** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 10:47** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

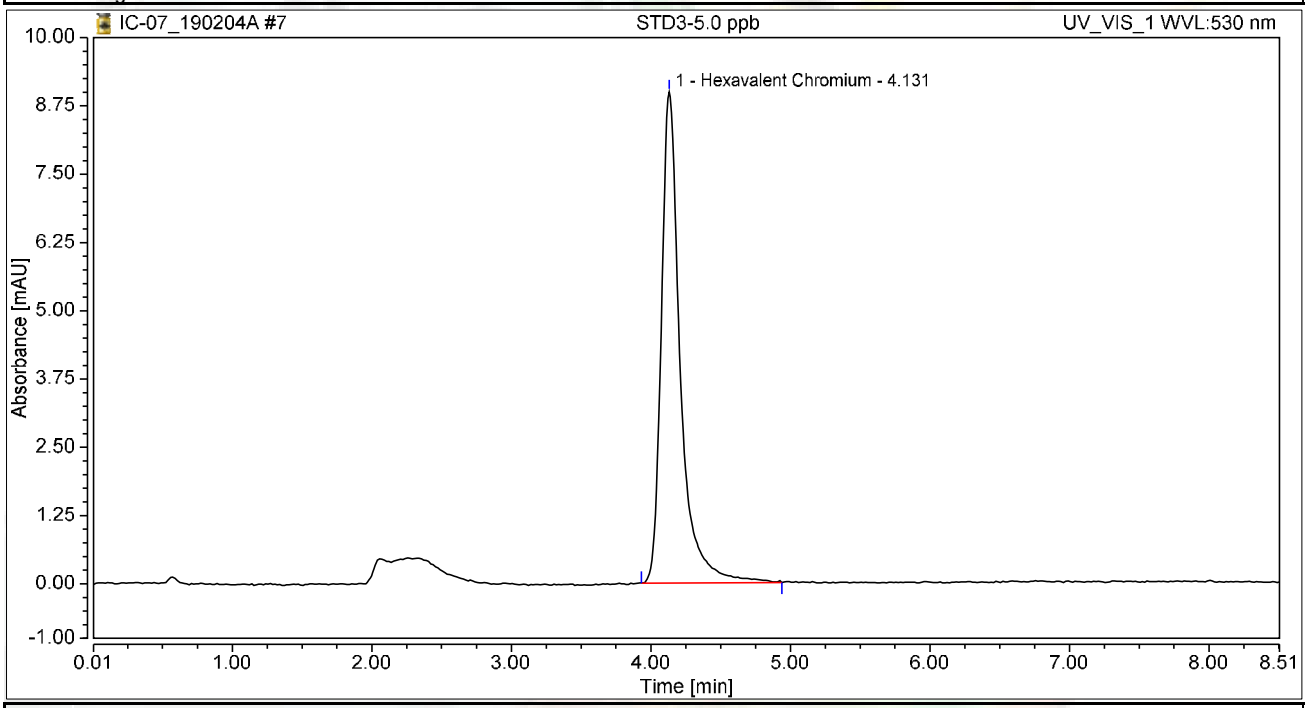
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 0.301 | 1.973 | 100.00 | 100.00 | 1.0477 |
| **Total:** | | | **0.301** | **1.973** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD3-5.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **03** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 10:56** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

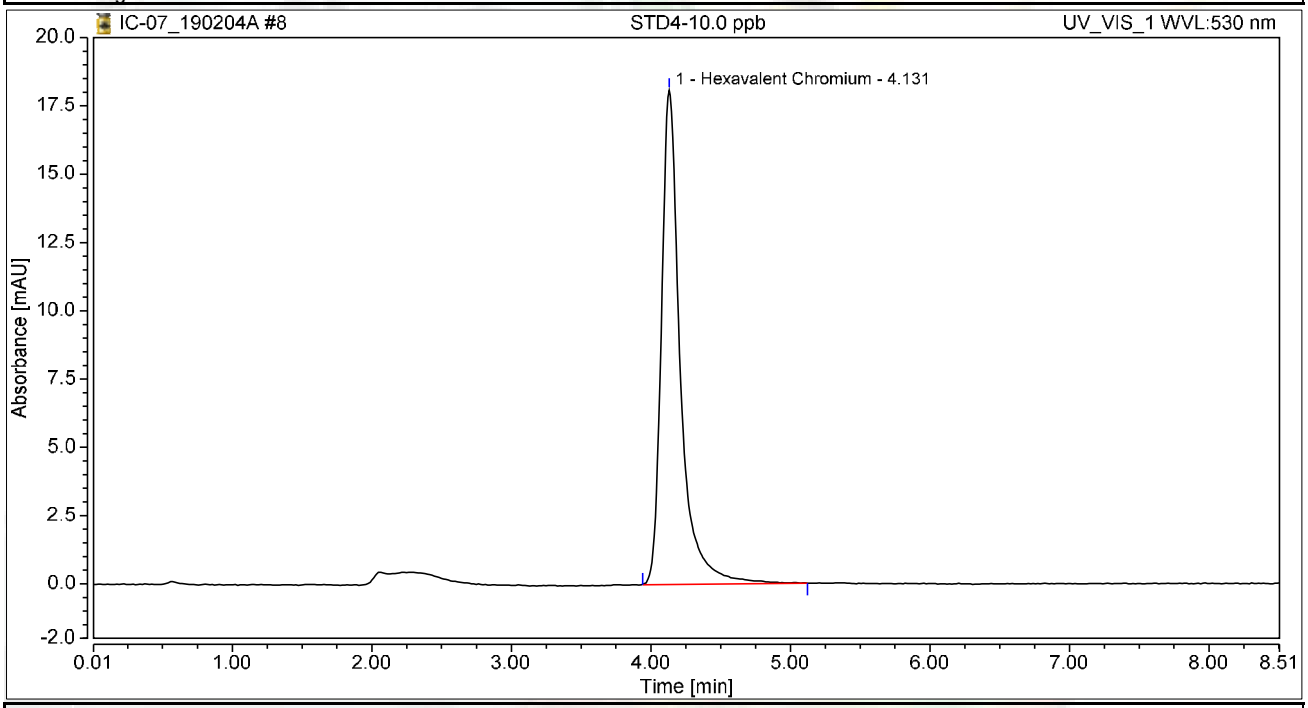
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 1.414 | 8.993 | 100.00 | 100.00 | 4.9215 |
| **Total:** | | | **1.414** | **8.993** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD4-10.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **04** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 11:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

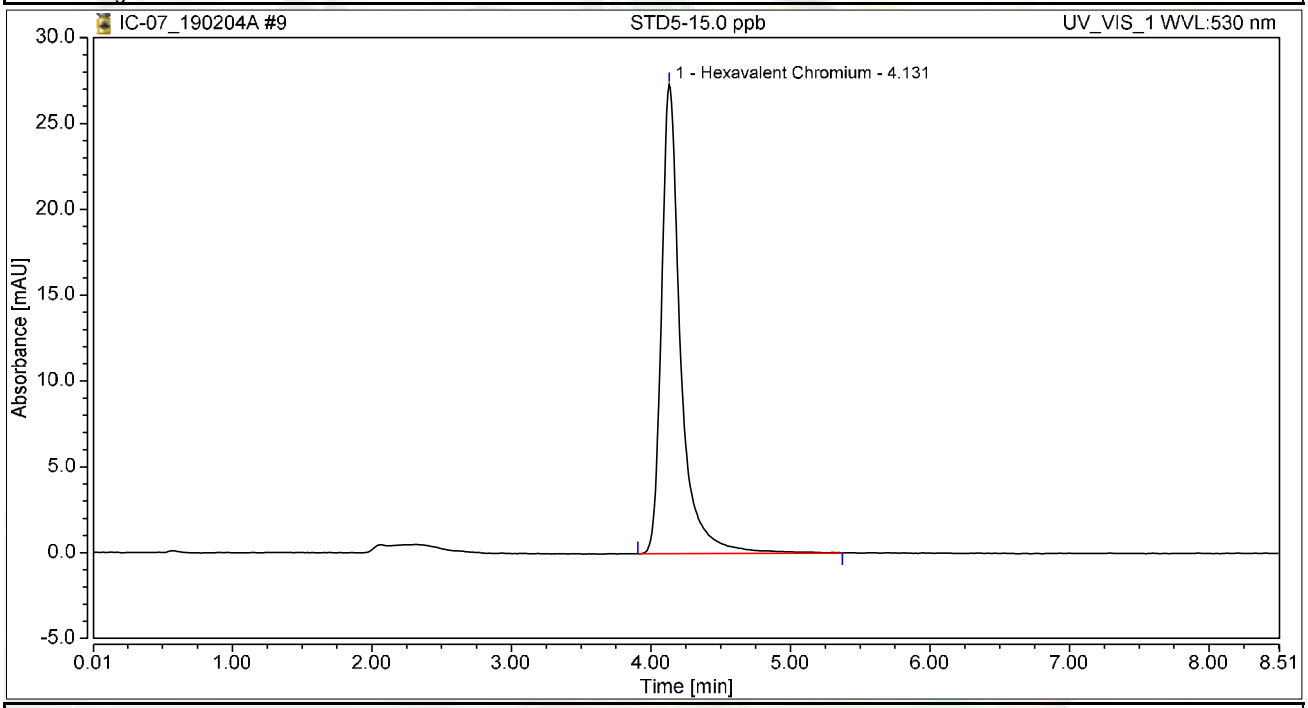
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 2.855 | 18.102 | 100.00 | 100.00 | 9.9332 |
| **Total:** | | | **2.855** | **18.102** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 11:15** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

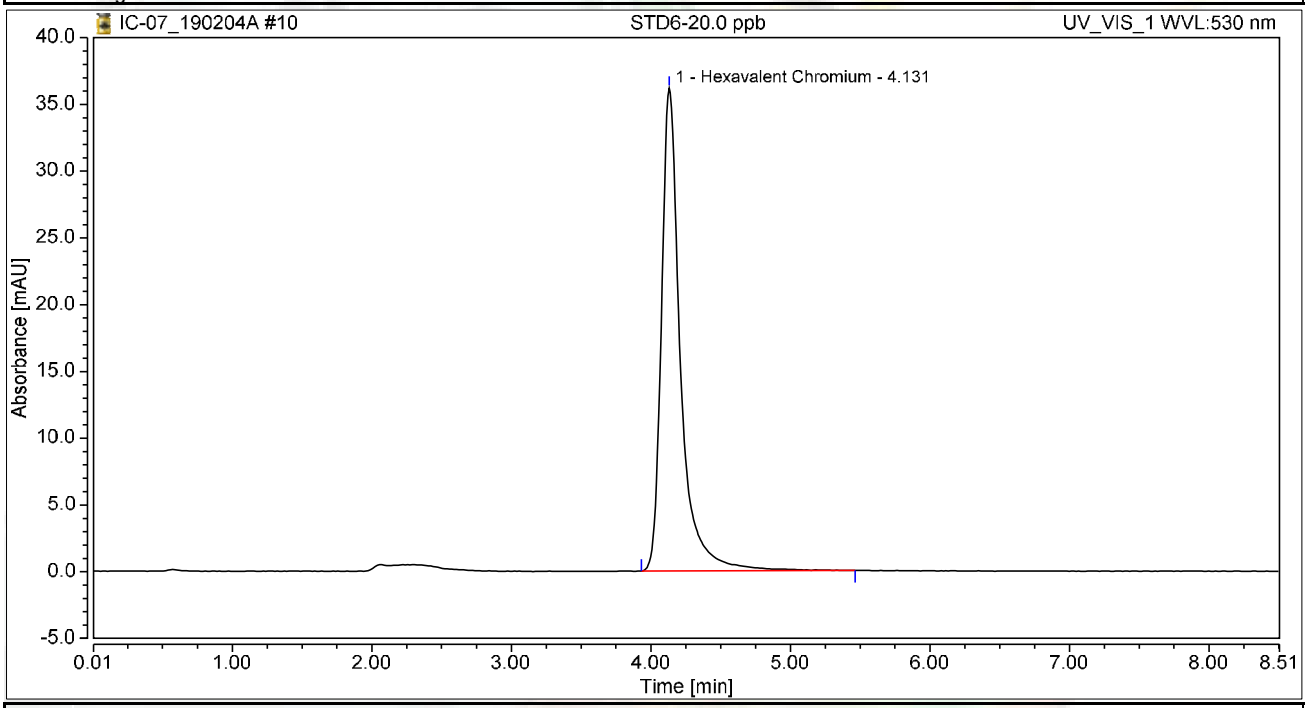
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 4.351 | 27.339 | 100.00 | 100.00 | 15.1391 |
| **Total:** | | | **4.351** | **27.339** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD6-20.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **06** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 11:25** | *Sample Weight:* | **1.0000** |

## Chromatogram



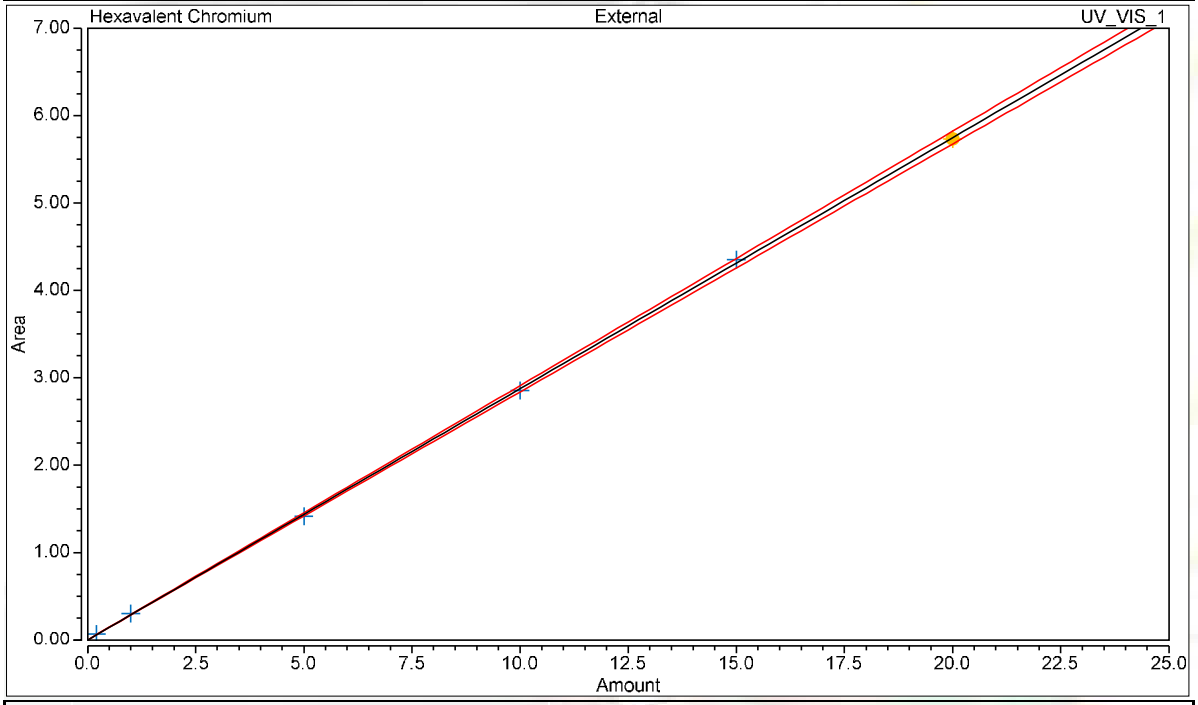

## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 5.732 | 36.163 | 100.00 | 100.00 | 19.9459 |
| **Total:** | | | **5.732** | **36.163** | **100.00** | **100.00** | |

# Initial Calibration Summary

| Calibration Details | Hexavalent Chromium | | |
|---|---|---|---|
| *Calibration Type* | Lin | *Offset (C0)* | 0.0000 |
| *Evaluation Type* | Area | *Slope (C1)* | 0.2874 |
| *Number of Calibration Points* | 6 | *Curve (C2)* | 0.0000 |
| *Number of disabled Calibration Points* | 0 | *R-Square* | 0.99988 |

Calibration Plot Hexavalent Chromium




Calibration Results Hexavalent Chromium

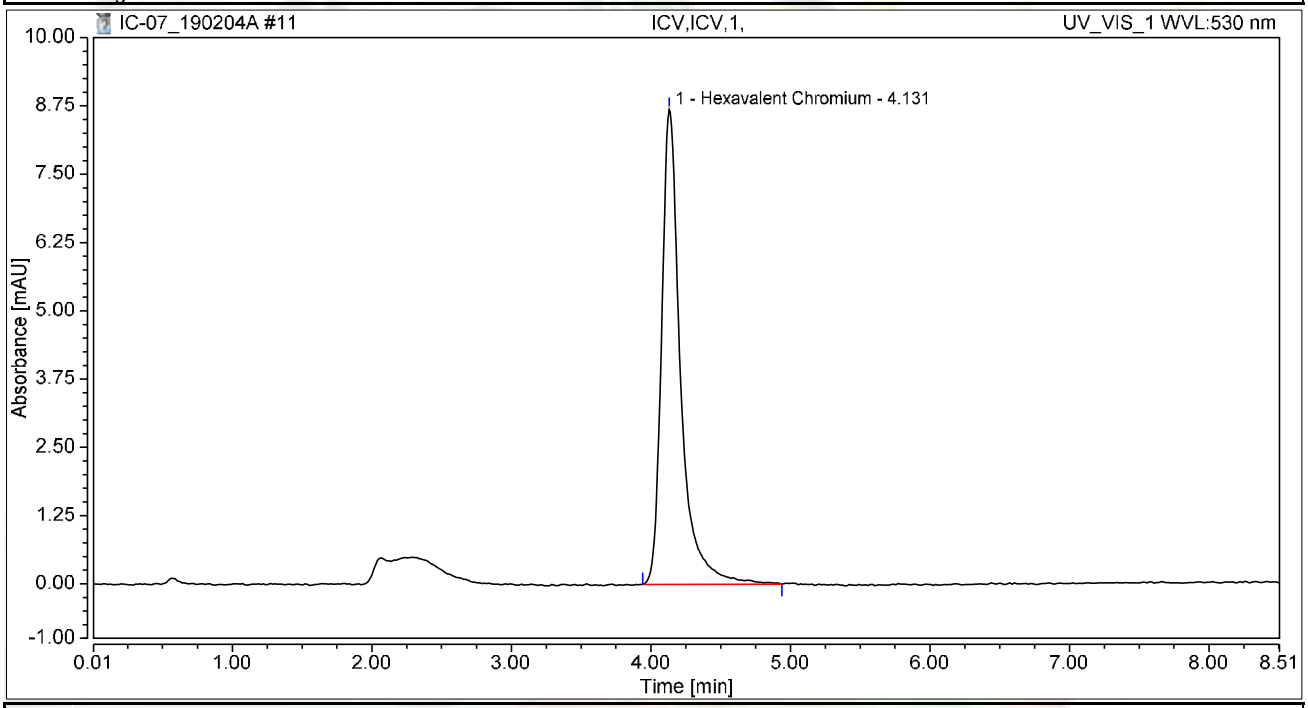
| No. | Injection Name | Calibration Level | X Value | Y Value | Area mAU*min | Height mAU |
|---|---|---|---|---|---|---|
| 5 | STD1-0.2 ppb | 01 | 0.2000 | 0.0689 | 0.069 | 0.451 |
| 6 | STD2-1.0 ppb | 02 | 1.0000 | 0.3011 | 0.301 | 1.973 |
| 7 | STD3-5.0 ppb | 03 | 5.0000 | 1.4144 | 1.414 | 8.993 |
| 8 | STD4-10.0 ppb | 04 | 10.0000 | 2.8548 | 2.855 | 18.102 |
| 9 | STD5-15.0 ppb | 05 | 15.0000 | 4.3509 | 4.351 | 27.339 |
| 10 | STD6-20.0 ppb | 06 | 20.0000 | 5.7324 | 5.732 | 36.163 |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICV,ICV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 11:45** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

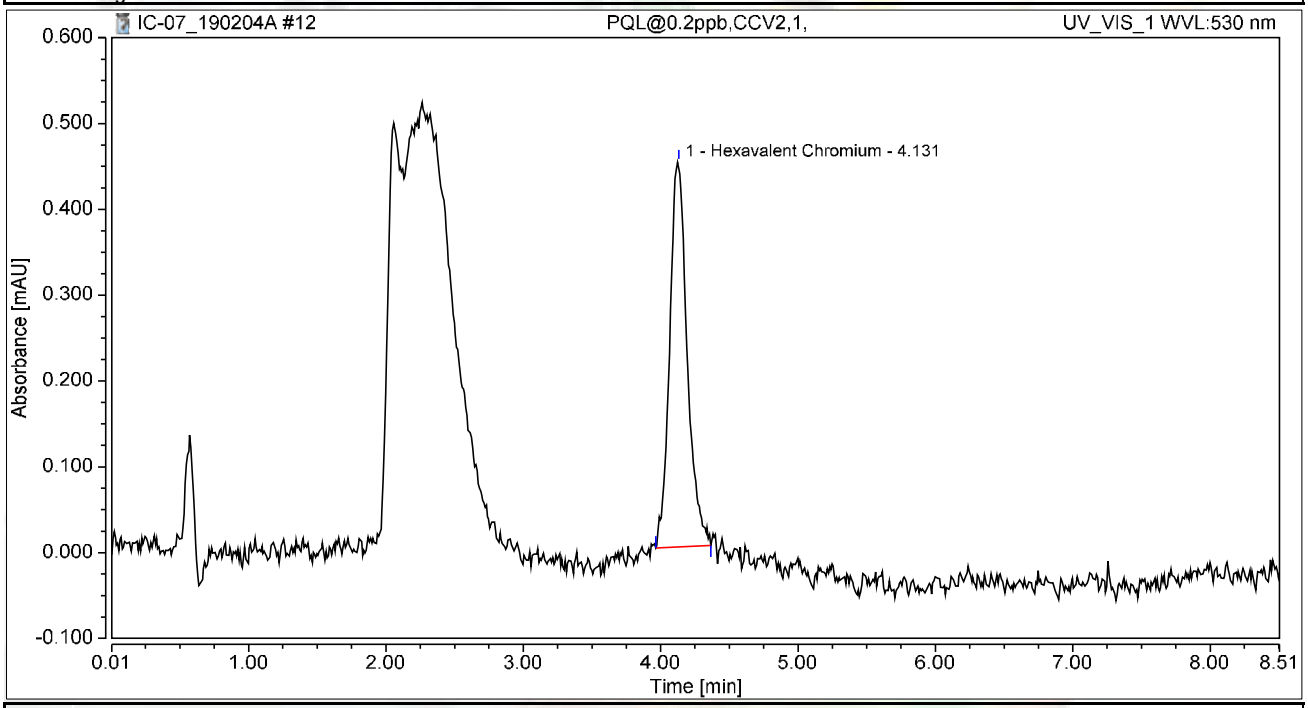
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 1.374 | 8.698 | 100.00 | 100.00 | 4.7795 |
| **Total:** | | | **1.374** | **8.698** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 11:56** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

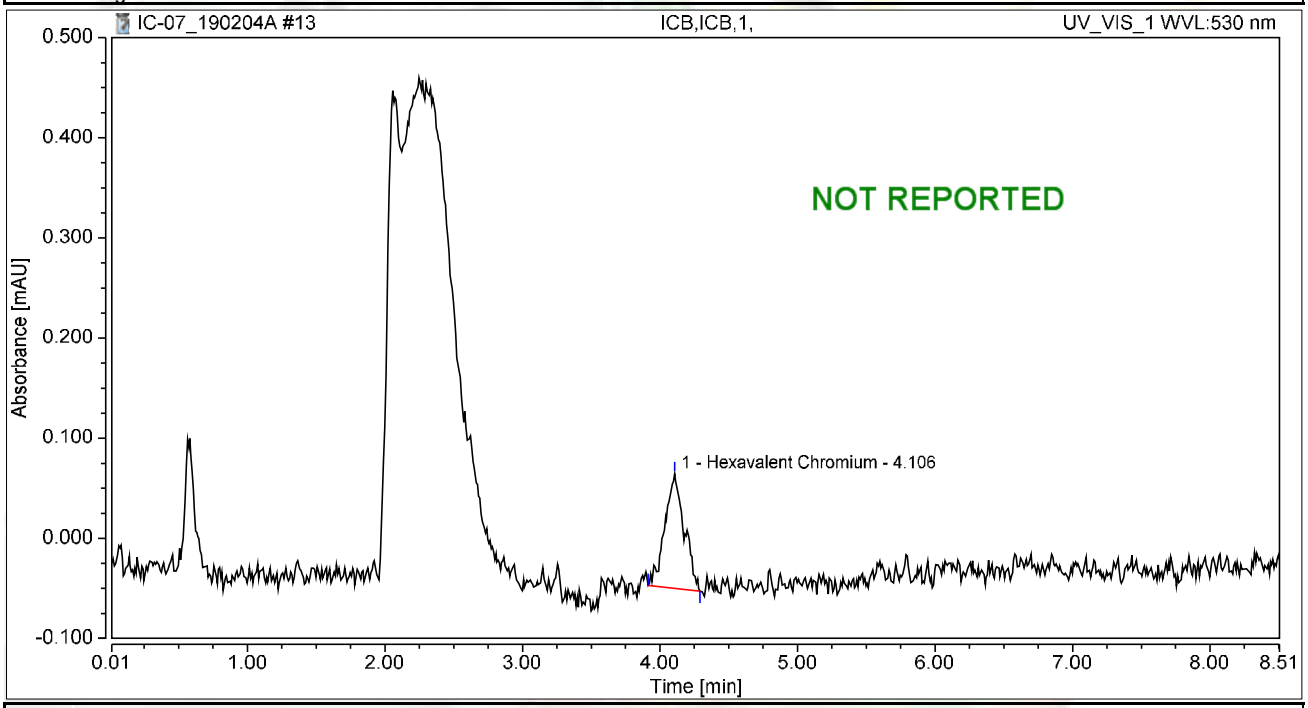
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.131 | 0.066 | 0.448 | 100.00 | 100.00 | 0.2307 |
| **Total:** | | | **0.066** | **0.448** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICB,ICB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 12:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

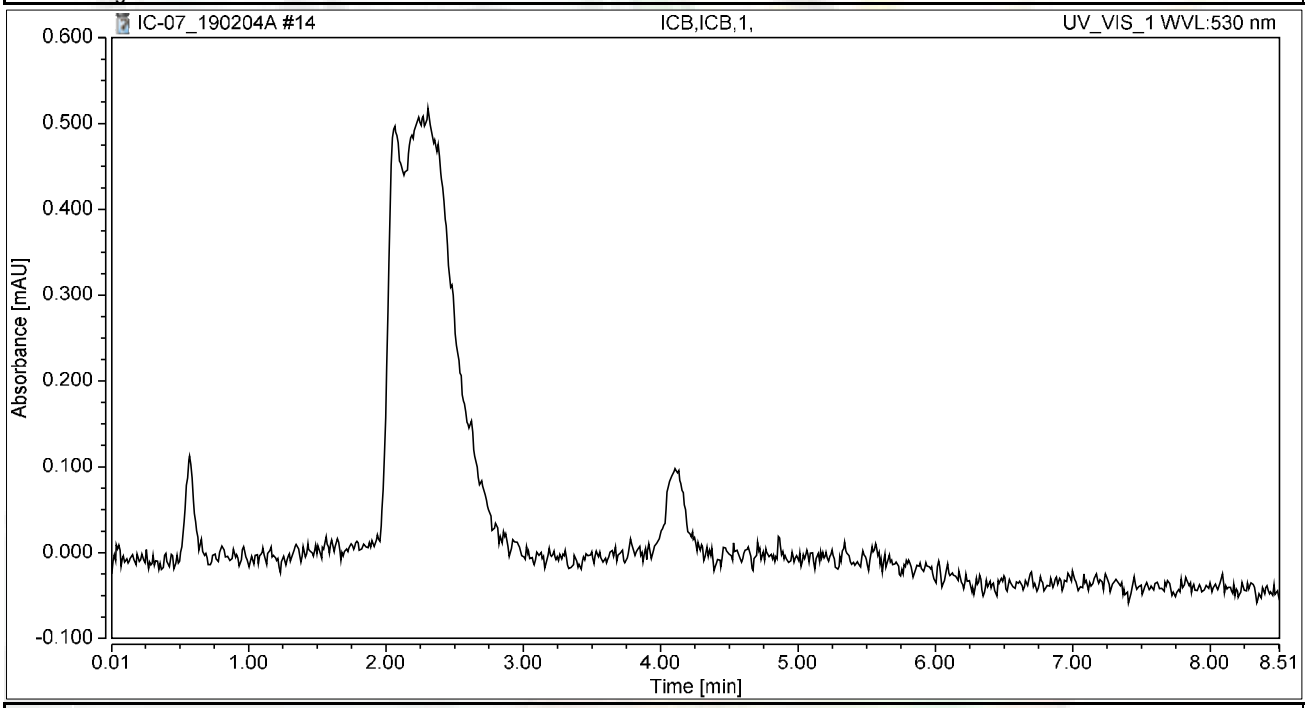
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.019 | 0.114 | 100.00 | 100.00 | 0.0647 |
| **Total:** | | | **0.019** | **0.114** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICB,ICB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 12:19** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

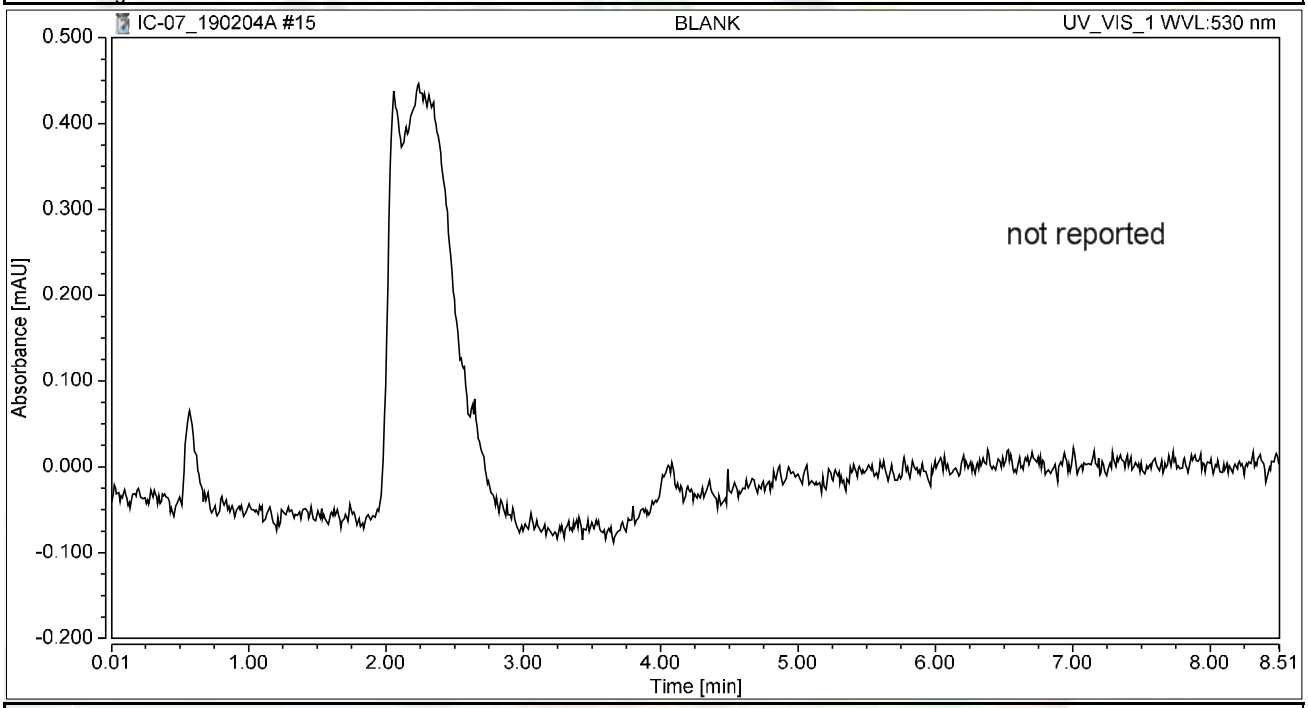
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **04/Feb/19 12:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# RAW DATA

**INJECTION LOG: 190219A**

**Instrument ID: IC-07**

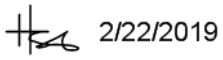
| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:31 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:41 AM | Not Reported |
| 3 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/04/19 9:54 AM | Not Reported |
| 4 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/04/19 10:22 AM | Reported |
| 5 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:35 AM | Reported |
| 6 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:47 AM | Reported |
| 7 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 10:56 AM | Reported |
| 8 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:06 AM | Reported |
| 9 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:15 AM | Reported |
| 10 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/04/19 11:25 AM | Reported |
| 11 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/19/19 8:33 AM | Not Reported |
| 12 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/19/19 8:44 AM | Not Reported |
| 13 | CCV-1 | CCV | 1 | Hexavalent Chromium | 02/19/19 8:58 AM | Reported |
| 14 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/19/19 9:09 AM | Reported |
| 15 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/19/19 9:18 AM | Reported |
| 16 | MB-R131932 | MBLK | 1 | Hexavalent Chromium | 02/19/19 9:42 AM | Reported |
| 17 | LCS-R131932 | LCS | 1 | Hexavalent Chromium | 02/19/19 9:54 AM | Reported |
| 18 | N034217-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 10:12 AM | Reported |
| 19 | N034219-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 10:24 AM | Not Reported |
| 20 | N034218-~~001A~~ -002A | SAMP | 1 | Hexavalent Chromium | 02/19/19 10:33 AM | Reported |
| 21 | N034217-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 10:50 AM | Reported |
| 22 | N034219-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 11:01 AM | Not Reported |
| 23 | N034218-00~~1~~2AMS | MS | 1 | Hexavalent Chromium | 02/19/19 11:11 AM | Reported |
| 24 | N034219-001A | SAMP | 5 | Hexavalent Chromium | 02/19/19 11:20 AM | Not Reported |
| 25 | N034219-001AMS | MS | 5 | Hexavalent Chromium | 02/19/19 11:30 AM | Not Reported |
| 26 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 02/19/19 11:39 AM | Reported |
| 27 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/19/19 11:49 AM | Reported |
| 28 | N034217-001AMSD | MSD | 1 | Hexavalent Chromium | 02/19/19 12:00 PM | Reported |
| 29 | N034218-001ADUP | DUP | 1 | Hexavalent Chromium | 02/19/19 12:12 PM | Reported |
| 30 | N034219-001A | SAMP | 10 | Hexavalent Chromium | 02/19/19 12:21 PM | Reported |
| 31 | N034219-001AMS | MS | 10 | Hexavalent Chromium | 02/19/19 12:31 PM | Reported |
| 32 | N034177-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 12:40 PM | Reported |
| 33 | N034177-002A | SAMP | 100 | Hexavalent Chromium | 02/19/19 12:50 PM | Reported |
| 34 | N034177-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 12:59 PM | Reported |
| 35 | N034177-002AMS | MS | 100 | Hexavalent Chromium | 02/19/19 1:09 PM | Reported |
| 36 | N034102-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 1:18 PM | Reported |
| 37 | N034102-002A | SAMP | 5 | Hexavalent Chromium | 02/19/19 1:28 PM | Reported |
| 38 | CCV-3 | CCV | 1 | Hexavalent Chromium | 02/19/19 1:37 PM | Reported |
| 39 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/19/19 1:47 PM | Reported |
| 40 | N034102-003A | SAMP | 5 | Hexavalent Chromium | 02/19/19 1:56 PM | Reported |
| 41 | N034102-004A | SAMP | 5 | Hexavalent Chromium | 02/19/19 2:05 PM | Reported |
| 42 | N034102-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 2:15 PM | Reported |

2/22/2019 2/22/2019

**INJECTION LOG: 190219A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034102-002AMS | MS | 5 | Hexavalent Chromium | 02/19/19 2:24 PM | Reported |
| 44 | N034102-003AMS | MS | 5 | Hexavalent Chromium | 02/19/19 2:34 PM | Reported |
| 45 | N034102-004AMS | MS | 5 | Hexavalent Chromium | 02/19/19 2:43 PM | Reported |
| 46 | N034192-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 2:53 PM | Reported |
| 47 | N034192-002A | SAMP | 1 | Hexavalent Chromium | 02/19/19 3:02 PM | Reported |
| 48 | N034192-003A | SAMP | 1 | Hexavalent Chromium | 02/19/19 3:12 PM | Reported |
| 49 | N034192-004A | SAMP | 1 | Hexavalent Chromium | 02/19/19 3:21 PM | Reported |
| 50 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/19/19 3:31 PM | Reported |
| 51 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/19/19 3:40 PM | Reported |
| 52 | N034192-005A | SAMP | 1 | Hexavalent Chromium | 02/19/19 3:50 PM | Reported |
| 53 | N034109-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 3:59 PM | Reported |
| 54 | N034192-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 4:15 PM | Reported |
| 55 | N034192-002AMS | MS | 1 | Hexavalent Chromium | 02/19/19 4:26 PM | Reported |
| 56 | N034192-003AMS | MS | 1 | Hexavalent Chromium | 02/19/19 4:35 PM | Reported |
| 57 | N034192-004AMS | MS | 1 | Hexavalent Chromium | 02/19/19 4:45 PM | Reported |
| 58 | N034192-005AMS | MS | 1 | Hexavalent Chromium | 02/19/19 4:54 PM | Reported |
| 59 | N034109-001AMS | MS | 1 | Hexavalent Chromium | 02/19/19 5:04 PM | Reported |
| 60 | N034120-001A | SAMP | 1 | Hexavalent Chromium | 02/19/19 5:13 PM | Reported |
| 61 | N034120-002A | SAMP | 1 | Hexavalent Chromium | 02/19/19 5:23 PM | Reported |
| 62 | CCV-5 | CCV | 1 | Hexavalent Chromium | 02/19/19 5:32 PM | Reported |
| 63 | CCB-5 | CCB | 1 | Hexavalent Chromium | 02/19/19 5:42 PM | Reported |
| 64 | N034120-003A | SAMP | 1 | Hexavalent Chromium | 02/19/19 5:51 PM | Reported |
| 65 | N034120-004A | SAMP | 1 | Hexavalent Chromium | 02/19/19 6:00 PM | Reported |
| 66 | N034120-005A | SAMP | 1 | Hexavalent Chromium | 02/19/19 6:10 PM | Reported |
| 67 | N034102-002A | SAMP | 1 | Hexavalent Chromium | 02/19/19 6:19 PM | Not Reported |
| 68 | N034102-002AMS | MS | 1 | Hexavalent Chromium | 02/19/19 6:29 PM | Not Reported |
| 69 | N034102-003A | SAMP | 1 | Hexavalent Chromium | 02/19/19 6:38 PM | Not Reported |
| 70 | N034102-003AMS | MS | 1 | Hexavalent Chromium | 02/19/19 6:48 PM | Not Reported |
| 71 | N034102-004A | SAMP | 1 | Hexavalent Chromium | 02/19/19 6:57 PM | Not Reported |
| 72 | N034102-004AMS | MS | 1 | Hexavalent Chromium | 02/19/19 7:07 PM | Not Reported |
| 73 | CCV-6 | CCV | 1 | Hexavalent Chromium | 02/19/19 7:16 PM | Reported |
| 74 | CCB-6 | CCB | 1 | Hexavalent Chromium | 02/19/19 7:26 PM | Reported |
| 75 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/19/19 7:35 PM | Not Reported |



# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190219A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **19/Feb/19 20:05:53** |
| *No. of Injections:* | **78** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:31 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 02/04/2019 09:41 | Finished | BLANK |
| 3 | BLANK | 1 | 1000 | Unknown | | 02/04/2019 09:54 | Finished | BLANK |
| 4 | iBLANK | 2 | 1000 | Unknown | | 02/04/2019 10:22 | Finished | INSTRUMENT BLANK |
| 5 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/04/2019 10:35 | Finished | 0.2 ppb, IWST-181022C |
| 6 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/04/2019 10:47 | Finished | 1.0 ppb, IWST-181022C |
| 7 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/04/2019 10:56 | Finished | 5.0 ppb, IWST-181022C |
| 8 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/04/2019 11:06 | Finished | 10 ppb, IWST-181022C |
| 9 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/04/2019 11:15 | Finished | 15 ppb, IWST-181022C |
| 10 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/04/2019 11:25 | Finished | 20 ppb, IWST-181022C |
| 11 | BLANK | 1 | 1000 | Unknown | | 02/19/2019 08:33 | Finished | BLANK |
| 12 | BLANK | 2 | 1000 | Unknown | | 02/19/2019 08:44 | Finished | BLANK |
| 13 | CCV-1,CCV,1, | 4 | 1000 | Unknown | | 02/19/2019 08:58 | Finished | CCV @5ppb, IWST-181022C |
| 14 | PQL@0.2ppb,CCV2,1 | 5 | 1000 | Unknown | | 02/19/2019 09:09 | Finished | PQL @ 0.2ppb |
| 15 | CCB-1,CCB,1, | 6 | 1000 | Unknown | | 02/19/2019 09:18 | Finished | CCB R190115A |
| 16 | MB-H2O,MBLK,1, | 7 | 1000 | Unknown | | 02/19/2019 09:42 | Finished | MB R190115A |
| 17 | LCS-H2O,LCS,1, | 8 | 1000 | Unknown | | 02/19/2019 09:54 | Finished | LCS @5ppb, IWST-181022D |
| 18 | N034217-001A,SAMF | 9 | 1000 | Unknown | | 02/19/2019 10:12 | Finished | SAMP,10mL |
| 19 | N034219-001A,SAMF | 10 | 1000 | Unknown | | 02/19/2019 10:24 | Finished | SAMP,10mL |
| 20 | N034218-001Ã,SAMF | 11 | 1000 | Unknown | | 02/19/2019 10:33 | Finished | SAMP,10mL |
| 21 | N034217-001AMS,MS | 13 | 1000 | Unknown | | 02/19/2019 10:50 | Finished | MS (1ppb), IWST-181022D,10 |
| 22 | N034219-001AMS,MS | 14 | 1000 | Unknown | | 02/19/2019 11:01 | Finished | MS (1ppb), IWST-181022D,10 |
| 23 | N034218-001ÃMS,MS | 15 | 1000 | Unknown | | 02/19/2019 11:11 | Finished | MS (1ppb), IWST-181022D,10 |
| 24 | N034219-001A,SAMF | 16 | 1000 | Unknown | | 02/19/2019 11:20 | Finished | SAMP,2>10mL |
| 25 | N034219-001AMS,MS | 17 | 1000 | Unknown | | 02/19/2019 11:30 | Finished | MS (1ppb), IWST-181022D,2>1 |
| 26 | CCV-2,CCV1,1, | 18 | 1000 | Unknown | | 02/19/2019 11:39 | Finished | CCV @10ppb, IWST-181022C |
| 27 | CCB-2,CCB,1, | 19 | 1000 | Unknown | | 02/19/2019 11:49 | Finished | CCB R190115A |
| 28 | N034217-001AMSD,M | 20 | 1000 | Unknown | | 02/19/2019 12:00 | Finished | MSD (1ppb), IWST-181022D,1( |
| 29 | N034218-001ADUP,D | 21 | 1000 | Unknown | | 02/19/2019 12:12 | Finished | DUP,10 mL |
| 30 | N034219-001A,SAMF | 22 | 1000 | Unknown | | 02/19/2019 12:21 | Finished | SAMP,1>10mL |
| 31 | N034219-001AMS,MS | 23 | 1000 | Unknown | | 02/19/2019 12:31 | Finished | MS (1ppb), IWST-181022D,1>1 |
| 32 | N034177-001A,SAMF | 24 | 1000 | Unknown | | 02/19/2019 12:40 | Finished | SAMP,10mL |
| 33 | N034177-002A,SAMF | 25 | 1000 | Unknown | | 02/19/2019 12:50 | Finished | SAMP,0.1>10mL |
| 34 | N034177-001AMS,MS | 26 | 1000 | Unknown | | 02/19/2019 12:59 | Finished | MS (1ppb), IWST-181022D,10 |
| 35 | N034177-002AMS,MS | 27 | 1000 | Unknown | | 02/19/2019 13:09 | Finished | MS (5ppb), IWST-181022D,0.1 |
| 36 | N034102-001A,SAMF | 28 | 1000 | Unknown | | 02/19/2019 13:18 | Finished | SAMP,10mL |
| 37 | N034102-002A,SAMF | 29 | 1000 | Unknown | | 02/19/2019 13:28 | Finished | SAMP,2>10mL |
| 38 | CCV-3,CCV,1, | 30 | 1000 | Unknown | | 02/19/2019 13:37 | Finished | CCV @5ppb, IWST-181022C |
| 39 | CCB-3,CCB,1, | 31 | 1000 | Unknown | | 02/19/2019 13:47 | Finished | CCB R190115A |
| 40 | N034102-003A,SAMF | 32 | 1000 | Unknown | | 02/19/2019 13:56 | Finished | SAMP,2>10mL |
| 41 | N034102-004A,SAMF | 33 | 1000 | Unknown | | 02/19/2019 14:05 | Finished | SAMP,2>10mL |
| 42 | N034102-001AMS,MS | 34 | 1000 | Unknown | | 02/19/2019 14:15 | Finished | MS (1ppb), IWST-181022D,10 |
| 43 | N034102-002AMS,MS | 35 | 1000 | Unknown | | 02/19/2019 14:24 | Finished | MS (1ppb), IWST-181022D,2>1 |
| 44 | N034102-003AMS,MS | 36 | 1000 | Unknown | | 02/19/2019 14:34 | Finished | SAMP,10mL |
| 45 | N034102-004AMS,MS | 37 | 1000 | Unknown | | 02/19/2019 14:43 | Finished | SAMP,10mL |
| 46 | N034192-001A,SAMF | 38 | 1000 | Unknown | | 02/19/2019 14:53 | Finished | SAMP,10mL |
| 47 | N034192-002A,SAMF | 39 | 1000 | Unknown | | 02/19/2019 15:02 | Finished | SAMP,10mL |
| 48 | N034192-003A,SAMF | 40 | 1000 | Unknown | | 02/19/2019 15:12 | Finished | SAMP,10mL |
| 49 | N034192-004A,SAMF | 41 | 1000 | Unknown | | 02/19/2019 15:21 | Finished | SAMP,10mL |
| 50 | CCV-4,CCV1,1, | 42 | 1000 | Unknown | | 02/19/2019 15:31 | Finished | CCV @10ppb, IWST-181022C |
| 51 | CCB-4,CCB,1, | 43 | 1000 | Unknown | | 02/19/2019 15:40 | Finished | CCB R190115A |
| 52 | N034192-005A,SAMF | 44 | 1000 | Unknown | | 02/19/2019 15:50 | Finished | SAMP,10mL |
| 53 | N034109-001A,SAMF | 45 | 1000 | Unknown | | 02/19/2019 15:59 | Finished | SAMP,10mL |
| 54 | N034192-001AMS,MS | 1 | 1000 | Unknown | | 02/19/2019 16:15 | Finished | MS (1ppb), IWST-181022D,10 |
| 55 | N034192-002AMS,MS | 2 | 1000 | Unknown | | 02/19/2019 16:26 | Finished | MS (1ppb), IWST-181022D,10 |
| 56 | N034192-003AMS,MS | 3 | 1000 | Unknown | | 02/19/2019 16:35 | Finished | MS (1ppb), IWST-181022D,10 |
| 57 | N034192-004AMS,MS | 4 | 1000 | Unknown | | 02/19/2019 16:45 | Finished | MS (1ppb), IWST-181022D,10 |
| 58 | N034192-005AMS,MS | 5 | 1000 | Unknown | | 02/19/2019 16:54 | Finished | MS (1ppb), IWST-181022D,10 |
| 59 | N034109-001AMS,MS | 6 | 1000 | Unknown | | 02/19/2019 17:04 | Finished | MS (1ppb), IWST-181022D,10 |
| 60 | N034120-001A,SAMF | 7 | 1000 | Unknown | | 02/19/2019 17:13 | Finished | SAMP,10mL |

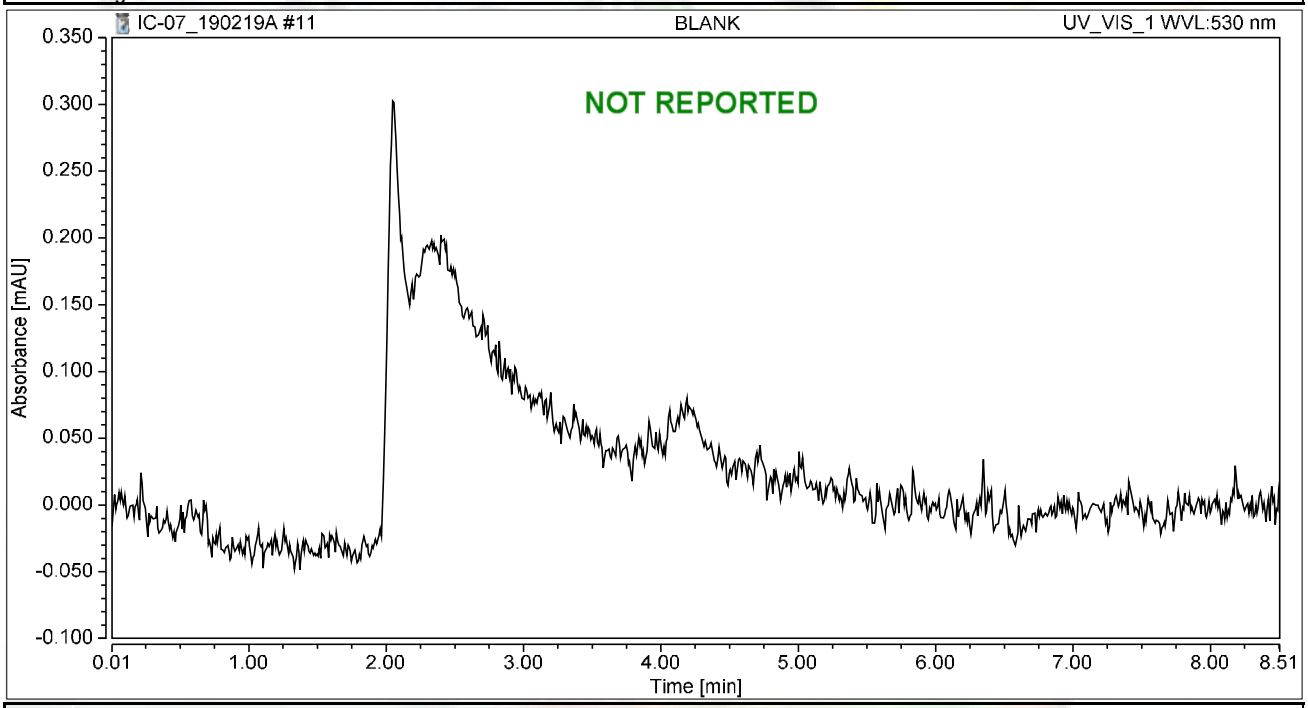
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | N034120-002A,SAMF | 8 | 1000 | Unknown | | 02/19/2019 17:23 | Finished | SAMP,10mL |
| 62 | CCV-5,CCV,1, | 9 | 1000 | Unknown | | 02/19/2019 17:32 | Finished | CCV @5ppb, IWST-181022C |
| 63 | CCB-5,CCB,1, | 10 | 1000 | Unknown | | 02/19/2019 17:42 | Finished | CCB R190115A |
| 64 | N034120-003A,SAMF | 11 | 1000 | Unknown | | 02/19/2019 17:51 | Finished | SAMP,10mL |
| 65 | N034120-004A,SAMF | 12 | 1000 | Unknown | | 02/19/2019 18:00 | Finished | SAMP,10mL |
| 66 | N034120-005A,SAMF | 13 | 1000 | Unknown | | 02/19/2019 18:10 | Finished | SAMP,10mL |
| 67 | N034102-002A,SAMF | 14 | 1000 | Unknown | | 02/19/2019 18:19 | Finished | SAMP,10mL |
| 68 | N034102-002AMS,MS | 15 | 1000 | Unknown | | 02/19/2019 18:29 | Finished | MS (1ppb), IWST-181022D,10 |
| 69 | N034102-003A,SAMF | 16 | 1000 | Unknown | | 02/19/2019 18:38 | Finished | SAMP,10mL |
| 70 | N034102-003AMS,MS | 17 | 1000 | Unknown | | 02/19/2019 18:48 | Finished | MS (1ppb), IWST-181022D,10 |
| 71 | N034102-004A,SAMF | 18 | 1000 | Unknown | | 02/19/2019 18:57 | Finished | SAMP,10mL |
| 72 | N034102-004AMS,MS | 19 | 1000 | Unknown | | 02/19/2019 19:07 | Finished | MS (1ppb), IWST-181022D,10 |
| 73 | CCV-6,CCV,1, | 20 | 1000 | Unknown | | 02/19/2019 19:16 | Finished | CCV @10ppb, IWST-181022C |
| 74 | CCB-6,CCB,1, | 21 | 1000 | Unknown | | 02/19/2019 19:26 | Finished | CCB R190115A |
| 75 | BLANK | 22 | 1000 | Unknown | | 02/19/2019 19:35 | Finished | BLANK |
| 76 | SHUTDOWN | 23 | 1000 | Unknown | | 02/19/2019 19:45 | Finished | |
| 77 | Eluent: R190218C | 24 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 78 | PCR: R190218B | 25 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 08:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

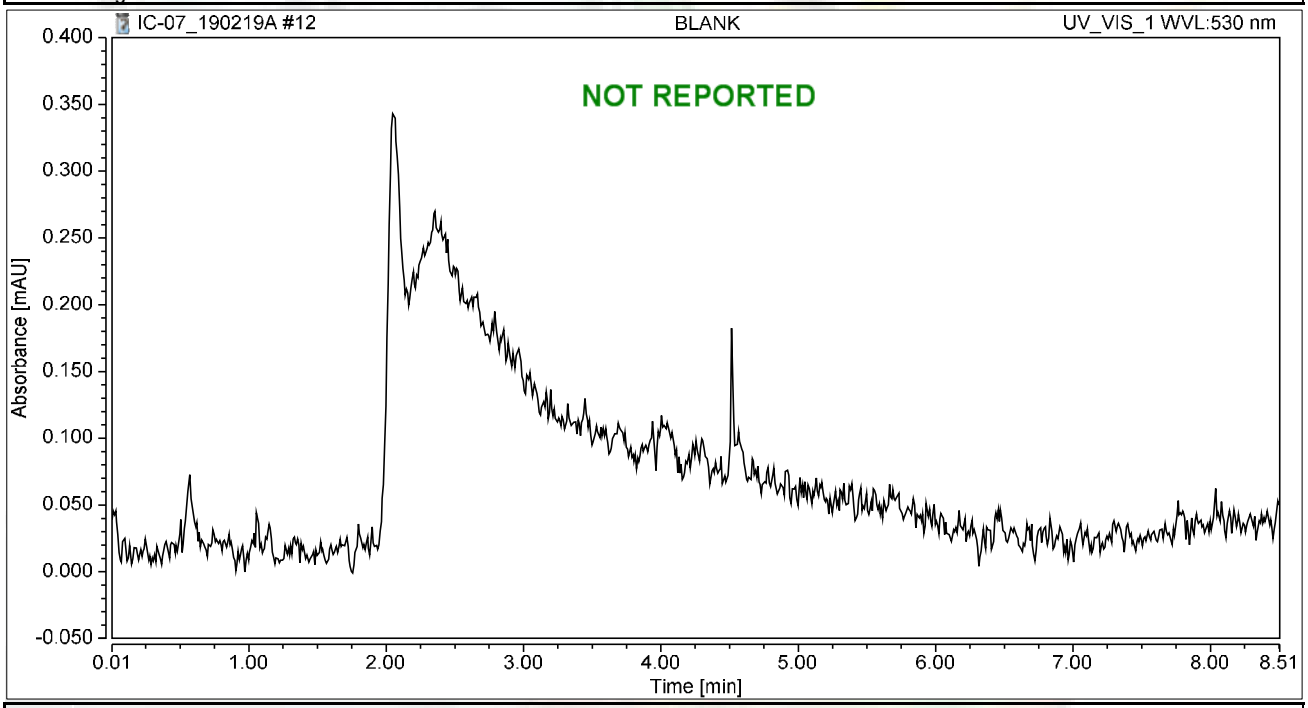
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 08:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

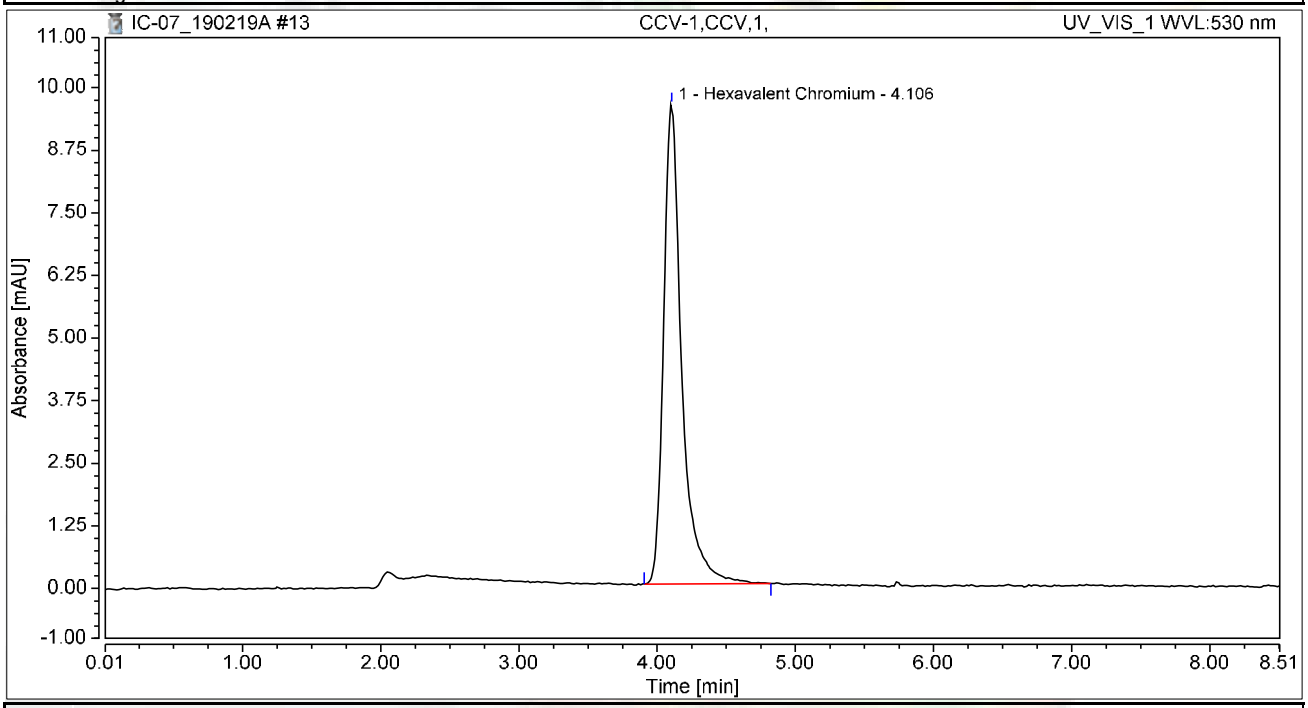
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-1,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 08:58** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

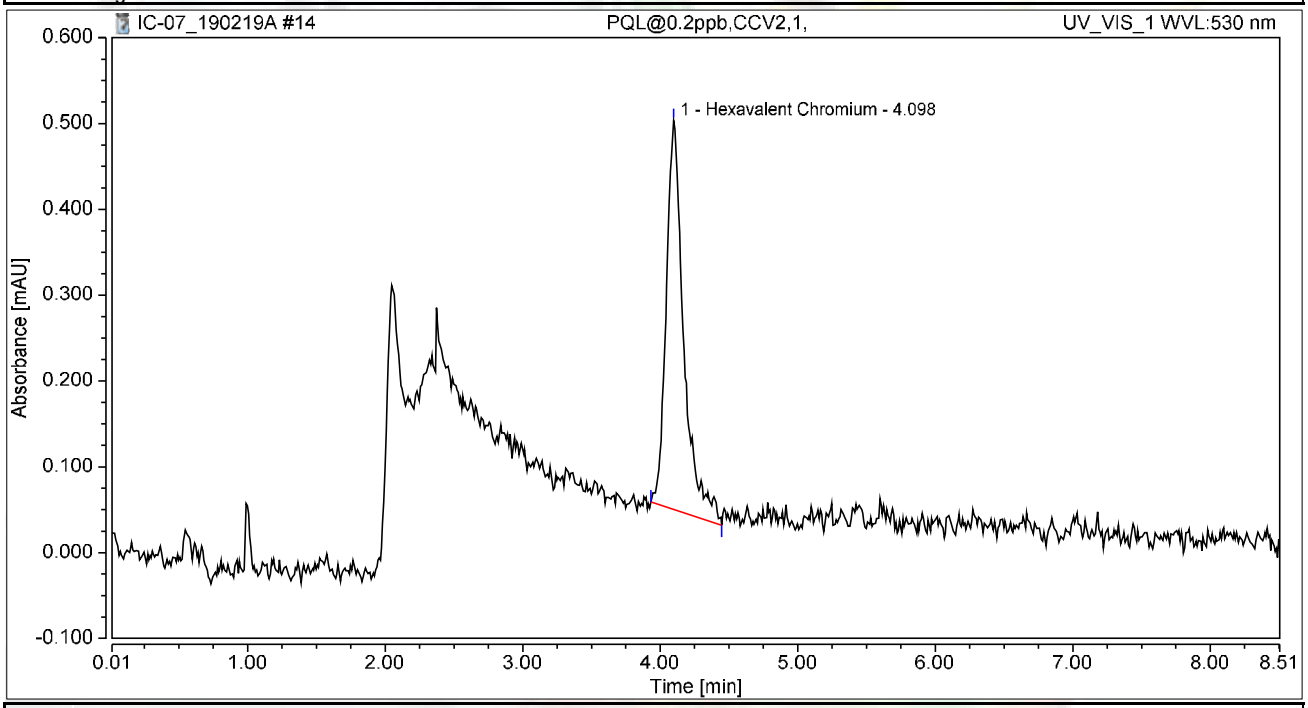
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.463 | 9.573 | 100.00 | 100.00 | 5.0906 |
| **Total:** | | | **1.463** | **9.573** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 09:09** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

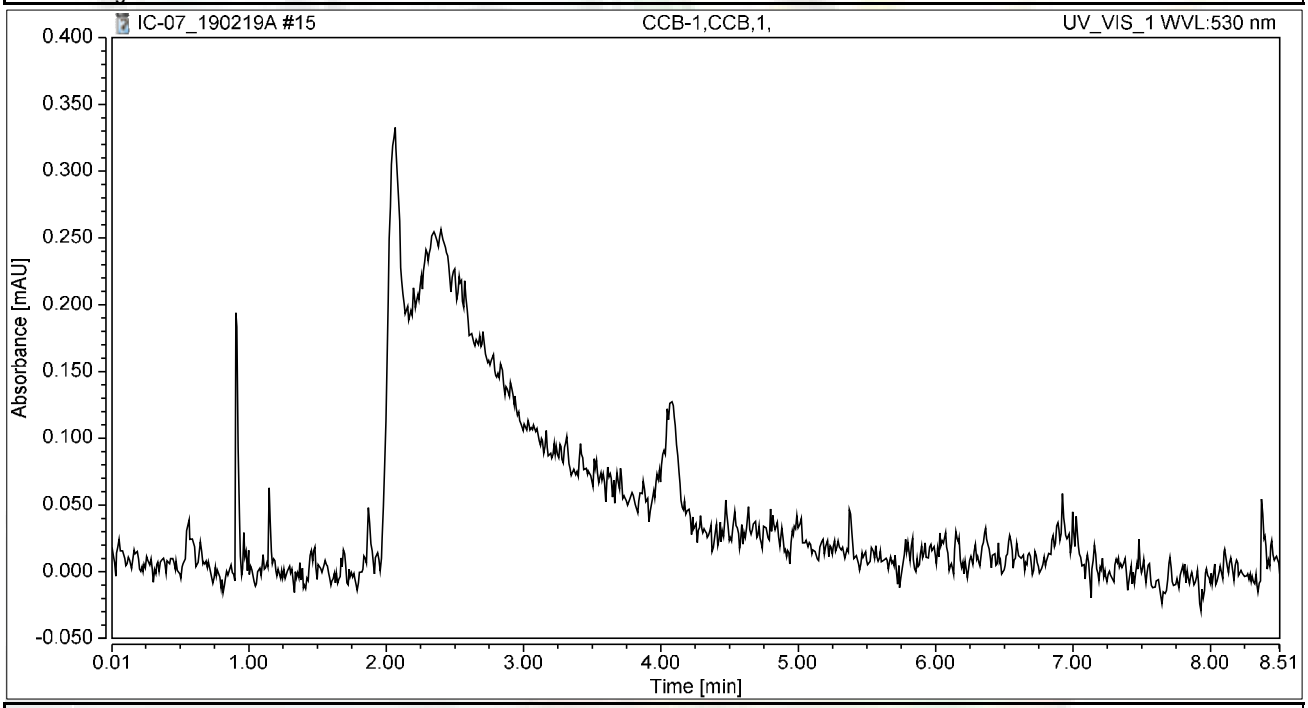
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.067 | 0.453 | 100.00 | 100.00 | 0.2319 |
| **Total:** | | | **0.067** | **0.453** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-1,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 09:18** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

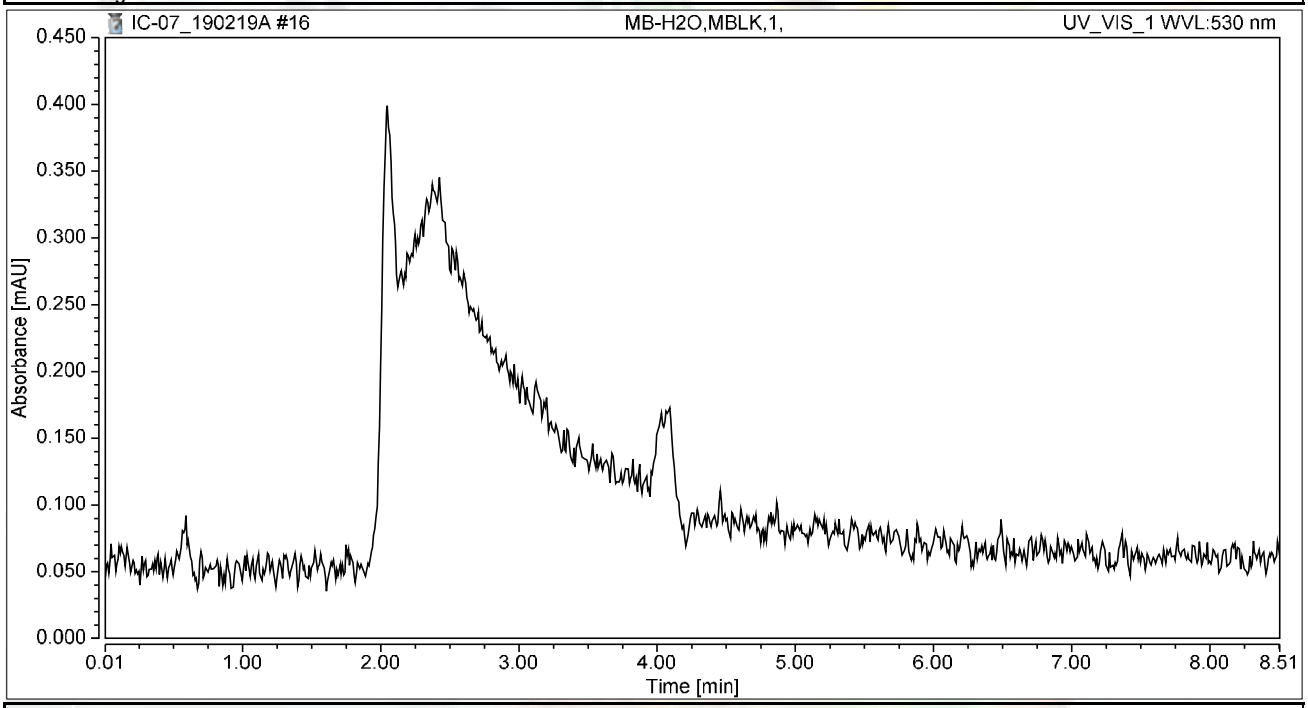
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **MB-H2O,MBLK,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 09:42** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

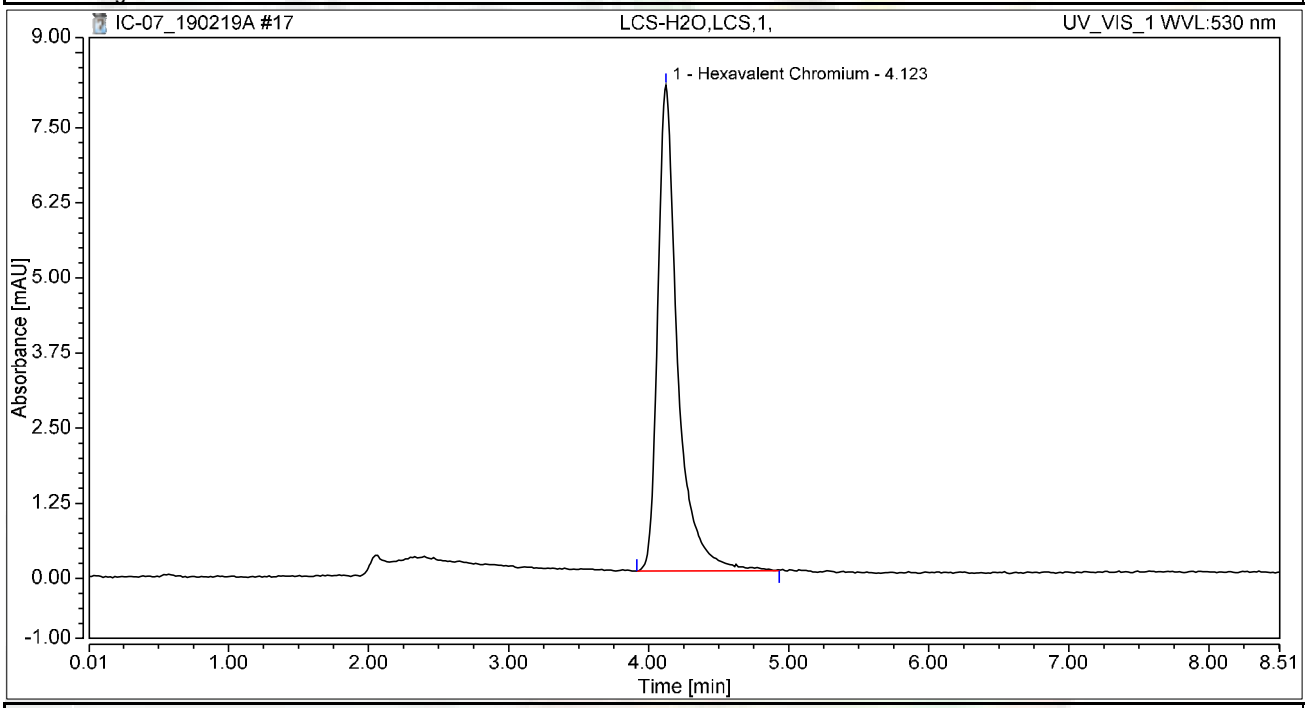
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **LCS-H2O,LCS,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 09:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

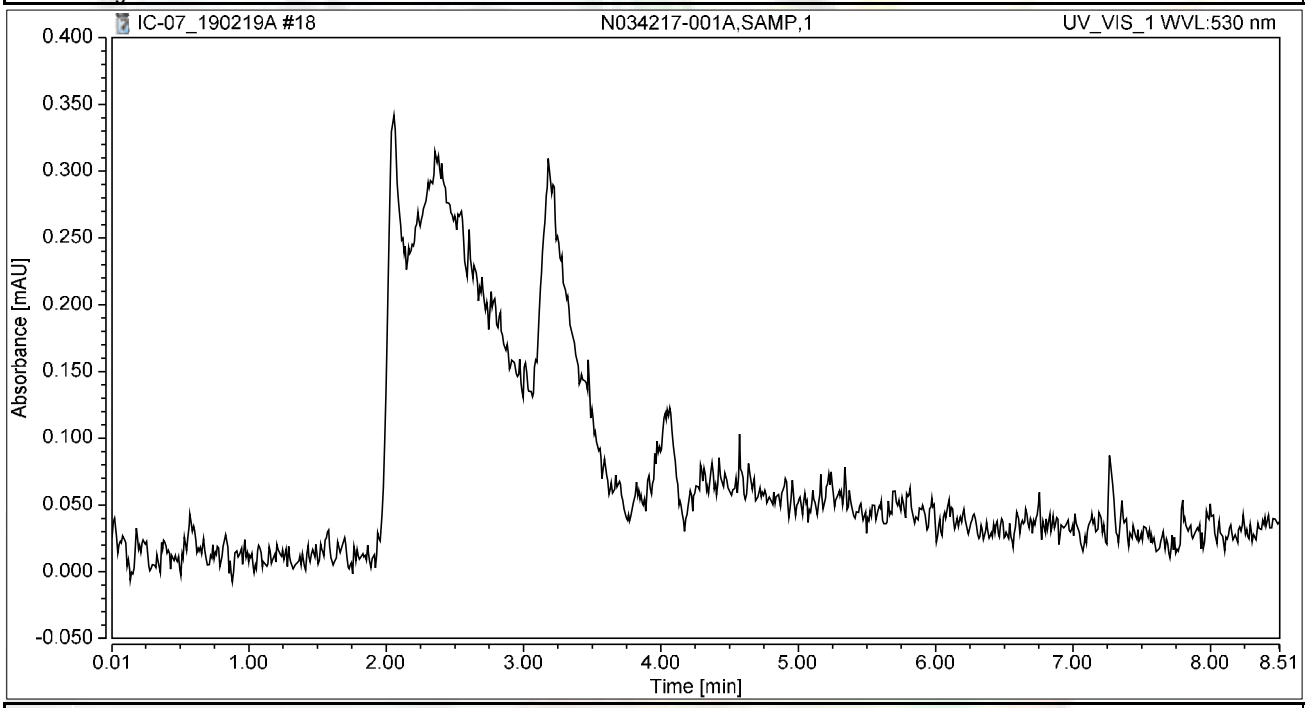
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.123 | 1.340 | 8.087 | 100.00 | 100.00 | 4.6615 |
| **Total:** | | | **1.340** | **8.087** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034217-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 10:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

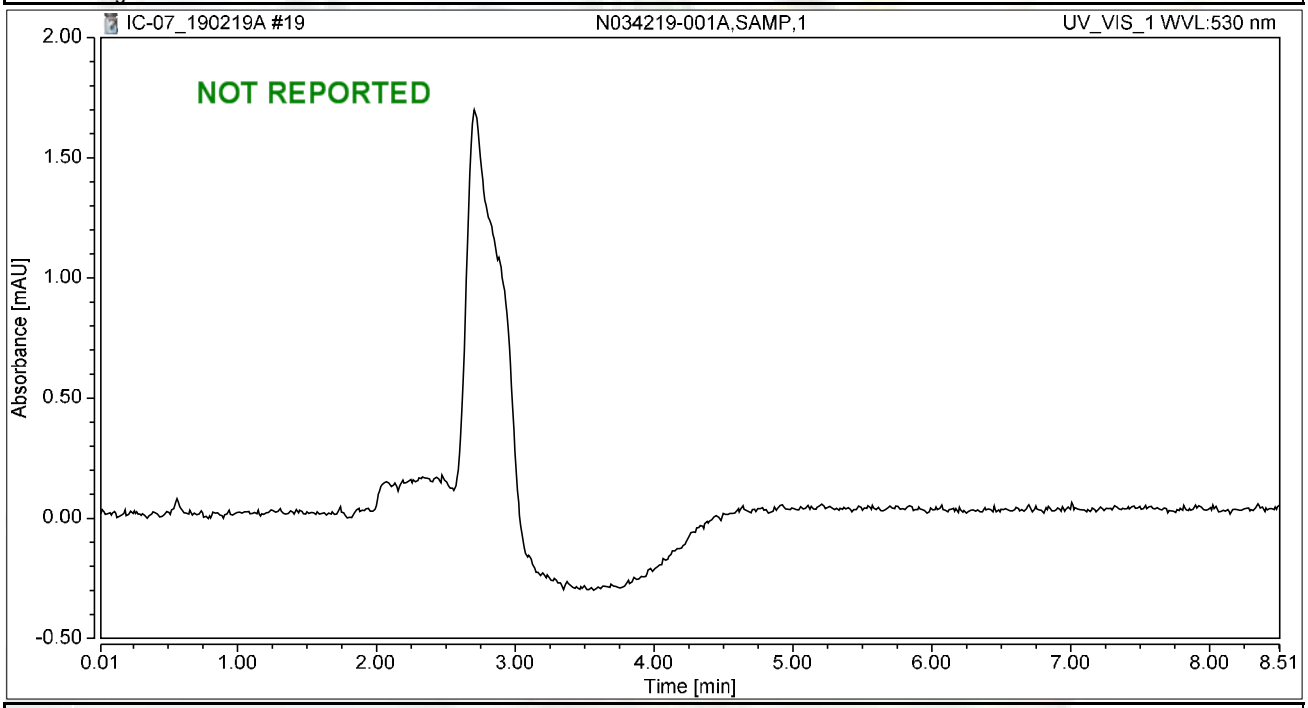
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034219-001A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 10:24** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

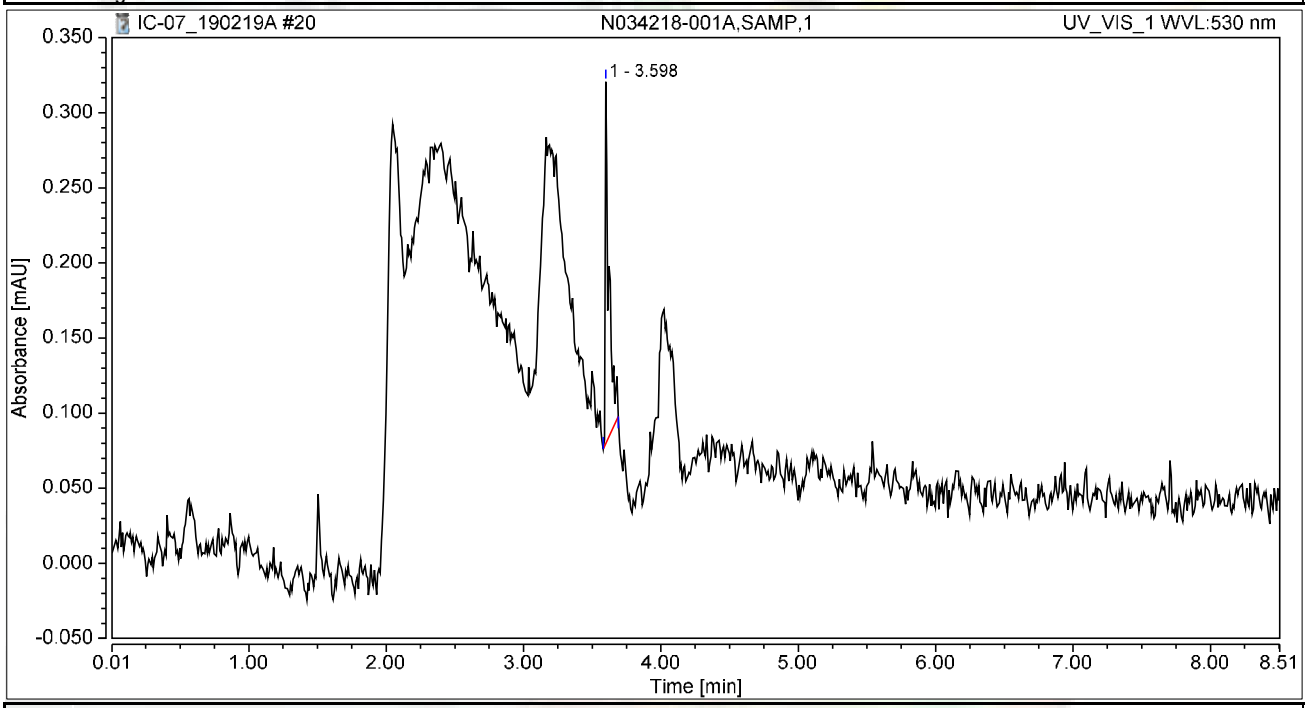
# Chromatogram and Results

-002A

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034218-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 10:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

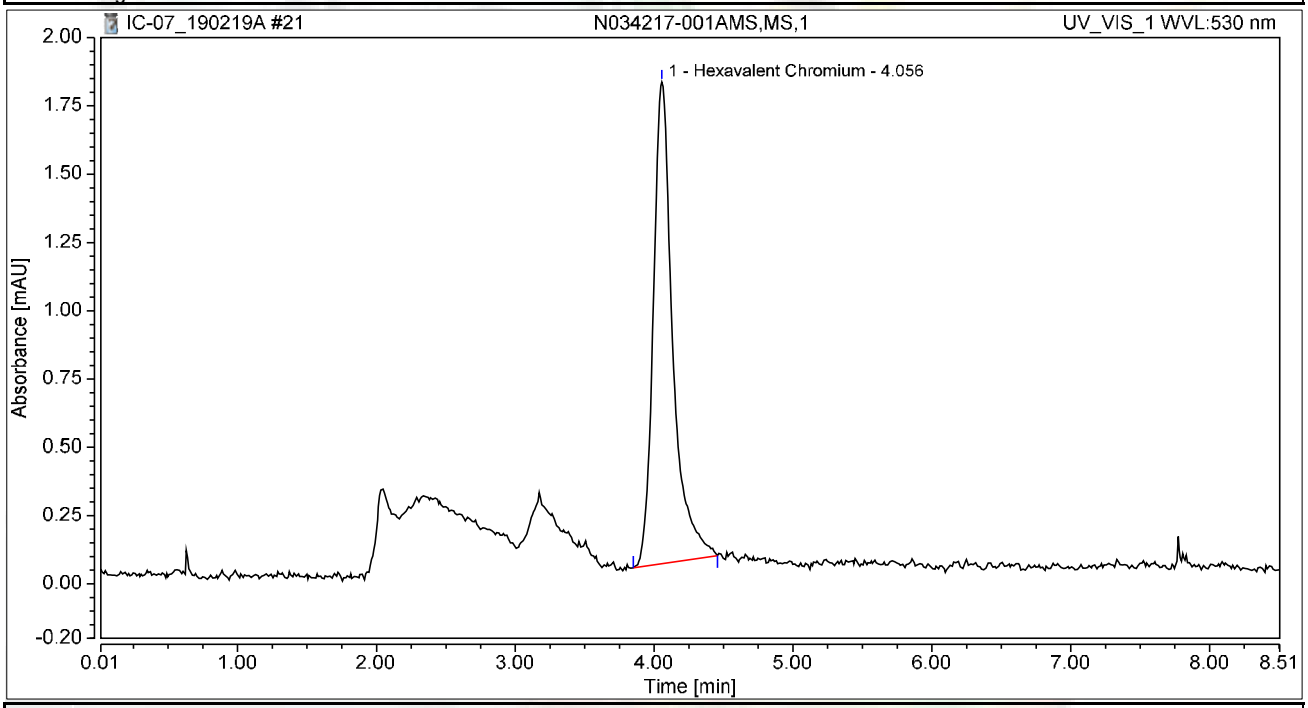
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | | 3.598 | 0.008 | 0.241 | 100.00 | 100.00 | n.a. |
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.008** | **0.241** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034217-001AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 10:50** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

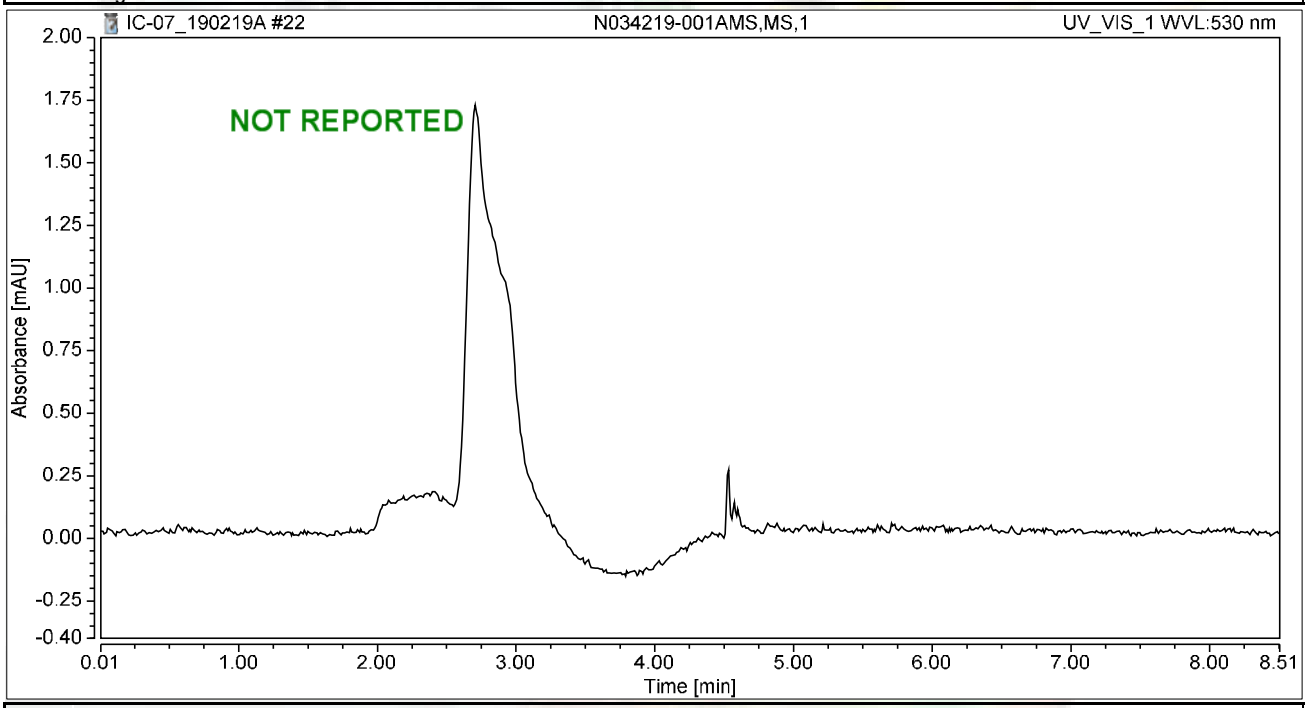
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.056 | 0.286 | 1.764 | 100.00 | 100.00 | 0.9959 |
| **Total:** | | | **0.286** | **1.764** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034219-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 11:01** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

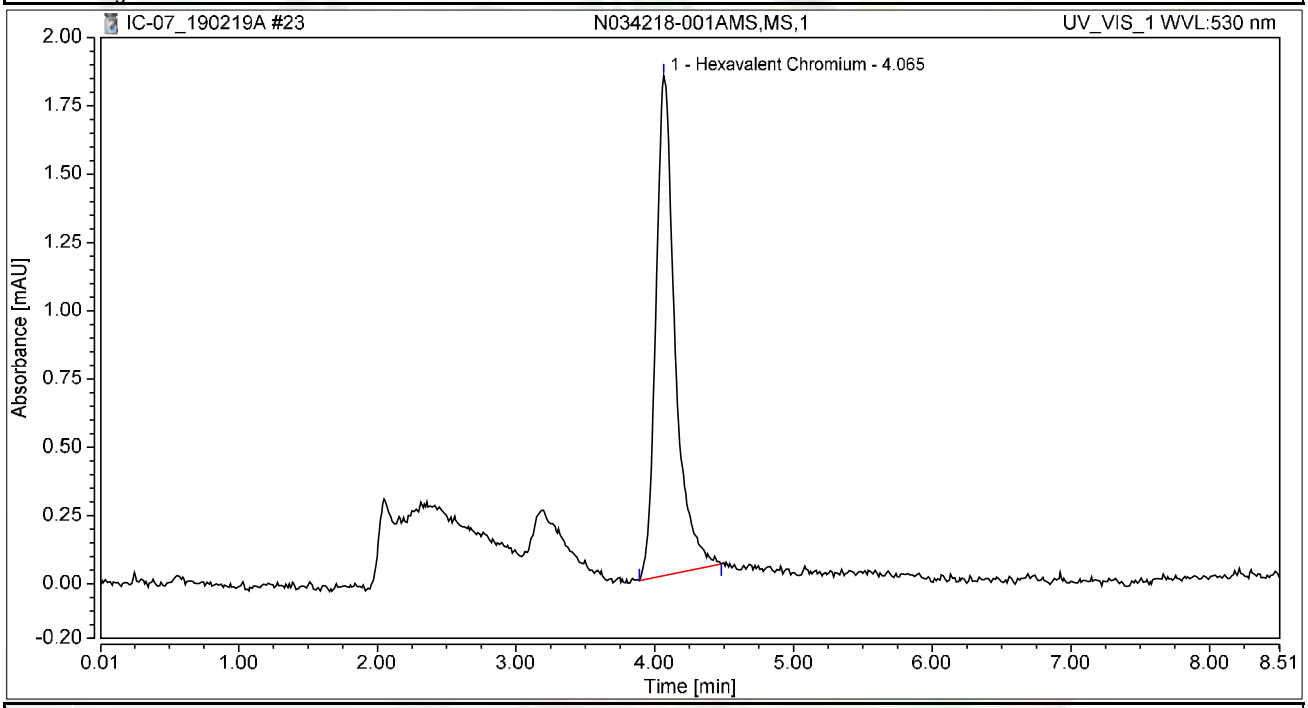
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details -002AMS

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034218-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 11:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

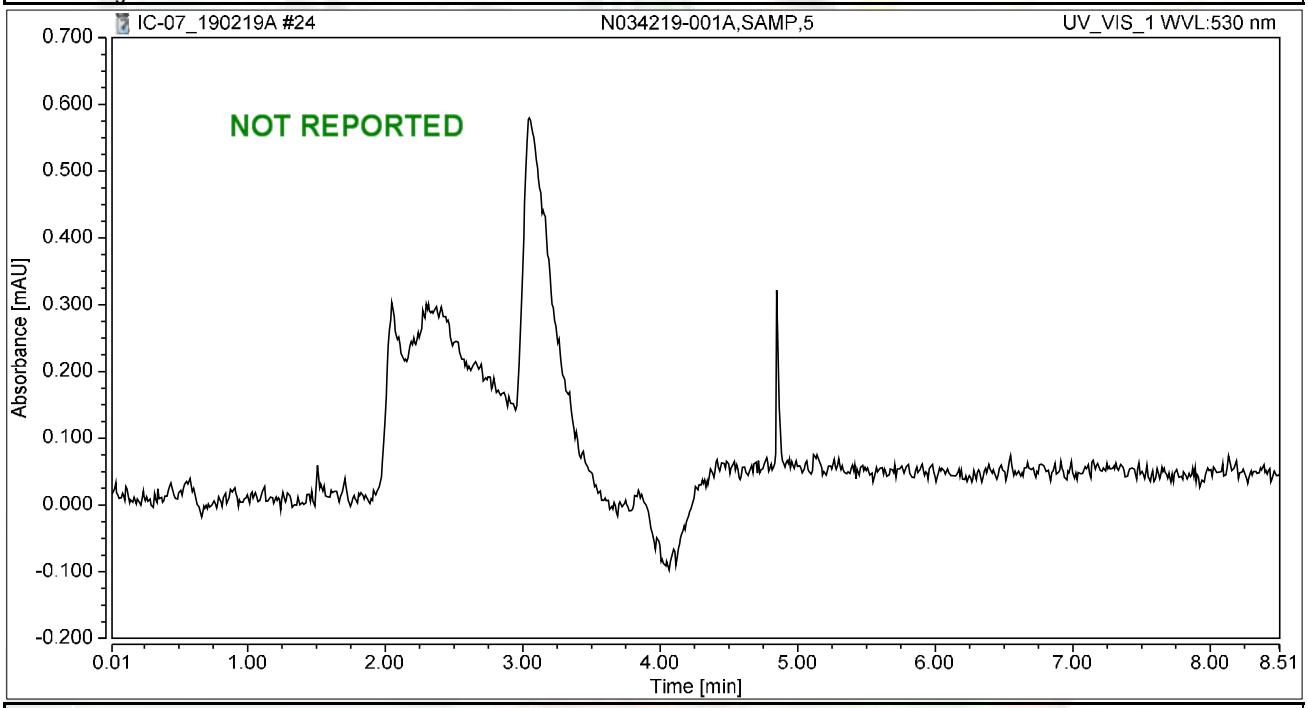
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.065 | 0.295 | 1.832 | 100.00 | 100.00 | 1.0252 |
| **Total:** | | | **0.295** | **1.832** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034219-001A,SAMP,5** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 11:20** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

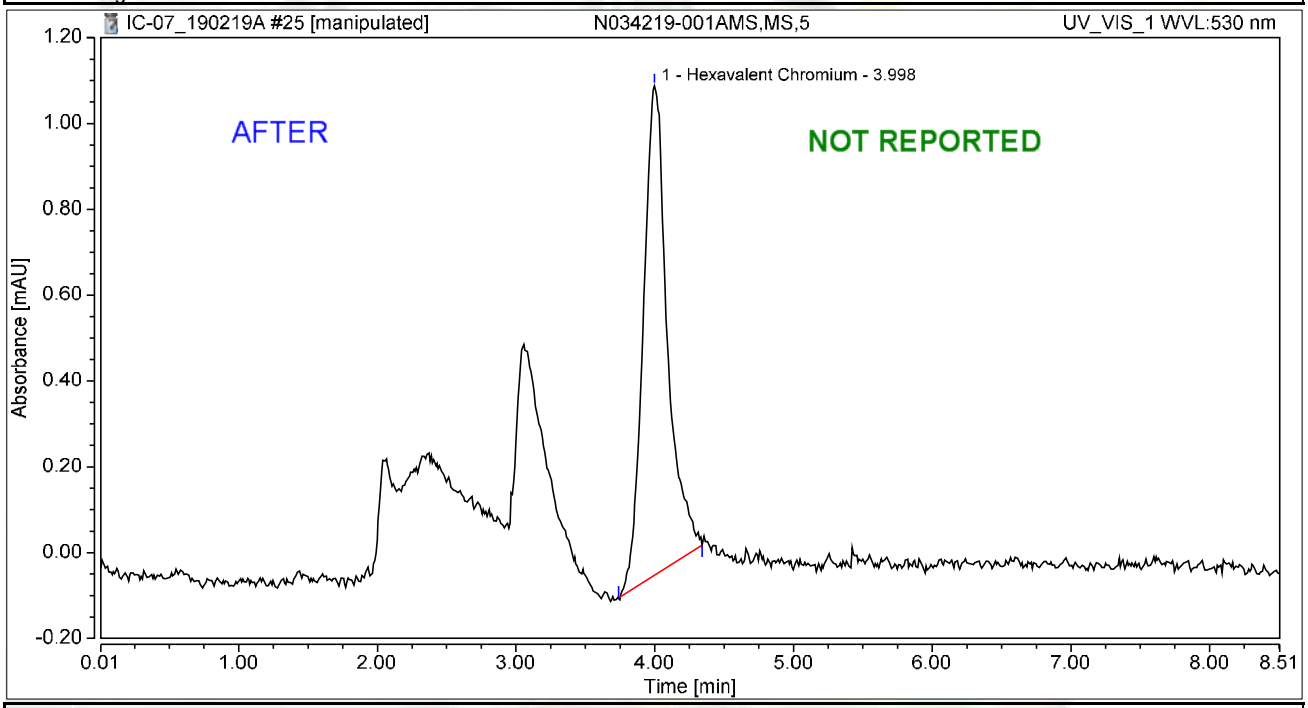
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034219-001AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 11:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.998 | 0.230 | 1.140 | 100.00 | 100.00 | 0.7991 |
| **Total:** | | | **0.230** | **1.140** | **100.00** | **100.00** | |

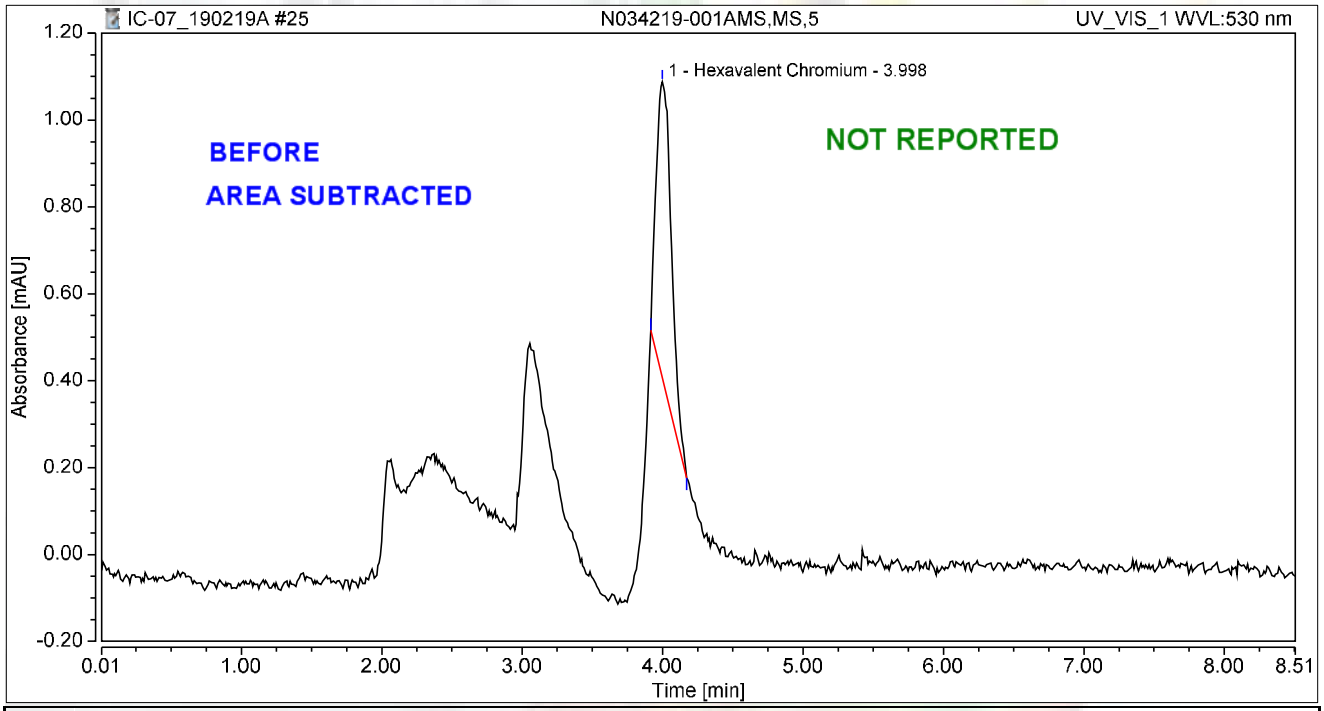
2/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034219-001AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 11:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.998 | 0.086 | 0.681 | 100.00 | 100.00 | 0.2996 |
| **Total:** | | | **0.086** | **0.681** | **100.00** | **100.00** | |

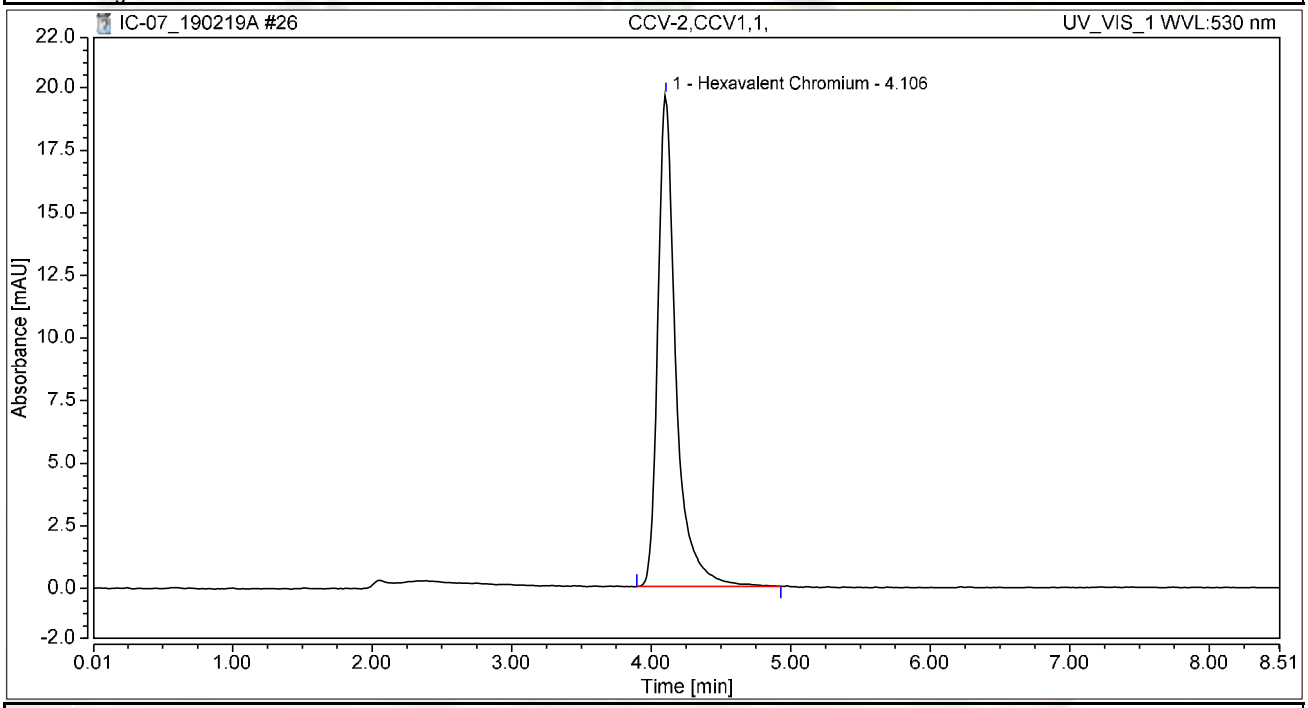
2/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-2,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 11:39** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

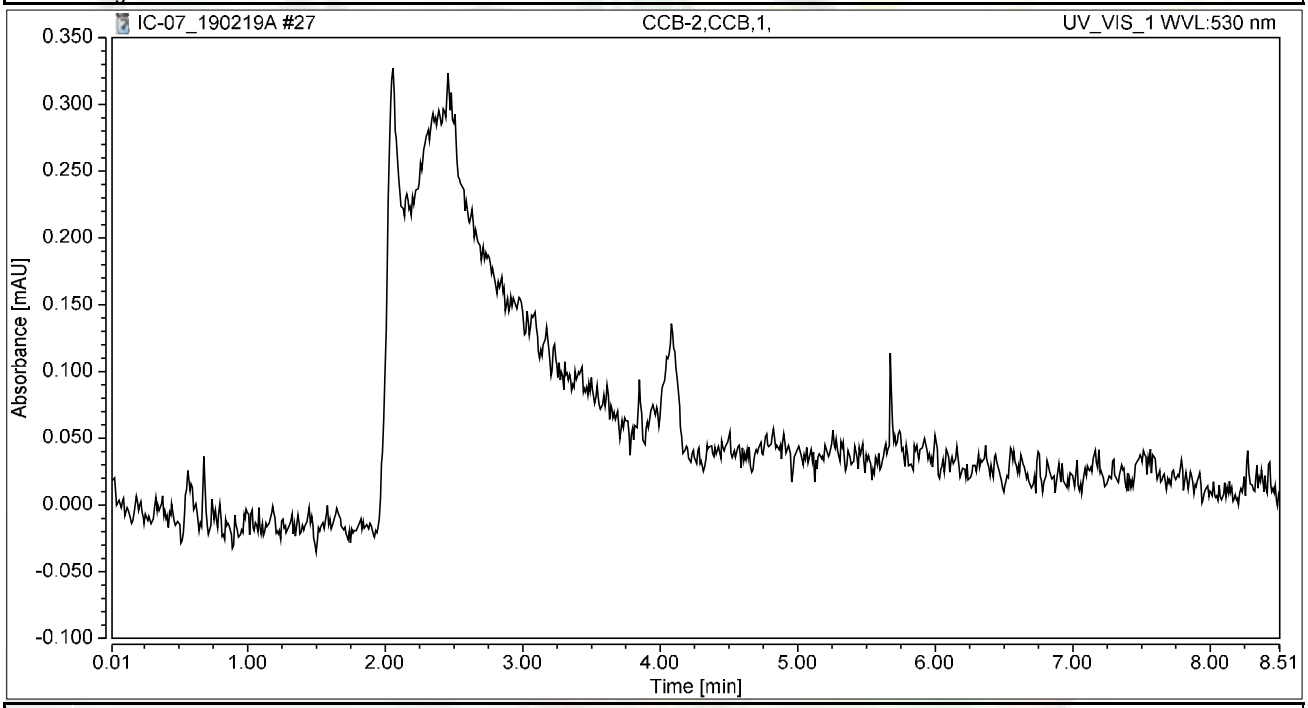
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 2.955 | 19.646 | 100.00 | 100.00 | 10.2808 |
| **Total:** | | | **2.955** | **19.646** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-2,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 11:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

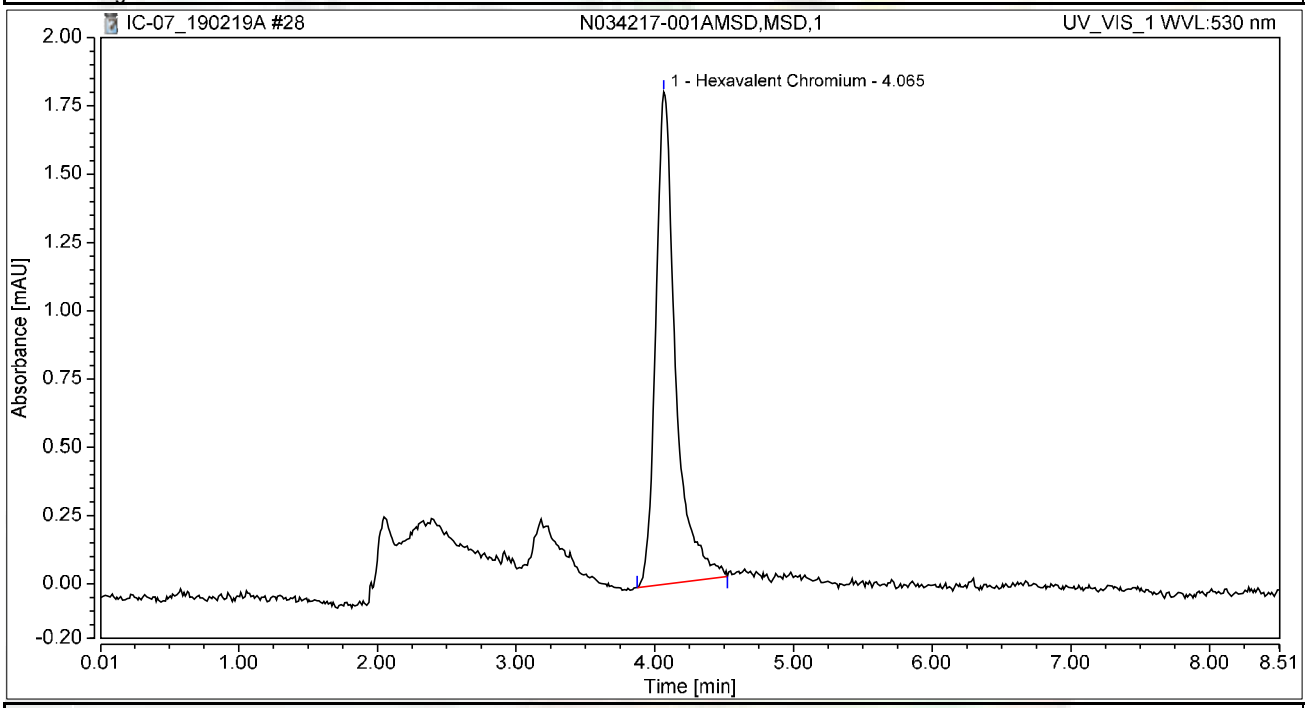
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034217-001AMSD,MSD,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **20** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 12:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

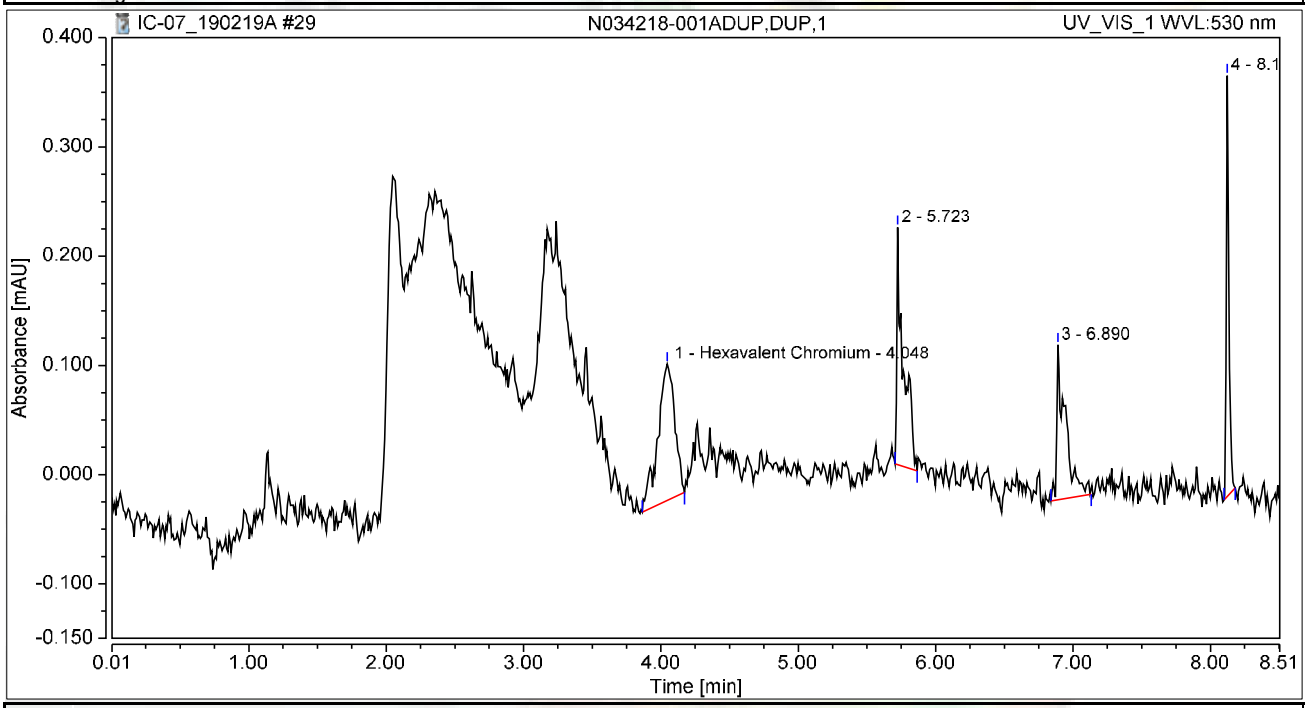
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.065 | 0.299 | 1.803 | 100.00 | 100.00 | 1.0405 |
| **Total:** | | | **0.299** | **1.803** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details -002ADUP

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034218-001ADUP,DUP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 12:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

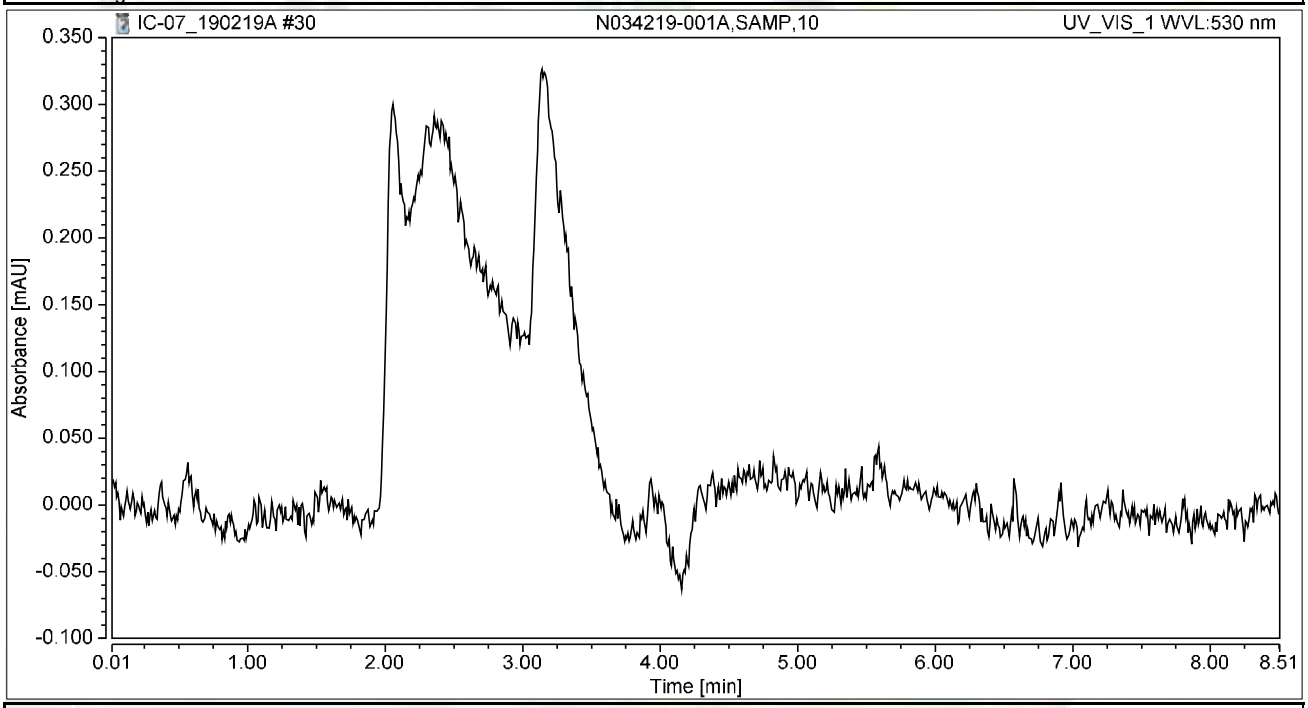
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.018 | 0.125 | 37.03 | 14.36 | 0.0623 |
| 2 | | 5.723 | 0.012 | 0.217 | 24.74 | 25.01 | n.a. |
| 3 | | 6.890 | 0.011 | 0.142 | 21.83 | 16.31 | n.a. |
| 4 | | 8.123 | 0.008 | 0.385 | 16.40 | 44.32 | n.a. |
| **Total:** | | | **0.048** | **0.869** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034219-001A,SAMP,10** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 12:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

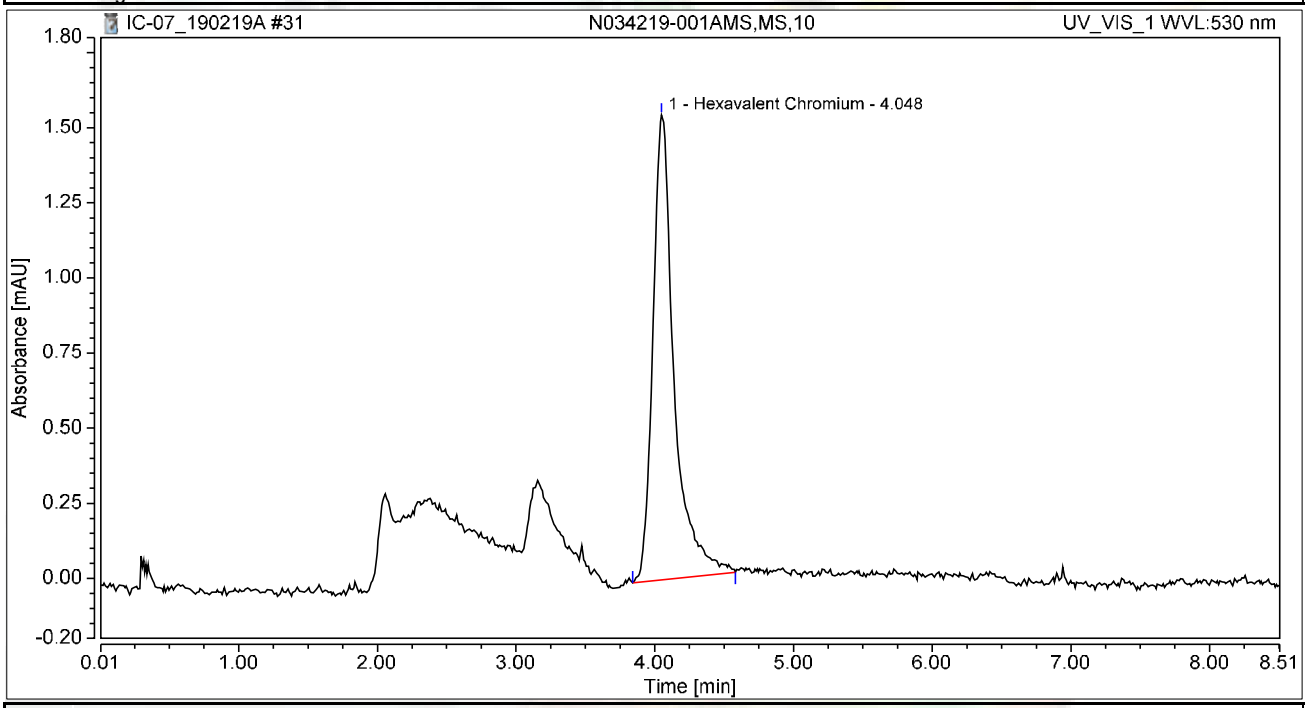
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034219-001AMS,MS,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **23** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 12:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

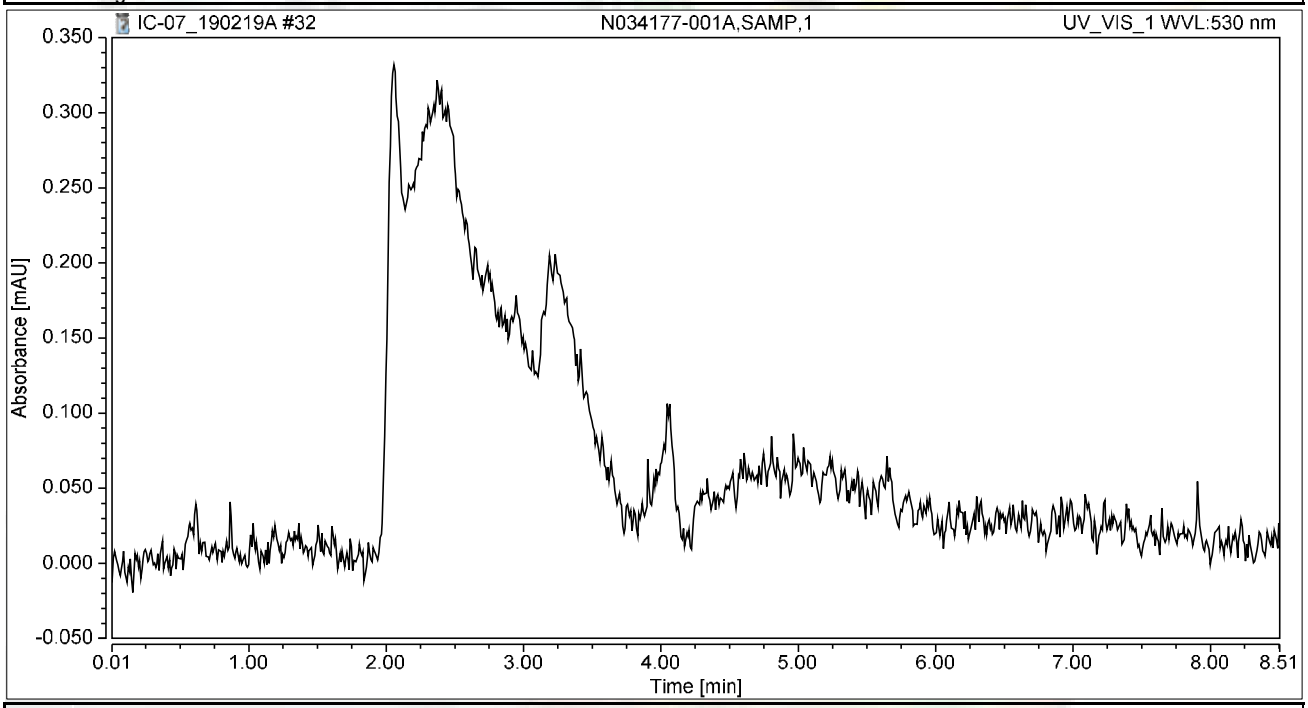
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.275 | 1.548 | 100.00 | 100.00 | 0.9570 |
| **Total:** | | | **0.275** | **1.548** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034177-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **24** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 12:40** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

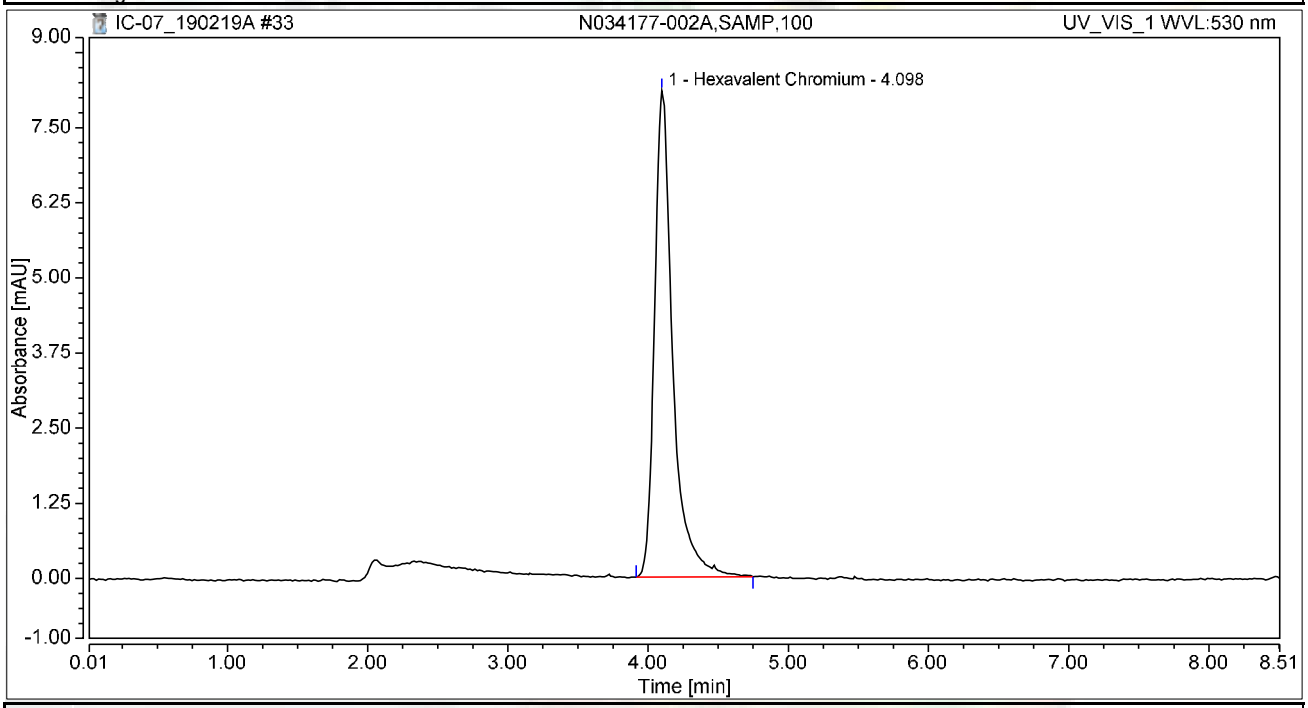
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034177-002A,SAMP,100** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 12:50** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

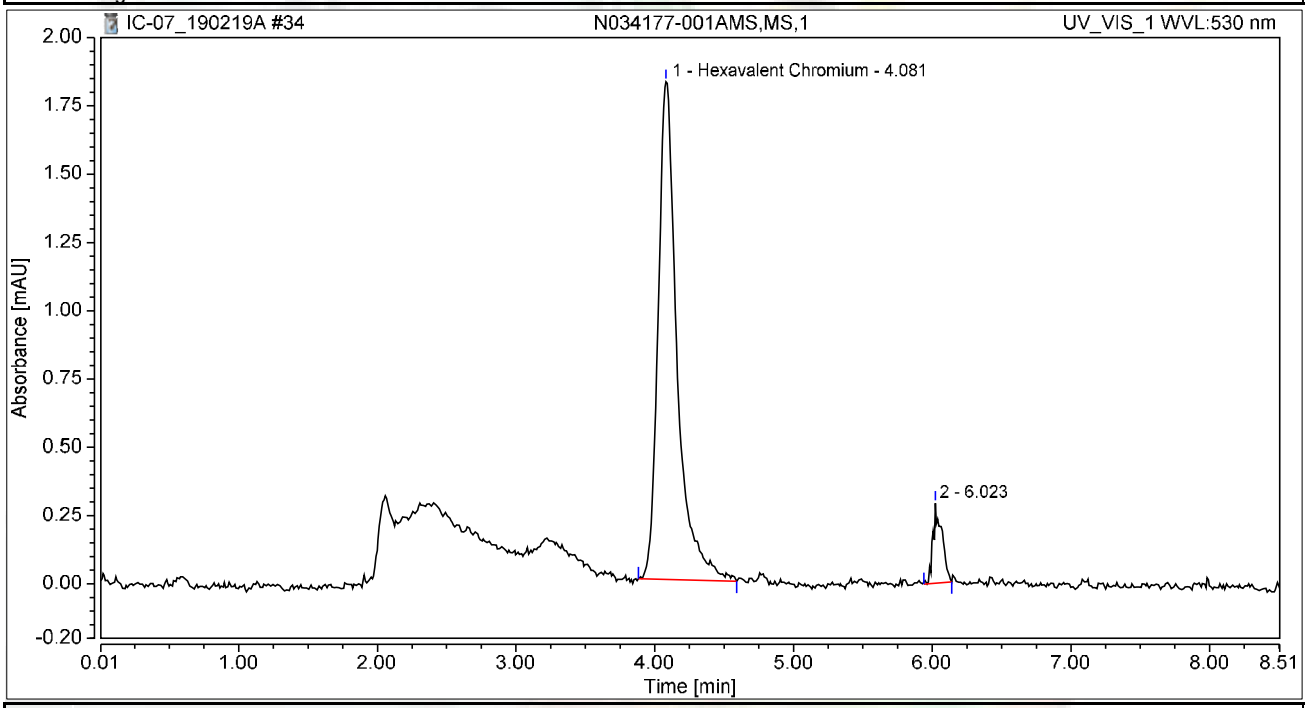
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.220 | 8.096 | 100.00 | 100.00 | 4.2463 |
| **Total:** | | | **1.220** | **8.096** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034177-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **26** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 12:59** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

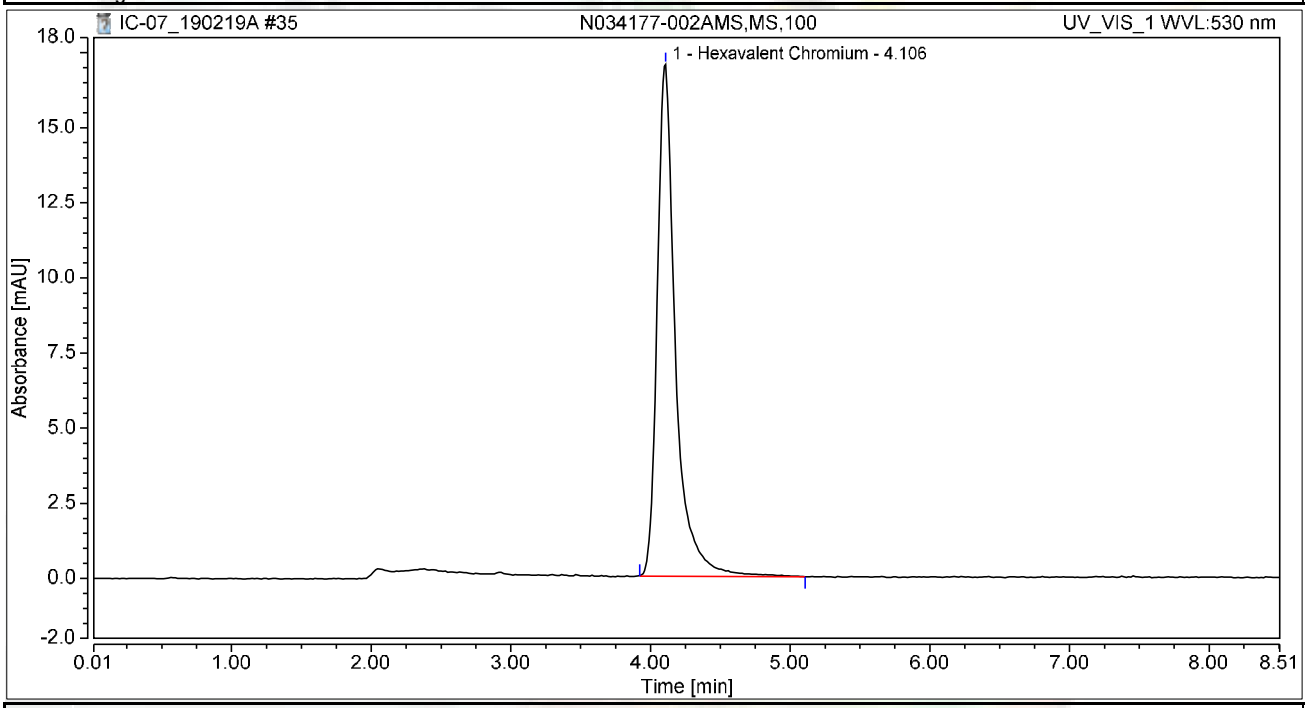
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.290 | 1.823 | 92.90 | 86.11 | 1.0094 |
| 2 | | 6.023 | 0.022 | 0.294 | 7.10 | 13.89 | n.a. |
| **Total:** | | | **0.312** | **2.117** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034177-002AMS,MS,100** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 13:09** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

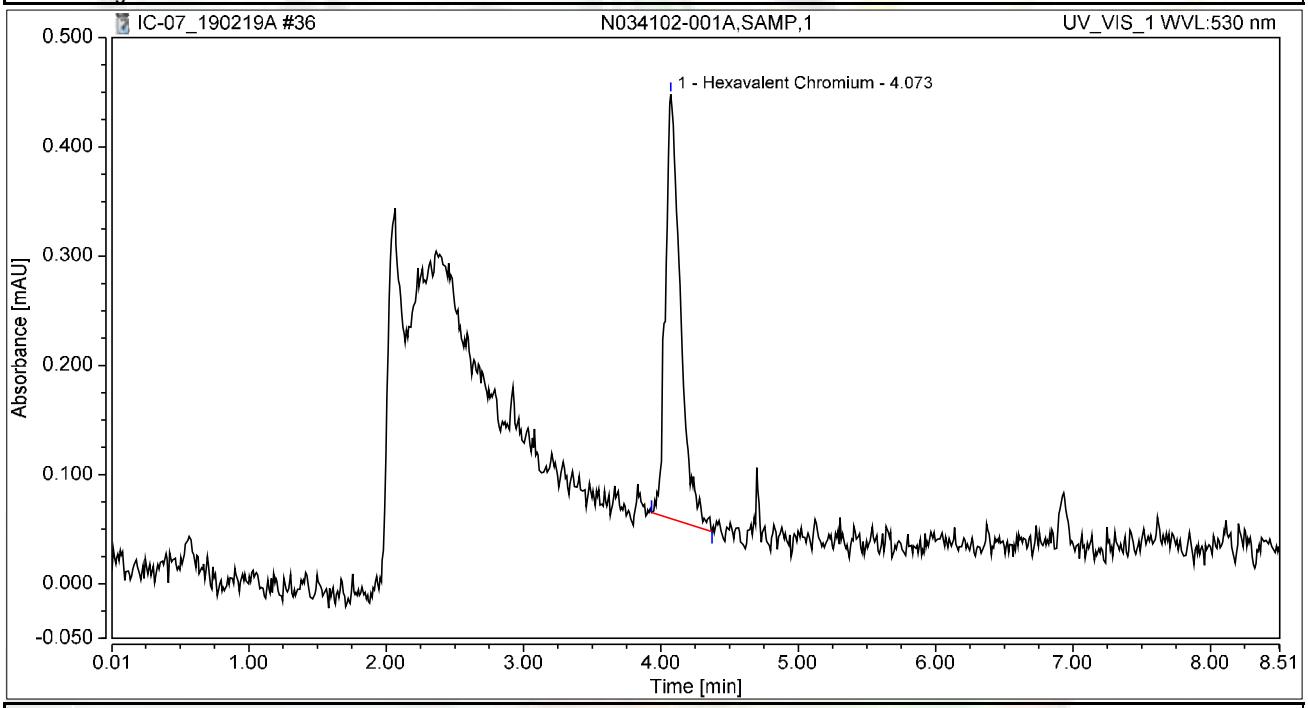
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 2.590 | 17.032 | 100.00 | 100.00 | 9.0127 |
| **Total:** | | | **2.590** | **17.032** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **28** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 13:18** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

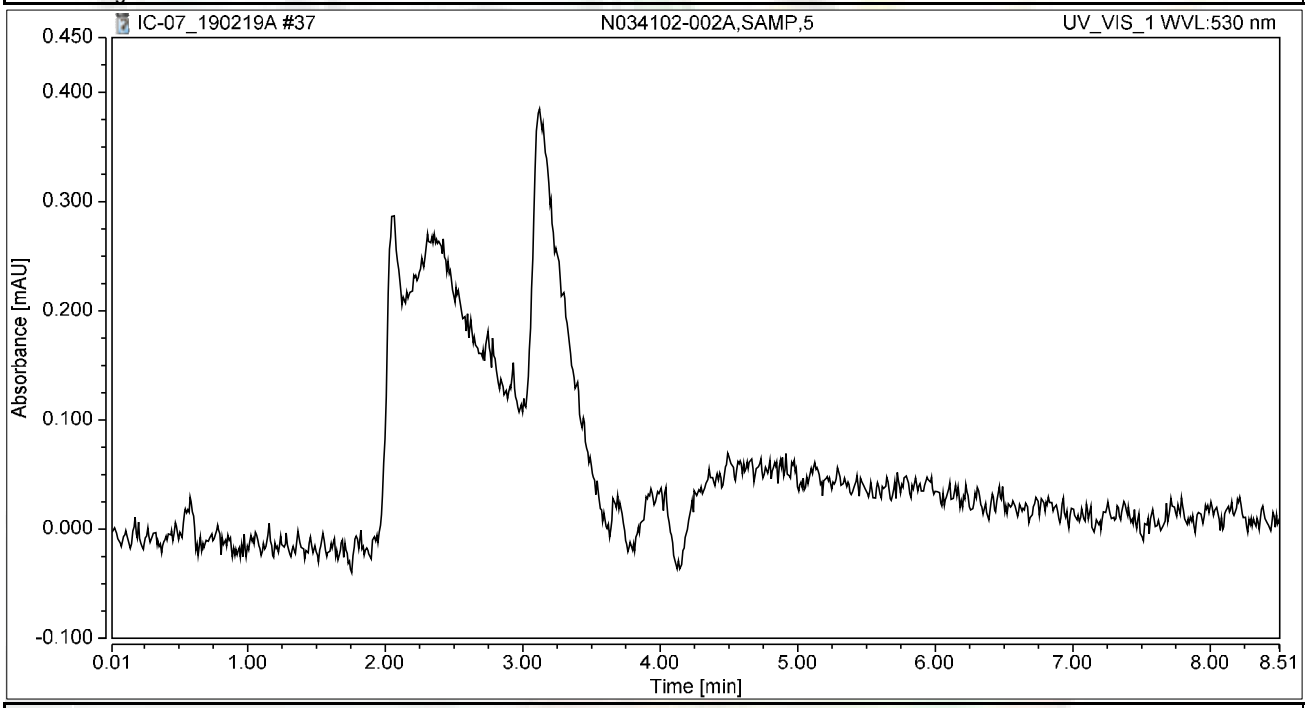
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 0.049 | 0.389 | 100.00 | 100.00 | 0.1720 |
| **Total:** | | | **0.049** | **0.389** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-002A,SAMP,5** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **29** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 13:28** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

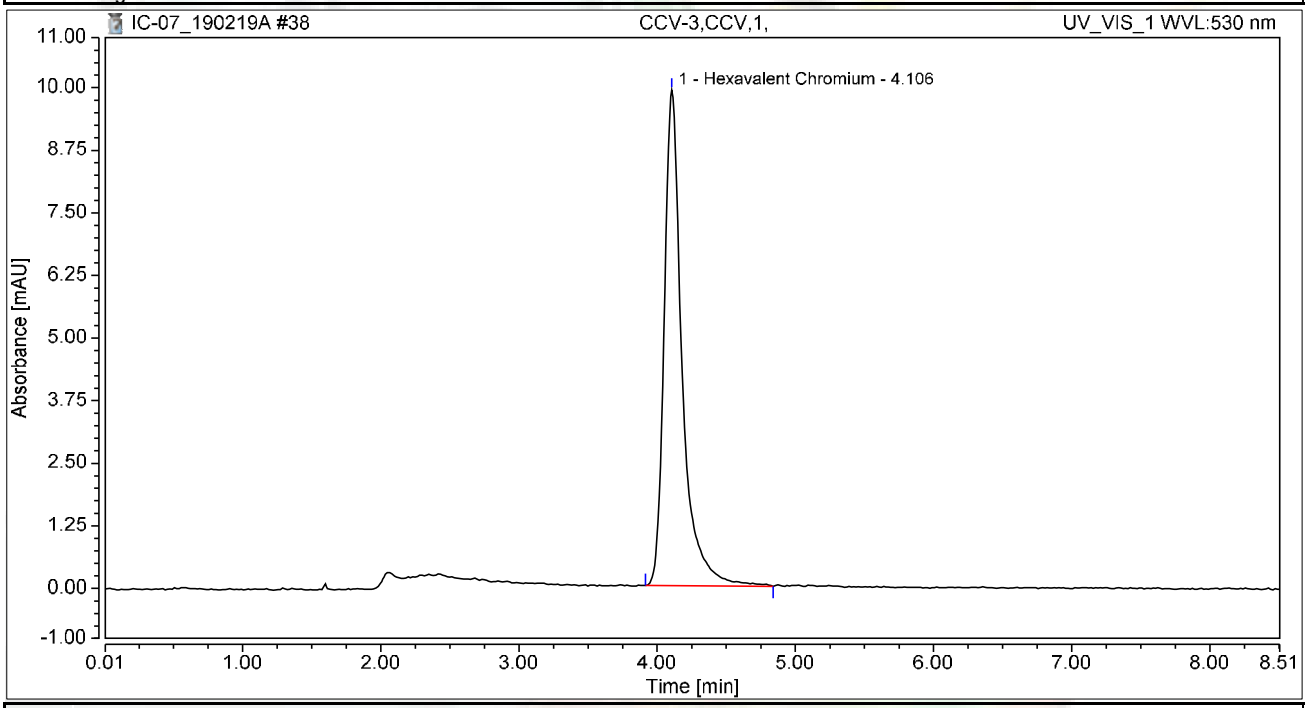
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-3,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **30** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 13:37** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

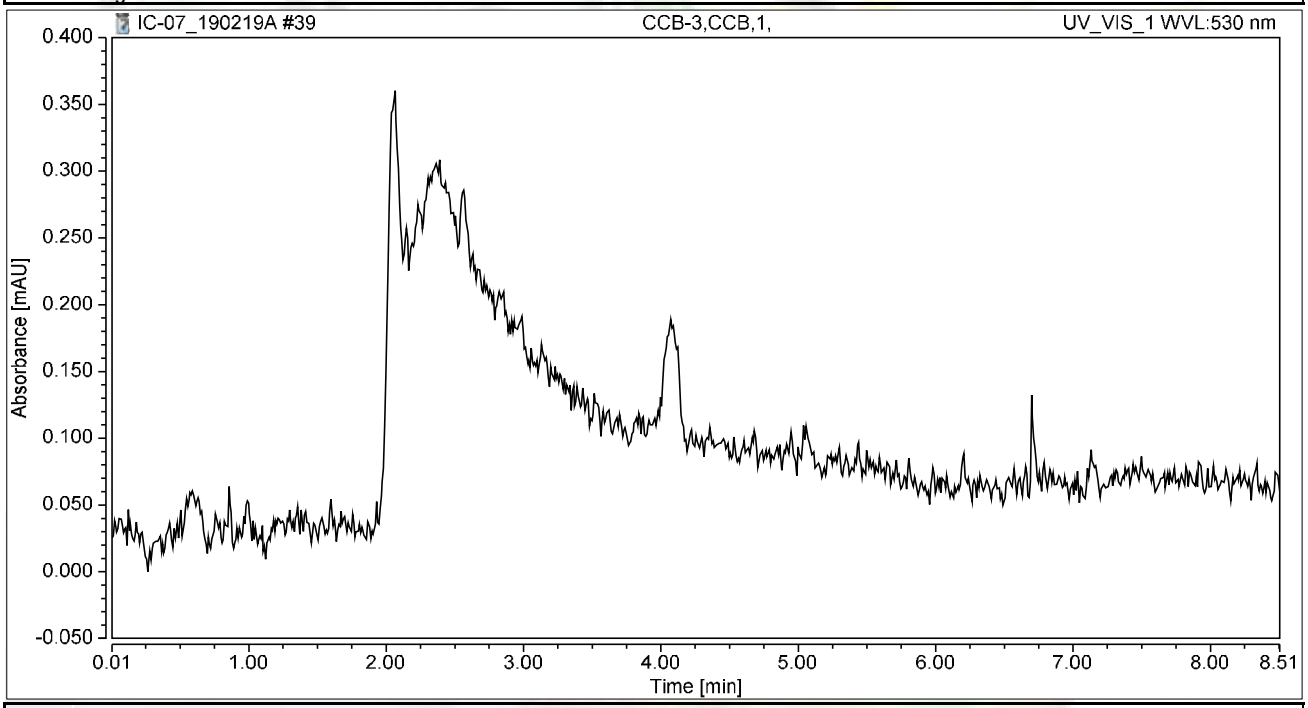
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.491 | 9.899 | 100.00 | 100.00 | 5.1888 |
| **Total:** | | | **1.491** | **9.899** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-3,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **31** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 13:47** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

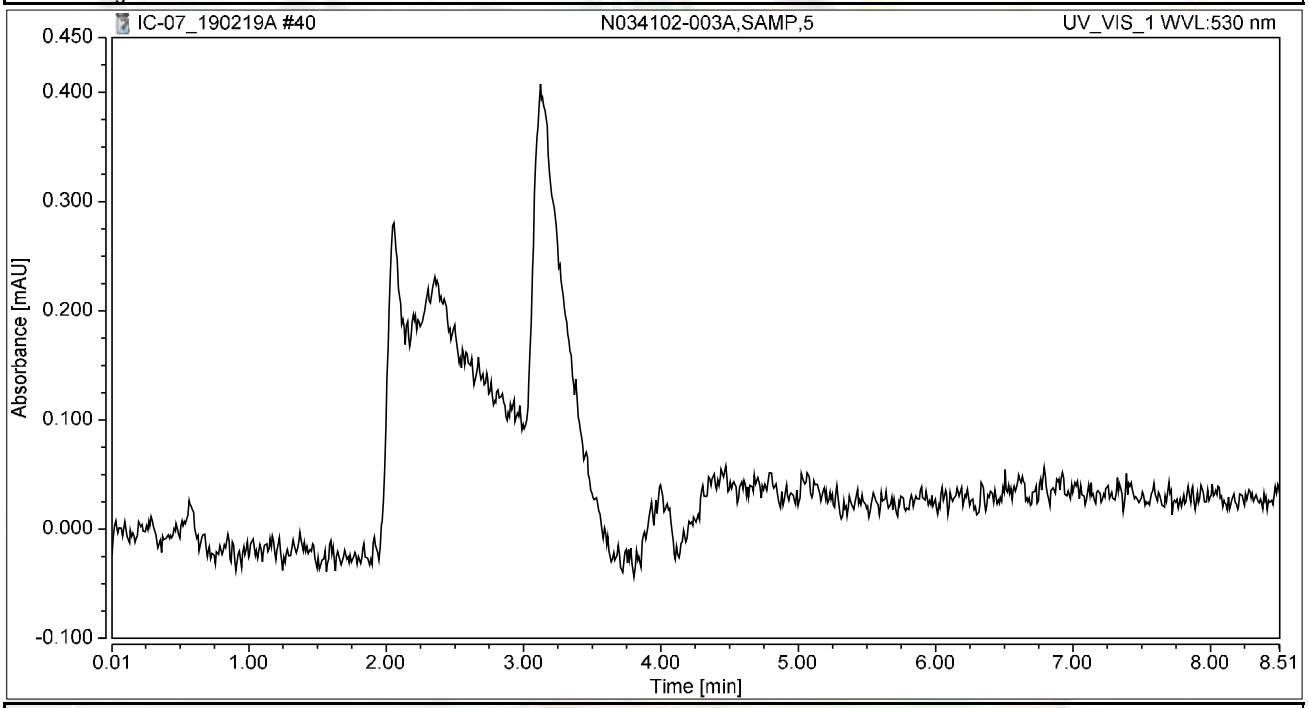
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-003A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **32** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 13:56** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

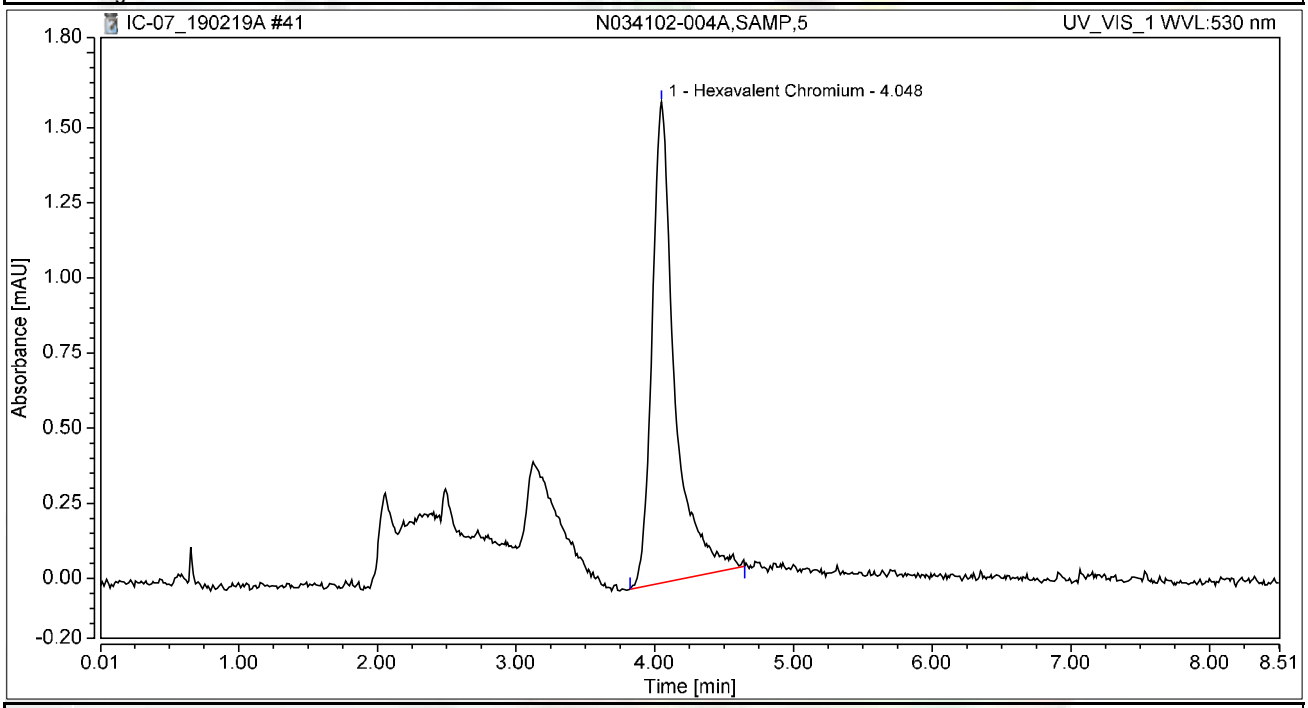
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-004A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **33** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 14:05** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

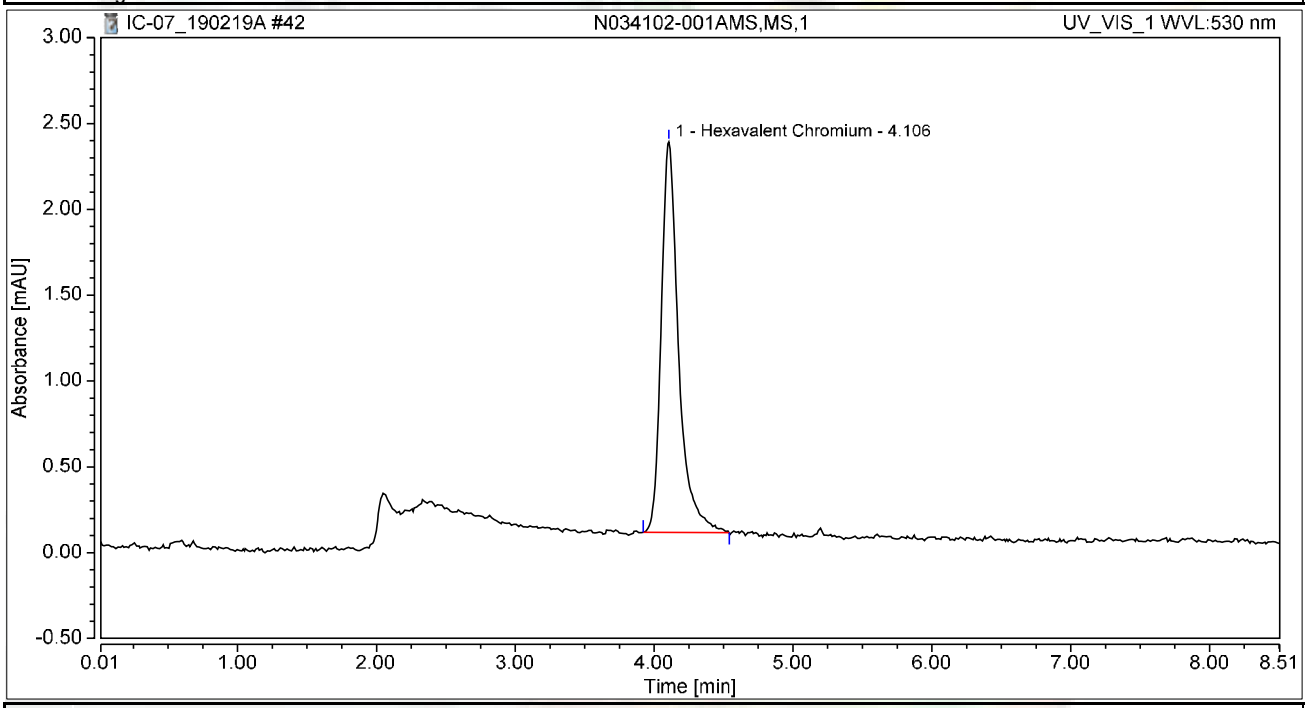
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.303 | 1.601 | 100.00 | 100.00 | 1.0550 |
| **Total:** | | | **0.303** | **1.601** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-001AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **34** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 14:15** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

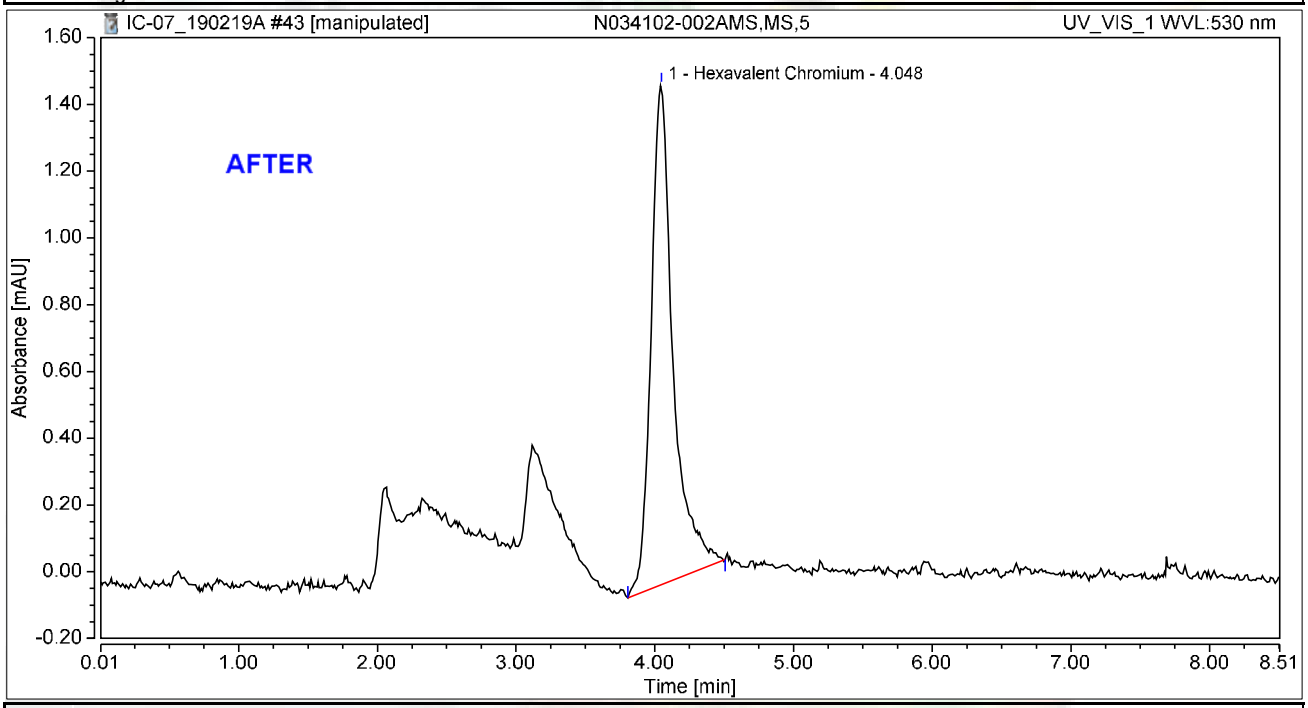
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.330 | 2.274 | 100.00 | 100.00 | 1.1466 |
| **Total:** | | | **0.330** | **2.274** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-002AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **35** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 14:24** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.275 | 1.498 | 100.00 | 100.00 | 0.9584 |
| **Total:** | | | **0.275** | **1.498** | **100.00** | **100.00** | |

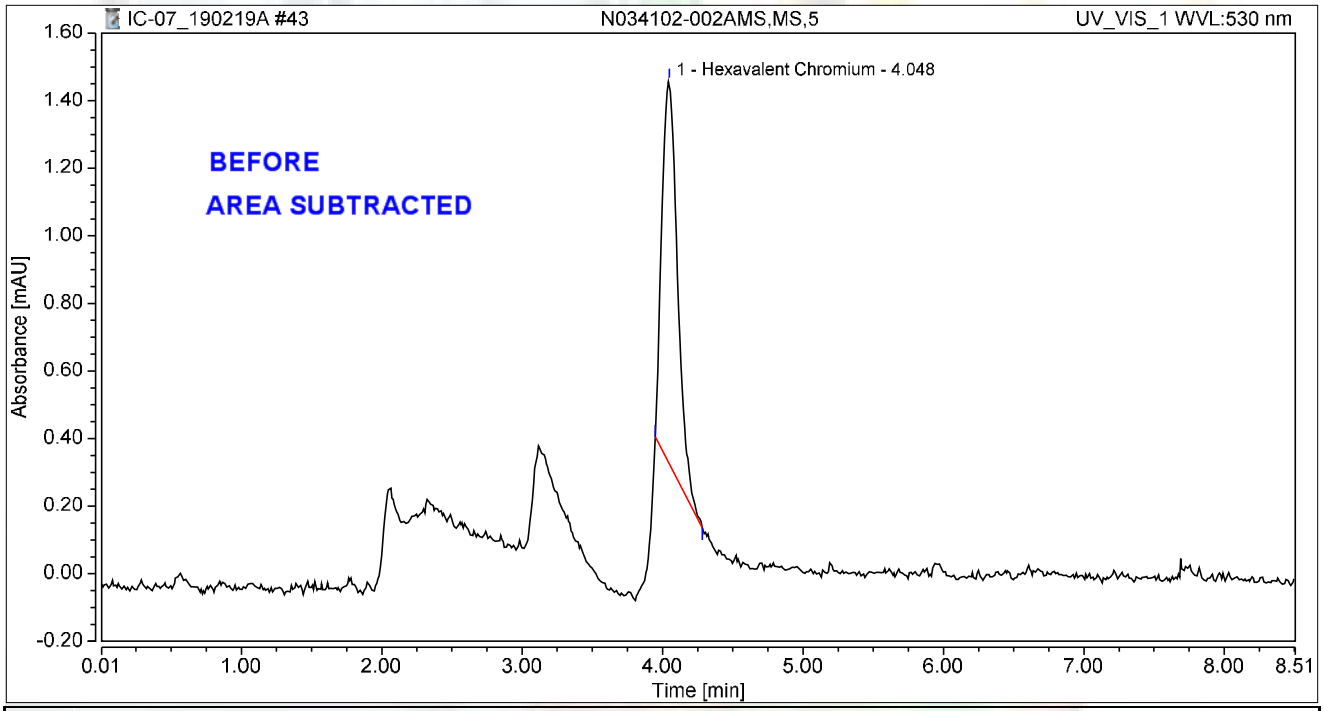
2/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-002AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **35** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 14:24** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.147 | 1.135 | 100.00 | 100.00 | 0.5110 |
| **Total:** | | | **0.147** | **1.135** | **100.00** | **100.00** | |

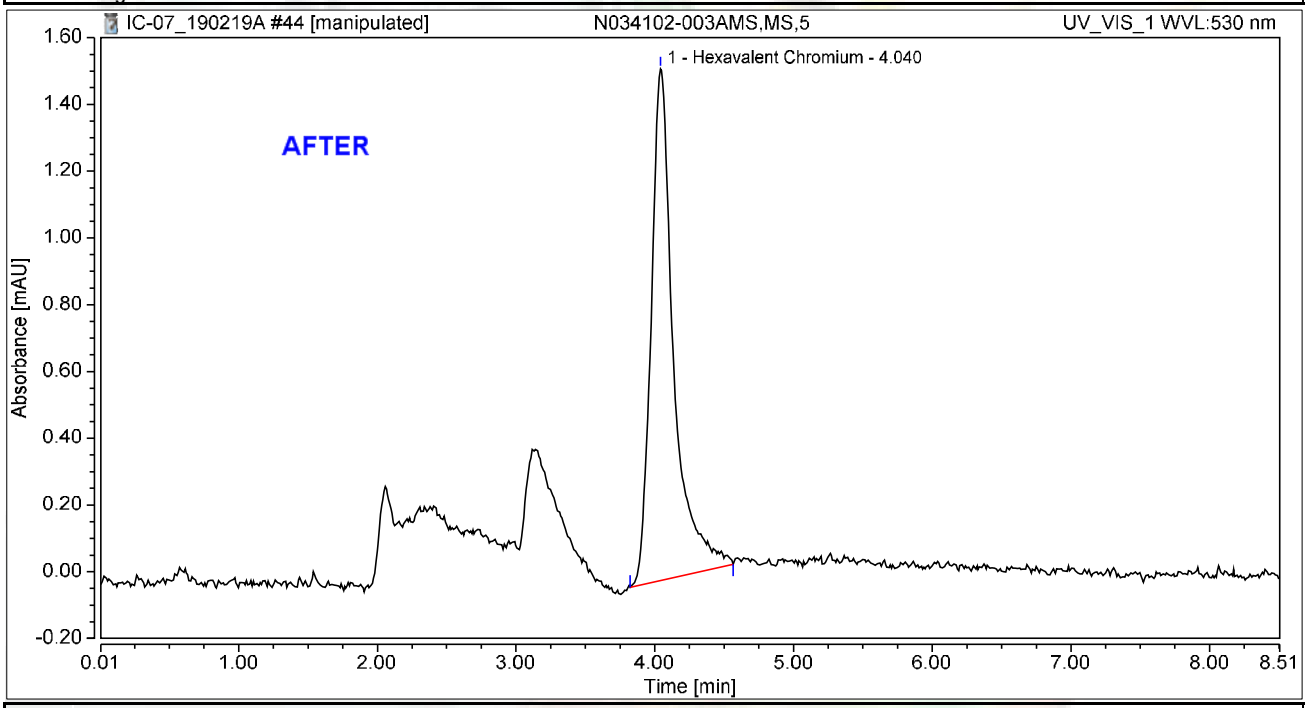
2/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-003AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **36** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 14:34** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.040 | 0.288 | 1.533 | 100.00 | 100.00 | 1.0032 |
| **Total:** | | | **0.288** | **1.533** | **100.00** | **100.00** | |

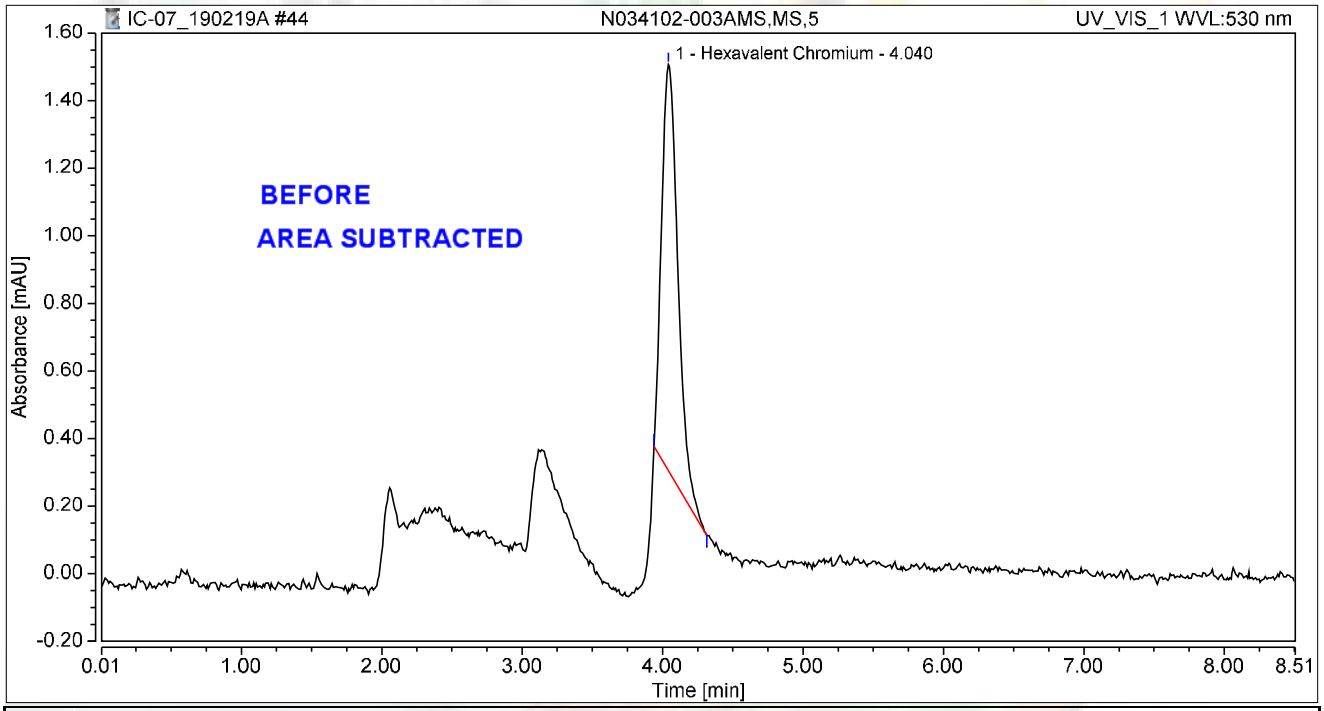
2/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-003AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **36** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 14:34** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.040 | 0.163 | 1.200 | 100.00 | 100.00 | 0.5681 |
| **Total:** | | | **0.163** | **1.200** | **100.00** | **100.00** | |

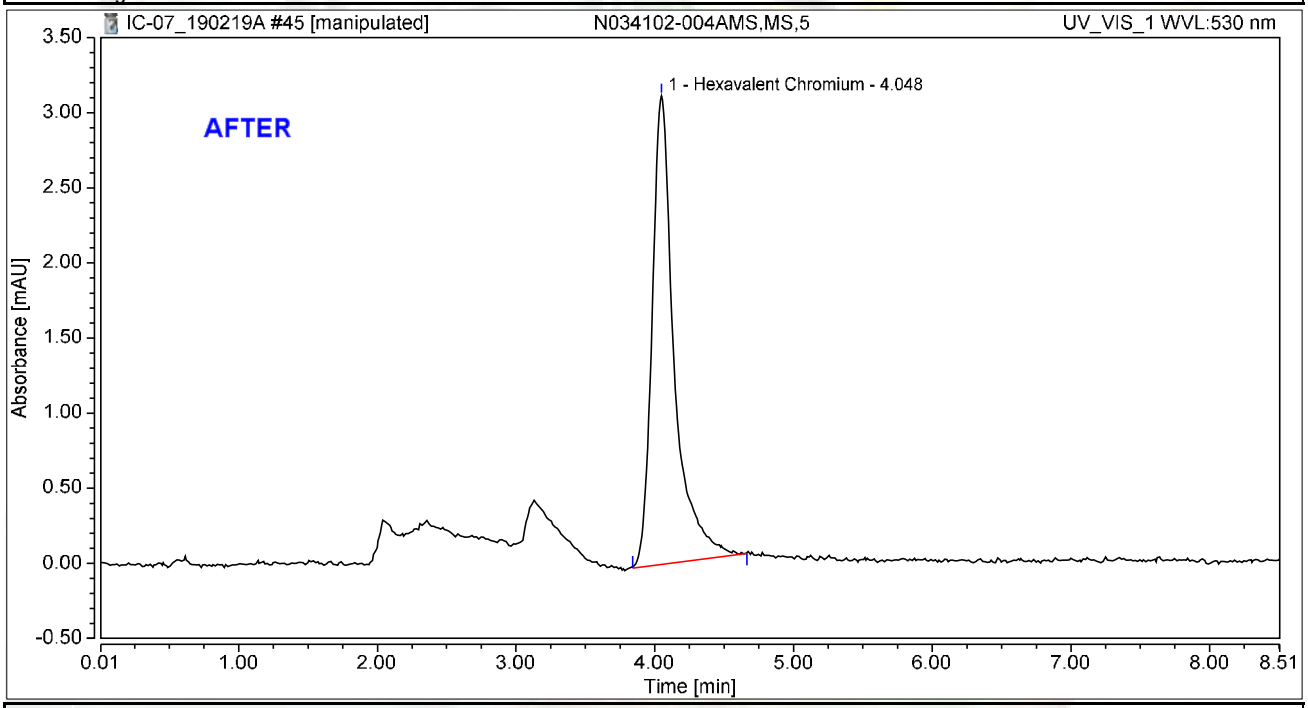
2/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-004AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **37** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 14:43** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.577 | 3.120 | 100.00 | 100.00 | 2.0072 |
| **Total:** | | | **0.577** | **3.120** | **100.00** | **100.00** | |

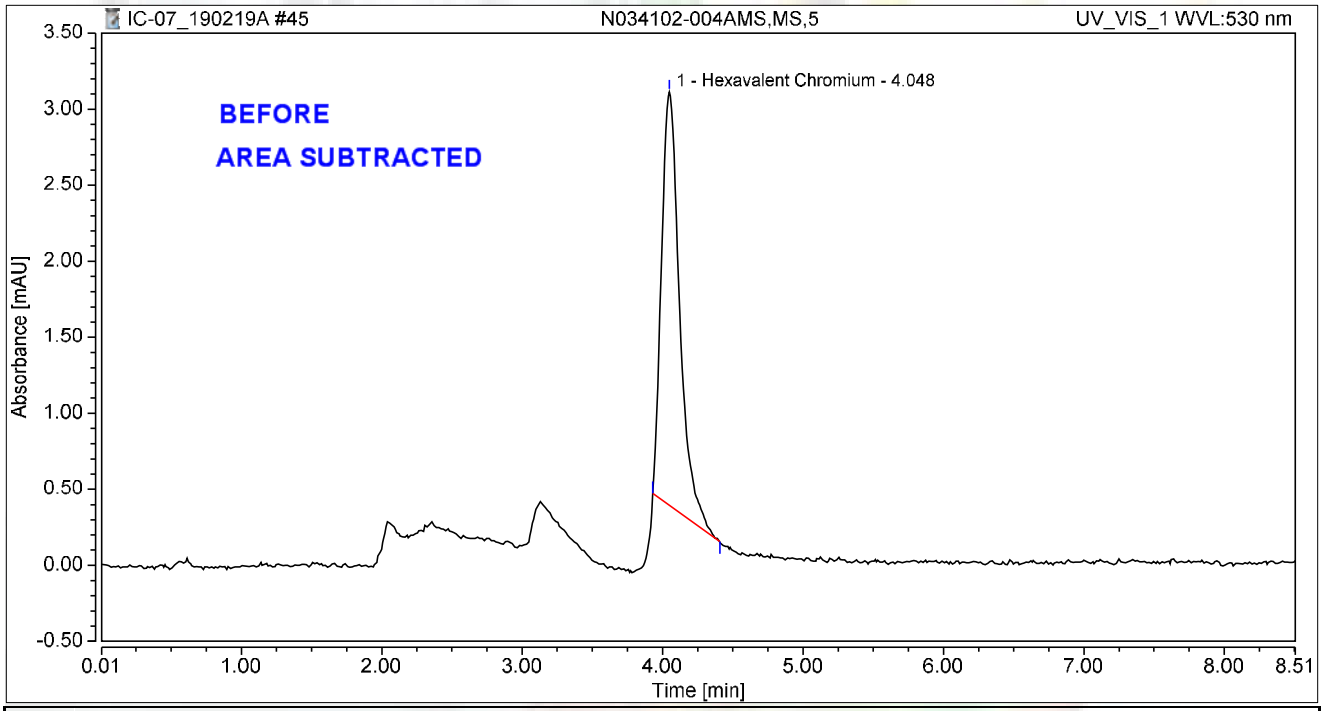
2/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-004AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **37** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 14:43** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.408 | 2.718 | 100.00 | 100.00 | 1.4196 |
| **Total:** | | | **0.408** | **2.718** | **100.00** | **100.00** | |

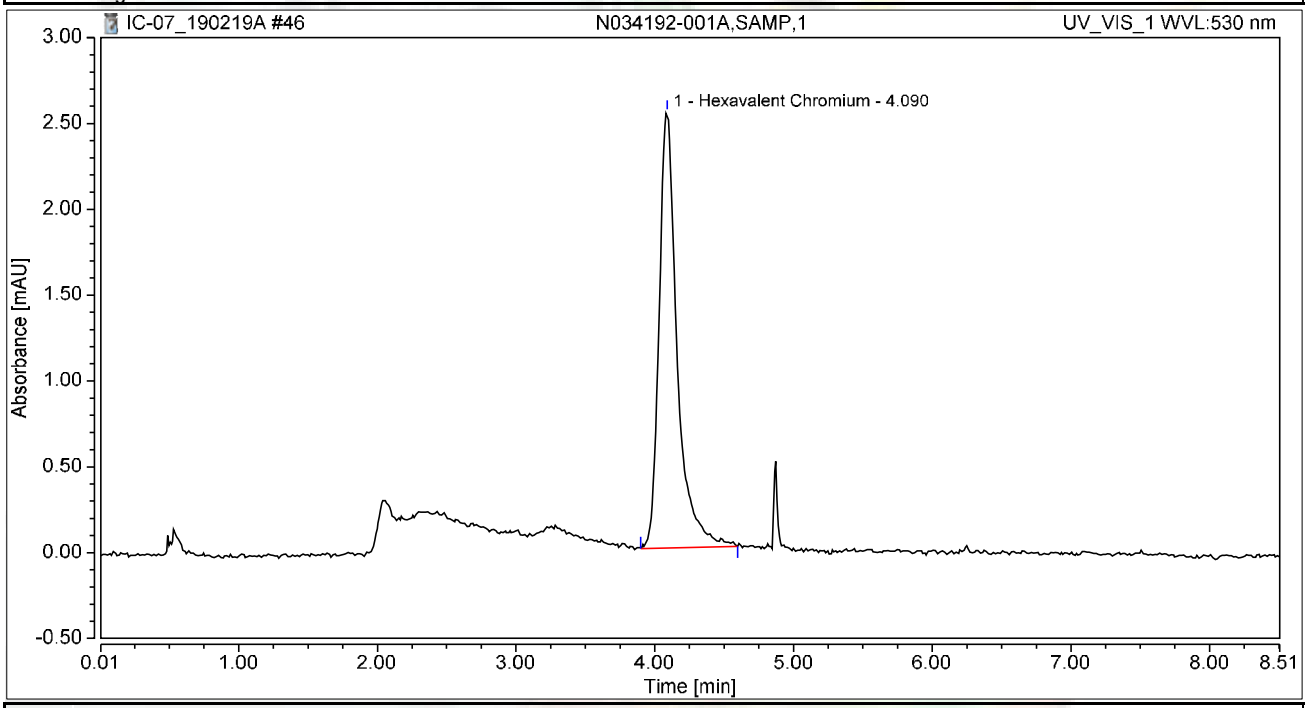
2/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034192-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **38** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 14:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

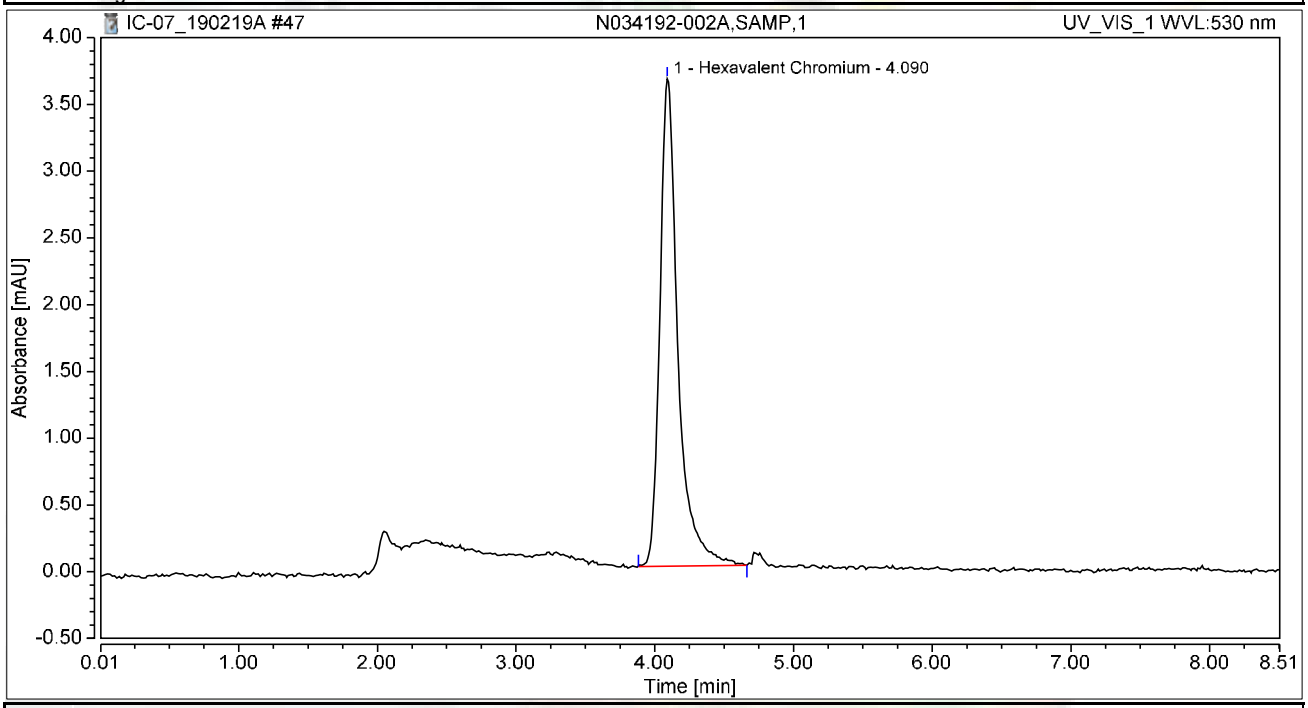
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.384 | 2.540 | 100.00 | 100.00 | 1.3376 |
| **Total:** | | | **0.384** | **2.540** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034192-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **39** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 15:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

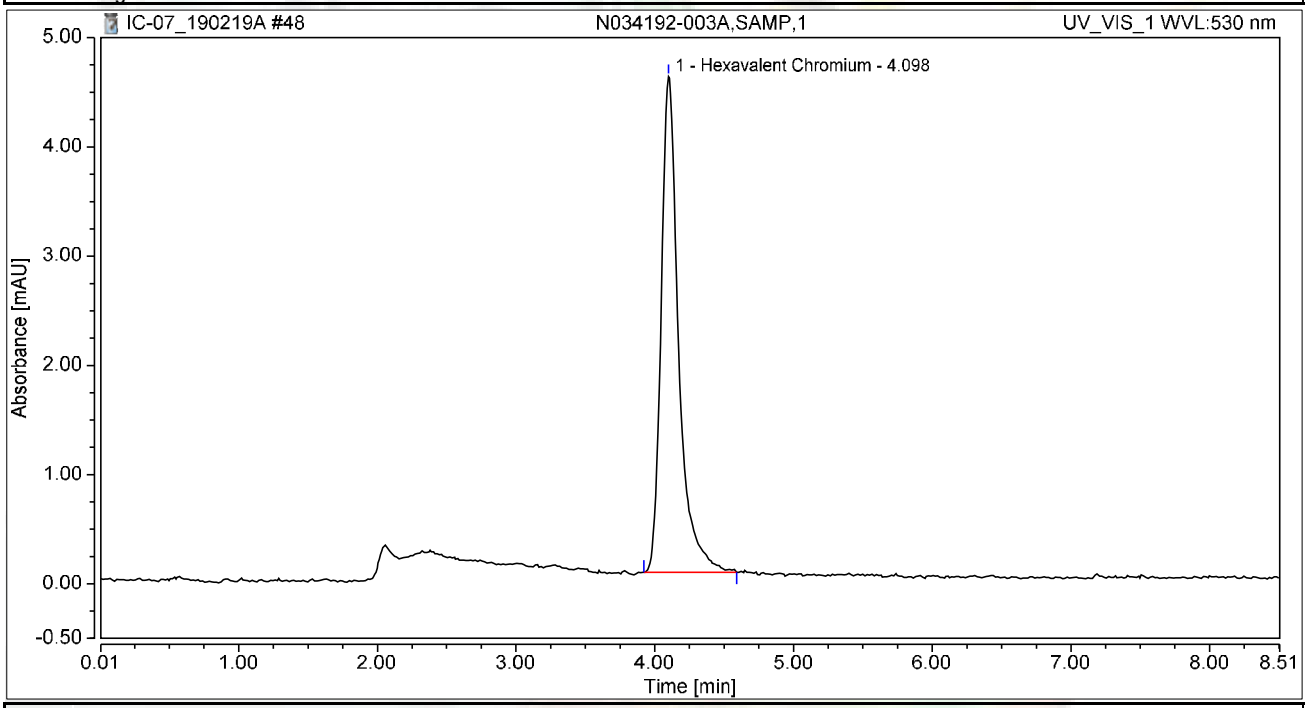
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.553 | 3.648 | 100.00 | 100.00 | 1.9246 |
| **Total:** | | | **0.553** | **3.648** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034192-003A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **40** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 15:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

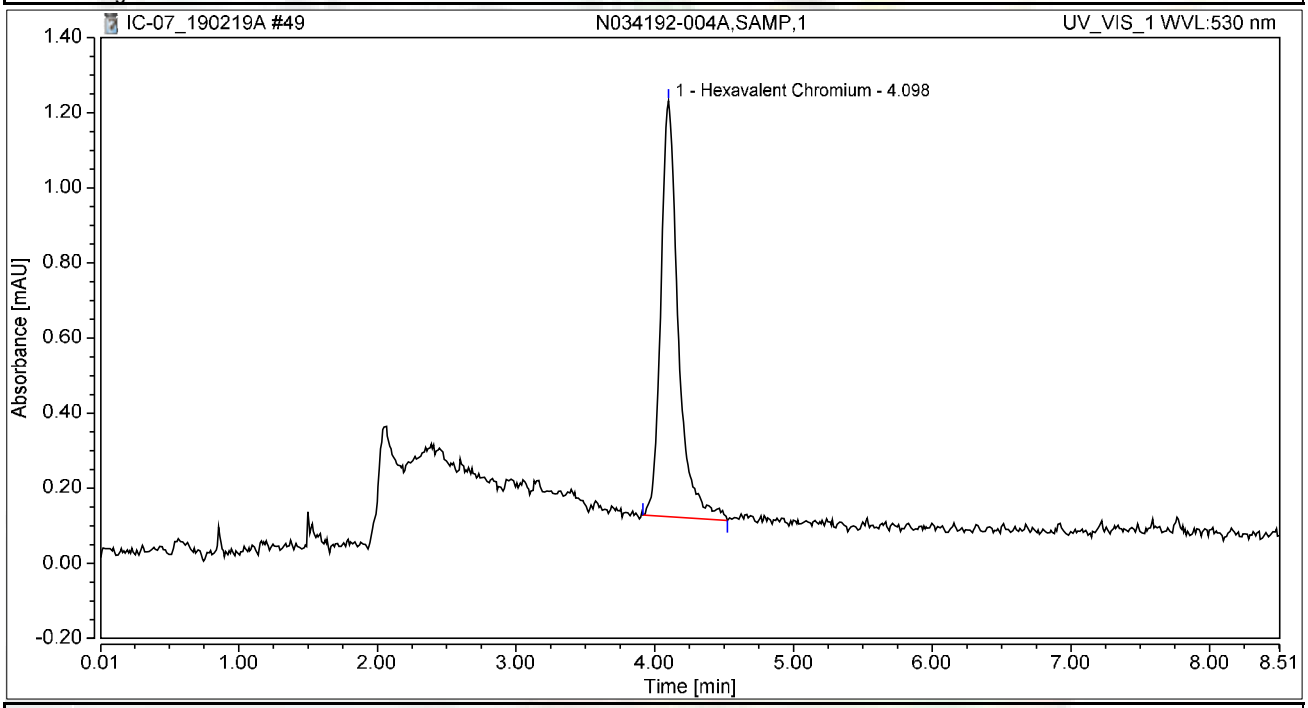
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.664 | 4.538 | 100.00 | 100.00 | 2.3092 |
| **Total:** | | | **0.664** | **4.538** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034192-004A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **41** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 15:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

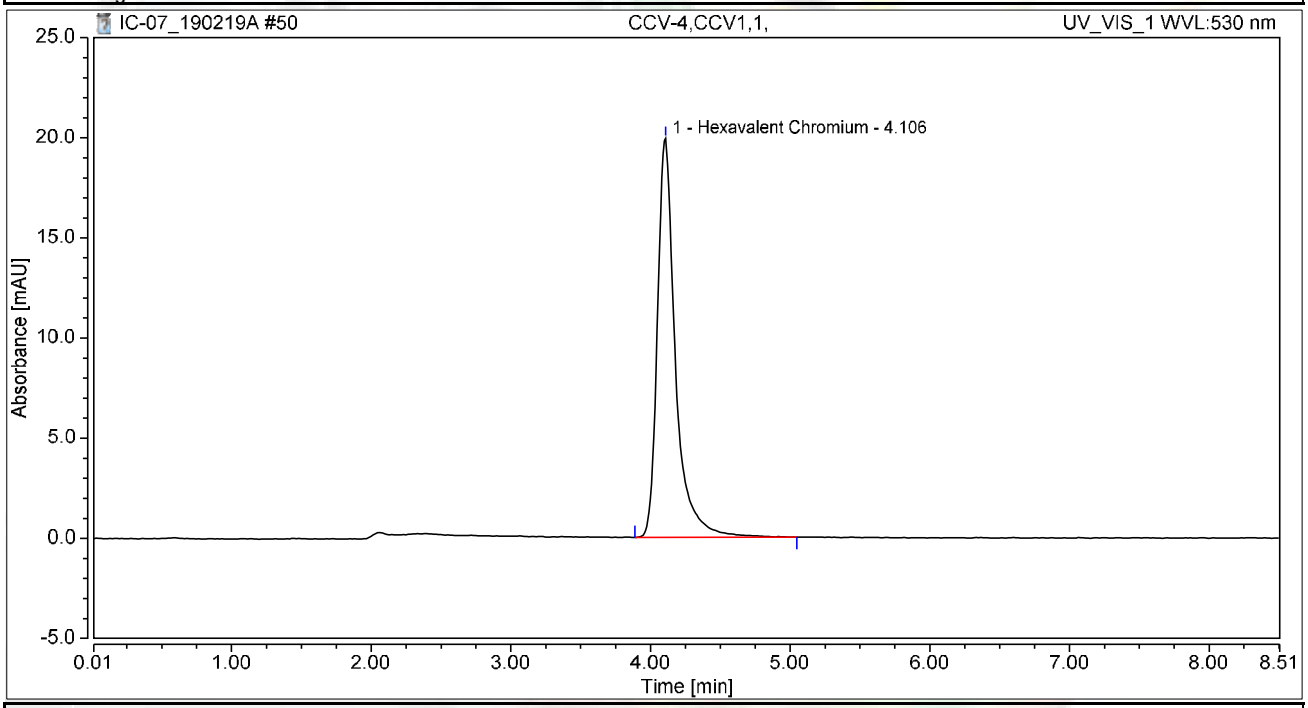
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.161 | 1.107 | 100.00 | 100.00 | 0.5615 |
| **Total:** | | | **0.161** | **1.107** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-4,CCV1,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **42** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 15:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

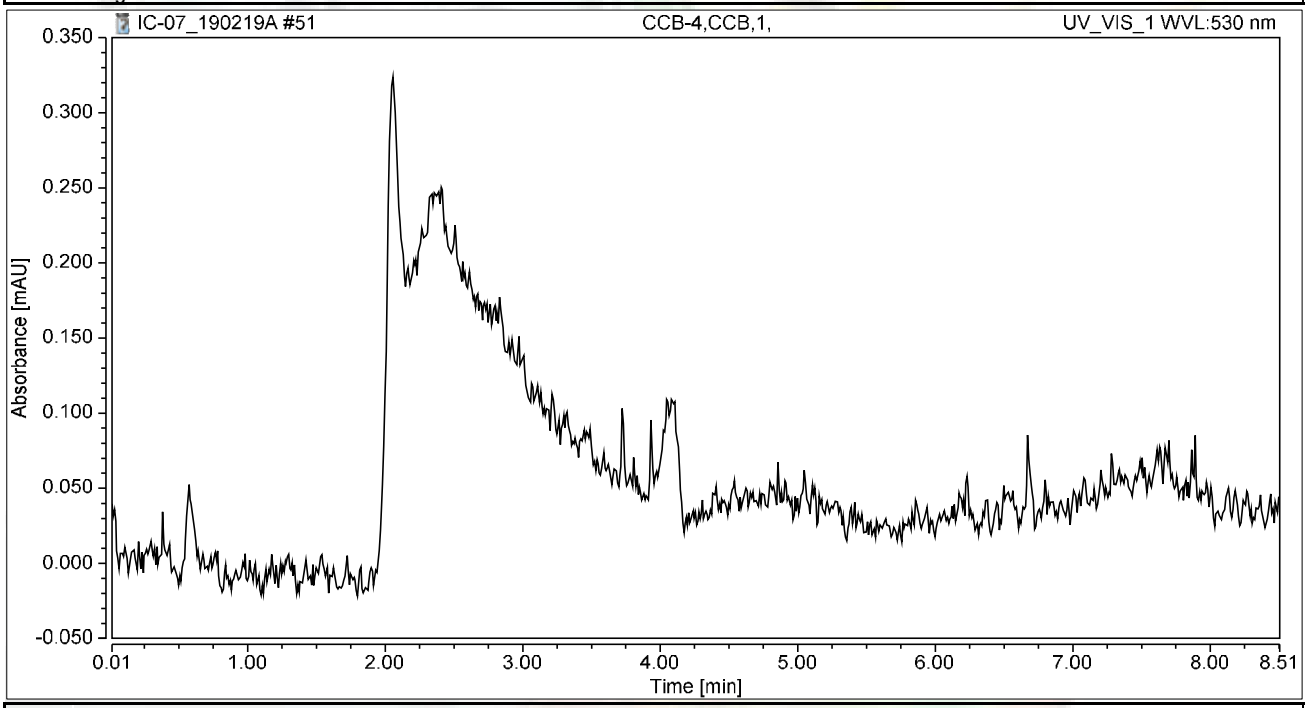
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 2.984 | 19.928 | 100.00 | 100.00 | 10.3845 |
| **Total:** | | | **2.984** | **19.928** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-4,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **43** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 15:40** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

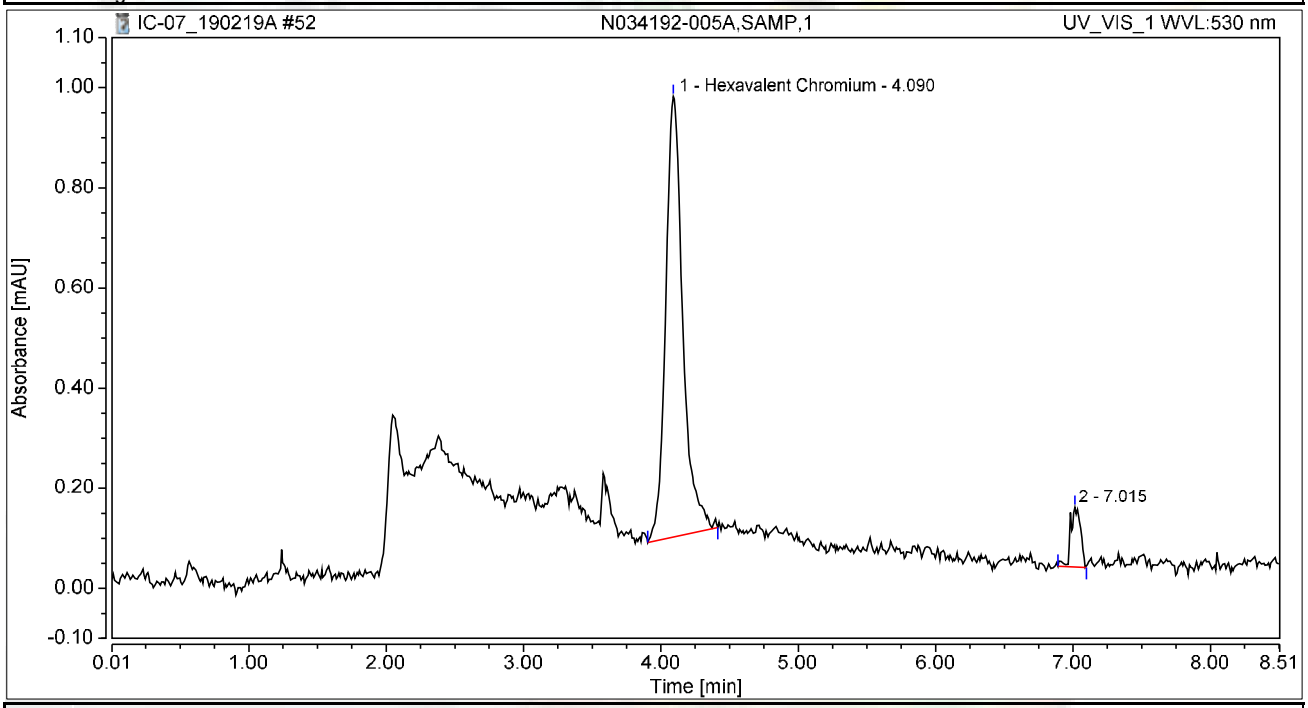
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034192-005A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **44** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 15:50** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

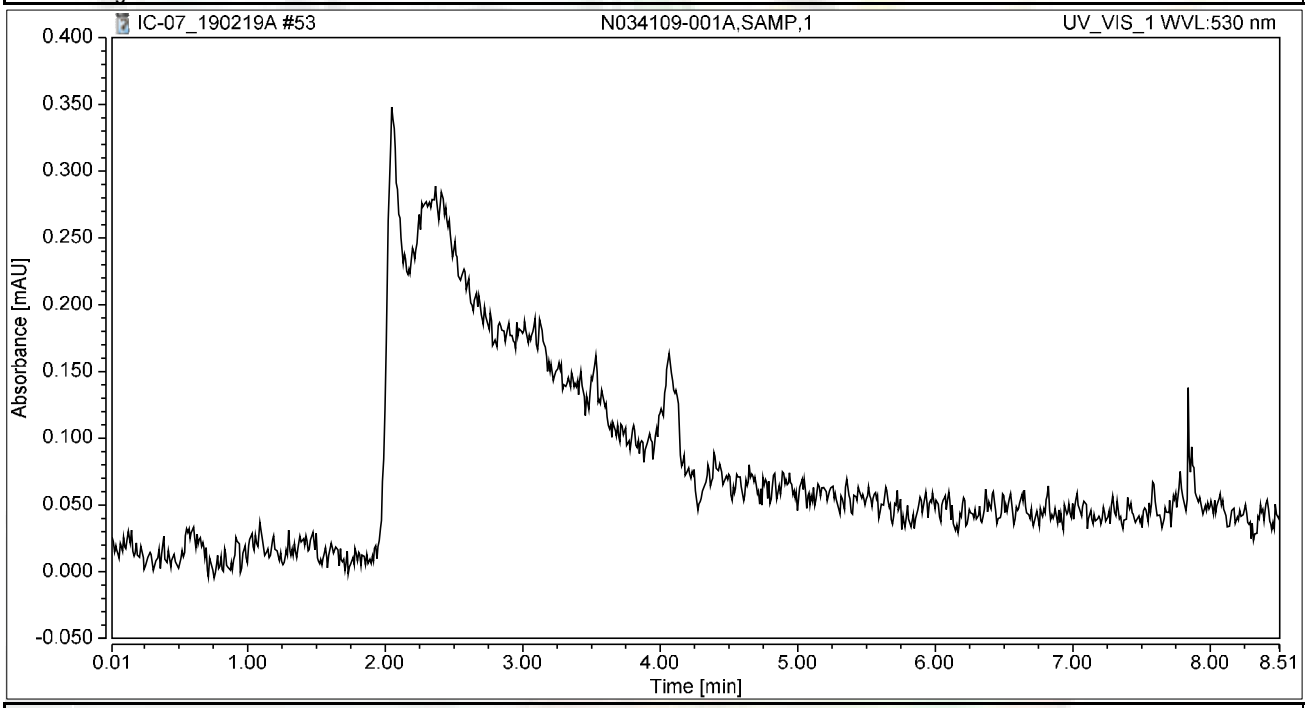
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.127 | 0.879 | 92.69 | 88.07 | 0.4419 |
| 2 | | 7.015 | 0.010 | 0.119 | 7.31 | 11.93 | n.a. |
| **Total:** | | | **0.137** | **0.999** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034109-001A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **45** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 15:59** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

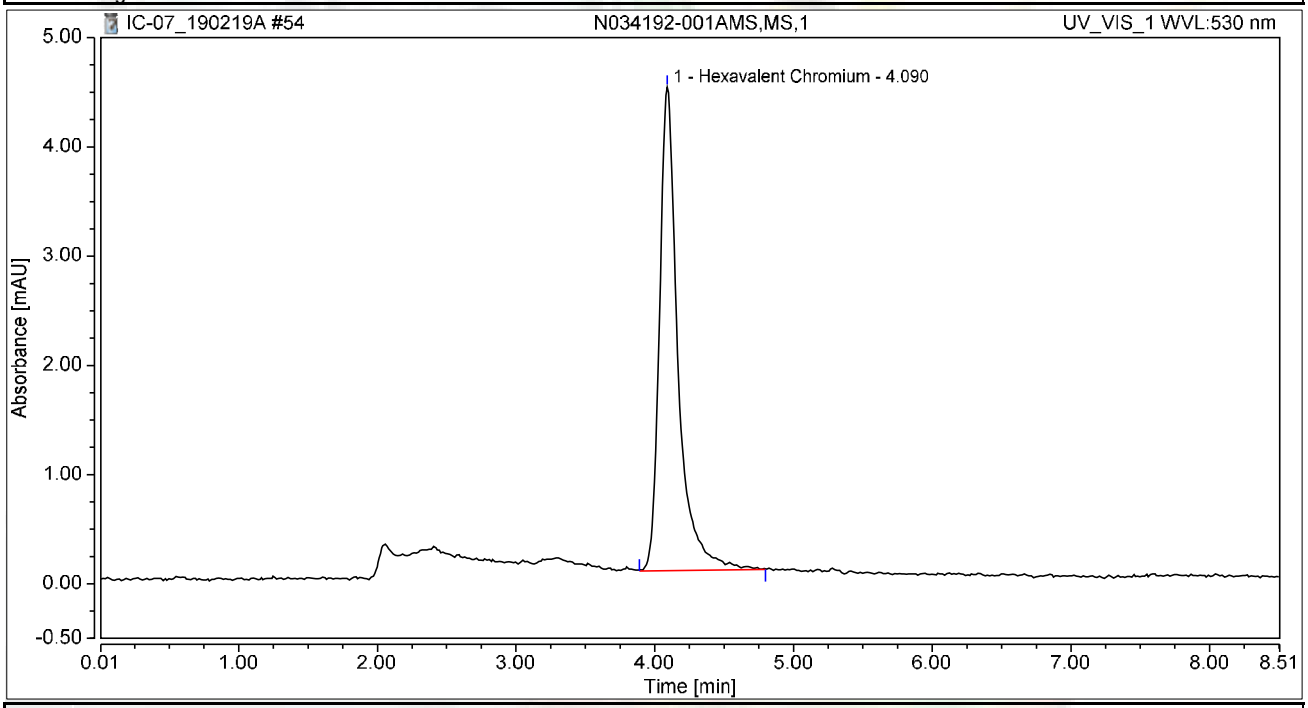
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034192-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 16:15** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

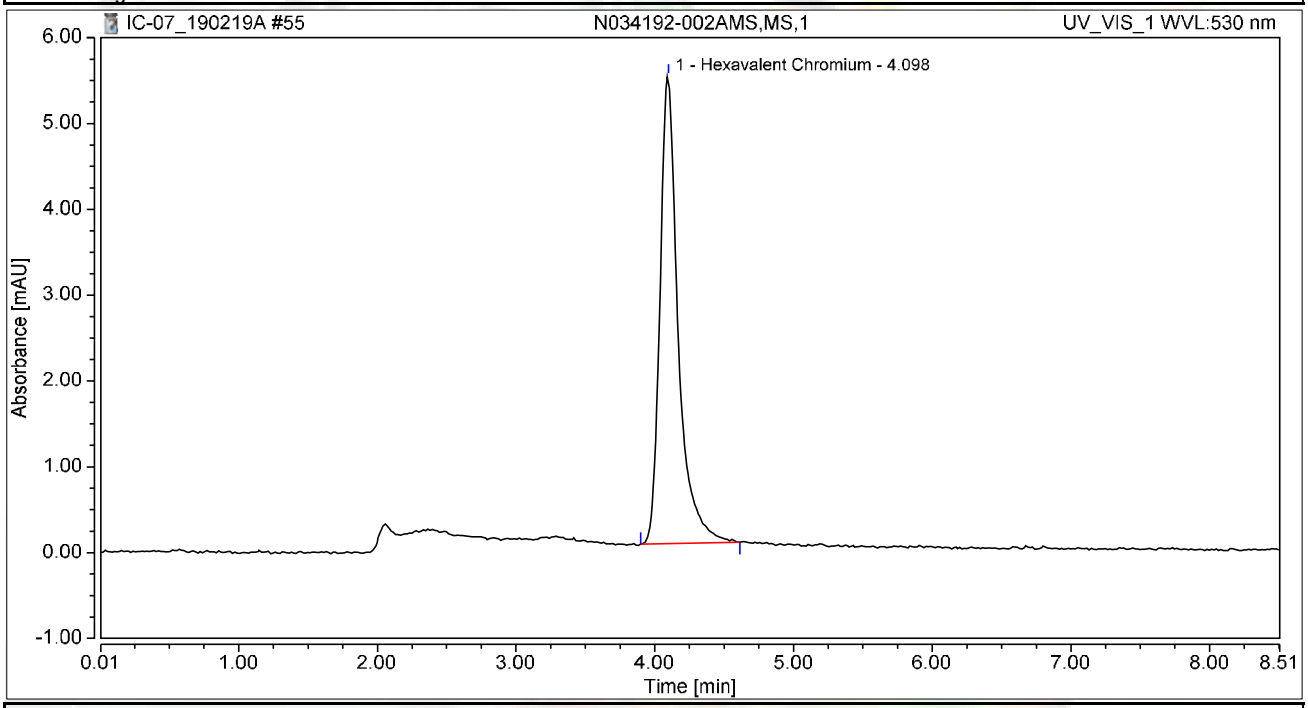
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.687 | 4.426 | 100.00 | 100.00 | 2.3910 |
| **Total:** | | | **0.687** | **4.426** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034192-002AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 16:26** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

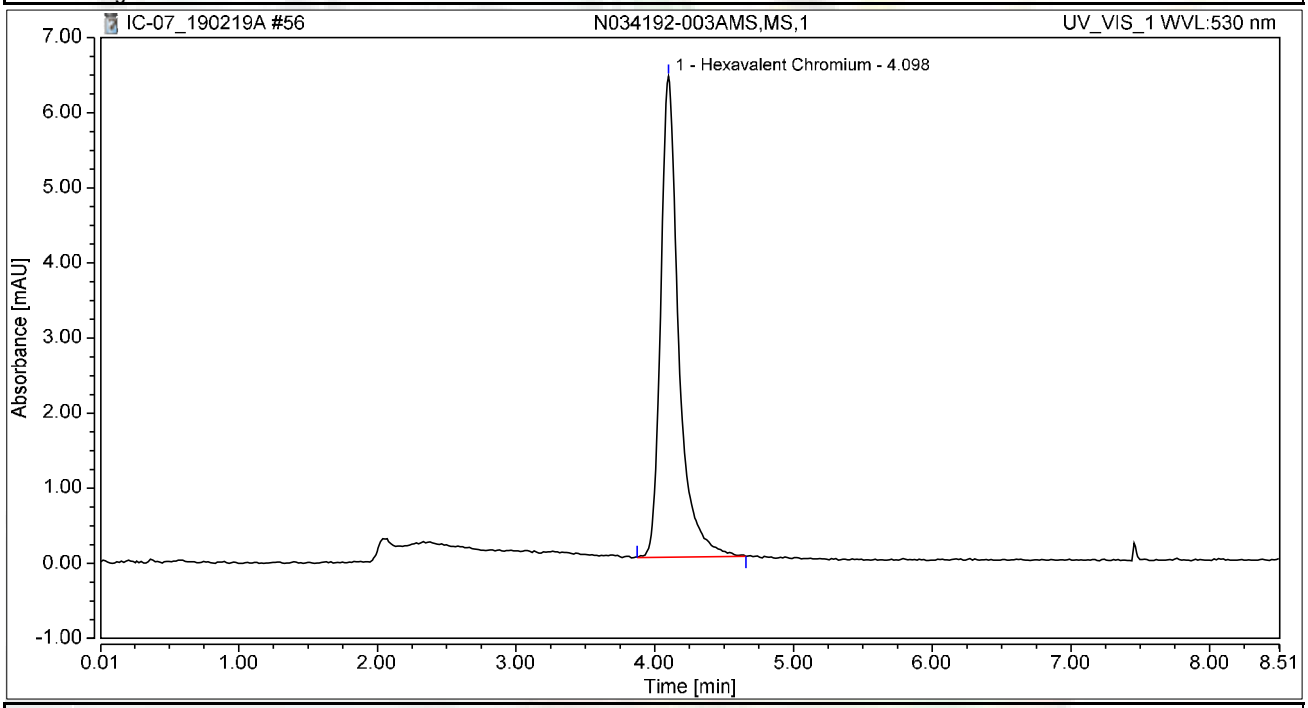
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.831 | 5.451 | 100.00 | 100.00 | 2.8902 |
| **Total:** | | | **0.831** | **5.451** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034192-003AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 16:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

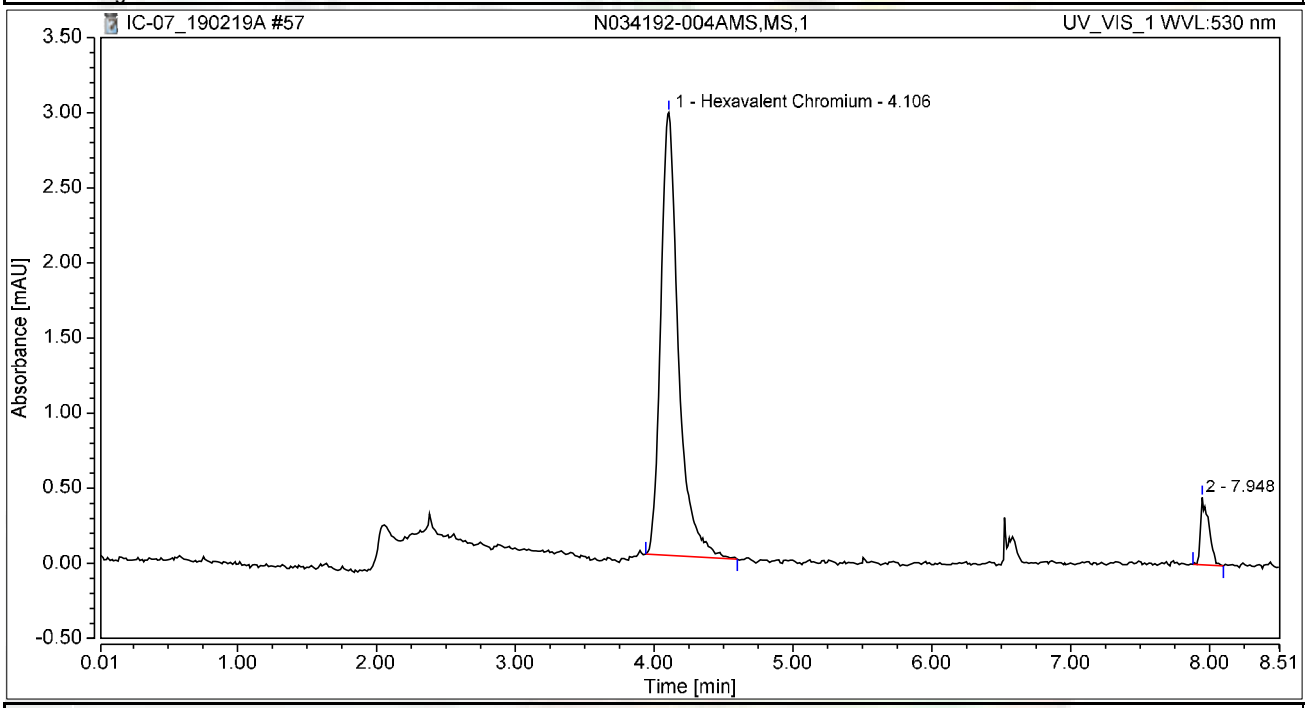
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.965 | 6.405 | 100.00 | 100.00 | 3.3594 |
| **Total:** | | | **0.965** | **6.405** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034192-004AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 16:45** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

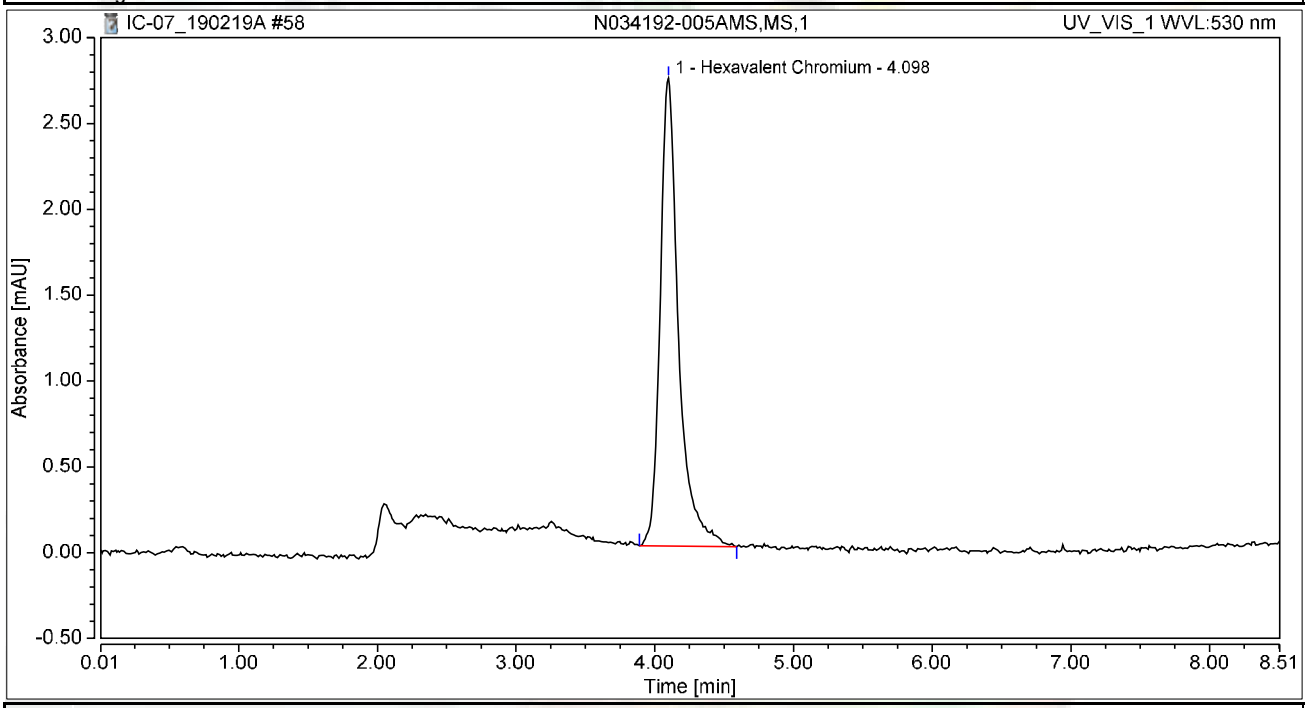
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.435 | 2.949 | 93.31 | 86.80 | 1.5120 |
| 2 | | 7.948 | 0.031 | 0.448 | 6.69 | 13.20 | n.a. |
| **Total:** | | | **0.466** | **3.398** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034192-005AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 16:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

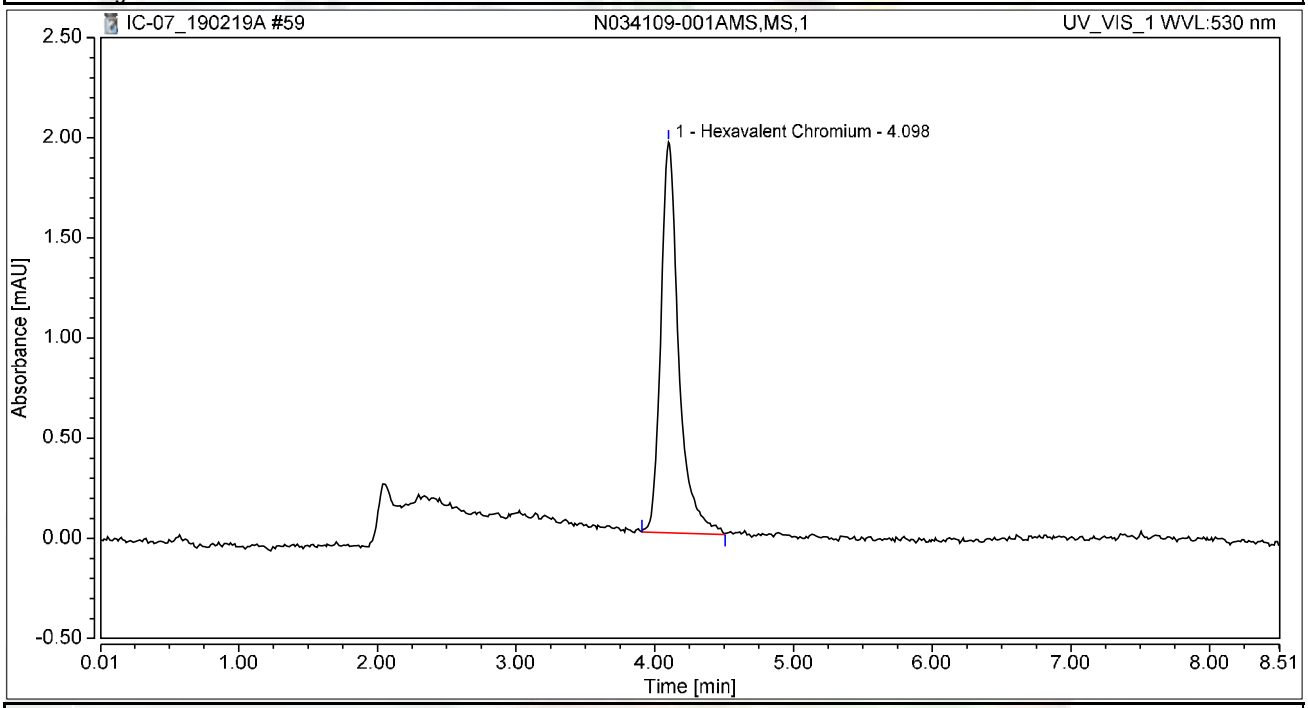
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.421 | 2.725 | 100.00 | 100.00 | 1.4648 |
| **Total:** | | | **0.421** | **2.725** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034109-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 17:04** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

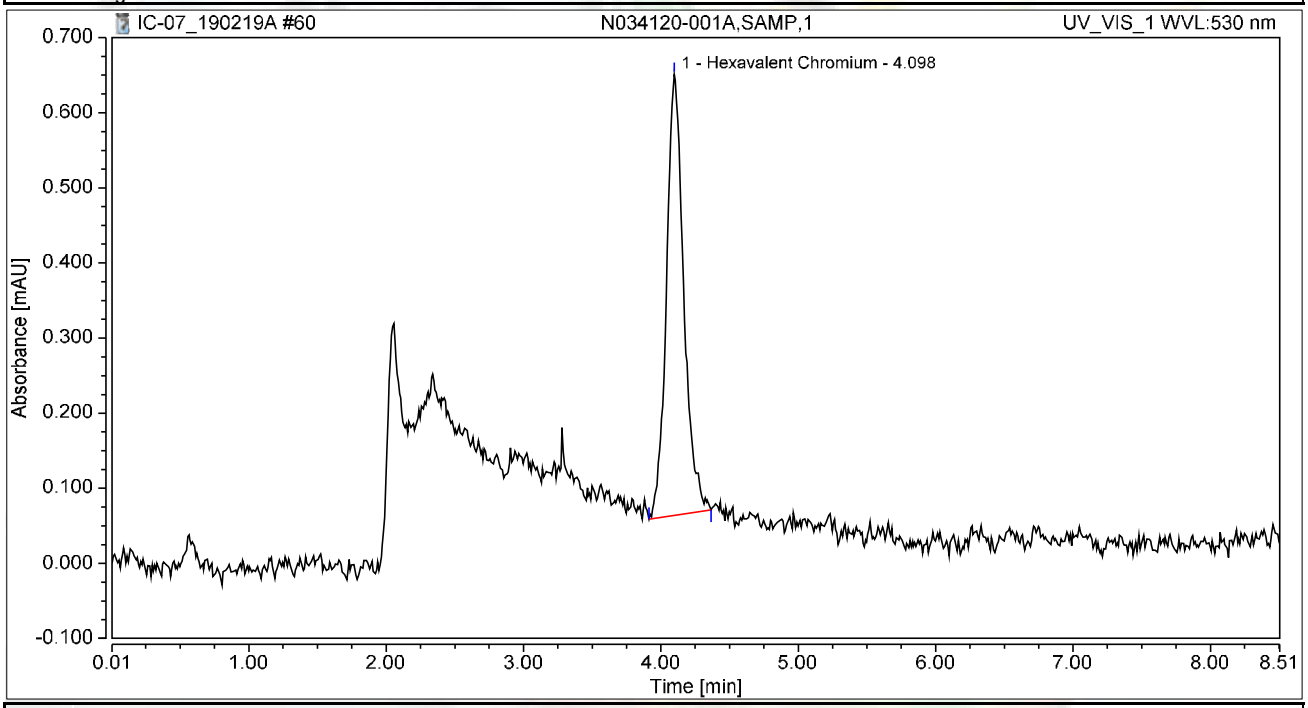
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.292 | 1.950 | 100.00 | 100.00 | 1.0176 |
| **Total:** | | | **0.292** | **1.950** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034120-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 17:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

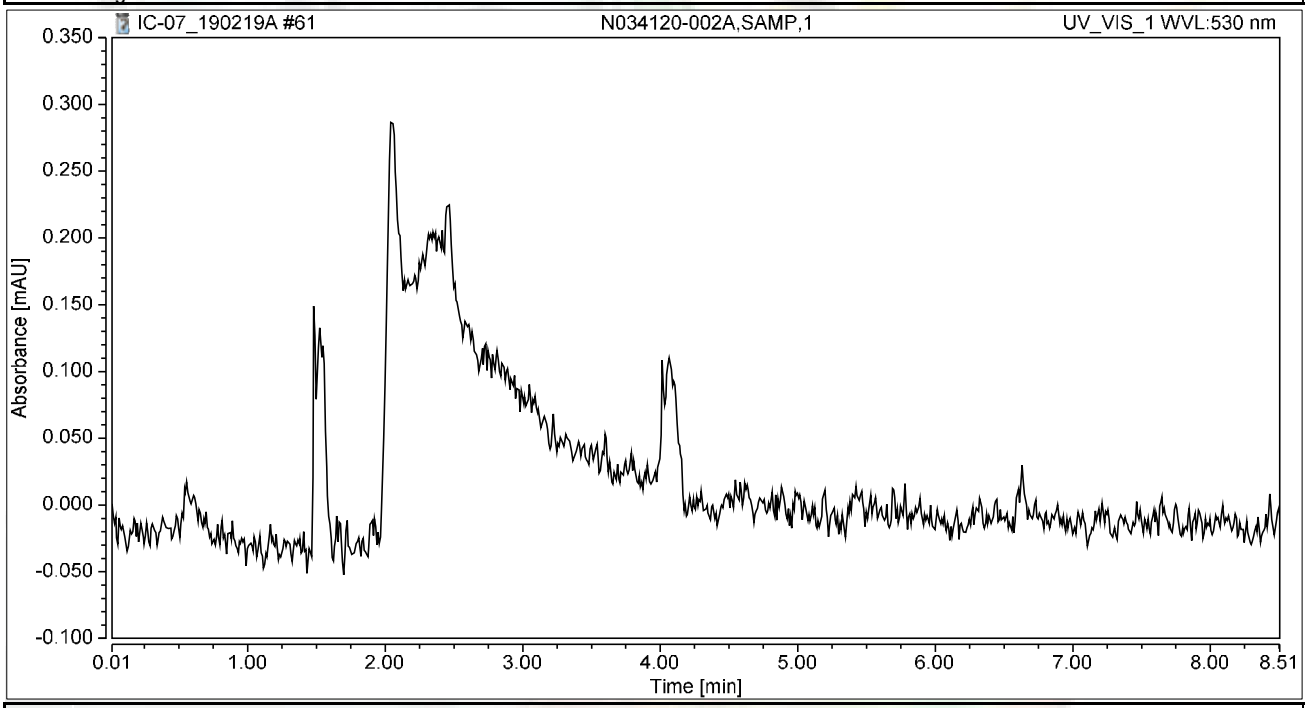
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.086 | 0.587 | 100.00 | 100.00 | 0.2976 |
| **Total:** | | | **0.086** | **0.587** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034120-002A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 17:23** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

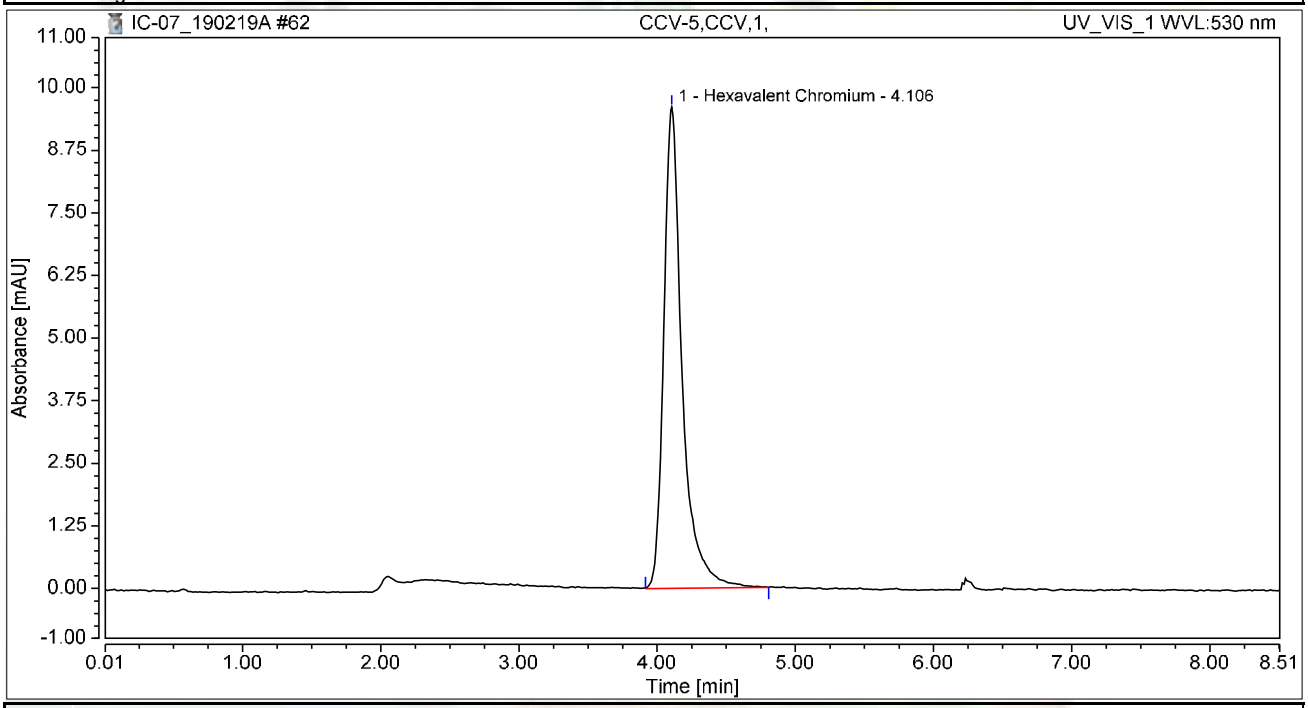
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-5,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 17:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

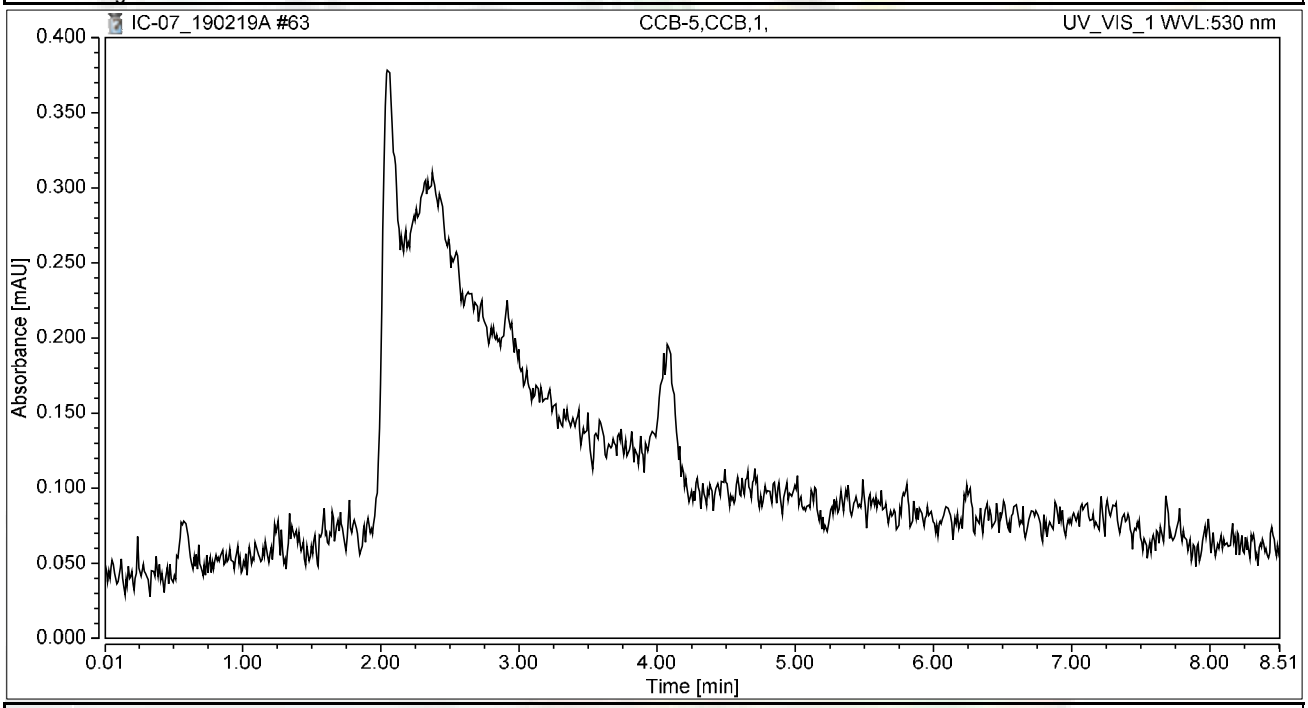
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.479 | 9.610 | 100.00 | 100.00 | 5.1465 |
| **Total:** | | | **1.479** | **9.610** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-5,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 17:42** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

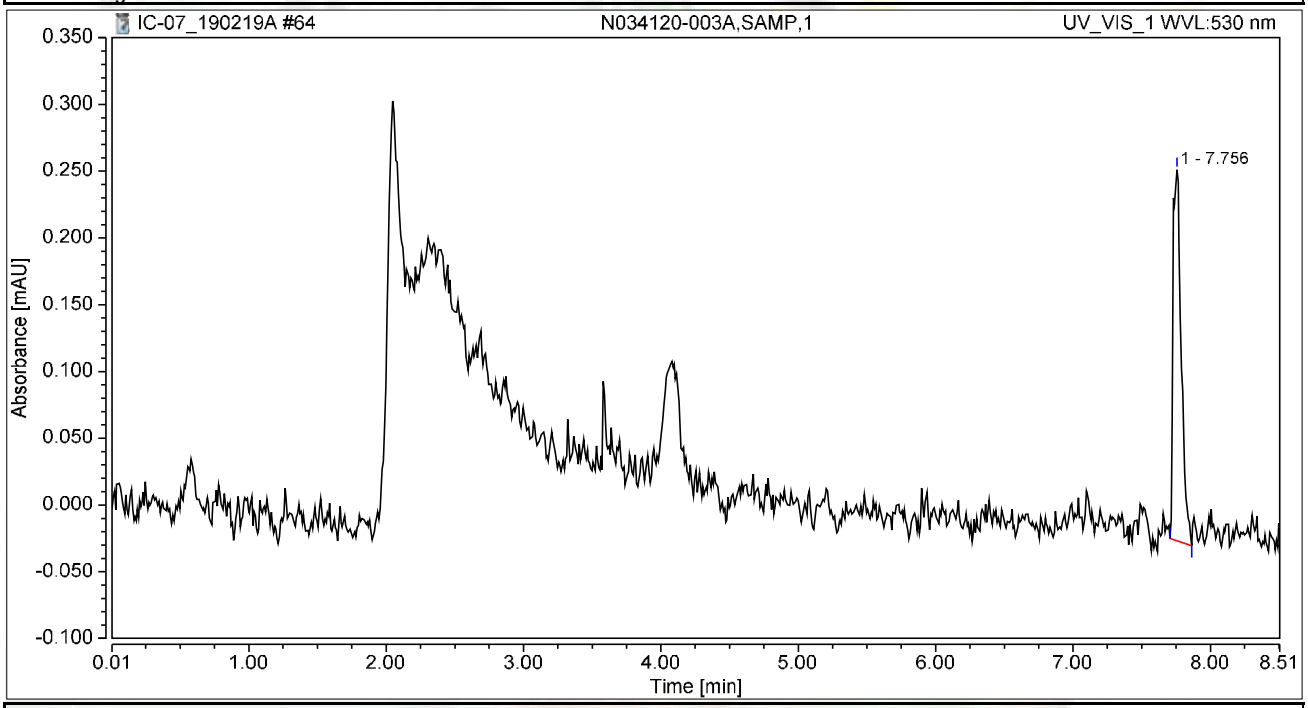
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034120-003A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 17:51** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

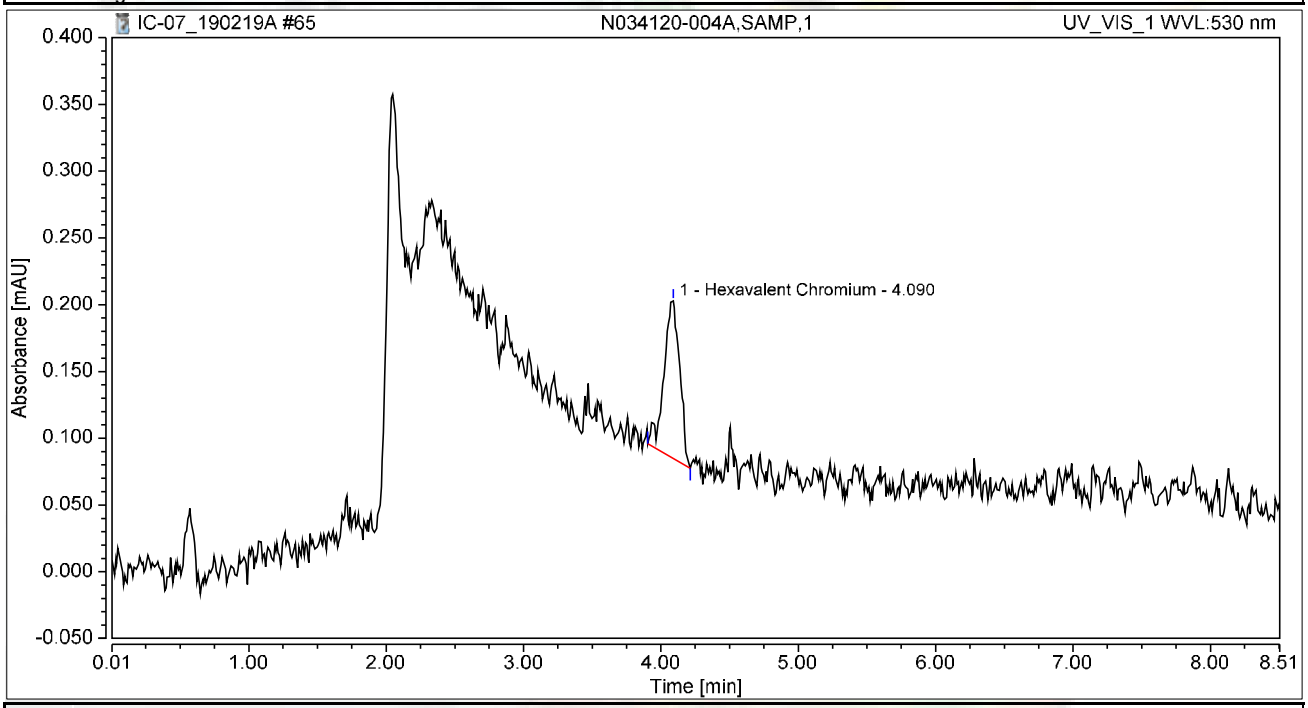
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 1 | | 7.756 | 0.019 | 0.278 | 100.00 | 100.00 | n.a. |
| **Total:** | | | **0.019** | **0.278** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034120-004A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 18:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

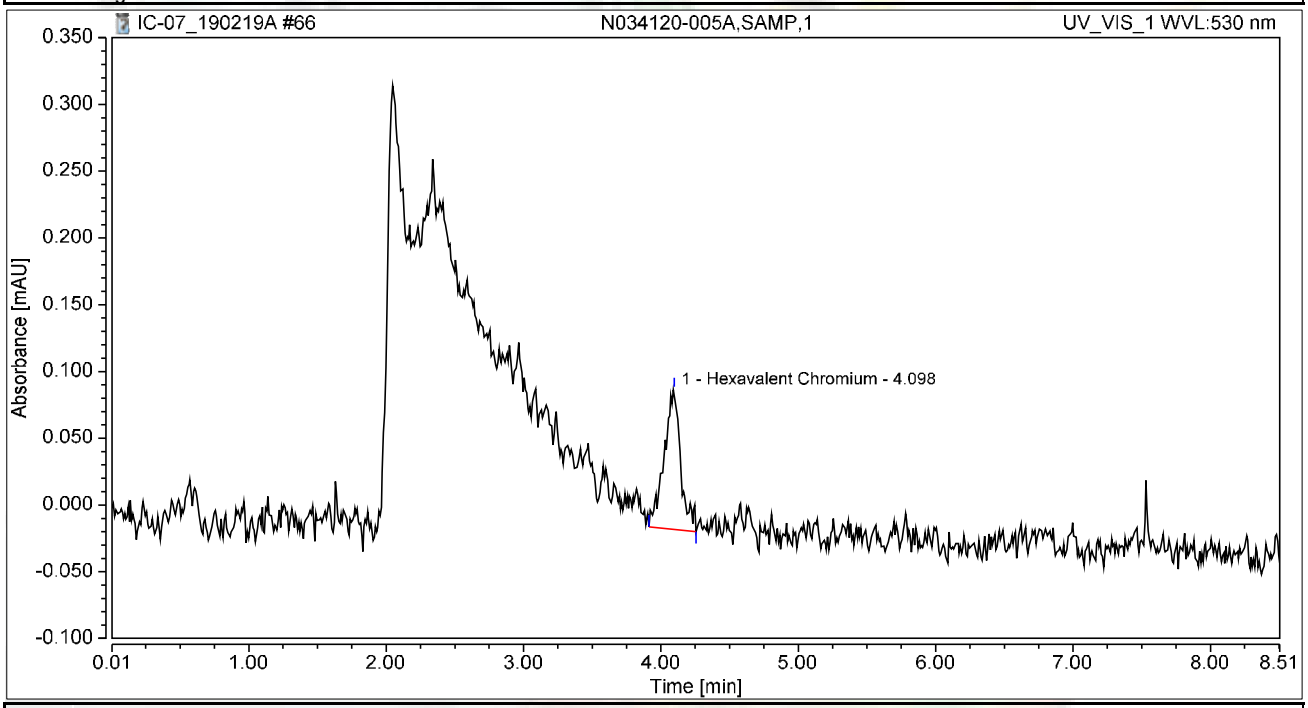
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.016 | 0.118 | 100.00 | 100.00 | 0.0547 |
| **Total:** | | | **0.016** | **0.118** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034120-005A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 18:10** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

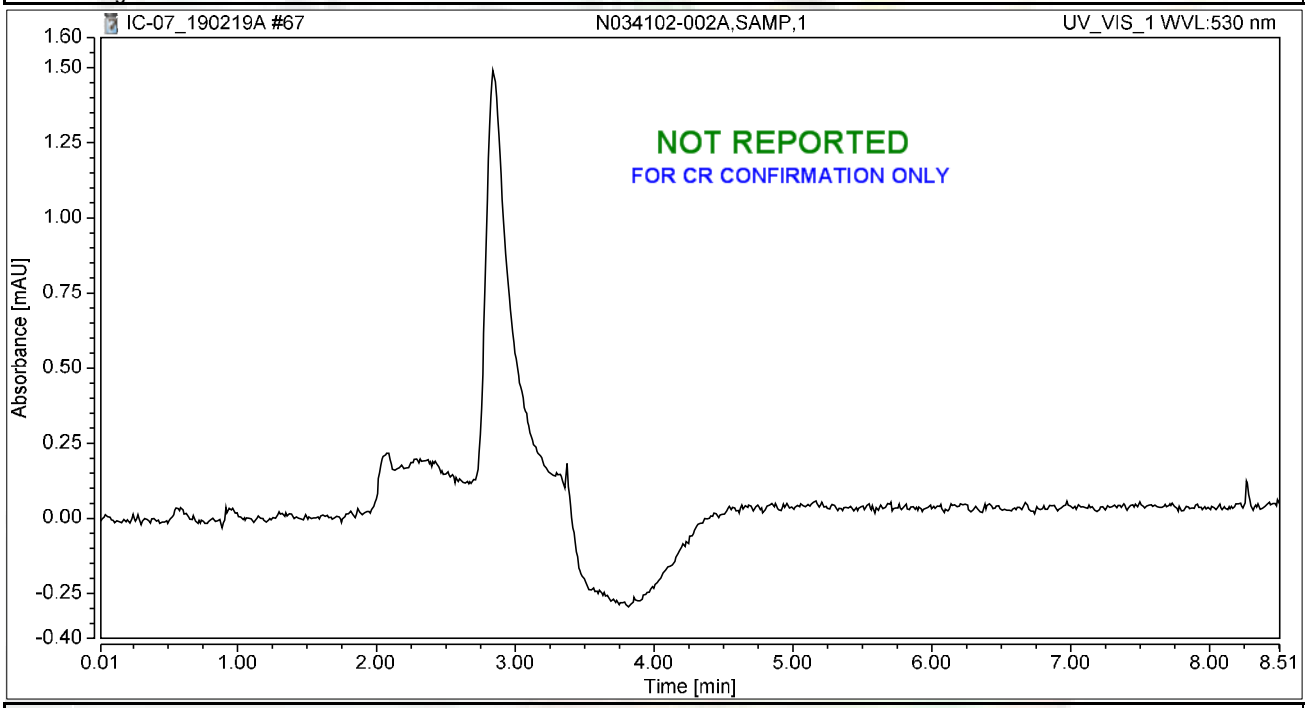
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.015 | 0.105 | 100.00 | 100.00 | 0.0513 |
| **Total:** | | | **0.015** | **0.105** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-002A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 18:19** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

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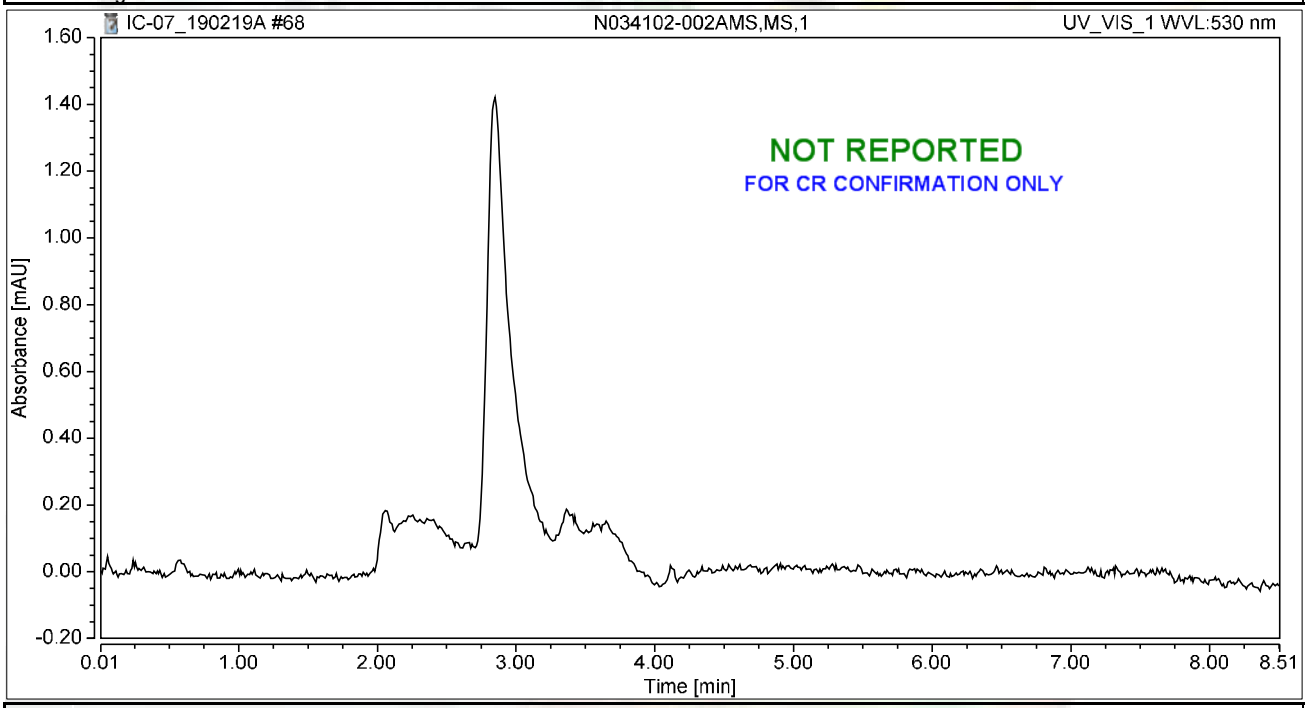
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-002AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 18:29** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

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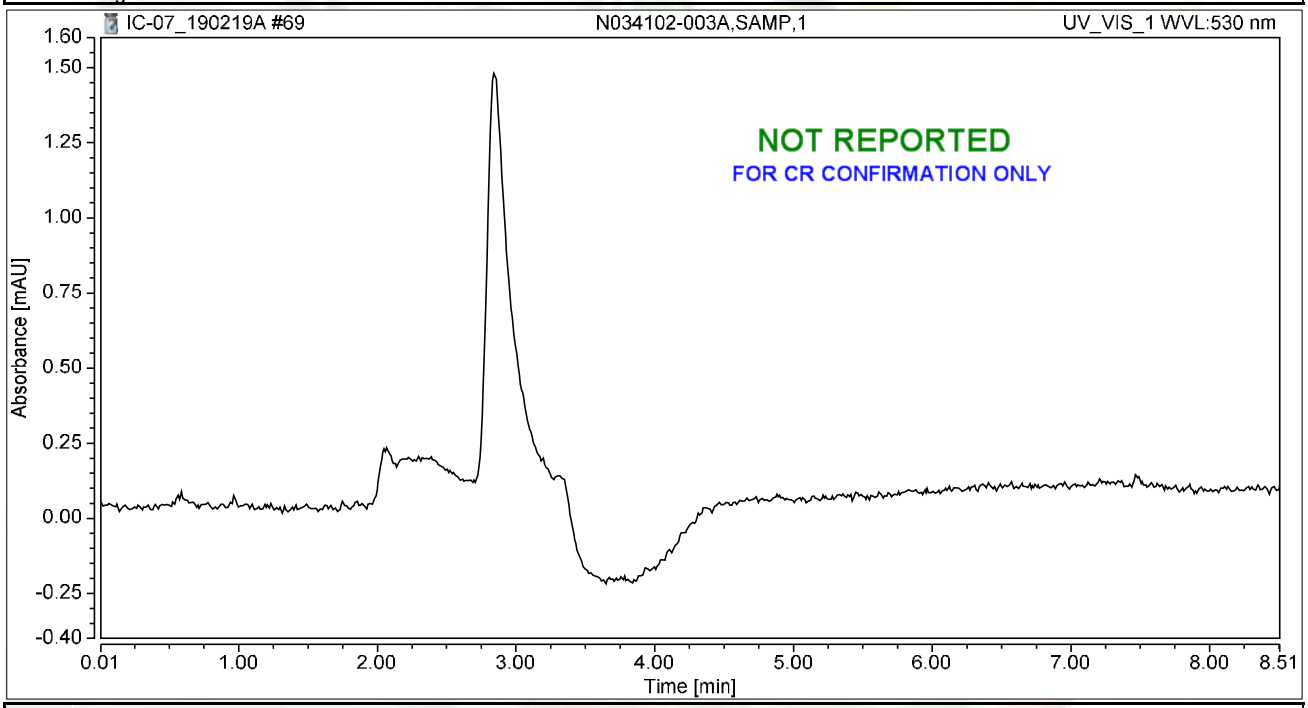
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-003A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 18:38** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

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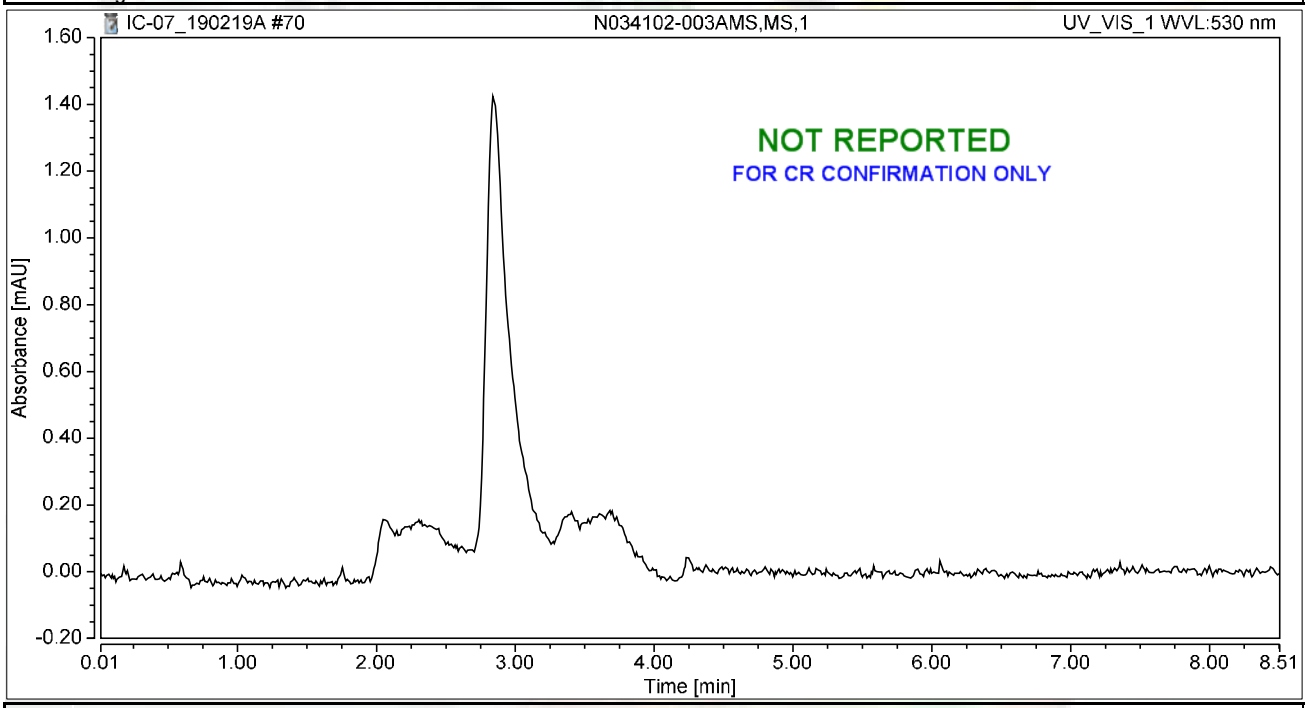
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-003AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 18:48** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

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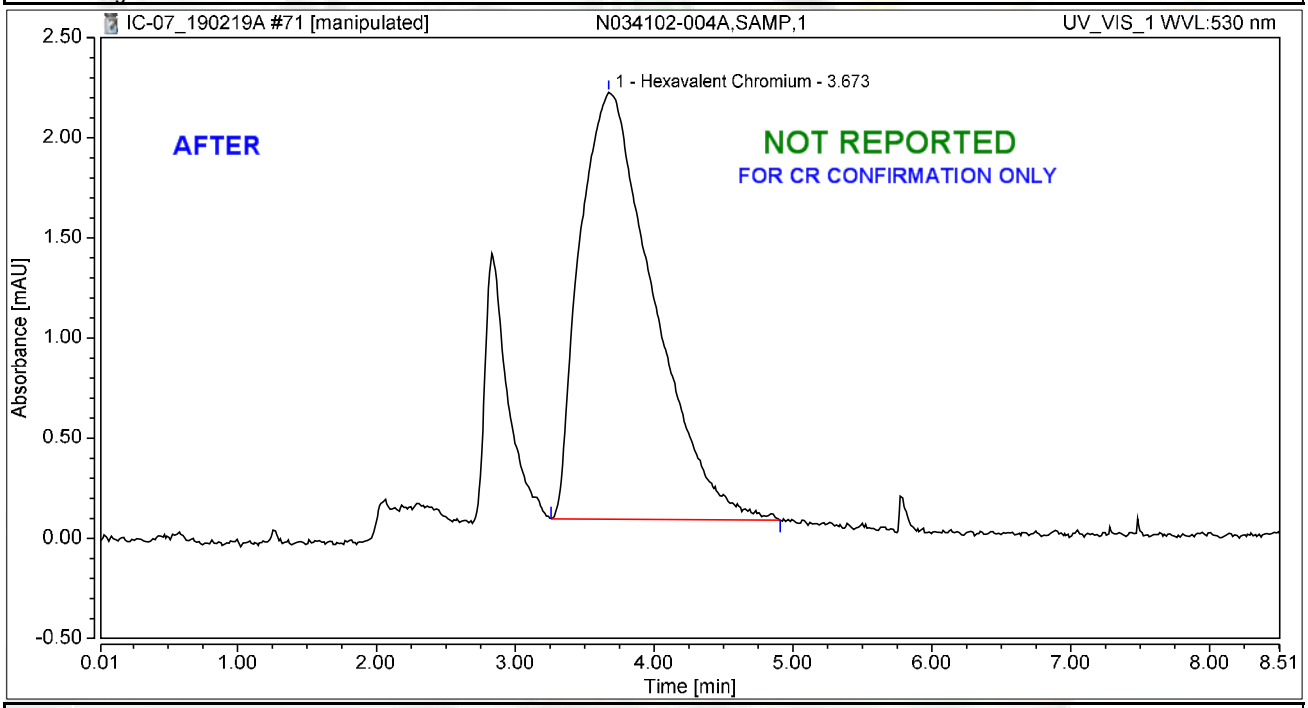
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-004A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 18:57** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.673 | 1.309 | 2.129 | 100.00 | 100.00 | 4.5544 |
| **Total:** | | | **1.309** | **2.129** | **100.00** | **100.00** | |

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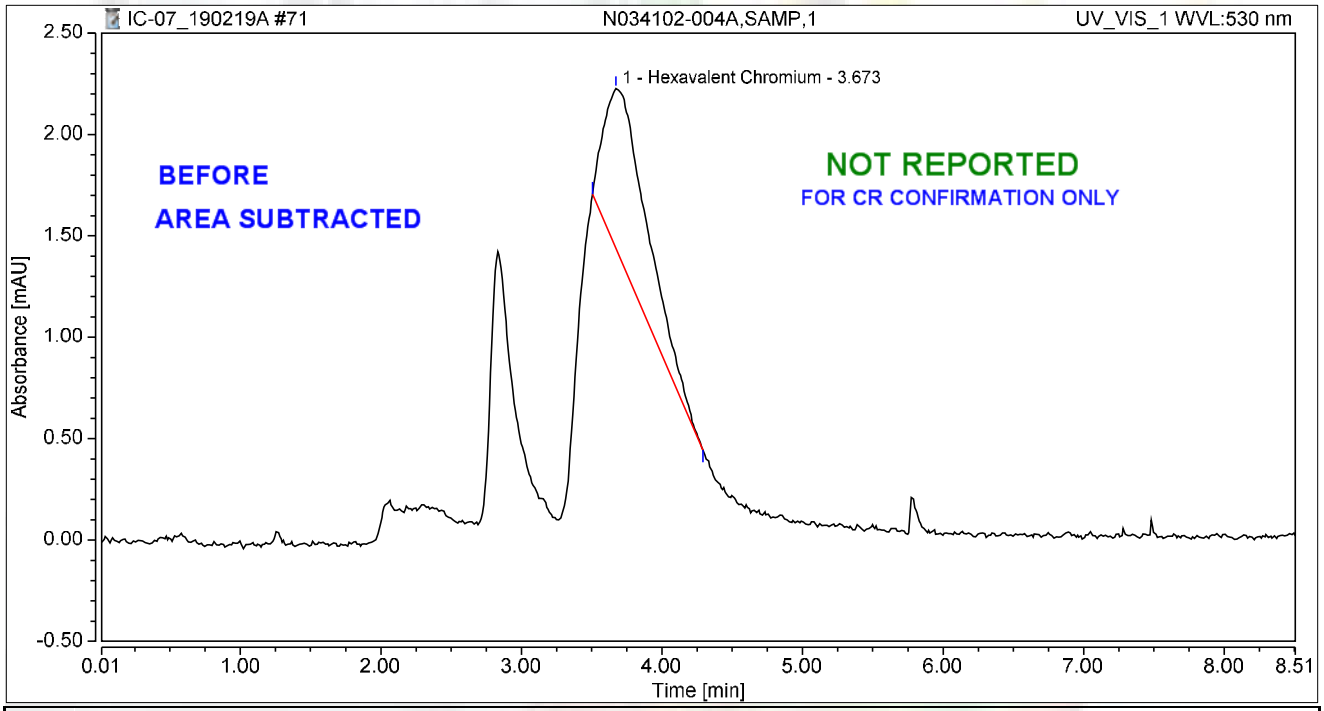
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-004A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 18:57** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.673 | 0.298 | 0.788 | 100.00 | 100.00 | 1.0375 |
| **Total:** | | | **0.298** | **0.788** | **100.00** | **100.00** | |

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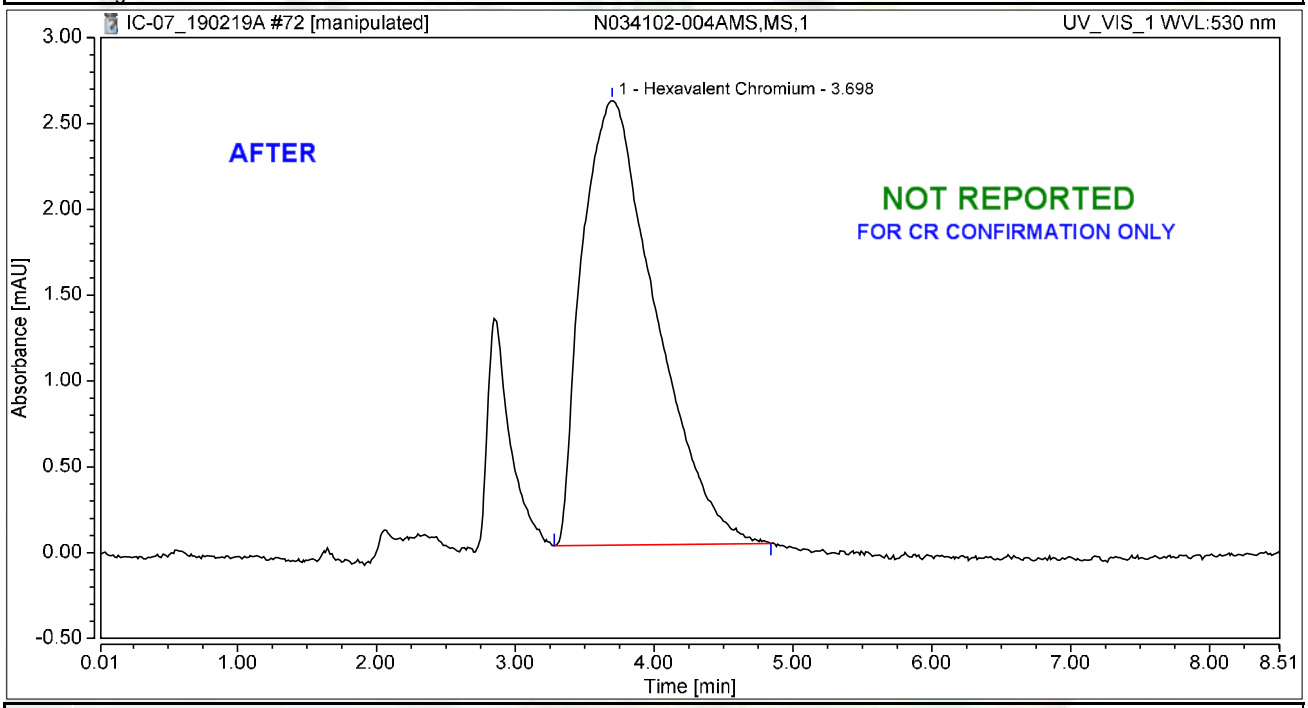
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-004AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 19:07** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.698 | 1.587 | 2.593 | 100.00 | 100.00 | 5.5220 |
| **Total:** | | | **1.587** | **2.593** | **100.00** | **100.00** | |

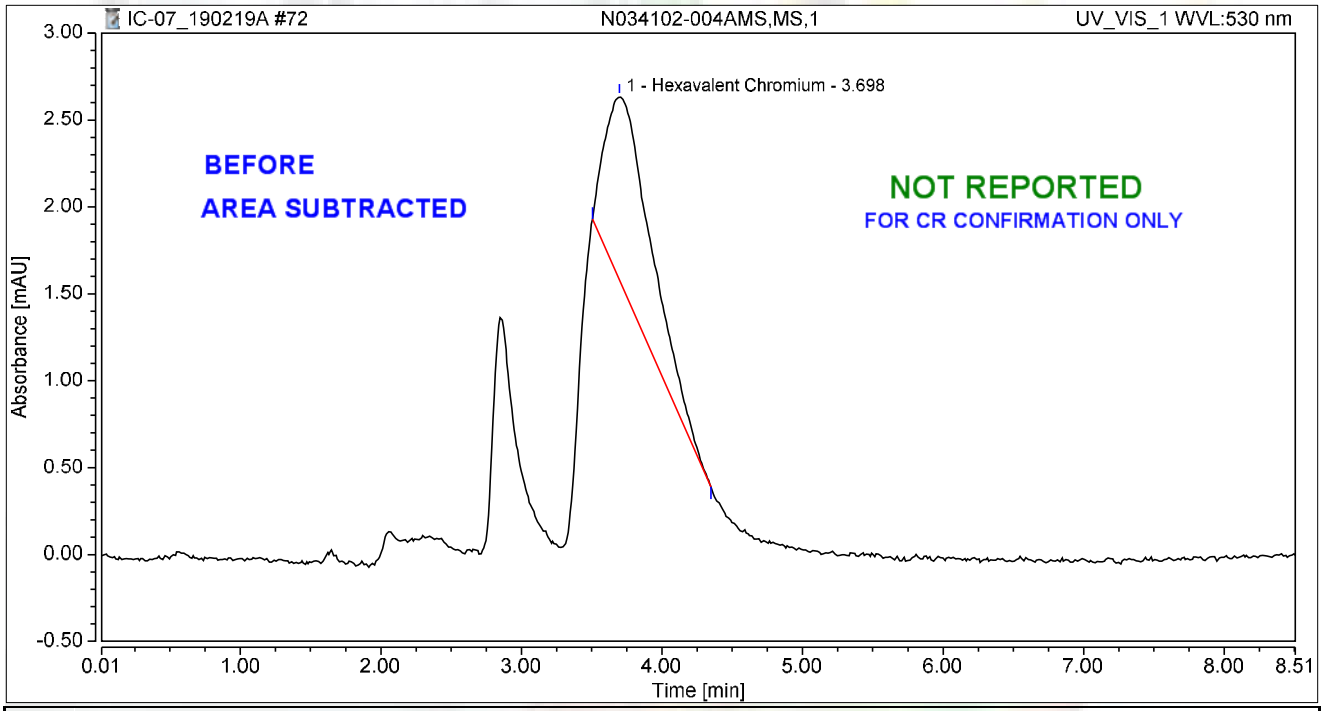
2/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034102-004AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 19:07** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.698 | 0.417 | 1.059 | 100.00 | 100.00 | 1.4511 |
| **Total:** | | | **0.417** | **1.059** | **100.00** | **100.00** | |

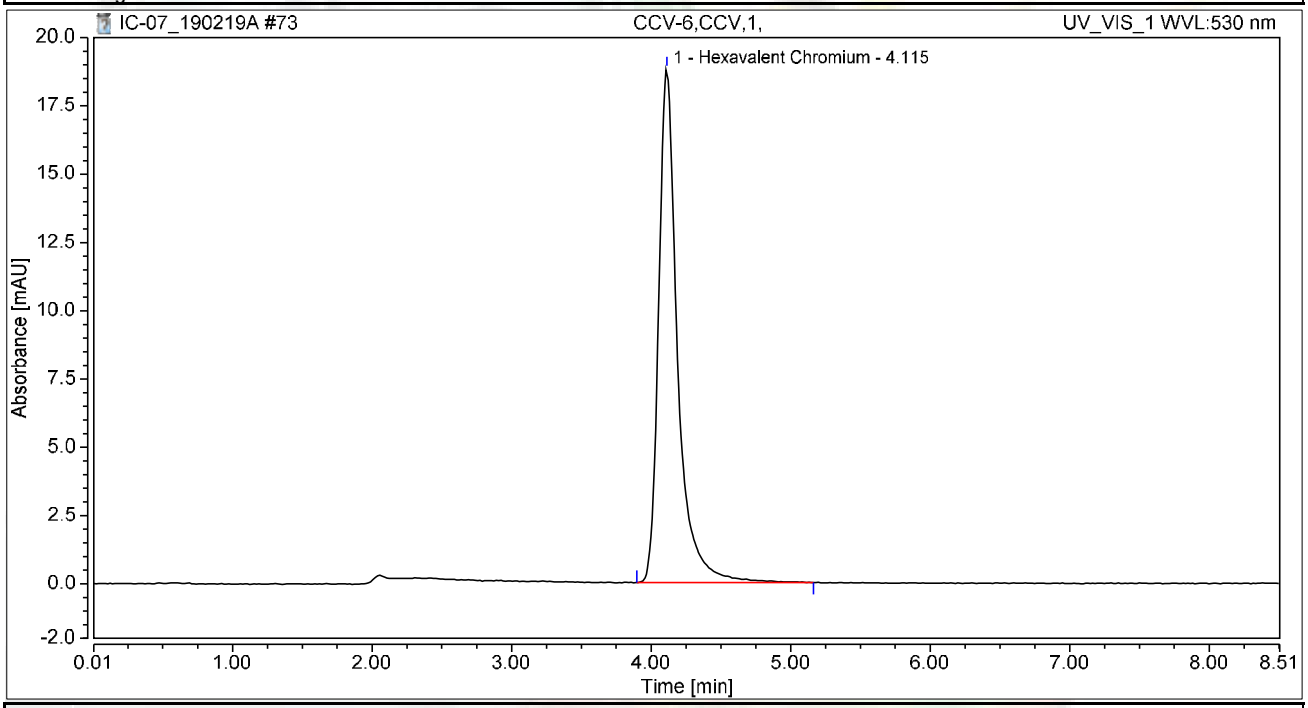
2/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-6,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **20** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 19:16** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

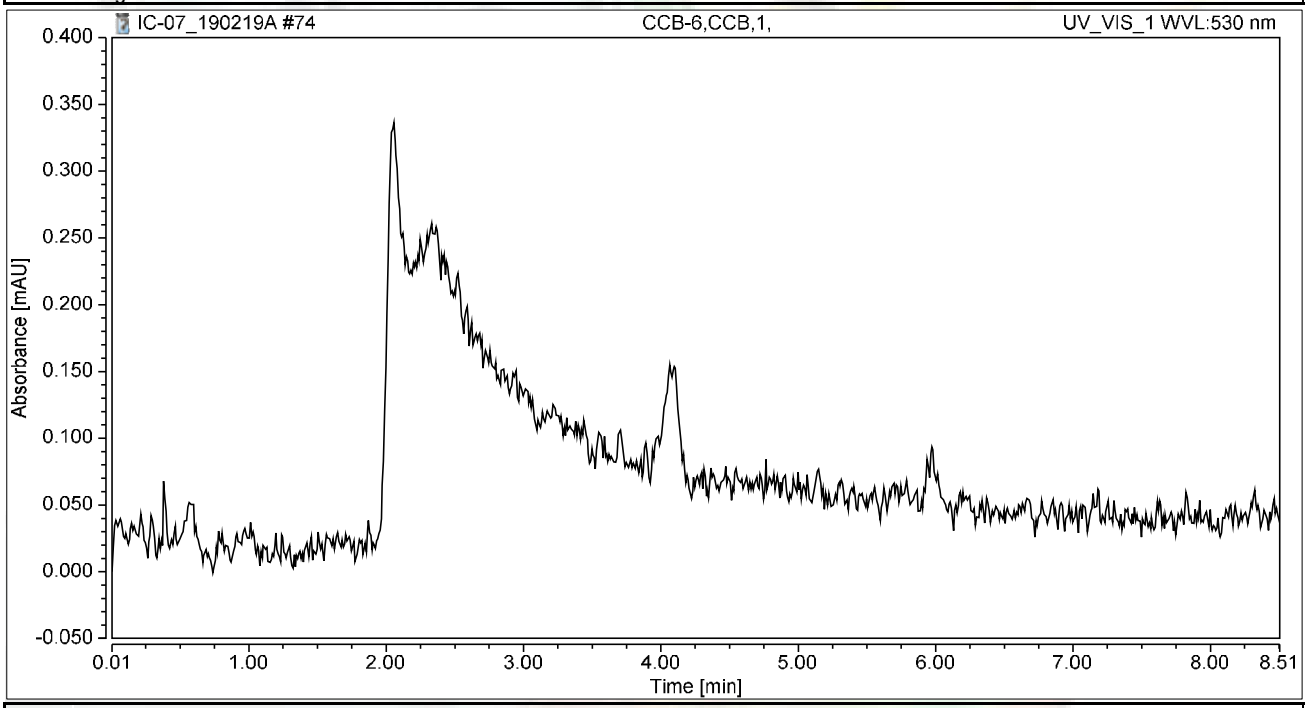
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 2.963 | 18.816 | 100.00 | 100.00 | 10.3106 |
| **Total:** | | | **2.963** | **18.816** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-6,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 19:26** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

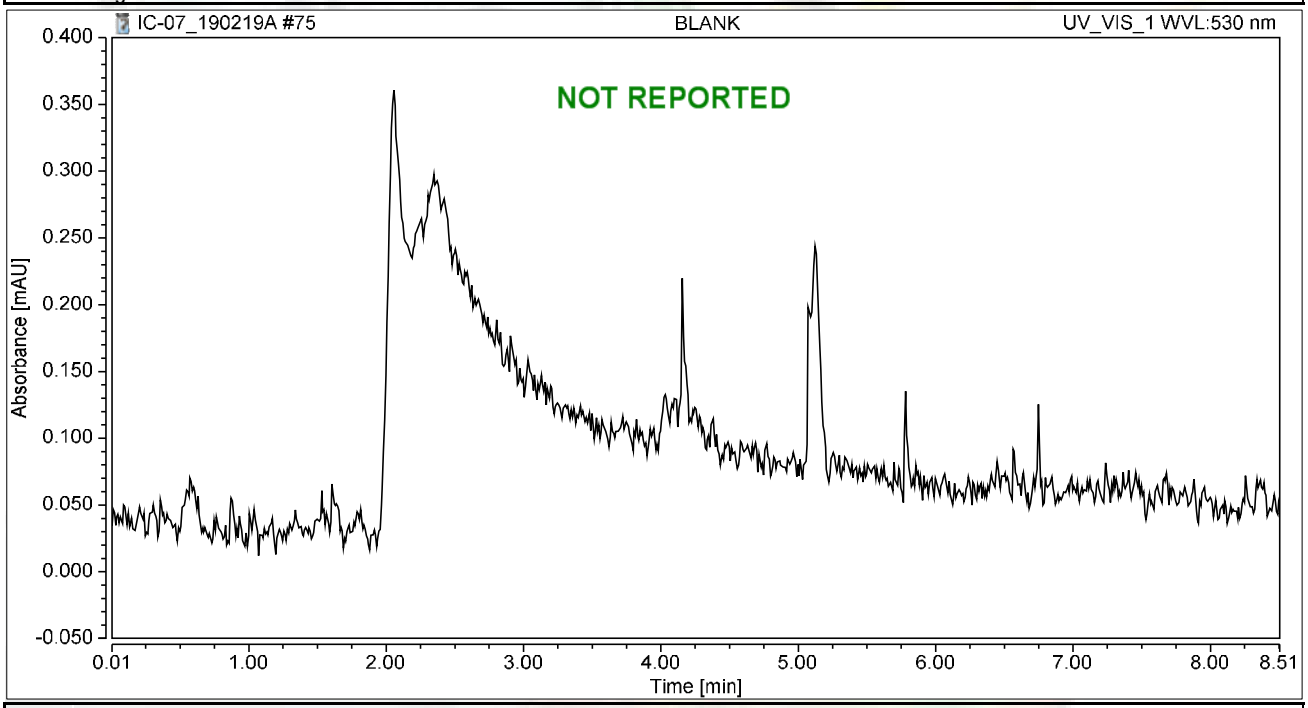
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190204_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Feb/19 19:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# SM 2320B

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R131990 **Analyst:** LSR

**ASSET #:** N034177 **Date Analyzed:** 20-Feb

**Method:** EPA 2320

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | | | |
| 11. LCS compounds within control limits. | X | | | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Alicia Ramit Date: 2/22/2019

2nd Level Reviewer: Mary 2/28/2019 Date:

# SAMPLE CALCULATION

Sample ID: **N034177-001C @ pH 7.56**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A) (B)/ (53.00) (C)

Where:

A, grams weighed for $Na_2CO_3$ solution ($Na_2CO_3$ Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

**$Na_2CO_3$ Standardization Solution**, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of $Na_2CO_3$ in distilled water and dilute to 1 liter.

**LCS/MS/MSD Stock** $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65 g/L) (5mL) / (53.00) (11.45 mL)

= **0.02183 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N $H_2SO_4$ * DF * 1000

Where:

$M_{vol.}$ volume titrant used to reach pH 4.5, ml
N, Normality of $H_2SO_4$
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (9.80) (0.02183 N) (1) * 1000

= 213.9340 mg**/L**

Reporting results in two significant figures,

= 210 as CaCO3

Silvia Ramit 2/22/2019

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N $H_2SO_4$ * DF * 1000

= (0.00) (0.02183 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N $H_2SO_4$ * DF * 1000

= (9.8 mL) (0.02183) (1) * 1000

= 213.9340 **mg/L** as CaCO3

Where:

$P_{vol.}$ - Volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - Volume titrant used to reach pH 4.5, ml
N - Normality of $H_2SO_4$
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, $CO_3$, $HCO_3$ alkalinities as $CaCO_3$ will be calculated as follows:

| **Result of Titration** | **OH Alkalinity as $CaCO_3$** | **$CO_3$ Alkalinity as $CaCO_3$** | **$HCO_3$ Alkalinity as $CaCO_3$** |
|---|---|---|---|
| P = 0 | 0 | 0 | T |
| P < ½ T | 0 | 2P | T – 2P |
| P = ½ T | 0 | 2P | 0 |
| P > ½ T | 2P – T | 2(T – P) | 0 |
| P = T | T | 0 | 0 |

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

$CO_3$ Alkalinity as $CaCO_3$ = **0**

$HCO_3$ Alkalinity as $CaCO_3$ = 213.9340 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

$CO_3$ Alkalinity as $CaCO_3$ = **0**

$HCO_3$ Alkalinity as $CaCO_3$ = **210 mg/L**

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# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

| SAMPLE | PH SAMPLE | AMOUNT | V@8.3 | VT TO 4.5 | Sample Type |
|---|---|---|---|---|---|
| MB-1 | 5.44 | 50 | 0.00 | 0.050 | MBLK |
| LCS-1 | 8.82 | 50 | 0.10 | 4.70 | LCS |
| N034177-001C | 7.56 | 50 | 0.00 | 9.80 | SAMP |
| N034177-002C | 7.45 | 50 | 0.00 | 7.50 | SAMP |
| N034178-008C | 7.60 | 50 | 0.00 | 3.90 | SAMP |
| N034178-009C | 7.70 | 50 | 0.00 | 3.90 | SAMP |
| N034234-001B | 7.87 | 50 | 0.00 | 11.00 | SAMP |
| N034236-002A | 7.34 | 50 | 0.00 | 8.00 | SAMP |
| N034178-008CDUP | 7.61 | 50 | 0.00 | 3.90 | DUP |
| N034178-008CMS | 8.02 | 50 | 0.00 | 8.30 | MS |
| N034178-008CMSD | 8.02 | 50 | 0.00 | 8.40 | MSD |

| **Standardization:** | | |
|---|---|---|
| Spike amt: | **5** | ml |
| Titrant used: | **11.450** | ml |
| | | |
| N H2SO4 | **0.02183** | Normal |
| | | |
| **Date Analyzed:** | **2/20/19** | |
| **Time:** | **5:30 PM** | |
| **Analyzed By:** | **LSR** | |
| | | |
| | | |
| Sodium Carbonate: | **CINV-161205A** | |
| Sodium Bicarbonate: | **CINV-180510A** | |
| Sulfuric Acid: | **R190115C** | |

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| Date Analyzed: | 2/20/19 | | Reagents: | | | | | Standardization: | | | | | P = 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time Started: | 5:30 PM | | | Sodium Carbonate: | | CINV-161205A | | | Spike amt: | 5 | mL | | P < 1/2 T |
| Analyzed By: | LSR | | | Hydrochloric Acid: | | 0 | | | Titrant used: | 11.45 | mL | | P = 1/2 T |
| | | | | Sulfuric Acid: | | R190115C | | | | | | | P > 1/2 T |
| | | | | | | | | | N H2SO4 | 0.02183 | N | | P = T |

| Sample ID | Sample Vol/Wt. | Sample pH | Std. Code | Spike Amount | Spike Conc. | Normality, Titrant | Vol. Used to pH 8.3, ml. | Vol. Used pH 8.3 to 4.5, ml. | Total Vol. Used, ml. | DF (50ml/Vsamp.) | P Alkalinity | T Alkalinity | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-1 | 50 | 5.44 | | | | 0.02183 | 0.00 | 0.05 | 0.05 | 1 | 0.00 | 1.09 | |
| LCS-1 | 50 | 8.82 | | | | 0.02183 | 0.10 | 4.60 | 4.70 | 1 | 2.18 | 102.62 | |
| N034177-001C | 50 | 7.56 | | | | 0.02183 | 0.00 | 9.80 | 9.80 | 1 | 0.00 | 213.97 | |
| N034177-002C | 50 | 7.45 | | | | 0.02183 | 0.00 | 7.50 | 7.50 | 1 | 0.00 | 163.76 | |
| N034178-008C | 50 | 7.6 | | | | 0.02183 | 0.00 | 3.90 | 3.90 | 1 | 0.00 | 85.15 | |
| N034178-009C | 50 | 7.7 | | | | 0.02183 | 0.00 | 3.90 | 3.90 | 1 | 0.00 | 85.15 | |
| N034234-001B | 50 | 7.87 | | | | 0.02183 | 0.00 | 11.00 | 11.00 | 1 | 0.00 | 240.17 | |
| N034236-002A | 50 | 7.34 | | | | 0.02183 | 0.00 | 8.00 | 8.00 | 1 | 0.00 | 174.67 | |
| N034178-008CDU | 50 | 7.61 | | | | 0.02183 | 0.00 | 3.90 | 3.90 | 1 | 0.00 | 85.15 | |
| N034178-008CMS | 50 | 8.02 | | | | 0.02183 | 0.00 | 8.30 | 8.30 | 1 | 0.00 | 181.22 | |
| N034178-008CMS | 50 | 8.02 | | | | 0.02183 | 0.00 | 8.40 | 8.40 | 1 | 0.00 | 183.41 | |

Silvia Ramit 2/22/2019

## Speciated, Alkalinity as CaCO3

**SM 2320B**

| | |
|---|---|
| **Date Analyzed:** | 2/20/19 |
| **Time:** | 5:30 PM |
| **Analyzed By:** | LSR |

| SAMPLE ID | OH | CO3 | HCO3 | TOTAL | CHECK | COMMENT | REMARKS |
|---|---|---|---|---|---|---|---|
| MB-1 | 0.00 | 0.00 | 1.09 | 1.09 | 1.09 | | P = 0 |
| LCS-1 | 0.00 | 4.37 | 98.25 | 102.62 | 102.62 | | P < 1/2 T |
| N034177-001C | 0.00 | 0.00 | 213.97 | 213.97 | 213.97 | | P = 0 |
| N034177-002C | 0.00 | 0.00 | 163.76 | 163.76 | 163.76 | | P = 0 |
| N034178-008C | 0.00 | 0.00 | 85.15 | 85.15 | 85.15 | | P = 0 |
| N034178-009C | 0.00 | 0.00 | 85.15 | 85.15 | 85.15 | | P = 0 |
| N034234-001B | 0.00 | 0.00 | 240.17 | 240.17 | 240.17 | | P = 0 |
| N034236-002A | 0.00 | 0.00 | 174.67 | 174.67 | 174.67 | | P = 0 |
| N034178-008CDUP | 0.00 | 0.00 | 85.15 | 85.15 | 85.15 | | P = 0 |
| N034178-008CMS | 0.00 | 0.00 | 181.22 | 181.22 | 181.22 | | P = 0 |
| N034178-008CMSD | 0.00 | 0.00 | 183.41 | 183.41 | 183.41 | | P = 0 |

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# Alkalinity Preparation and Runlog

**Matrix:** $H_2O$

Date Extracted: 2/20/19
Time Extracted: 2/20/19
Extracted By: LSR

Date Analyzed: 2/20/19
Time Analyzed: 1730
Analyzed By: LSR

Reagent Lot # / Reagent ID
Sodium Carbonate: CMV 161205A
Hydrochloric Acid: -
Sulfuric Acid: R190115C
Sodium Bicarbonate: CMV 180510A

pH meter Calibration:
SLOPE: 96.2%
~~CMV~~ pH 7 - 6.97 CMV190107A
4 - 4.03 B
10 - 10.02 CMV190111G

| | Sample ID. | Sample Wt./Vol. | Sample pH | Std Code | Spike Amt Added | Spike Conc. | Norm. Titrant | Vol. At pH = 8.3 | Vol. At pH = 4.5 | Dilution (F/I) | Calculations | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | STANDARDIZATION | | | | | | | | | | | |
| | #1 | 50mL | 10.97 | TWST190214A | 5mL | 0.05N | - | - | 11.50 | 50/50 | N $H_2SO_4$ = (2.65g/L)(5mL) | =0.02173913 |
| | #2 | | 10.92 | | | | - | - | 11.40 | | (53)(V titrant) | -0.021929824 |
| 1) | MBLK | 50mL | 5.44 | - | - | - | ~~0.02183~~ | 0 | 0.05 | 50/50 | | Ave. 0.021834477 |
| 2) | LCS | | 8.82 | INST190214B | 1mL | 0.05N | 0.02183 | 0.10 | 4.70 | | | |
| 3) | N034177-1C | | 7.56 | | | | | 0 | 9.80 | | | |
| 4) | 2C | | 7.45 | | | | | 0 | 7.50 | | | |
| 5) | N034178-8C | | 7.60 | | | | | 0 | 3.90 | | | |
| 6) | 9C | | 7.70 | | | | | 0 | 3.90 | | | |
| 7) | N034234-1B | | 7.87 | | | | | 0 | 11.0 | | | |
| 8) | N034236-2A | | 7.34 | | | | | 0 | 8.0 | | | |
| 9) | N034178-8C DUP | | 7.61 | | | | | 0 | 3.90 | | | |
| 10) | 8C MS | | 8.02 | INST190214B | 1mL | 0.05N | | 0 | 8.30 | | | |
| 11) | 8C MSD | | 8.02 | | | | | | 8.40 | | | |
| 12) | | | | | | | | | | | | |
| 13) | | | | | | | | | | | | |
| 14) | | | | | | | | | | | | |
| 15) | | | | | | | | | | | | |
| 16) | | | | | | | | | | | | |
| 17) | | | | | | | | | | | | |
| 18) | | | | | | | | | | | | |
| 19) | | | | | | | | | | | | |
| 20) | | | | | | | | | | | | |
| | MS | | | | | | | | | | | |
| | MSD | | | | | | | | | | | |
| | LCS | | | | | | | | | | | |

$$P = \frac{(V\ pH\ 8.3)(N\ H_2SO_4)(50{,}000)}{V_{sx}}$$

$$T = \frac{(V\ pH\ 4.5)(N\ H_2SO_4)(50{,}000)}{V_{sx}}$$

Julia Ramit 2/22/2019

# EPA 300.0

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R131955
**ASSET #:** N034177 / N034178 / N034107 N034183

**Instrument ID:** IC-08
**Analyst:** HSG
**Date Analyzed:** 2/18/2019

**Method:**

[X] EPA 300.0
[ ] EPA 7199
[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | x | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | x | | |
| 3. ICV within ± 10% of expected value. | X | | | x | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | x | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | x | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | x | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | | | X | | | x |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | x | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | | | X | | | x |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | x | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | | | X | | | x |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | x |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | | | X | | | x |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | x |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | x |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | x |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | x |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | | | X | | | x |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | x |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | x | | |
| 21. Are all samples analyzed within hold time? | X | | | x | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | x |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | x | | |
| 24. LCS compounds are within control limits. | X | | | x | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | x | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | x |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | x | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | x |
| 29. All manual integrations initialed, date and reasons included. | X | | | x | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | x | | |
| 31. All samples and QC raw data present in package. | X | | | x | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | x | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | x | | |
| 34 Is the QC summary report present and complete? | X | | | x | | |

Comments:

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer HSG Date: 3/1/2019

2nd Level Reviewer 3/1/2019 Date: _____

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R131992
**ASSET #:** N034107 / ~~N034178~~ / N034183 / N034177

**Instrument ID:** IC-08
**Analyst:** HSG
**Date Analyzed:** 2/20/2019

**Method:**

[X] EPA 300.0
[ ] EPA 7199
[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | x | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | x | | |
| 3. ICV within ± 10% of expected value. | X | | | x | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | x | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | x | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | x | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | | | X | | | x |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | | X | | | x | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | | | X | | | x |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | x | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | | | X | | | x |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | x |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | | | X | | | x |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | x |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | x |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | x |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | x |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | | | X | | | x |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | x |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | x | | |
| 21. Are all samples analyzed within hold time? | X | | | x | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | x |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | | X | | | x | |
| 24. LCS compounds are within control limits. | X | | | x | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | x | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | x |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | x | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | x |
| 29. All manual integrations initialed, date and reasons included. | X | | | x | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | x | | |
| 31. All samples and QC raw data present in package. | X | | | x | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | x | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | x | | |
| 34 Is the QC summary report present and complete? | X | | | x | | |

Comments:

Detection of Sulfate in MB and CCB-5 are >1/2 PQL criteria.However, N034107, N034178, N034183, N034177 samples affected are >5X the CCB detection. Thus, samples are reported.

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer HSG Date: 3/1/2019

2nd Level Reviewer 3/1/2019 Date: _____

# SAMPLE CALCULATION

# Sample Calculation

**METHOD:** EPA 300
**TEST NAME:** INORGANIC ANIONS BY IC
**MATRIX:** GROUNDWATER

FORMULA:

Calculate the Sulfate concentration, in mg/L, in the orignal sample as follows:

Sulfate, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N034177-001C** concentration in mg/L is calculated as follows:

Sulfate, mg/L = 5.2586 * 50

= 262.93

Reporting result in two significant values,

**Sulfate, mg/L = 260**

NS 3/1/2019

# ANALYSIS RUN LOG

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 79
Created: 2/15/2019 9:47:09 AM by IC-05
Last Update: 2/16/2019 9:41:29 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 1 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 2 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 3 | Std - 0 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 4 | Std - 1 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 5 | Std - 2 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 6 | Std - 3 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 7 | Std - 4 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 8 | Std - 5 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 9 | BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 10 | ICV,ICV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 11 | ICB,ICB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 12 | ICB,ICB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 13 | MB-H2O,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 14 | LCS-H2O,LCS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 15 | N034182-002C,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 16 | N034182-003A,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 17 | N034182-004C,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 18 | N034182-007C,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 19 | N034182-011C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 20 | N034182-012C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 21 | N034182-004C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 22 | N034182-012C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 23 | CCV-1,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 24 | CCB-1,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 25 | N034183-001C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 26 | N034183-0013C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 27 | N034183-0013CMS,MS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 28 | N034183-0014C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 29 | N034183-0014CDUP,DUP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 30 | N034182-011CMS,MS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 31 | N034182-011CMSD,MSD,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 32 | N034183-012C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 33 | N034183-012CMS,MS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 34 | N034183-002A,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 35 | CCV-2,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 36 | CCB-2,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 37 | N034183-008C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 38 | N034183-009C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 39 | N034183-010C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 40 | BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 41 | MB-H2O,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 79
Created: 2/15/2019 9:47:09 AM by IC-05
Last Update: 2/16/2019 9:41:29 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 1 | BLANK,BLANK | 2/15/2019 9:48:20 AM | BLANK |
| 2 | BLANK,BLANK | 2/15/2019 10:03:08 AM | BLANK |
| 3 | Std - 0 | 2/15/2019 10:22:51 AM | BLANK |
| 4 | Std - 1 | 2/15/2019 10:37:39 AM | STD-LOW |
| 5 | Std - 2 | 2/15/2019 10:52:27 AM | STD |
| 6 | Std - 3 | 2/15/2019 11:07:14 AM | STD |
| 7 | Std - 4 | 2/15/2019 11:22:02 AM | STD |
| 8 | Std - 5 | 2/15/2019 11:36:50 AM | STD-HIGH |
| 9 | BLANK | 2/15/2019 11:51:38 AM | BLANK |
| 10 | ICV,ICV,1 | 2/15/2019 12:20:20 PM | ICV |
| 11 | ICB,ICB,1 | 2/15/2019 12:35:08 PM | ICB |
| 12 | ICB,ICB,1 | 2/15/2019 12:55:56 PM | ICB |
| 13 | MB-H2O,MBLK,1 | 2/15/2019 1:20:05 PM | METHOD BLANK |
| 14 | LCS-H2O,LCS,1 | 2/15/2019 1:34:53 PM | LCS |
| 15 | N034182-002C,SAMP,2 | 2/15/2019 1:52:21 PM | SAMP,10mL |
| 16 | N034182-003A,SAMP,5 | 2/15/2019 2:07:09 PM | SAMP,10mL |
| 17 | N034182-004C,SAMP,2 | 2/15/2019 2:21:57 PM | SAMP,10mL |
| 18 | N034182-007C,SAMP,2 | 2/15/2019 2:36:45 PM | SAMP,10mL |
| 19 | N034182-011C,SAMP,1 | 2/15/2019 2:51:32 PM | SAMP,10mL |
| 20 | N034182-012C,SAMP,1 | 2/15/2019 3:06:20 PM | SAMP,10mL |
| 21 | N034182-004C,SAMP,5 | 2/15/2019 3:21:08 PM | SAMP,10mL |
| 22 | N034182-012C,SAMP,5 | 2/15/2019 3:35:56 PM | SAMP,10mL |
| 23 | CCV-1,CCV,1 | 2/15/2019 3:50:44 PM | CCV |
| 24 | CCB-1,CCB,1 | 2/15/2019 4:05:32 PM | CCB |
| 25 | N034183-001C,SAMP,1 | 2/15/2019 4:29:25 PM | SAMP,10mL |
| 26 | N034183-0013C,SAMP,1 | 2/15/2019 4:44:13 PM | SAMP,10mL |
| 27 | N034183-0013CMS,MS,1 | 2/15/2019 4:59:00 PM | SAMP,10mL |
| 28 | N034183-0014C,SAMP,1 | 2/15/2019 5:13:48 PM | SAMP,10mL |
| 29 | N034183-0014CDUP,DUP,1 | 2/15/2019 5:28:36 PM | SAMP,10mL |
| 30 | N034182-011CMS,MS,1 | 2/15/2019 5:43:24 PM | SAMP,10mL |
| 31 | N034182-011CMSD,MSD,1 | 2/15/2019 5:58:11 PM | SAMP,10mL |
| 32 | N034183-012C,SAMP,1 | 2/15/2019 6:12:59 PM | SAMP,10mL |
| 33 | N034183-012CMS,MS,1 | 2/15/2019 6:27:47 PM | SAMP,10mL |
| 34 | N034183-002A,SAMP,1 | 2/15/2019 6:46:04 PM | SAMP,10mL |
| 35 | CCV-2,CCV,1 | 2/15/2019 7:00:53 PM | CCV |
| 36 | CCB-2,CCB,1 | 2/15/2019 7:15:40 PM | CCB |
| 37 | N034183-008C,SAMP,1 | 2/15/2019 7:30:28 PM | SAMP,10mL |
| 38 | N034183-009C,SAMP,1 | 2/15/2019 7:45:16 PM | SAMP,10mL |
| 39 | N034183-010C,SAMP,1 | 2/15/2019 8:00:04 PM | SAMP,10mL |
| 40 | BLANK | 2/15/2019 8:14:52 PM | BLANK |
| 41 | MB-H2O,MBLK,1 | 2/15/2019 8:29:40 PM | METHOD BLANK |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 79
Created: 2/15/2019 9:47:09 AM by IC-05
Last Update: 2/16/2019 9:41:29 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 42 | LCS-H2O,LCS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 43 | N034179-003B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 44 | N034179-003BDUP,DUP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 45 | N034183-007C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 46 | N034183-007CMS,MS,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 47 | CCV-3,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 48 | CCB-3,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 49 | N034182-013C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 50 | N034182-013CMS,MS,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 51 | N034182-013CMSD,MSD,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 52 | N034179-001B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 53 | N034179-002B,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 54 | N034179-004B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 55 | N034179-005B,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 56 | N034179-006B,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 57 | N034183-003C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 58 | N034183-0020C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 59 | CCV-4,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 60 | CCB-4,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 61 | N034183-004C,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 62 | N034183-005C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 63 | N034183-006C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 64 | N034183-011C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 65 | N034182-001C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 66 | N034182-005,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 67 | N034182-006C,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 68 | N034182-009C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 69 | N034182-010C,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 70 | N034179-005B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 71 | CCV-5,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 72 | CCB-5,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 73 | N034182-008C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 74 | N034182-008C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 75 | N034182-006C,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 76 | N034183-011C,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 77 | N034183-004C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 78 | CCV-6,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 79 | CCB-6,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 79
Created: 2/15/2019 9:47:09 AM by IC-05
Last Update: 2/16/2019 9:41:29 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 42 | LCS-H2O,LCS,1 | 2/15/2019 8:44:27 PM | LCS |
| 43 | N034179-003B,SAMP,1 | 2/15/2019 8:59:15 PM | SAMP,10mL |
| 44 | N034179-003BDUP,DUP,1 | 2/15/2019 9:14:03 PM | SAMP,10mL |
| 45 | N034183-007C,SAMP,5 | 2/15/2019 9:28:51 PM | SAMP,10mL |
| 46 | N034183-007CMS,MS,5 | 2/15/2019 9:43:39 PM | SAMP,10mL |
| 47 | CCV-3,CCV,1 | 2/15/2019 9:58:27 PM | CCV |
| 48 | CCB-3,CCB,1 | 2/15/2019 10:13:15 PM | CCB |
| 49 | N034182-013C,SAMP,5 | 2/15/2019 10:28:03 PM | SAMP,10mL |
| 50 | N034182-013CMS,MS,5 | 2/15/2019 10:42:50 PM | SAMP,10mL |
| 51 | N034182-013CMSD,MSD,5 | 2/15/2019 10:57:38 PM | SAMP,10mL |
| 52 | N034179-001B,SAMP,1 | 2/15/2019 11:12:26 PM | SAMP,10mL |
| 53 | N034179-002B,SAMP,5 | 2/15/2019 11:27:14 PM | SAMP,10mL |
| 54 | N034179-004B,SAMP,1 | 2/15/2019 11:42:02 PM | SAMP,10mL |
| 55 | N034179-005B,SAMP,2 | 2/15/2019 11:56:51 PM | SAMP,10mL |
| 56 | N034179-006B,SAMP,5 | 2/16/2019 12:11:39 AM | SAMP,10mL |
| 57 | N034183-003C,SAMP,10 | 2/16/2019 12:26:26 AM | SAMP,10mL |
| 58 | N034183-0020C,SAMP,10 | 2/16/2019 12:41:14 AM | SAMP,10mL |
| 59 | CCV-4,CCV,1 | 2/16/2019 12:56:02 AM | CCV |
| 60 | CCB-4,CCB,1 | 2/16/2019 1:10:50 AM | CCB |
| 61 | N034183-004C,SAMP,2 | | SAMP,10mL |
| 62 | N034183-005C,SAMP,5 | | SAMP,10mL |
| 63 | N034183-006C,SAMP,10 | | SAMP,10mL |
| 64 | N034183-011C,SAMP,5 | | SAMP,10mL |
| 65 | N034182-001C,SAMP,10 | | SAMP,10mL |
| 66 | N034182-005,SAMP,10 | | SAMP,10mL |
| 67 | N034182-006C,SAMP,20 | | SAMP,10mL |
| 68 | N034182-009C,SAMP,1 | | SAMP,10mL |
| 69 | N034182-010C,SAMP,2 | | SAMP,10mL |
| 70 | N034179-005B,SAMP,1 | | SAMP,10mL |
| 71 | CCV-5,CCV,1 | | CCV |
| 72 | CCB-5,CCB,1 | | CCB |
| 73 | N034182-008C,SAMP,1 | | SAMP,10mL |
| 74 | N034182-008C,SAMP,5 | | SAMP,10mL |
| 75 | N034182-006C,SAMP,20 | | SAMP,10mL |
| 76 | N034183-011C,SAMP,2 | | SAMP,10mL |
| 77 | N034183-004C,SAMP,1 | | SAMP,10mL |
| 78 | CCV-6,CCV,1 | | CCV |
| 79 | CCB-6,CCB,1 | | CCB |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 43
Created: 2/18/2019 10:04:04 AM by IC-05
Last Update: 2/18/2019 5:45:02 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 1 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 2 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 3 | Std - 0 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 4 | Std - 1 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 5 | Std - 2 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 6 | Std - 3 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 7 | Std - 4 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 8 | Std - 5 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 9 | BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 10 | CCV-1,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 11 | CCB-1,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 12 | MB-H2O,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 13 | LCS-H2O,LCS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 14 | N034097-001F,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 15 | N034097-002F,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 16 | N034097-003F,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 17 | N034177-001C,SAMP,200 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 18 | N034177-002C,SAMP,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 19 | N034178-008C,SAMP,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 20 | N034178-009C,SAMP,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 21 | N034178-008CDUP,DUP,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 22 | CCV-2,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 23 | CCB-2,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 24 | N034177-001CMS,MS,200 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 25 | N034177-001CMSD,MSD,200 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 26 | N034107-002C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 27 | N034107-003C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 28 | N034107-004C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 29 | N034177-001C,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 30 | N034177-002C,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 31 | N034178-008C,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 32 | N034178-009C,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 33 | N034183-001C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 34 | CCV-3,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 35 | CCB-3,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 36 | N034183-010C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 37 | N034107-002CMS,MS,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 38 | N034107-002CMSD,MSD,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 39 | N034177-002CDUP,DUP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 40 | N034107-003C,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 41 | N034107-004C,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 43
Created: 2/18/2019 10:04:04 AM by IC-05
Last Update: 2/18/2019 5:45:02 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 1 | BLANK,BLANK | 2/15/2019 9:48:20 AM | BLANK |
| 2 | BLANK,BLANK | 2/15/2019 10:03:08 AM | BLANK |
| 3 | Std - 0 | 2/15/2019 10:22:51 AM | BLANK |
| 4 | Std - 1 | 2/15/2019 10:37:39 AM | STD-LOW |
| 5 | Std - 2 | 2/15/2019 10:52:27 AM | STD |
| 6 | Std - 3 | 2/15/2019 11:07:14 AM | STD |
| 7 | Std - 4 | 2/15/2019 11:22:02 AM | STD |
| 8 | Std - 5 | 2/15/2019 11:36:50 AM | STD-HIGH |
| 9 | BLANK | 2/18/2019 10:32:31 AM | BLANK |
| 10 | CCV-1,CCV,1 | 2/18/2019 10:47:19 AM | CCV |
| 11 | CCB-1,CCB,1 | 2/18/2019 11:02:07 AM | CCB |
| 12 | MB-H2O,MBLK,1 | 2/18/2019 11:16:54 AM | METHOD BLANK |
| 13 | LCS-H2O,LCS,1 | 2/18/2019 11:31:42 AM | LCS |
| 14 | N034097-001F,SAMP,5 | 2/18/2019 11:53:01 AM | SAMP,2>10mL |
| 15 | N034097-002F,SAMP,5 | 2/18/2019 12:07:49 PM | SAMP,2>10mL |
| 16 | N034097-003F,SAMP,5 | 2/18/2019 12:22:37 PM | SAMP,2>10mL |
| 17 | N034177-001C,SAMP,200 | 2/18/2019 12:37:25 PM | SAMP,0.05>10mL |
| 18 | N034177-002C,SAMP,500 | 2/18/2019 12:52:12 PM | SAMP,0.02>10mL |
| 19 | N034178-008C,SAMP,500 | 2/18/2019 1:07:00 PM | SAMP,0.02>10mL |
| 20 | N034178-009C,SAMP,500 | 2/18/2019 1:21:49 PM | SAMP,0.02>10mL |
| 21 | N034178-008CDUP,DUP,500 | 2/18/2019 1:37:11 PM | SAMP,0.02>10mL |
| 22 | CCV-2,CCV,1 | 2/18/2019 1:51:59 PM | CCV |
| 23 | CCB-2,CCB,1 | 2/18/2019 2:06:46 PM | CCB |
| 24 | N034177-001CMS,MS,200 | 2/18/2019 2:35:27 PM | BLANK |
| 25 | N034177-001CMSD,MSD,200 | 2/18/2019 2:50:15 PM | BLANK |
| 26 | N034107-002C,SAMP,10 | 2/18/2019 3:05:02 PM | BLANK |
| 27 | N034107-003C,SAMP,10 | 2/18/2019 3:19:50 PM | BLANK |
| 28 | N034107-004C,SAMP,10 | 2/18/2019 3:34:38 PM | BLANK |
| 29 | N034177-001C,SAMP,50 | 2/18/2019 3:49:26 PM | BLANK |
| 30 | N034177-002C,SAMP,50 | 2/18/2019 4:04:14 PM | BLANK |
| 31 | N034178-008C,SAMP,50 | 2/18/2019 4:19:01 PM | BLANK |
| 32 | N034178-009C,SAMP,50 | 2/18/2019 4:33:49 PM | BLANK |
| 33 | N034183-001C,SAMP,5 | 2/18/2019 4:48:37 PM | BLANK |
| 34 | CCV-3,CCV,1 | 2/18/2019 5:03:25 PM | BLANK |
| 35 | CCB-3,CCB,1 | 2/18/2019 5:18:13 PM | BLANK |
| 36 | N034183-010C,SAMP,5 | 2/18/2019 5:45:05 PM | BLANK |
| 37 | N034107-002CMS,MS,10 | 2/18/2019 5:59:53 PM | BLANK |
| 38 | N034107-002CMSD,MSD,10 | 2/18/2019 6:14:41 PM | BLANK |
| 39 | N034177-002CDUP,DUP,50 | 2/18/2019 6:29:29 PM | BLANK |
| 40 | N034107-003C,SAMP,20 | 2/18/2019 6:44:17 PM | BLANK |
| 41 | N034107-004C,SAMP,20 | 2/18/2019 6:59:04 PM | BLANK |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 43
Created: 2/18/2019 10:04:04 AM by IC-05
Last Update: 2/18/2019 5:45:02 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 42 | CCV-4,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 43 | CCB-4,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 43
Created: 2/18/2019 10:04:04 AM by IC-05
Last Update: 2/18/2019 5:45:02 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 42 | CCV-4,CCV,1 | 2/18/2019 7:13:52 PM | BLANK |
| 43 | CCB-4,CCB,1 | 2/18/2019 7:28:40 PM | BLANK |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 50
Created: 2/20/2019 8:06:10 AM by IC-05
(Modified, not saved)

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 1 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 2 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 3 | Std - 0 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 4 | Std - 1 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 5 | Std - 2 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 6 | Std - 3 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 7 | Std - 4 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 8 | Std - 5 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 9 | BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 10 | CCV-1,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 11 | CCB-1,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 12 | MB-H2O,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 13 | LCS-H2O,LCS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 14 | N034168-001B,SAMP,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 15 | N034234-001B,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 16 | N034236-001A,SAMP,200 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 17 | N034236-002A,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 18 | N034168-001B,SAMP,1000 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 19 | N034234-001BMS,MS,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 20 | N034234-001BMSD,MSD,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 21 | N034168-001BDUP,DUP,1000 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 22 | CCV-2,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 23 | CCB-2,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 24 | N034238-002C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 25 | N034234-001B,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 26 | N034236-001A,SAMP,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 27 | N034236-002A,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 28 | N034234-001BDUP,DUP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 29 | N034238-002C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 30 | N034238-002CMS,MS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 31 | N034238-002CMSD,MSD,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 32 | N034107-002C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 33 | N034107-002CMS,MS,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 34 | CCV-3,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 35 | CCB-3,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 36 | N034107-002CMSD,MSD,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 37 | N034178-008C,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 38 | N034178-008CDUP,DUP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 39 | N034183-001C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 40 | N034183-001CMS,MS,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 41 | N034107-003C,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 50
Created: 2/20/2019 8:06:10 AM by IC-05
(Modified, not saved)

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 1 | BLANK,BLANK | 2/15/2019 9:48:20 AM | BLANK |
| 2 | BLANK,BLANK | 2/15/2019 10:03:08 AM | BLANK |
| 3 | Std - 0 | 2/15/2019 10:22:51 AM | BLANK |
| 4 | Std - 1 | 2/15/2019 10:37:39 AM | STD-LOW |
| 5 | Std - 2 | 2/15/2019 10:52:27 AM | STD |
| 6 | Std - 3 | 2/15/2019 11:07:14 AM | STD |
| 7 | Std - 4 | 2/15/2019 11:22:02 AM | STD |
| 8 | Std - 5 | 2/15/2019 11:36:50 AM | STD-HIGH |
| 9 | BLANK | 2/20/2019 8:06:43 AM | BLANK |
| 10 | CCV-1,CCV,1 | 2/20/2019 8:21:31 AM | CCV |
| 11 | CCB-1,CCB,1 | 2/20/2019 8:36:19 AM | CCB |
| 12 | MB-H2O,MBLK,1 | 2/20/2019 8:51:07 AM | METHOD BLANK |
| 13 | LCS-H2O,LCS,1 | 2/20/2019 9:05:54 AM | LCS |
| 14 | N034168-001F,SAMP,500 | 2/20/2019 9:30:28 AM | SAMP,10mL |
| 15 | N034234-001B,SAMP,5 | 2/20/2019 9:55:21 AM | SAMP,10mL |
| 16 | N034236-001A,SAMP,200 | 2/20/2019 10:10:09 AM | SAMP,10mL |
| 17 | N034236-002A,SAMP,10 | 2/20/2019 10:24:57 AM | SAMP,10mL |
| 18 | N034168-001B,SAMP,1000 | 2/20/2019 10:39:45 AM | SAMP,10mL |
| 19 | N034234-001BMS,MS,5 | 2/20/2019 10:54:33 AM | SAMP,10mL |
| 20 | N034234-001BMSD,MSD,5 | 2/20/2019 11:09:21 AM | SAMP,10mL |
| 21 | N034168-001BDUP,DUP,1000 | 2/20/2019 11:24:09 AM | SAMP,10mL |
| 22 | CCV-2,CCV,1 | 2/20/2019 11:44:22 AM | CCV |
| 23 | CCB-2,CCB,1 | 2/20/2019 11:59:10 AM | CCB |
| 24 | N034238-002C,SAMP,5 | 2/20/2019 12:13:58 PM | SAMP,10mL |
| 25 | N034234-001B,SAMP,20 | 2/20/2019 12:28:46 PM | SAMP,10mL |
| 26 | N034236-001A,SAMP,500 | 2/20/2019 12:43:34 PM | BLANK |
| 27 | N034236-002A,SAMP,50 | 2/20/2019 12:58:22 PM | SAMP,10mL |
| 28 | N034234-001BDUP,DUP,20 | 2/20/2019 1:13:09 PM | SAMP,10mL |
| 29 | N034238-002C,SAMP,1 | 2/20/2019 1:27:57 PM | SAMP,10mL |
| 30 | N034238-002CMS,MS,1 | 2/20/2019 1:42:45 PM | SAMP,10mL |
| 31 | N034238-002CMSD,MSD,1 | 2/20/2019 1:57:33 PM | SAMP,10mL |
| 32 | N034107-002C,SAMP,10 | 2/20/2019 2:12:21 PM | SAMP,10mL |
| 33 | N034107-002CMS,MS,10 | 2/20/2019 2:27:08 PM | SAMP,10mL |
| 34 | CCV-3,CCV,1 | 2/20/2019 2:41:56 PM | CCV |
| 35 | CCB-3,CCB,1 | 2/20/2019 2:56:44 PM | CCB |
| 36 | N034107-002CMSD,MSD,10 | 2/20/2019 3:11:32 PM | SAMP,10mL |
| 37 | N034178-008C,SAMP,50 | 2/20/2019 3:26:20 PM | SAMP,10mL |
| 38 | N034178-008CDUP,DUP,50 | 2/20/2019 3:41:08 PM | SAMP,10mL |
| 39 | N034183-001C,SAMP,5 | 2/20/2019 3:55:56 PM | SAMP,10mL |
| 40 | N034183-001CMS,MS,5 | 2/20/2019 4:10:43 PM | SAMP,10mL |
| 41 | N034107-003C,SAMP,20 | 2/20/2019 4:27:45 PM | SAMP,10mL |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 50
Created: 2/20/2019 8:06:10 AM by IC-05
(Modified, not saved)

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 42 | N034107-004C,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 43 | N034178-009C,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 44 | N034183-010C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 45 | CCV-4,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 46 | CCB-4,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 47 | N034177-001C,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 48 | N034177-002C,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 49 | CCV-5,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 50 | CCB-5,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |

Chromeleon © Dionex Corporation, Version 6.80 SR10 Build 2818 (166959)

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 50
Created: 2/20/2019 8:06:10 AM by IC-05
(Modified, not saved)

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 42 | N034107-004C,SAMP,20 | 2/20/2019 4:42:32 PM | SAMP,10mL |
| 43 | N034178-009C,SAMP,50 | 2/20/2019 4:57:20 PM | SAMP,10mL |
| 44 | N034183-010C,SAMP,5 | 2/20/2019 5:12:08 PM | SAMP,10mL |
| 45 | CCV-4,CCV,1 | 2/20/2019 5:26:56 PM | CCV |
| 46 | CCB-4,CCB,1 | 2/20/2019 5:41:43 PM | CCB |
| 47 | N034177-001C,SAMP,50 | 2/20/2019 5:56:31 PM | SAMP,10mL |
| 48 | N034177-002C,SAMP,50 | 2/20/2019 6:11:19 PM | SAMP,10mL |
| 49 | CCV-5,CCV,1 | 2/20/2019 6:26:07 PM | CCV |
| 50 | CCB-5,CCB,1 | 2/20/2019 6:40:55 PM | CCB |

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# INITIAL CALIBRATION DATA SUMMARY

**(EPA 300) - INITIAL CALIBRATION**

Instrument ID: IC-08
Date Calibrated: 2/15/2019

Initial Calibration:

| Chloride | STD0 | STD1 | STD2 | STD3 | STD4 | STD5 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0 | 0.5 | 1 | 2 | 5 | 10 | $R^2$ |
| Area,mAU*min | 0.000 | 0.0733 | 0.1509 | 0.3021 | 0.7794 | 1.6551 | 1.000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock |
|---|---|
| Standard Concentration: | 1000000 PPB |
| Standard ID: | ISST-180914B |

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

**(EPA 300) - INITIAL CALIBRATION**

Instrument ID: IC-08
Date Calibrated: 2/15/2019

Initial Calibration:

| Sulfate | STD0 | STD1 | STD2 | STD3 | STD4 | STD5 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0 | 0.5 | 2 | 4 | 10 | 20 | $R^2$ |
| Area,mAU*min | 0 | 0.0587 | 0.2301 | 0.4631 | 1.1693 | 2.4665 | 1.000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock |
|---|---|
| Standard Concentration: | 1000000 PPB |
| Standard ID: | ISST-180914G |

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **131955** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131955** | TestNo: **EPA 300.0** | | Analysis Date: **2/15/2019** | SeqNo: **3294333** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 2.019 | 0.50 | 2.000 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **131955** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131955** | TestNo: **EPA 300.0** | | Analysis Date: **2/18/2019** | SeqNo: **3294335** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.959 | 0.50 | 2.000 | 0 | 97.9 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **131955** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131955** | TestNo: **EPA 300.0** | | Analysis Date: **2/18/2019** | SeqNo: **3294347** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.964 | 0.50 | 2.000 | 0 | 98.2 | 90 | 110 | | | | |

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **131955** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131955** | TestNo: **EPA 300.0** | | Analysis Date: **2/18/2019** | SeqNo: **3294351** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.963 | 0.50 | 2.000 | 0 | 98.2 | 90 | 110 | | | | |

| Sample ID **CCV-4** | SampType: **CCV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **131955** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131955** | TestNo: **EPA 300.0** | | Analysis Date: **2/18/2019** | SeqNo: **3294353** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.955 | 0.50 | 2.000 | 0 | 97.7 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **131992** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131992** | TestNo: **EPA 300.0** | | Analysis Date: **2/15/2019** | SeqNo: **3296101** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.899 | 0.50 | 4.000 | 0 | 97.5 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **131992** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131992** | TestNo: **EPA 300.0** | | Analysis Date: **2/20/2019** | SeqNo: **3296103** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.948 | 0.50 | 4.000 | 0 | 98.7 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **131992** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131992** | TestNo: **EPA 300.0** | | Analysis Date: **2/20/2019** | SeqNo: **3296107** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.892 | 0.50 | 4.000 | 0 | 97.3 | 90 | 110 | | | | |

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **131992** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131992** | TestNo: **EPA 300.0** | | Analysis Date: **2/20/2019** | SeqNo: **3296115** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.947 | 0.50 | 4.000 | 0 | 98.7 | 90 | 110 | | | | |

| Sample ID **CCV-4** | SampType: **CCV** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **131992** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131992** | TestNo: **EPA 300.0** | | Analysis Date: **2/20/2019** | SeqNo: **3296126** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.906 | 0.50 | 4.000 | 0 | 97.7 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID **CCV-5** | SampType: **CCV** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **131992** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131992** | TestNo: **EPA 300.0** | | Analysis Date: **2/20/2019** | SeqNo: **3296130** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.908 | 0.50 | 4.000 | 0 | 97.7 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **131955** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131955** | TestNo: **EPA 300.0** | | Analysis Date: **2/15/2019** | SeqNo: **3294334** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **131955** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131955** | TestNo: **EPA 300.0** | | Analysis Date: **2/18/2019** | SeqNo: **3294336** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.171 | 0.50 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **131955** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131955** | TestNo: **EPA 300.0** | | Analysis Date: **2/18/2019** | SeqNo: **3294348** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.154 | 0.50 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **131955** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131955** | TestNo: **EPA 300.0** | | Analysis Date: **2/18/2019** | SeqNo: **3294352** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.154 | 0.50 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **131955** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131955** | TestNo: **EPA 300.0** | | Analysis Date: **2/18/2019** | SeqNo: **3294354** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.153 | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **131992** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131992** | TestNo: **EPA 300.0** | | Analysis Date: **2/15/2019** | SeqNo: **3296102** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **131992** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131992** | TestNo: **EPA 300.0** | | Analysis Date: **2/20/2019** | SeqNo: **3296104** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.230 | 0.50 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **131992** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131992** | TestNo: **EPA 300.0** | | Analysis Date: **2/20/2019** | SeqNo: **3296108** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.237 | 0.50 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **131992** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131992** | TestNo: **EPA 300.0** | | Analysis Date: **2/20/2019** | SeqNo: **3296116** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.235 | 0.50 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **131992** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131992** | TestNo: **EPA 300.0** | | Analysis Date: **2/20/2019** | SeqNo: **3296127** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.226 | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

Sample ID **CCB-5** SampType: **CCB** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **131992**
Client ID: **CCB** Batch ID: **R131992** TestNo: **EPA 300.0** Analysis Date: **2/20/2019** SeqNo: **3296131**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.251 | 0.50 | | | | | | | | | |

Detection of Sulfate in CCB-5 is >1/2 RL. However, N034177 samples are >5x the CCB detection.

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |


NS 3/1/2019

# RETENTION TIME SUMMARY

## RETENTION TIME (RT) SUMMARY

**Instrument ID:** IC-08

**Analytical Sequence**

Date Analyzed: 2/18/2019

| Sample Name | | Retention Time | | Evaluation |
|---|---|---|---|---|
| ICV | Chloride | 4.100 | | |
| CCV-1 | Chloride | 4.244 | | |
| CCV-2 | Chloride | 4.240 | | |
| CCV-3 | Chloride | 4.243 | | |
| CCV-4 | Chloride | 4.244 | | |
| | **Average** | 4.243 | | |
| | **Applied RT Window** | 4.043 - | 4.443 | |
| MB-R131955_CL | Chloride | 4.240 | | PASS |
| LCS-R131955_CL | Chloride | 4.240 | | PASS |
| N034177-001C | Chloride | 4.240 | | PASS |
| N034177-002C | Chloride | 4.240 | | PASS |
| N034178-008CDUP | Chloride | 4.240 | | PASS |
| N034177-001CMS | Chloride | 4.240 | | PASS |
| N034177-001CMSD | Chloride | 4.240 | | PASS |

## RETENTION TIME (RT) SUMMARY

**Instrument ID:** IC-08

**Analytical Sequence**

Date Analyzed: 2/20/2019

| Sample Name | | Retention Time | | Evaluation |
|---|---|---|---|---|
| ICV | Sulfate | 8.790 | | |
| CCV-1 | Sulfate | 10.057 | | |
| CCV-2 | Sulfate | 10.054 | | |
| CCV-3 | Sulfate | 10.050 | | |
| CCV-4 | Sulfate | 10.047 | | |
| CCV-5 | Sulfate | 10.043 | | |
| | **Average** | 10.050 | | |
| | **Applied RT Window** | 9.850 - | 10.250 | |
| MB-R131992_SO4 | Sulfate | 10.187 | | PASS |
| LCS-R131992_SO4 | Sulfate | 10.054 | | PASS |
| N034107-002CMS | Sulfate | 10.057 | | PASS |
| N034107-002CMSD | Sulfate | 10.057 | | PASS |
| N034178-008CDUP | Sulfate | 10.050 | | PASS |
| N034183-001CMS | Sulfate | 10.077 | | PASS |
| N034177-001C | Sulfate | 10.047 | | PASS |
| N034177-002C | Sulfate | 10.053 | | PASS |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **INORGANIC IONS by Ion Chromatography**
Method Number: EPA 300.0
Analysis Date(s): 5/23/2017 ; 5/24/2017; 5/25/2017
Analyst/Technician: Ria Abes

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

**Acceptance Criteria:** MDL < spike < 10XMDL

| Datafile | 170523A D36 | 170523A D37 | 170523A D38 | 170524A D17 | 170524A D18 | 170525A D45 | 170525A D46 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte** | **#1** | **#2** | **#3** | **#4** | **#5** | **#6** | **#7** | **Spike Conc., mg/L** | **SD** | **MDL** | **LOD** | **PQL** |
| Fluoride | 0.020 | 0.022 | 0.021 | 0.020 | 0.023 | 0.026 | 0.024 | 0.020 | 0.0021 | **0.0065** | 0.020 | 0.10 |
| Chloride | 0.133 | 0.136 | 0.136 | 0.133 | 0.141 | 0.133 | 0.136 | 0.025 | 0.0029 | **0.0091** | 0.020 | 0.50 |
| Nitrite | 0.030 | 0.028 | 0.027 | 0.028 | 0.028 | 0.027 | 0.027 | 0.020 | 0.0010 | **0.0030** | 0.010 | 0.05 |
| Bromide | 0.037 | 0.042 | 0.043 | 0.038 | 0.040 | 0.032 | 0.025 | 0.040 | 0.0062 | **0.0196** | 0.040 | 0.20 |
| Nitrate | 0.035 | 0.034 | 0.033 | 0.033 | 0.033 | 0.031 | 0.030 | 0.020 | 0.0016 | **0.0050** | 0.010 | 0.05 |
| Phosphate | 0.047 | 0.051 | 0.049 | 0.046 | 0.052 | 0.047 | 0.059 | 0.040 | 0.0043 | **0.0135** | 0.030 | 0.10 |
| Sulfate | 0.213 | 0.199 | 0.208 | 0.216 | 0.199 | 0.201 | 0.198 | 0.050 | 0.0073 | **0.0229** | 0.050 | 0.50 |

# MDL/LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Inorganic Ions by Ion Chromatography (Low Level)**
Method Number: EPA Method 300.0
Analysis Date(s): 3/29-30/2018
Analyst: Ria B. Abes

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

| Compound | MDL | LOD Spike Conc., mg/L | LOD Actual Conc., mg/L | PQL Spike Conc., mg/L | PQL Actual Conc., mg/L | %Recovery |
|---|---|---|---|---|---|---|
| Fluoride | **0.0065** | 0.020 | 0.0252 | 0.10 | 0.087 | **87** |
| Chloride | **0.0091** | 0.020 | 0.1193 | 0.50 | 0.5757 | **115** |
| Nitrite | **0.0030** | 0.010 | 0.0237 | 0.05 | 0.0638 | **128** |
| Bromide | **0.0196** | 0.040 | 0.0405 | 0.20 | 0.1993 | **100** |
| Nitrate | **0.0050** | 0.010 | 0.0191 | 0.05 | 0.0561 | **112** |
| Phosphate | **0.0135** | 0.030 | 0.0415 | 0.10 | 0.1216 | **122** |
| Sulfate | **0.0229** | 0.050 | 0.3682 | 0.50 | 0.6549 | **131** |

# SM 4500-NO3F

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R132167 **Analyst:** QBM

**ASSET #:** N034126, N034177, N034196, N034179 **Date Analyzed:** 2/27/2019

**Method:** 4500_N03

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | X | | | X | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 3. ICV within ± 15% of expected value. | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | X | | | X | | |
| 5. CCV within ± 15% of expected value. | X | | | X | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | X | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< PQL) | X | | | X | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | X | | | X | | |
| 9. Are all samples analyzed within hold time. | X | | | X | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 11. LCS compounds within control limits. | X | | | X | | |
| 12. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | X |
| 14. Runlog complete and included in package. | X | | | X | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | X |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | X |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | X | | |
| 18. Are analytical results correct? | X | | | X | | |
| 19. Is the QC summary report present and complete? | X | | | X | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer QBM Date: 2/28/2019

2nd Level Reviewer 2/28/19 Date:

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 4500N03F
**TEST NAME:** Nitrate/Nitrite-N by Automated Cadmium Reduction
**MATRIX:** Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

**Nitrate/Nitrite-N, mg/L= A * DF**

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N034177-002D**

The concentration in mg/L is calculated as follows:

| | | | | |
|---|---|---|---|---|
| **Nitrate/Nitrite-N** | = | 0.5585 | * | 5 |
| | = | 2.7925 | mg/L | |

Reporting result in two significant figures,

**Nitrate/Nitrite-N = 2.8 mg/L**

NS 2/28/2019

# INITIAL CALIBRATION DATA SUMMARY

## EPA 353.2 NO3 as N (NO3CD) - Endpoint

### General setup

| | |
|---|---|
| **Measuring unit** | **ppm** |
| **Number of decimals** | 4 |
| **Stabilization time (sec)** | 26 |
| **Measurement time (sec)** | 3 |
| **Sample volume (µl)** | 450 |
| **Filter** | 546 |
| **Reagent prime** | No |
| **CD Reduction** | Yes |

### Limits and dilution

| | |
|---|---|
| **Low level** | **-0.2** |
| **High level** | 4 |
| **Max linearity** | 4 |
| **Blank min** | 0 |
| **Blank max** | 0.049 |
| **Postdilution factor %** | 10 |
| **Factor Calculations** | No |

### Washes

| | |
|---|---|
| **Number of final washes** | 6 |
| **Wash every** | R1, R2 |

### O.D.Corrections

| | |
|---|---|
| **Carry Over** | **No** |
| **Carry Over value** | 0.0000 |
| **Blank** | No |
| **Gain** | No |

### Reagents

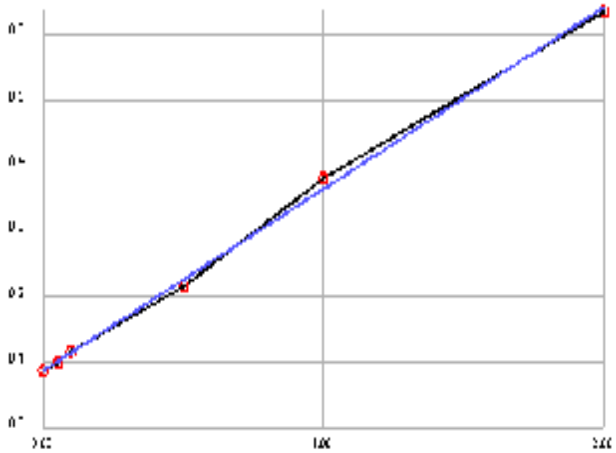
| N. | Volume (µl) | Incubation time (sec) |
|---|---|---|
| **1** | 200 | 102 |
| **2** | 300 | 663 |
| **3** | 0 | 0 |

### QC

| N. | Value | Tolerance |
|---|---|---|
| **1** | 1 | 0.1 |

## Calibration

| | |
|---|---|
| **Curve type** | Linear (Calibrants) |
| **Curve forced to zero** | No |
| **Blank inclusion** | No |



| | |
|---|---|
| **Formula** | y = 0.2767x + 0.0876 |
| **Correlation** | .999021 |

| Calibrant | Energy | Set | Conc |
|---|---|---|---|
| **1** | 0.0864 | 0.0000 | -0.0043 |
| **2** | 0.0999 | 0.0500 | 0.0445 |
| **3** | 0.1172 | 0.1000 | 0.1071 |
| **4** | 0.2154 | 0.5000 | 0.4620 |
| **5** | 0.3816 | 1.0000 | 1.0627 |
| **6** | 0.6348 | 2.0000 | 1.9779 |

**Notes:**

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132167** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304069** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.526 | 0.050 | 0.5000 | 0 | 105 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132167** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304092** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.481 | 0.050 | 0.5000 | 0 | 96.2 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132167** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304102** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.490 | 0.050 | 0.5000 | 0 | 98.0 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034177
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132167** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304070** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132167** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304093** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132167** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132167** | TestNo: **SM4500-NO3** | | Analysis Date: **2/27/2019** | SeqNo: **3304103** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

**Advanced Technology Laboratories, Inc.**

**3151 W. Post Rd.**
**Las Vegas, NV. 89118**
**702-307-2659**
**702-307-2691**
**www.atl-labs.com**

**Time start: 02-27-2019 14:55**
**Time end: 02-27-2019 17:12**

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 1 | <BLANK> | 16:41:58 | -0.0021 | | 0.0870 |
| 2 | <BLANK> | 16:42:58 | -0.0064 | | 0.0858 |
| 3 | <BLANK> | 16:43:52 | -0.0028 | | 0.0868 |
| 4 | <CAL1> | 16:44:48 | -0.0043 | [0] | 0.0864 |
| 5 | <CAL2> | 16:45:49 | 0.0445 | [0.05] | 0.0999 |
| 6 | <CAL3> | 16:46:43 | 0.1071 | [0.1] | 0.1172 |
| 7 | <CAL4> | 16:47:39 | 0.4620 | [0.5] | 0.2154 |
| 8 | <CAL5> | 16:48:40 | 1.0627 | [1] | 0.3816 |
| 9 | <CAL6> | 16:49:36 | 1.9779 | [2] | 0.6348 |
| 10 | ,BLANK,BLANK,1, NOT REPORTED | 16:50:36 | 0.0738 | | 0.1080 |
| 11 | ,ICV,ICV,1, | 16:51:31 | 0.5256 | | 0.2330 |
| 12 | ,ICB,ICB,1, | 16:52:27 | 0.0182 | | 0.0926 |
| 13 | ,MB-H2O,MBLK,1, | 16:53:28 | 0.0022 | | 0.0882 |
| 14 | ,LCS-H2O,LCS,1, | 16:54:22 | 0.4982 | | 0.2254 |
| 15 | ,N034126-004D,SAMP,5, | 16:55:18 | 0.8918 | | 0.3343 |
| 16 | ,N034126-005D,SAMP,20, | 16:56:19 | 0.7743 | | 0.3018 |
| 17 | ,N034126-005DMS,MS,20, | 16:57:01 | 1.2691 | | 0.4387 |
| 18 | ,N034126-005DMSD,MSD,20, | 16:57:51 | 1.2854 | | 0.4432 |
| 19 | ,N034126-006D,SAMP,10, | 16:58:33 | 0.9449 | | 0.3490 |
| 20 | ,N034126-007D,SAMP,50, | 16:59:22 | 0.6666 | | 0.2720 |
| 21 | ,N034126-007DDUP,DUP,50, | 17:00:06 | 0.6413 | | 0.2650 |
| 22 | ,BLANK, NOT REPORTED | 17:00:48 | 0.0290 | | 0.0956 |
| 23 | ,CCV-1,CCV,1, | 17:01:37 | 0.4812 | | 0.2207 |
| 24 | ,CCB-1,CCB,1, | 17:02:19 | 0.0120 | | 0.0909 |
| 25 | ,N034177-001D,SAMP,1, | 17:03:02 | 0.0413 | | 0.0990 |
| 26 | ,N034196-002D,SAMP,1, | 17:03:50 | 0.0622 | | 0.1048 |

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 27 | ,N034177-002D,SAMP,5, | 17:04:34 | 0.5585 | | 0.2421 |
| 28 | ,N034126-008D,SAMP,10, | 17:05:23 | 1.1610 | | 0.4088 |
| 29 | ,N034196-003D,SAMP,1, | 17:06:05 | 1.1741 | | 0.4124 |
| 30 | ,N034196-004D,SAMP,1, | 17:06:48 | 1.1759 | | 0.4129 |
| 31 | ,N034179-008A,SAMP,10, | 17:07:30 | 0.7808 | | 0.3036 |
| 32 | ,N034179-009A,SAMP,10, | 17:08:20 | 0.6774 | | 0.2750 |
| 33 | ,BLANK, NOT REPORTED | 17:09:02 | 0.0156 | | 0.0919 |
| 34 | ,CCV-2,CCV,1, | 17:09:45 | 0.4902 | | 0.2232 |
| 35 | ,CCB-2,CCB,1, | 17:10:33 | 0.0044 | | 0.0888 |

**Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog**

## Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 2/27/2019
Time Analyzed: 2:55 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190221D
Color reagent: R190221E
2% Copper Sulfate: R190221C
Ammonium Hydroxide: CINV-190124B

| Sample ID. | Sample Wt./Vol. | Sample pH | Std Code | Spike Amt Added (mL) | Spike Conc.(PPM) | Final Volume (mL) | Dilution (F/I) | Reading & Calculations (mg/L) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| N034126-004D | | 8.27 | | | | | | | |
| N034126-005D | | 8.5 | | | | | | | |
| N034126-006D | | 7.95 | | | | | | | |
| N034126-007D | | 8.48 | | | | | | | |
| N034126-008D | | 8.11 | | | | | | | |
| N034177-001D | | 7.83 | | | | | | | |
| N034177-002D | | 8.19 | | | | | | | |
| N034179-008A | | 7.74 | | | | | | | |
| N034179-009A | | 7 | | | | | | | |
| N034196-002D | | 7.52 | | | | | | | |
| N034196-003D | | 8.05 | | | | | | | |
| N034196-004D | | 7.21 | | | | | | | |
| | | | | | | | | | |
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Advanced Technology Laboratories, Inc.
Book # 1

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

| Analyte | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Ave | SD | $t_{(n-1)}$ value | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.0573 | 0.0562 | 0.0500 | 0.0730 | 0.0698 | 0.0637 | 0.0564 | 0.0609 | 0.0082 | 3.143 | 0.0259 | 0.05 |
| **Method Blank** | | | | | | | | | | | | |
| Nitrate/Nitrite as N | 0.0160 | 0.0067 | 0.0064 | 0.0204 | 0.0173 | 0.0036 | 0.0083 | 0.0112 | 0.0065 | 3.143 | 0.0317 | 0.05 |

**MDL:** **0.0317** **mg/L**

March 06, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034178

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on February 14, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N034178-011 due to matrix interference. Sample was analyzed at lower dilution however matrix spike recovery and retention time criteria were not met indicating possible matrix interference. Sample was reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

Because the results for total dissolved chromium (9.4 ug/L) and hexavalent chromium (7.4 ug/L) for sample N034178-007 (MW-58BR-Q119) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Because the results for total dissolved chromium (1.7 ug/L) and hexavalent chromium (0 ug/L) for sample N034178-011 (MW-34-100-Q119) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Analytical Comments for EPA 300.0:

Dilution was necessary for samples N034178-008 and -009 due to precipitation upon the addition of eluent.

Method Blank has detect greater than 1/2 the reporting limit for Sulfate. Samples results for this analyte are greater than 5x the Method Blank concentration therefore reanalysis of the samples was not necessary.

Analytical Comments for SM 4500-NO3F:

Method Blank MB-R132206 has detect greater than 1/2 the reporting limit however, samples reported in this batch are non-detect and >5x the Method Blank detection.

Analytical Comments for EPA 6020_Dissolved:

Because the results for total dissolved chromium (9.4 ug/L) and hexavalent chromium (7.4 ug/L) for sample N034178-007 (MW-58BR-Q119) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 9.2 and 8.2 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

Because the results for total dissolved chromium (1.7 ug/L) and hexavalent chromium (0 ug/L) for sample N034178-011 (MW-34-100-Q119) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 1.3 and 0.2 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab Order:** N034178
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034178-001A | MW-704-Q119 | Groundwater | 2/14/2019 3:00:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-002A | MW-705-Q119 | Groundwater | 2/14/2019 3:40:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-003A | MW-60BR-245-LF_D-Q119 | Groundwater | 2/14/2019 9:28:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-003B | MW-60BR-245-LF_D-Q119 | Groundwater | 2/14/2019 9:28:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-003C | MW-60BR-245-LF_D-Q119 | Groundwater | 2/14/2019 9:28:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-003D | MW-60BR-245-LF_D-Q119 | Groundwater | 2/14/2019 9:28:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-004A | MW-60BR-245-LF_S-Q119 | Groundwater | 2/14/2019 8:37:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-004B | MW-60BR-245-LF_S-Q119 | Groundwater | 2/14/2019 8:37:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-004C | MW-60BR-245-LF_S-Q119 | Groundwater | 2/14/2019 8:37:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-004D | MW-60BR-245-LF_S-Q119 | Groundwater | 2/14/2019 8:37:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-005A | MW-60BR-245-3V-Q119 | Groundwater | 2/14/2019 1:35:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-005B | MW-60BR-245-3V-Q119 | Groundwater | 2/14/2019 1:35:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-005C | MW-60BR-245-3V-Q119 | Groundwater | 2/14/2019 1:35:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-005D | MW-60BR-245-3V-Q119 | Groundwater | 2/14/2019 1:35:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-006A | MW-63-065-Q119 | Groundwater | 2/14/2019 12:26:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-006B | MW-63-065-Q119 | Groundwater | 2/14/2019 12:26:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-006C | MW-63-065-Q119 | Groundwater | 2/14/2019 12:26:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-006D | MW-63-065-Q119 | Groundwater | 2/14/2019 12:26:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-007A | MW-58BR-Q119 | Groundwater | 2/14/2019 1:45:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-007B | MW-58BR-Q119 | Groundwater | 2/14/2019 1:45:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-007C | MW-58BR-Q119 | Groundwater | 2/14/2019 1:45:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-007D | MW-58BR-Q119 | Groundwater | 2/14/2019 1:45:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-008A | TW-02D-Q119 | Groundwater | 2/14/2019 9:25:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-008B | TW-02D-Q119 | Groundwater | 2/14/2019 9:25:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-008C | TW-02D-Q119 | Groundwater | 2/14/2019 9:25:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-009A | MW-901-Q119 | Groundwater | 2/14/2019 9:35:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-009B | MW-901-Q119 | Groundwater | 2/14/2019 9:35:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-009C | MW-901-Q119 | Groundwater | 2/14/2019 9:35:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-010A | MW-62-110-Q119 | Groundwater | 2/14/2019 2:30:00 PM | 2/14/2019 | 3/6/2019 |

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab Order:** N034178
**Contract No:**

# Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034178-010B | MW-62-110-Q119 | Groundwater | 2/14/2019 2:30:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-010C | MW-62-110-Q119 | Groundwater | 2/14/2019 2:30:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-010D | MW-62-110-Q119 | Groundwater | 2/14/2019 2:30:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-011A | MW-34-100-Q119 | Groundwater | 2/14/2019 3:03:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-011B | MW-34-100-Q119 | Groundwater | 2/14/2019 3:03:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-011C | MW-34-100-Q119 | Groundwater | 2/14/2019 3:03:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-011D | MW-34-100-Q119 | Groundwater | 2/14/2019 3:03:00 PM | 2/14/2019 | 3/6/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-60BR-245-LF_D-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 9:28:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 16000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-60BR-245-LF_S-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 8:37:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 16000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-60BR-245-3V-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 1:35:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 16000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-63-065-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 12:26:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 6600 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-58BR-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 1:45:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 8300 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-02D-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 9:25:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 4300 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-901-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 9:35:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 4200 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-62-110-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 2:30:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 11000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-34-100-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 3:03:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 11000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID **N034177-001CDUP** | SampType: **DUP** | TestCode: **120.1_WPGE** | Units: **umhos/cm** | Prep Date: | RunNo: **131888** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131888** | TestNo: **EPA 120.1** | | Analysis Date: **2/15/2019** | SeqNo: **3291690** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 2260.000 | 0.10 | | | | | | 2230 | 1.34 | 2 | |

| Sample ID **N034178-011CDUP** | SampType: **DUP** | TestCode: **120.1_WPGE** | Units: **umhos/cm** | Prep Date: | RunNo: **131888** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131888** | TestNo: **EPA 120.1** | | Analysis Date: **2/15/2019** | SeqNo: **3291702** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 11100.000 | 0.10 | | | | | | 10980 | 1.09 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-02D-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 9:25:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190218D** | QC Batch: **72545** | | | PrepDate | **2/18/2019** | | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 2500 | 33 | 33 | | mg/L | 1 | 2/18/2019 12:56 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-901-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 9:35:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190218D** | QC Batch: **72545** | | | PrepDate | **2/18/2019** | | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 2500 | 33 | 33 | | mg/L | 1 | 2/18/2019 12:56 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.1_2540C_W**

| Sample ID | LCS-72545 | SampType: | LCS | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 2/18/2019 | RunNo: | 131939 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72545 | TestNo: | SM2540C | | | Analysis Date: | 2/18/2019 | SeqNo: | 3293223 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 972.000 | 10 | 1000 | 0 | 97.2 | 80 | 120 | | | | |

| Sample ID | MB-72545 | SampType: | MBLK | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 2/18/2019 | RunNo: | 131939 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72545 | TestNo: | SM2540C | | | Analysis Date: | 2/18/2019 | SeqNo: | 3293224 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | ND | 10 | | | | | | | | | |

| Sample ID | N034177-002CDUP | SampType: | DUP | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 2/18/2019 | RunNo: | 131939 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72545 | TestNo: | SM2540C | | | Analysis Date: | 2/18/2019 | SeqNo: | 3293233 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 4300.000 | 50 | | | | | | 4255 | 1.05 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-704-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 3:00:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226B** | QC Batch: **R132145** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/26/2019 05:58 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-705-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 3:40:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226B** | QC Batch: **R132145** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/26/2019 06:16 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-60BR-245-LF_D-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 9:28:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226B** QC Batch: **R132145** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 18 | 0.17 | 1.0 | | µg/L | 5 | 2/26/2019 06:35 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72522** | | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Chromium | 17 | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 11:31 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-004

**Client Sample ID:** MW-60BR-245-LF_S-Q119
**Collection Date:** 2/14/2019 8:37:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226B** QC Batch: **R132145** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 25 | 0.17 | 1.0 | | µg/L | 5 | 2/26/2019 06:54 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72522** | | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Chromium | 29 | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 11:37 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-60BR-245-3V-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 1:35:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226B** | QC Batch: **R132145** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 110 | 0.33 | 2.0 | | µg/L | 10 | 2/26/2019 07:42 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190228C** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Chromium | 110 | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 11:43 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-006

**Client Sample ID:** MW-63-065-Q119
**Collection Date:** 2/14/2019 12:26:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226B** QC Batch: **R132145** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 1.1 | 0.033 | 0.20 | | µg/L | 1 | 2/26/2019 08:01 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72522** | | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Chromium | 1.3 | 0.13 | 1.0 | | µg/L | 1 | 3/1/2019 12:01 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-58BR-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 1:45:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| **EPA 218.6** | | | | | | | |
| RunID: **NV00922-IC7_190226B** QC Batch: **R132145** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 7.4 | 0.066 | 0.40 | | µg/L | 2 | 2/26/2019 08:19 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** **EPA 6020** | | | | | | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72522** | | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Chromium | 9.4 | 0.13 | 1.0 | | µg/L | 1 | 3/1/2019 12:07 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-008

**Client Sample ID:** TW-02D-Q119
**Collection Date:** 2/14/2019 9:25:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226B** QC Batch: **R132145** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 120 | 0.66 | 4.0 | | µg/L | 20 | 2/26/2019 08:38 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72522** | | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Chromium | 140 | 0.13 | 1.0 | | µg/L | 1 | 3/1/2019 12:19 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-901-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 9:35:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| **EPA 218.6** | | | | | | | |
| RunID: **NV00922-IC7_190226B** QC Batch: **R132145** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 120 | 0.66 | 4.0 | | µg/L | 20 | 2/26/2019 09:07 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** **EPA 6020** | | | | | | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72522** | | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Chromium | 130 | 0.13 | 1.0 | | µg/L | 1 | 3/1/2019 12:25 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-010

**Client Sample ID:** MW-62-110-Q119
**Collection Date:** 2/14/2019 2:30:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190227A** QC Batch: **R132155** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.17 | 1.0 | | µg/L | 5 | 2/27/2019 10:14 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72522** | | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 3/1/2019 12:31 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-34-100-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 3:03:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226B** | QC Batch: **R132145** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.17 | 1.0 | | µg/L | 5 | 2/26/2019 10:04 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190228C** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Chromium | 1.7 | 0.13 | 1.0 | | µg/L | 1 | 3/1/2019 12:37 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **LCS-R132145** | SampType: **LCS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303253** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.101 | 0.20 | 5.000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **MB-R132145** | SampType: **MBLK** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303256** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **N034178-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303258** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.121 | 0.20 | 1.000 | 0.07780 | 104 | 90 | 110 | | | | |

| Sample ID **N034178-002AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303260** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.108 | 0.20 | 1.000 | 0.07260 | 103 | 90 | 110 | | | | |

| Sample ID **N034178-003AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303262** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 43.445 | 1.0 | 25.00 | 17.57 | 104 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034178-004AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132145 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132145 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303264 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 51.559 | 1.0 | 25.00 | 25.12 | 106 | 90 | 110 | | | | |

| Sample ID | N034178-003AMSD | SampType: | MSD | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132145 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132145 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303265 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 42.958 | 1.0 | 25.00 | 17.57 | 102 | 90 | 110 | 43.44 | 1.13 | 20 | |

| Sample ID | N034178-005AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132145 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132145 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303269 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 161.412 | 2.0 | 50.00 | 111.0 | 101 | 90 | 110 | | | | |

| Sample ID | N034178-006AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132145 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132145 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303271 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 2.127 | 0.20 | 1.000 | 1.120 | 101 | 90 | 110 | | | | |

| Sample ID | N034178-007AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132145 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132145 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303273 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 17.629 | 0.40 | 10.00 | 7.413 | 102 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034178-008AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132145 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132145 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303275 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 228.770 | 4.0 | 100.0 | 124.3 | 105 | 90 | 110 | | | | |

| Sample ID | N034178-006ADUP | SampType: | DUP | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132145 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132145 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303276 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.112 | 0.20 | | | | | | 1.120 | 0.806 | 20 | |

| Sample ID | N034178-009AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132145 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132145 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303280 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 231.664 | 4.0 | 100.0 | 124.7 | 107 | 90 | 110 | | | | |

| Sample ID | N034178-011AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132145 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132145 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/26/2019 | SeqNo: | 3303282 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.326 | 1.0 | 5.000 | 0 | 107 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | MB-R132155 | SampType: | MBLK | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132155 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132155 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3303760 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID | LCS-R132155 | SampType: | LCS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132155 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132155 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3303761 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.147 | 0.20 | 5.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID | N034178-010AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132155 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132155 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3303763 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.242 | 1.0 | 5.000 | 0 | 105 | 90 | 110 | | | | |

| Sample ID | N034342-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132155 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132155 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3303765 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.091 | 1.0 | 5.000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID | N034344-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132155 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132155 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3303769 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.025 | 1.0 | 5.000 | 0 | 101 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034178-010AMSD | SampType: | MSD | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132155 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132155 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3303770 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.255 | 1.0 | 5.000 | 0 | 105 | 90 | 110 | 5.242 | 0.248 | 20 | |

| Sample ID | N034342-001ADUP | SampType: | DUP | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132155 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132155 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3303771 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 1.0 | | | | | | 0 | 0 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | MB-72522 | SampType: | MBLK | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/18/2019 | RunNo: | 132224 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72522 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306171 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-72522 | SampType: | LCS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/18/2019 | RunNo: | 132224 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72522 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306172 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.136 | 1.0 | 10.00 | 0 | 101 | 85 | 115 | | | | |

| Sample ID | N034160-001A-MS | SampType: | MS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/18/2019 | RunNo: | 132224 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72522 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306179 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.527 | 1.0 | 10.00 | 0.6990 | 98.3 | 75 | 125 | | | | |

| Sample ID | N034160-001A-MSD | SampType: | MSD | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 2/18/2019 | RunNo: | 132224 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72522 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306180 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.668 | 1.0 | 10.00 | 0.6990 | 99.7 | 75 | 125 | 10.53 | 1.32 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-02D-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 9:25:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190220F** | QC Batch: **R131990** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 85 | 1.2 | 5.0 | | mg/L | 1 | 2/20/2019 05:30 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-901-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 9:35:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190220F** | QC Batch: **R131990** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 85 | 1.2 | 5.0 | | mg/L | 1 | 2/20/2019 05:30 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 2320_W_SP**

| Sample ID **LCS-R131990** | SampType: **LCS** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | | | RunNo: **131990** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R131990** | TestNo: **SM 2320 B** | | Analysis Date: **2/20/2019** | | | SeqNo: **3295435** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Alkalinity, Total (As CaCO3) | 102.620 | 5.0 | 100.0 | 0 | 103 | 85 | 115 | | | | |

| Sample ID **MB-R131990** | SampType: **MBLK** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | | | RunNo: **131990** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R131990** | TestNo: **SM 2320 B** | | Analysis Date: **2/20/2019** | | | SeqNo: **3295436** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Alkalinity, Total (As CaCO3) | ND | 5.0 | | | | | | | | | |

| Sample ID **N034178-008CDUP** | SampType: **DUP** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | | | RunNo: **131990** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131990** | TestNo: **SM 2320 B** | | Analysis Date: **2/20/2019** | | | SeqNo: **3295440** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Alkalinity, Total (As CaCO3) | 85.153 | 5.0 | | | | | | 85.15 | 0 | 30 | |

| Sample ID **N034178-008CMS** | SampType: **MS** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | | | RunNo: **131990** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131990** | TestNo: **SM 2320 B** | | Analysis Date: **2/20/2019** | | | SeqNo: **3295441** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Alkalinity, Total (As CaCO3) | 181.223 | 5.0 | 100.0 | 85.15 | 96.1 | 75 | 125 | | | | |

| Sample ID **N034178-008CMSD** | SampType: **MSD** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | | | RunNo: **131990** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131990** | TestNo: **SM 2320 B** | | Analysis Date: **2/20/2019** | | | SeqNo: **3295442** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Alkalinity, Total (As CaCO3) | 183.406 | 5.0 | 100.0 | 85.15 | 98.3 | 75 | 125 | 181.2 | 1.20 | 20 | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-008

**Client Sample ID:** TW-02D-Q119
**Collection Date:** 2/14/2019 9:25:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190225B** QC Batch: **R132104** | | | | PrepDate | | | Analyst: **HG** |
| Bromide | ND | 0.098 | 2.5 | | mg/L | 5 | 2/25/2019 07:40 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190218A** QC Batch: **R131955** | | | | PrepDate | | | Analyst: **HG** |
| Chloride | 1200 | 4.6 | 250 | | mg/L | 500 | 2/18/2019 01:07 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190220A** QC Batch: **R131992** | | | | PrepDate | | | Analyst: **HG** |
| Sulfate | 260 | 1.1 | 25 | | mg/L | 50 | 2/20/2019 03:26 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-009

**Client Sample ID:** MW-901-Q119
**Collection Date:** 2/14/2019 9:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190225B** QC Batch: **R132104** | | | | PrepDate | | | Analyst: **HG** |
| Bromide | ND | 0.098 | 2.5 | | mg/L | 5 | 2/25/2019 08:09 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190218A** QC Batch: **R131955** | | | | PrepDate | | | Analyst: **HG** |
| Chloride | 1200 | 4.6 | 250 | | mg/L | 500 | 2/18/2019 01:21 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190220A** QC Batch: **R131992** | | | | PrepDate | | | Analyst: **HG** |
| Sulfate | 260 | 1.1 | 25 | | mg/L | 50 | 2/20/2019 04:57 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_BRPGE**

| Sample ID | MB-R132104_BR | SampType: | MBLK | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132104 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132104 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301419 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | ND | 0.50 | | | | | | | | | |

| Sample ID | LCS-R132104_BR | SampType: | LCS | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132104 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132104 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301420 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 1.125 | 0.50 | 1.250 | 0 | 90.0 | 90 | 110 | | | | |

| Sample ID | N034178-008CDUP | SampType: | DUP | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132104 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132104 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301426 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 0.294 | 2.5 | | | | | | 0.3120 | 0 | 20 | |

| Sample ID | N034178-009CMS | SampType: | MS | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132104 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132104 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301428 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 6.404 | 2.5 | 6.250 | 0.2765 | 98.0 | 80 | 120 | | | | |

| Sample ID | N034178-009CMSD | SampType: | MSD | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132104 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132104 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301429 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 6.414 | 2.5 | 6.250 | 0.2765 | 98.2 | 80 | 120 | 6.404 | 0.156 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID | MB-R131955_CL | SampType: | MBLK | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 131955 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R131955 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/18/2019 | SeqNo: | 3294337 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.161 | 0.50 | | | | | | | | | |

| Sample ID | LCS-R131955_CL | SampType: | LCS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 131955 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R131955 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/18/2019 | SeqNo: | 3294338 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 2.004 | 0.50 | 2.000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID | N034178-008CDUP | SampType: | DUP | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 131955 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131955 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/18/2019 | SeqNo: | 3294346 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1233.850 | 250 | | | | | | 1234 | 0.0122 | 20 | |

| Sample ID | N034177-001CMS | SampType: | MS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 131955 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131955 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/18/2019 | SeqNo: | 3294349 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 850.740 | 100 | 400.0 | 461.3 | 97.4 | 80 | 120 | | | | |

| Sample ID | N034177-001CMSD | SampType: | MSD | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 131955 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131955 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/18/2019 | SeqNo: | 3294350 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 858.520 | 100 | 400.0 | 461.3 | 99.3 | 80 | 120 | 850.7 | 0.910 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID | MB-R131992_SO4 | SampType: | MBLK | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296105 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.273 | 0.50 | | | | | | | | | |

| Sample ID | LCS-R131992_SO4 | SampType: | LCS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296106 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.877 | 0.50 | 4.000 | 0 | 96.9 | 90 | 110 | | | | |

| Sample ID | N034107-002CMS | SampType: | MS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296114 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 91.407 | 5.0 | 40.00 | 52.18 | 98.1 | 80 | 120 | | | | |

| Sample ID | N034107-002CMSD | SampType: | MSD | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296117 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 90.904 | 5.0 | 40.00 | 52.18 | 96.8 | 80 | 120 | 91.41 | 0.552 | 20 | |

| Sample ID | N034178-008CDUP | SampType: | DUP | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296119 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 262.965 | 25 | | | | | | 262.8 | 0.0818 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID | N034183-001CMS | SampType: | MS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296121 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 45.655 | 2.5 | 20.00 | 25.79 | 99.3 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-60BR-245-LF_D-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 9:28:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190304F** | QC Batch: **R132259** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.18 | 0.032 | 0.050 | | mg/L | 1 | 3/4/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-60BR-245-LF_S-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 8:37:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190304F** | QC Batch: **R132259** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.18 | 0.032 | 0.050 | | mg/L | 1 | 3/4/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-60BR-245-3V-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 1:35:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190228A** | QC Batch: **R132206** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.27 | 0.032 | 0.050 | | mg/L | 1 | 2/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-63-065-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 12:26:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190228A** | QC Batch: **R132206** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.77 | 0.032 | 0.050 | | mg/L | 1 | 2/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-58BR-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 1:45:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190228A** | QC Batch: **R132206** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.61 | 0.032 | 0.050 | | mg/L | 1 | 2/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-62-110-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 2:30:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190228A** | QC Batch: **R132206** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.28 | 0.032 | 0.050 | | mg/L | 1 | 2/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-34-100-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 3:03:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | **SM4500-NO3F** | | | |
| RunID: **NV00922-WC_190228A** | QC Batch: **R132206** | | | PrepDate | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | ND | 0.032 | 0.050 | | mg/L | 1 | 2/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | MB-R132206 | SampType: | MBLK | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132206 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132206 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/28/2019 | SeqNo: | 3305193 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.048 | 0.050 | | | | | | | | | |

| Sample ID | LCS-R132206 | SampType: | LCS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132206 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132206 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/28/2019 | SeqNo: | 3305194 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.510 | 0.050 | 0.5000 | 0 | 102 | 85 | 115 | | | | |

| Sample ID | N034178-005DDUP | SampType: | DUP | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132206 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132206 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/28/2019 | SeqNo: | 3305198 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.282 | 0.050 | | | | | | 0.2715 | 3.69 | 20 | |

| Sample ID | N034178-006DMS | SampType: | MS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132206 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132206 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/28/2019 | SeqNo: | 3305200 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 1.269 | 0.050 | 0.5000 | 0.7663 | 101 | 75 | 125 | | | | |

| Sample ID | N034178-006DMSD | SampType: | MSD | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132206 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132206 | TestNo: | SM4500-NO3 | | | Analysis Date: | 2/28/2019 | SeqNo: | 3305201 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 1.259 | 0.050 | 0.5000 | 0.7663 | 98.5 | 75 | 125 | 1.269 | 0.807 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | MB-R132259 | SampType: | MBLK | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132259 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132259 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/4/2019 | SeqNo: | 3307397 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID | LCS-R132259 | SampType: | LCS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132259 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132259 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/4/2019 | SeqNo: | 3307398 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.536 | 0.050 | 0.5000 | 0 | 107 | 85 | 115 | | | | |

| Sample ID | N034178-003DDUP | SampType: | DUP | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132259 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132259 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/4/2019 | SeqNo: | 3307400 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.166 | 0.050 | | | | | | 0.1763 | 6.02 | 20 | |

| Sample ID | N034178-004DMS | SampType: | MS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132259 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132259 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/4/2019 | SeqNo: | 3307402 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.711 | 0.050 | 0.5000 | 0.1840 | 105 | 75 | 125 | | | | |

| Sample ID | N034178-004DMSD | SampType: | MSD | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132259 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132259 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/4/2019 | SeqNo: | 3307403 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.739 | 0.050 | 0.5000 | 0.1840 | 111 | 75 | 125 | 0.7107 | 3.96 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-003

**Client Sample ID:** MW-60BR-245-LF_D-Q119
**Collection Date:** 2/14/2019 9:28:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Arsenic | 6.6 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 11:31 PM |
| Manganese | 21 | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 11:31 PM |
| Molybdenum | 62 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 11:31 PM |
| Selenium | 2.2 | 0.36 | 0.50 | | µg/L | 1 | 3/1/2019 05:46 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-60BR-245-LF_S-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 8:37:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** | | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72522** | | | | PrepDate | **2/18/2019** | Analyst: **CEI** |
| Arsenic | 7.3 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 11:37 PM |
| Manganese | 21 | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 11:37 PM |
| Molybdenum | 63 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 11:37 PM |
| Selenium | 2.9 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 11:37 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-005

**Client Sample ID:** MW-60BR-245-3V-Q119
**Collection Date:** 2/14/2019 1:35:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Arsenic | 7.3 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 11:43 PM |
| Manganese | 13 | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 11:43 PM |
| Molybdenum | 57 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 11:43 PM |
| Selenium | 2.1 | 0.36 | 0.50 | | µg/L | 1 | 3/1/2019 05:52 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-63-065-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 12:26:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | Analyst: **CEI** | |
| Arsenic | 1.6 | 0.081 | 0.10 | | µg/L | 1 | 3/1/2019 12:01 AM |
| Manganese | 22 | 0.26 | 0.50 | | µg/L | 1 | 3/1/2019 12:01 AM |
| Molybdenum | 18 | 0.21 | 0.50 | | µg/L | 1 | 3/1/2019 12:01 AM |
| Selenium | 0.83 | 0.36 | 0.50 | | µg/L | 1 | 3/1/2019 06:40 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-58BR-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 1:45:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | Analyst: **CEI** | |
| Arsenic | 1.7 | 0.081 | 0.10 | | µg/L | 1 | 3/1/2019 12:07 AM |
| Manganese | 320 | 1.3 | 2.5 | | µg/L | 5 | 3/1/2019 12:13 AM |
| Molybdenum | 26 | 0.21 | 0.50 | | µg/L | 1 | 3/1/2019 12:07 AM |
| Selenium | 1.8 | 0.36 | 0.50 | | µg/L | 1 | 3/1/2019 12:07 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-008

**Client Sample ID:** TW-02D-Q119
**Collection Date:** 2/14/2019 9:25:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | Analyst: **CEI** | |
| Manganese | 4.6 | 0.26 | 0.50 | | µg/L | 1 | 3/1/2019 12:19 AM |
| Molybdenum | 11 | 0.21 | 0.50 | | µg/L | 1 | 3/1/2019 12:19 AM |
| Selenium | 2.4 | 0.36 | 0.50 | | µg/L | 1 | 3/1/2019 06:16 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-009

**Client Sample ID:** MW-901-Q119
**Collection Date:** 2/14/2019 9:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | Analyst: **CEI** | |
| Manganese | 11 | 0.26 | 0.50 | | µg/L | 1 | 3/1/2019 12:25 AM |
| Molybdenum | 11 | 0.21 | 0.50 | | µg/L | 1 | 3/1/2019 12:25 AM |
| Selenium | 2.2 | 0.36 | 0.50 | | µg/L | 1 | 3/1/2019 12:25 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-010

**Client Sample ID:** MW-62-110-Q119
**Collection Date:** 2/14/2019 2:30:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | Analyst: **CEI** | |
| Arsenic | 13 | 0.081 | 0.10 | | µg/L | 1 | 3/1/2019 12:31 AM |
| Manganese | 140 | 0.26 | 0.50 | | µg/L | 1 | 3/1/2019 12:31 AM |
| Molybdenum | 69 | 0.21 | 0.50 | | µg/L | 1 | 3/1/2019 12:31 AM |
| Selenium | 1.1 | 0.36 | 0.50 | | µg/L | 1 | 3/1/2019 06:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-011

**Client Sample ID:** MW-34-100-Q119
**Collection Date:** 2/14/2019 3:03:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | Analyst: **CEI** | |
| Arsenic | 1.4 | 0.081 | 0.10 | | µg/L | 1 | 3/1/2019 12:37 AM |
| Manganese | 110 | 0.26 | 0.50 | | µg/L | 1 | 3/1/2019 12:37 AM |
| Molybdenum | 62 | 0.21 | 0.50 | | µg/L | 1 | 3/1/2019 12:37 AM |
| Selenium | ND | 0.36 | 0.50 | | µg/L | 1 | 3/1/2019 12:37 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **MB-72522** | SampType: **MBLK** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/18/2019** | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72522** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/28/2019** | SeqNo: **3306001** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **LCS-72522** | SampType: **LCS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/18/2019** | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72522** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/28/2019** | SeqNo: **3306002** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.984 | 0.10 | 10.00 | 0 | 99.8 | 85 | 115 | | | | |
| Manganese | 104.249 | 0.50 | 100.0 | 0 | 104 | 85 | 115 | | | | |
| Molybdenum | 9.330 | 0.50 | 10.00 | 0 | 93.3 | 85 | 115 | | | | |
| Selenium | 9.653 | 0.50 | 10.00 | 0 | 96.5 | 85 | 115 | | | | |

| Sample ID **N034160-001A-MS** | SampType: **MS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/18/2019** | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72522** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/28/2019** | SeqNo: **3306009** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 44.187 | 0.50 | 10.00 | 32.38 | 118 | 75 | 125 | | | | |
| Selenium | 14.259 | 0.50 | 10.00 | 4.527 | 97.3 | 75 | 125 | | | | |

| Sample ID **N034160-001A-MSD** | SampType: **MSD** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/18/2019** | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72522** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/28/2019** | SeqNo: **3306010** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 44.452 | 0.50 | 10.00 | 32.38 | 121 | 75 | 125 | 44.19 | 0.597 | 20 | |
| Selenium | 14.021 | 0.50 | 10.00 | 4.527 | 94.9 | 75 | 125 | 14.26 | 1.68 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | N034160-001A-MS | SampType: | MS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/18/2019 | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72522 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306013 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 474.454 | 2.5 | 100.0 | 374.8 | 99.7 | 75 | 125 | | | | |

| Sample ID | N034160-001A-MSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/18/2019 | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72522 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306014 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 480.158 | 2.5 | 100.0 | 374.8 | 105 | 75 | 125 | 474.5 | 1.19 | 20 | |

| Sample ID | N034160-001A-MS | SampType: | MS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/18/2019 | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72522 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306476 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 10.506 | 0.10 | 10.00 | 0.2475 | 103 | 75 | 125 | | | | |

| Sample ID | N034160-001A-MS | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/18/2019 | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72522 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306477 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 10.380 | 0.10 | 10.00 | 0.2475 | 101 | 75 | 125 | 10.51 | 1.20 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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Nevada: 3151 W. Post Road, Las Vegas, NV 89118
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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD



| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement: Others ✓ (Specify: RWQCB) |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | QA/QC: RWQCB ✓ |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: | Sample Receipt Condition: 1. Chilled ✓; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number 2 ✓ |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@pivox.com | P.O.# SWA-ASSET-C9817-057 |
| Submitted By: Joe Gatel | | Phone: 949-727-1400, ext 200 | Fax: |
| Title: Scientist | Phone: 916-786-3302 Fax: | Global ID: | Specify State: |
| Signature: Date: 2/14/2019 | Sampled By: Jordan Tetmire | Project Name: PG&E Topock - GMP | Project Number: RC000753.801D |

*I hereby authorize ASSET Labs to perform the tests indicated below.*

*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.*

Signature: Date: 2/14/2019

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Sample Receipt Condition: 6. Method of Cooling: ICE; Sample Temp: 2.3°C

Courier:

Tracking No.:

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly) | 2x250 mL poly | Metals Dissolved (SW 6020) Arsenic; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Cr; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Manganese; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Molybdenum; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Selenium; HNO3 (500 mL poly) | Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly) | Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly) | Specific Conductance (EPA 120.1) (1 liter poly) | Total Dissolved Solids (SM92540) (1 liter poly) | Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly) | 1 liter poly | 500 mL poly | 3x40 mL poly | 250 mL poly | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034178-01 | MW-704-Q119 | 2/14/2019 | 15:00 | | X | | | | | | | | | | | | | | | | E | 1 | P | B | |
| 2 | -02 | MW-705-Q119 | 2/14/2019 | 15:40 | | X | | | | | | | | | | | | | | | | E | 1 | P | B | |
| 3 | -03 | MW-60BR-245-LF_D-Q119 | 2/14/2019 | 9:28 | | X | | X | X | X | X | X | X | | X | | | | | | | E | 4 | P | BNS | |
| 4 | -04 | MW-60BR-245-LF_S-Q119 | 2/14/2019 | 8:37 | | X | | X | X | X | X | X | X | | X | | | | | | | E | 4 | P | BNS | |
| 5 | -05 | MW-60BR-245-3V-Q119 | 2/14/2019 | 13:35 | | X | | X | X | X | X | X | X | | X | | | | | | | E | 4 | P | BNS | |
| 6 | -06 | MW-63-065-Q119 | 2/14/2019 | 12:26 | | X | | X | X | X | X | X | X | | X | | | | | | | E | 4 | P | BNS | |
| 7 | -07 | MW-58BR-Q119 | 2/14/2019 | 13:45 | | X | | X | X | X | X | X | X | | X | | | | | | | E | 4 | P | BNS | |
| 8 | -08 | TW-02D-Q119 | 2/14/2019 | 9:25 | | X | | | X | X | X | X | | | X | | | | | | | E | 3 | P | BNS | |
| 9 | -09 | MW-901-Q119 | 2/14/2019 | 9:35 | | X | | | X | X | X | X | | | X | | | | | | | E | 3 | P | BNS | |
| 10 | -10 | MW-62-110-Q119 | 2/14/2019 | 14:30 | | X | | X | X | X | X | X | X | | X | | | | | | | E | 4 | P | BNS | |

| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| Jordan Tetmire | 2/14/19 1610 | JORDAN Lee | 2-14-19 1610 |
| Jordan Lee | 2-14-19 1650 | JORDAN Lee | 2-14-19 1650 |
| | | | |

**Turn Around Time (TAT)**

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

**Preservatives:**

| | | | |
|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C |
| Z=$Zn(AC)_2$ | O=NaOH | T=$Na_2S_2O_3$ | |
| Others/Specify: | B | (NH4)2SO4/NH4OH | |

**Container Type:**

| | | |
|---|---|---|
| T=Tube | V=VOA | P=Pint |
| J=Jar | B=Tedlar | G=Glass |
| M=Metal | M=Metal | C=Can |

**Terms**
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy

Yellow=Customer's Copy

# ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

## CHAIN OF CUSTODY RECORD


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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com


Page 2 of 2

| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State: |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: | Global ID: |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@pivox.com | P.O.# SWA-ASSET-C9817-057 |
| Submitted By: Joe Gatel | | Phone: 949-727-1400, ext 200 | Fax: |
| Title: Scientist | Phone: 916-786-3302 Fax: | | |
| Signature: Date: 2/14/2019 | Sampled By: Jordan Tejuma | | |
| *I hereby authorize ASSET Labs to perform the tests indicated below.* | *I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.* | | |
| Project Name: PG&E Topock - GMP | Signature: Date: 2/14/2019 | | |
| Project Number: RC000753.801D | | | |

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Sample Receipt Condition: 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number 2; 6. Method of Cooling: Ice; Sample Temp: 2.4°C; Courier:; Tracking No.:

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly) | (2x250 mL poly) | Metals Dissolved (SW 6020) Arsenic; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Cr; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Manganese; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Molybdenum; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Selenium; HNO3 (500 mL poly) | (500 mL poly) | (500 mL poly) | (500 mL poly) | (500 mL poly) | (500 mL poly) | (500 mL poly) | Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly) | Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly) | Specific Conductance (EPA 120.1) (1 liter poly) | Total Dissolved Solids (SM92540) (1 liter poly) | Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly) | (1 liter poly) | (500 mL poly) | (3x40 mL poly) | (250 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034178-11 | MW-34-100-Q119 | 2/14/2019 | 15:03 | | X | | X | X | X | X | X | | | | | | | X | | X | | | | | | | m | 4 | P | BNS | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| Jordan Tejuma | 2/14/19 1440 | JORDAN IGC | 2-14-19 1610 |
| JORDAN IGC | 2/14/19 | JORDAN IGC | 2-14-19 1950 |
| | | | |

**Turn Around Time (TAT)**

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

**Terms**

1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
   Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 5% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

**Preservatives:**

| | | | |
|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C |
| Z=Zn(AC)$_2$ | O=NaOH | T=$Na_2S_2O_3$ | |
| Others/Specify: | B | (NH4)2SO4/NH4OH | |

**Container Type:**

| | | |
|---|---|---|
| T=Tube | V=VOA | P=Pint |
| J=Jar | B=Tedlar | G=Glass |
| M=Metal | M=Metal | C=Can |

White=Laboratory Copy

Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 2/14/2019 | Workorder: | N034178 |
| Rep sample Temp (Deg C): | 2.3 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | N/A | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☑ | No ☐ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☐ | No ☐ | NA ☑ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments:

Checklist Completed By: RM 2/18/2019

Reviewed By: LG 022019

**Subject:** FW: N034177 and N034178 COCs and Work Order Summaries for Samples Received 2/14/2019
**From:** "Madsen, Laura" <Laura.Madsen@arcadis.com>
**Date:** 2/15/2019 1:32 PM
**To:** Yoandra Rodriguez <yoandra@assetlaboratories.com>, "nancy@assetlaboratories.com" <nancy@assetlaboratories.com>, "marlon@assetlaboratories.com" <marlon@assetlaboratories.com>
**CC:** "Gatel, Joe" <Joseph.Gatel@arcadis.com>, Tina Rice <Tina.Rice@critigen.com>, "Madsen, Laura" <Laura.Madsen@arcadis.com>

Hi Yoandra,
A few analytes were inadvertently left off the COC. Can you get these analysis from the 1 liter poly unpres that was submitted? These two samples will need these 5 analytes added.

N034178-08
N034178-09

| |
|---|
| Total dissolved solids |
| Chloride |
| Bromide |
| Alkalinity, total as CaCO3 |
| Sulfate |

Thanks!
Laura

---

**From:** Sample Control <samplecontrol.lv@assetlaboratories.com>
**Sent:** Friday, February 15, 2019 1:25 PM
**To:** Bush, Dan <Dan.Bush@arcadis.com>; Dan Moore <Daniel.Moore@critigen.com>
**Cc:** Madsen, Laura <Laura.Madsen@arcadis.com>; Sean.Maurel@arcadis.com; Tina Rice <Tina.Rice@critigen.com>; Kalib Sumter <Kalib.Sumter@critigen.com>; rsunjara@blainetech.com; Vadpey, Nick <Nicholas.Vadpey@arcadis.com>; Harmon, Alison <Ali.Harmon@arcadis.com>; Serna, Erica <Erica.Serna@arcadis.com>; jmahn@blainetech.com; Borelis, Mariah <Mariah.Borelis@arcadis.com>; Bloes, Marty <mbloes@pivox.com>
**Subject:** N034177 and N034178 COCs and Work Order Summaries for Samples Received 2/14/2019

Hi Dan Bush:

Enclosed are COCs and WO Summaries for samples received 2/14/2019. If you have any questions, please contact your Project Manager listed below.

**Marlon Cartin**
3151 W. Post Road
Las Vegas, Nevada
89118
**Tel. No.:** (702)-307-2659 Ext. 410
**Cel. No.:** (702)-439-0421
**Email:** marlon@assetlaboratories.com

Thank you for using ASSET Laboratories.

Sincerely,
Mary Ann Balilu
Sample Control Officer



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | **P:** 562.219.7435 | **F:** 562.219.7436
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | **P:** 702.307.2659 | **F:** 702.307.2691
www.assetlaboratories.com

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www.avast.com

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Attachments:

| | |
|---|---|
| ~WRD000.jpg | 0 bytes |
| N034177.pdf | 75.6 KB |
| N034177COC.xls | 17.0 KB |
| N034178.pdf | 141 KB |
| N034178COC.xls | 26.5 KB |

# ASSET Laboratories

## WORK ORDER Summary

*18-Feb-19*

**WorkOrder:** N034178

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/14/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034178-001A | MW-704-Q119 | 2/14/2019 3:00:00 PM | 2/28/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034178-002A | MW-705-Q119 | 2/14/2019 3:40:00 PM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034178-003A | MW-60BR-245-LF_D-Q119 | 2/14/2019 9:28:00 AM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034178-003B | | | 2/28/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034178-003C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034178-003D | | | 2/28/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034178-004A | MW-60BR-245-LF_S-Q119 | 2/14/2019 8:37:00 AM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034178-004B | | | 2/28/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034178-004C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034178-004D | | | 2/28/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034178-005A | MW-60BR-245-3V-Q119 | 2/14/2019 1:35:00 PM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034178-005B | | | 2/28/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034178-005C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034178-005D | | | 2/28/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034178-006A | MW-63-065-Q119 | 2/14/2019 12:26:00 PM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*18-Feb-19*

**WorkOrder:** N034178

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/14/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034178-006B | MW-63-065-Q119 | 2/14/2019 12:26:00 PM | 2/28/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034178-006C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034178-006D | | | 2/28/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034178-007A | MW-58BR-Q119 | 2/14/2019 1:45:00 PM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034178-007B | | | 2/28/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034178-007C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034178-007D | | | 2/28/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034178-008A | TW-02D-Q119 | 2/14/2019 9:25:00 AM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034178-008B | | | 2/28/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034178-008C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*18-Feb-19*

**WorkOrder:** N034178

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/14/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034178-008C | TW-02D-Q119 | 2/14/2019 9:25:00 AM | 2/28/2019 | Groundwater | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | WW |
| N034178-009A | MW-901-Q119 | 2/14/2019 9:35:00 AM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034178-009B | | | 2/28/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034178-009C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | WW |
| N034178-010A | MW-62-110-Q119 | 2/14/2019 2:30:00 PM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034178-010B | | | 2/28/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034178-010C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034178-010D | | | 2/28/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034178-011A | MW-34-100-Q119 | 2/14/2019 3:03:00 PM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034178-011B | | | 2/28/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*18-Feb-19*

**WorkOrder:** N034178

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/14/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034178-011B | MW-34-100-Q119 | 2/14/2019 3:03:00 PM | 2/28/2019 | Groundwater | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034178-011C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034178-011D | | | 2/28/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034178-012A | FOLDER | 2/28/2019 | 2/28/2019 | | EDD | RWQCB | ☐ | ☐ | ☐ | LAB |
| | | | 2/28/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 2/28/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# *ARCADIS*

Project: PG&E Topock - GMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N034178

## *ANALYTICAL and QC RESULTS*
## *SAMPLE RECEIVING ITEMS*

*PRIVILEGED AND CONFIDENTIAL*

# Table of Contents

## ASSET Laboratories Work Order: N034178


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| EPA 300.0 | 321-364 |
| SM 4500-NO3F | 365-386 |
| EPA 6020_Dissolved | 387-467 |

March 06, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034178

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on February 14, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N034178-011 due to matrix interference. Sample was analyzed at lower dilution however matrix spike recovery and retention time criteria were not met indicating possible matrix interference. Sample was reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

Because the results for total dissolved chromium (9.4 ug/L) and hexavalent chromium (7.4 ug/L) for sample N034178-007 (MW-58BR-Q119) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Because the results for total dissolved chromium (1.7 ug/L) and hexavalent chromium (0 ug/L) for sample N034178-011 (MW-34-100-Q119) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Analytical Comments for EPA 300.0:

Dilution was necessary for samples N034178-008 and -009 due to precipitation upon the addition of eluent.

Method Blank has detect greater than 1/2 the reporting limit for Sulfate. Samples results for this analyte are greater than 5x the Method Blank concentration therefore reanalysis of the samples was not necessary.

Analytical Comments for SM 4500-NO3F:

Method Blank MB-R132206 has detect greater than 1/2 the reporting limit however, samples reported in this batch are non-detect and >5x the Method Blank detection.

Analytical Comments for EPA 6020_Dissolved:

Because the results for total dissolved chromium (9.4 ug/L) and hexavalent chromium (7.4 ug/L) for sample N034178-007 (MW-58BR-Q119) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 9.2 and 8.2 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

Because the results for total dissolved chromium (1.7 ug/L) and hexavalent chromium (0 ug/L) for sample N034178-011 (MW-34-100-Q119) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 1.3 and 0.2 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

## ASSET Laboratories

**Date:** *06-Mar-19*

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab Order:** N034178
**Contract No:**

# Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034178-001A | MW-704-Q119 | Groundwater | 2/14/2019 3:00:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-002A | MW-705-Q119 | Groundwater | 2/14/2019 3:40:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-003A | MW-60BR-245-LF_D-Q119 | Groundwater | 2/14/2019 9:28:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-003B | MW-60BR-245-LF_D-Q119 | Groundwater | 2/14/2019 9:28:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-003C | MW-60BR-245-LF_D-Q119 | Groundwater | 2/14/2019 9:28:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-003D | MW-60BR-245-LF_D-Q119 | Groundwater | 2/14/2019 9:28:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-004A | MW-60BR-245-LF_S-Q119 | Groundwater | 2/14/2019 8:37:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-004B | MW-60BR-245-LF_S-Q119 | Groundwater | 2/14/2019 8:37:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-004C | MW-60BR-245-LF_S-Q119 | Groundwater | 2/14/2019 8:37:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-004D | MW-60BR-245-LF_S-Q119 | Groundwater | 2/14/2019 8:37:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-005A | MW-60BR-245-3V-Q119 | Groundwater | 2/14/2019 1:35:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-005B | MW-60BR-245-3V-Q119 | Groundwater | 2/14/2019 1:35:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-005C | MW-60BR-245-3V-Q119 | Groundwater | 2/14/2019 1:35:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-005D | MW-60BR-245-3V-Q119 | Groundwater | 2/14/2019 1:35:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-006A | MW-63-065-Q119 | Groundwater | 2/14/2019 12:26:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-006B | MW-63-065-Q119 | Groundwater | 2/14/2019 12:26:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-006C | MW-63-065-Q119 | Groundwater | 2/14/2019 12:26:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-006D | MW-63-065-Q119 | Groundwater | 2/14/2019 12:26:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-007A | MW-58BR-Q119 | Groundwater | 2/14/2019 1:45:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-007B | MW-58BR-Q119 | Groundwater | 2/14/2019 1:45:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-007C | MW-58BR-Q119 | Groundwater | 2/14/2019 1:45:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-007D | MW-58BR-Q119 | Groundwater | 2/14/2019 1:45:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-008A | TW-02D-Q119 | Groundwater | 2/14/2019 9:25:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-008B | TW-02D-Q119 | Groundwater | 2/14/2019 9:25:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-008C | TW-02D-Q119 | Groundwater | 2/14/2019 9:25:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-009A | MW-901-Q119 | Groundwater | 2/14/2019 9:35:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-009B | MW-901-Q119 | Groundwater | 2/14/2019 9:35:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-009C | MW-901-Q119 | Groundwater | 2/14/2019 9:35:00 AM | 2/14/2019 | 3/6/2019 |
| N034178-010A | MW-62-110-Q119 | Groundwater | 2/14/2019 2:30:00 PM | 2/14/2019 | 3/6/2019 |

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab Order:** N034178
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034178-010B | MW-62-110-Q119 | Groundwater | 2/14/2019 2:30:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-010C | MW-62-110-Q119 | Groundwater | 2/14/2019 2:30:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-010D | MW-62-110-Q119 | Groundwater | 2/14/2019 2:30:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-011A | MW-34-100-Q119 | Groundwater | 2/14/2019 3:03:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-011B | MW-34-100-Q119 | Groundwater | 2/14/2019 3:03:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-011C | MW-34-100-Q119 | Groundwater | 2/14/2019 3:03:00 PM | 2/14/2019 | 3/6/2019 |
| N034178-011D | MW-34-100-Q119 | Groundwater | 2/14/2019 3:03:00 PM | 2/14/2019 | 3/6/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-60BR-245-LF_D-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 9:28:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 16000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-004

**Client Sample ID:** MW-60BR-245-LF_S-Q119
**Collection Date:** 2/14/2019 8:37:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 16000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-60BR-245-3V-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 1:35:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 16000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-63-065-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 12:26:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 6600 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-007

**Client Sample ID:** MW-58BR-Q119
**Collection Date:** 2/14/2019 1:45:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 8300 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-008

**Client Sample ID:** TW-02D-Q119
**Collection Date:** 2/14/2019 9:25:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 4300 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-009

**Client Sample ID:** MW-901-Q119
**Collection Date:** 2/14/2019 9:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 4200 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-010

**Client Sample ID:** MW-62-110-Q119
**Collection Date:** 2/14/2019 2:30:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 11000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-011

**Client Sample ID:** MW-34-100-Q119
**Collection Date:** 2/14/2019 3:03:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190215C** | QC Batch: **R131888** | | | PrepDate | | | Analyst: **MG** |
| Specific Conductance | 11000 | 0.10 | 0.10 | | umhos/cm | 1 | 2/15/2019 01:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID | N034177-001CDUP | SampType: | DUP | TestCode: | 120.1_WPGE | Units: | umhos/cm | Prep Date: | | RunNo: | 131888 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131888 | TestNo: | EPA 120.1 | | | Analysis Date: | 2/15/2019 | SeqNo: | 3291690 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 2260.000 | 0.10 | | | | | | 2230 | 1.34 | 2 | |

| Sample ID | N034178-011CDUP | SampType: | DUP | TestCode: | 120.1_WPGE | Units: | umhos/cm | Prep Date: | | RunNo: | 131888 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131888 | TestNo: | EPA 120.1 | | | Analysis Date: | 2/15/2019 | SeqNo: | 3291702 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 11100.000 | 0.10 | | | | | | 10980 | 1.09 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-02D-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 9:25:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190218D** | QC Batch: **72545** | | | PrepDate | **2/18/2019** | | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 2500 | 33 | 33 | | mg/L | 1 | 2/18/2019 12:56 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-009

**Client Sample ID:** MW-901-Q119
**Collection Date:** 2/14/2019 9:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190218D** | QC Batch: **72545** | | | | PrepDate | **2/18/2019** | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 2500 | 33 | 33 | | mg/L | 1 | 2/18/2019 12:56 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.1_2540C_W**

| Sample ID | LCS-72545 | SampType: | LCS | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 2/18/2019 | RunNo: | 131939 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72545 | TestNo: | SM2540C | | | Analysis Date: | 2/18/2019 | SeqNo: | 3293223 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 972.000 | 10 | 1000 | 0 | 97.2 | 80 | 120 | | | | |

| Sample ID | MB-72545 | SampType: | MBLK | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 2/18/2019 | RunNo: | 131939 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72545 | TestNo: | SM2540C | | | Analysis Date: | 2/18/2019 | SeqNo: | 3293224 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | ND | 10 | | | | | | | | | |

| Sample ID | N034177-002CDUP | SampType: | DUP | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 2/18/2019 | RunNo: | 131939 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72545 | TestNo: | SM2540C | | | Analysis Date: | 2/18/2019 | SeqNo: | 3293233 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 4300.000 | 50 | | | | | | 4255 | 1.05 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-001

**Client Sample ID:** MW-704-Q119
**Collection Date:** 2/14/2019 3:00:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226B** | QC Batch: **R132145** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/26/2019 05:58 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-002

**Client Sample ID:** MW-705-Q119
**Collection Date:** 2/14/2019 3:40:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226B** | QC Batch: **R132145** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 2/26/2019 06:16 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-003

**Client Sample ID:** MW-60BR-245-LF_D-Q119
**Collection Date:** 2/14/2019 9:28:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226B** QC Batch: **R132145** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 18 | 0.17 | 1.0 | | µg/L | 5 | 2/26/2019 06:35 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72522** | | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Chromium | 17 | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 11:31 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-60BR-245-LF_S-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 8:37:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| **EPA 218.6** | | | | | | | |
| RunID: **NV00922-IC7_190226B** QC Batch: **R132145** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 25 | 0.17 | 1.0 | | µg/L | 5 | 2/26/2019 06:54 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** **EPA 6020** | | | | | | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72522** | | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Chromium | 29 | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 11:37 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-60BR-245-3V-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 1:35:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226B** | QC Batch: **R132145** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 110 | 0.33 | 2.0 | | µg/L | 10 | 2/26/2019 07:42 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190228C** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Chromium | 110 | 0.13 | 1.0 | | µg/L | 1 | 2/28/2019 11:43 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-006

**Client Sample ID:** MW-63-065-Q119
**Collection Date:** 2/14/2019 12:26:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226B** QC Batch: **R132145** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 1.1 | 0.033 | 0.20 | | µg/L | 1 | 2/26/2019 08:01 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72522** | | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Chromium | 1.3 | 0.13 | 1.0 | | µg/L | 1 | 3/1/2019 12:01 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-007

**Client Sample ID:** MW-58BR-Q119
**Collection Date:** 2/14/2019 1:45:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226B** QC Batch: **R132145** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 7.4 | 0.066 | 0.40 | | µg/L | 2 | 2/26/2019 08:19 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72522** | | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Chromium | 9.4 | 0.13 | 1.0 | | µg/L | 1 | 3/1/2019 12:07 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-02D-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 9:25:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| **EPA 218.6** | | | | | | | |
| RunID: **NV00922-IC7_190226B** QC Batch: **R132145** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 120 | 0.66 | 4.0 | | µg/L | 20 | 2/26/2019 08:38 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** **EPA 6020** | | | | | | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72522** | | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Chromium | 140 | 0.13 | 1.0 | | µg/L | 1 | 3/1/2019 12:19 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-009

**Client Sample ID:** MW-901-Q119
**Collection Date:** 2/14/2019 9:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226B** | QC Batch: **R132145** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | 120 | 0.66 | 4.0 | | µg/L | 20 | 2/26/2019 09:07 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190228C** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Chromium | 130 | 0.13 | 1.0 | | µg/L | 1 | 3/1/2019 12:25 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-010

**Client Sample ID:** MW-62-110-Q119
**Collection Date:** 2/14/2019 2:30:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190227A** QC Batch: **R132155** | | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.17 | 1.0 | | µg/L | 5 | 2/27/2019 10:14 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190228C** QC Batch: **72522** | | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 3/1/2019 12:31 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-34-100-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 3:03:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190226B** | QC Batch: **R132145** | | | PrepDate | | | Analyst: **HG** |
| Hexavalent Chromium | ND | 0.17 | 1.0 | | µg/L | 5 | 2/26/2019 10:04 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190228C** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Chromium | 1.7 | 0.13 | 1.0 | | µg/L | 1 | 3/1/2019 12:37 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **LCS-R132145** | SampType: **LCS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303253** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.101 | 0.20 | 5.000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **MB-R132145** | SampType: **MBLK** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303256** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **N034178-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303258** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.121 | 0.20 | 1.000 | 0.07780 | 104 | 90 | 110 | | | | |

| Sample ID **N034178-002AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303260** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.108 | 0.20 | 1.000 | 0.07260 | 103 | 90 | 110 | | | | |

| Sample ID **N034178-003AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303262** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 43.445 | 1.0 | 25.00 | 17.57 | 104 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **N034178-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132145**
Client ID: **ZZZZZZ** Batch ID: **R132145** TestNo: **EPA 218.6** Analysis Date: **2/26/2019** SeqNo: **3303264**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 51.559 | 1.0 | 25.00 | 25.12 | 106 | 90 | 110 | | | | |

Sample ID **N034178-003AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132145**
Client ID: **ZZZZZZ** Batch ID: **R132145** TestNo: **EPA 218.6** Analysis Date: **2/26/2019** SeqNo: **3303265**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 42.958 | 1.0 | 25.00 | 17.57 | 102 | 90 | 110 | 43.44 | 1.13 | 20 | |

Sample ID **N034178-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132145**
Client ID: **ZZZZZZ** Batch ID: **R132145** TestNo: **EPA 218.6** Analysis Date: **2/26/2019** SeqNo: **3303269**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 161.412 | 2.0 | 50.00 | 111.0 | 101 | 90 | 110 | | | | |

Sample ID **N034178-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132145**
Client ID: **ZZZZZZ** Batch ID: **R132145** TestNo: **EPA 218.6** Analysis Date: **2/26/2019** SeqNo: **3303271**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 2.127 | 0.20 | 1.000 | 1.120 | 101 | 90 | 110 | | | | |

Sample ID **N034178-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132145**
Client ID: **ZZZZZZ** Batch ID: **R132145** TestNo: **EPA 218.6** Analysis Date: **2/26/2019** SeqNo: **3303273**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 17.629 | 0.40 | 10.00 | 7.413 | 102 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **N034178-008AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303275** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 228.770 | 4.0 | 100.0 | 124.3 | 105 | 90 | 110 | | | | |

| Sample ID **N034178-006ADUP** | SampType: **DUP** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303276** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.112 | 0.20 | | | | | | 1.120 | 0.806 | 20 | |

| Sample ID **N034178-009AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303280** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 231.664 | 4.0 | 100.0 | 124.7 | 107 | 90 | 110 | | | | |

| Sample ID **N034178-011AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303282** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.326 | 1.0 | 5.000 | 0 | 107 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | MB-R132155 | SampType: | MBLK | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132155 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132155 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3303760 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID | LCS-R132155 | SampType: | LCS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132155 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132155 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3303761 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.147 | 0.20 | 5.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID | N034178-010AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132155 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132155 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3303763 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.242 | 1.0 | 5.000 | 0 | 105 | 90 | 110 | | | | |

| Sample ID | N034342-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132155 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132155 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3303765 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.091 | 1.0 | 5.000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID | N034344-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132155 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132155 | TestNo: | EPA 218.6 | | | Analysis Date: | 2/27/2019 | SeqNo: | 3303769 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.025 | 1.0 | 5.000 | 0 | 101 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | **N034178-010AMSD** | SampType: | **MSD** | TestCode: | **218.6_WPGE** | Units: | **µg/L** | Prep Date: | | RunNo: | **132155** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: | **R132155** | TestNo: | **EPA 218.6** | | | Analysis Date: | **2/27/2019** | SeqNo: | **3303770** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.255 | 1.0 | 5.000 | 0 | 105 | 90 | 110 | 5.242 | 0.248 | 20 | |

| Sample ID | **N034342-001ADUP** | SampType: | **DUP** | TestCode: | **218.6_WPGE** | Units: | **µg/L** | Prep Date: | | RunNo: | **132155** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: | **R132155** | TestNo: | **EPA 218.6** | | | Analysis Date: | **2/27/2019** | SeqNo: | **3303771** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 1.0 | | | | | | 0 | 0 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **MB-72522** | SampType: **MBLK** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: **2/18/2019** | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72522** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/28/2019** | SeqNo: **3306171** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **LCS-72522** | SampType: **LCS** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: **2/18/2019** | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72522** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/28/2019** | SeqNo: **3306172** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.136 | 1.0 | 10.00 | 0 | 101 | 85 | 115 | | | | |

| Sample ID **N034160-001A-MS** | SampType: **MS** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: **2/18/2019** | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72522** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/28/2019** | SeqNo: **3306179** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.527 | 1.0 | 10.00 | 0.6990 | 98.3 | 75 | 125 | | | | |

| Sample ID **N034160-001A-MSD** | SampType: **MSD** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: **2/18/2019** | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72522** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/28/2019** | SeqNo: **3306180** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.668 | 1.0 | 10.00 | 0.6990 | 99.7 | 75 | 125 | 10.53 | 1.32 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-02D-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 9:25:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190220F** | QC Batch: **R131990** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 85 | 1.2 | 5.0 | | mg/L | 1 | 2/20/2019 05:30 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-009

**Client Sample ID:** MW-901-Q119
**Collection Date:** 2/14/2019 9:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190220F** | QC Batch: **R131990** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 85 | 1.2 | 5.0 | | mg/L | 1 | 2/20/2019 05:30 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 2320_W_SP**

| Sample ID **LCS-R131990** | SampType: **LCS** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | RunNo: **131990** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R131990** | TestNo: **SM 2320 B** | | Analysis Date: **2/20/2019** | SeqNo: **3295435** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 102.620 | 5.0 | 100.0 | 0 | 103 | 85 | 115 | | | | |

| Sample ID **MB-R131990** | SampType: **MBLK** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | RunNo: **131990** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R131990** | TestNo: **SM 2320 B** | | Analysis Date: **2/20/2019** | SeqNo: **3295436** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | ND | 5.0 | | | | | | | | | |

| Sample ID **N034178-008CDUP** | SampType: **DUP** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | RunNo: **131990** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131990** | TestNo: **SM 2320 B** | | Analysis Date: **2/20/2019** | SeqNo: **3295440** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 85.153 | 5.0 | | | | | | 85.15 | 0 | 30 | |

| Sample ID **N034178-008CMS** | SampType: **MS** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | RunNo: **131990** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131990** | TestNo: **SM 2320 B** | | Analysis Date: **2/20/2019** | SeqNo: **3295441** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 181.223 | 5.0 | 100.0 | 85.15 | 96.1 | 75 | 125 | | | | |

| Sample ID **N034178-008CMSD** | SampType: **MSD** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | RunNo: **131990** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R131990** | TestNo: **SM 2320 B** | | Analysis Date: **2/20/2019** | SeqNo: **3295442** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 183.406 | 5.0 | 100.0 | 85.15 | 98.3 | 75 | 125 | 181.2 | 1.20 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-008

**Client Sample ID:** TW-02D-Q119
**Collection Date:** 2/14/2019 9:25:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190225B** QC Batch: **R132104** | | | | PrepDate | | | Analyst: **HG** |
| Bromide | ND | 0.098 | 2.5 | | mg/L | 5 | 2/25/2019 07:40 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190218A** QC Batch: **R131955** | | | | PrepDate | | | Analyst: **HG** |
| Chloride | 1200 | 4.6 | 250 | | mg/L | 500 | 2/18/2019 01:07 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190220A** QC Batch: **R131992** | | | | PrepDate | | | Analyst: **HG** |
| Sulfate | 260 | 1.1 | 25 | | mg/L | 50 | 2/20/2019 03:26 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-009

**Client Sample ID:** MW-901-Q119
**Collection Date:** 2/14/2019 9:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190225B** QC Batch: **R132104** | | | | PrepDate | | | Analyst: **HG** |
| Bromide | ND | 0.098 | 2.5 | | mg/L | 5 | 2/25/2019 08:09 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190218A** QC Batch: **R131955** | | | | PrepDate | | | Analyst: **HG** |
| Chloride | 1200 | 4.6 | 250 | | mg/L | 500 | 2/18/2019 01:21 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190220A** QC Batch: **R131992** | | | | PrepDate | | | Analyst: **HG** |
| Sulfate | 260 | 1.1 | 25 | | mg/L | 50 | 2/20/2019 04:57 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_BRPGE**

| Sample ID | MB-R132104_BR | SampType: | MBLK | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132104 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132104 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301419 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | ND | 0.50 | | | | | | | | | |

| Sample ID | LCS-R132104_BR | SampType: | LCS | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132104 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132104 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301420 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 1.125 | 0.50 | 1.250 | 0 | 90.0 | 90 | 110 | | | | |

| Sample ID | N034178-008CDUP | SampType: | DUP | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132104 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132104 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301426 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 0.294 | 2.5 | | | | | | 0.3120 | 0 | 20 | |

| Sample ID | N034178-009CMS | SampType: | MS | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132104 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132104 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301428 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 6.404 | 2.5 | 6.250 | 0.2765 | 98.0 | 80 | 120 | | | | |

| Sample ID | N034178-009CMSD | SampType: | MSD | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132104 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132104 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/25/2019 | SeqNo: | 3301429 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 6.414 | 2.5 | 6.250 | 0.2765 | 98.2 | 80 | 120 | 6.404 | 0.156 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID | MB-R131955_CL | SampType: | MBLK | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 131955 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R131955 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/18/2019 | SeqNo: | 3294337 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.161 | 0.50 | | | | | | | | | |

| Sample ID | LCS-R131955_CL | SampType: | LCS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 131955 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R131955 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/18/2019 | SeqNo: | 3294338 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 2.004 | 0.50 | 2.000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID | N034178-008CDUP | SampType: | DUP | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 131955 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131955 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/18/2019 | SeqNo: | 3294346 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1233.850 | 250 | | | | | | 1234 | 0.0122 | 20 | |

| Sample ID | N034177-001CMS | SampType: | MS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 131955 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131955 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/18/2019 | SeqNo: | 3294349 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 850.740 | 100 | 400.0 | 461.3 | 97.4 | 80 | 120 | | | | |

| Sample ID | N034177-001CMSD | SampType: | MSD | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 131955 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131955 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/18/2019 | SeqNo: | 3294350 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 858.520 | 100 | 400.0 | 461.3 | 99.3 | 80 | 120 | 850.7 | 0.910 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID | MB-R131992_SO4 | SampType: | MBLK | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296105 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.273 | 0.50 | | | | | | | | | |

| Sample ID | LCS-R131992_SO4 | SampType: | LCS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296106 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.877 | 0.50 | 4.000 | 0 | 96.9 | 90 | 110 | | | | |

| Sample ID | N034107-002CMS | SampType: | MS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296114 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 91.407 | 5.0 | 40.00 | 52.18 | 98.1 | 80 | 120 | | | | |

| Sample ID | N034107-002CMSD | SampType: | MSD | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296117 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 90.904 | 5.0 | 40.00 | 52.18 | 96.8 | 80 | 120 | 91.41 | 0.552 | 20 | |

| Sample ID | N034178-008CDUP | SampType: | DUP | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296119 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 262.965 | 25 | | | | | | 262.8 | 0.0818 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID | N034183-001CMS | SampType: | MS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 131992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R131992 | TestNo: | EPA 300.0 | | | Analysis Date: | 2/20/2019 | SeqNo: | 3296121 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 45.655 | 2.5 | 20.00 | 25.79 | 99.3 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-60BR-245-LF_D-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 9:28:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190304F** | QC Batch: **R132259** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.18 | 0.032 | 0.050 | | mg/L | 1 | 3/4/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-60BR-245-LF_S-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 8:37:00 AM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190304F** | QC Batch: **R132259** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.18 | 0.032 | 0.050 | | mg/L | 1 | 3/4/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-60BR-245-3V-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 1:35:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190228A** | QC Batch: **R132206** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.27 | 0.032 | 0.050 | | mg/L | 1 | 2/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-63-065-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 12:26:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190228A** | QC Batch: **R132206** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.77 | 0.032 | 0.050 | | mg/L | 1 | 2/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-58BR-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 1:45:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190228A** | QC Batch: **R132206** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.61 | 0.032 | 0.050 | | mg/L | 1 | 2/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-62-110-Q119 |
| **Lab Order:** | N034178 | **Collection Date:** | 2/14/2019 2:30:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034178-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | **SM4500-NO3F** | | | |
| RunID: **NV00922-WC_190228A** | QC Batch: **R132206** | | | PrepDate | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.28 | 0.032 | 0.050 | | mg/L | 1 | 2/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-011

**Client Sample ID:** MW-34-100-Q119
**Collection Date:** 2/14/2019 3:03:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190228A** | QC Batch: **R132206** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | ND | 0.032 | 0.050 | | mg/L | 1 | 2/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **MB-R132206** | **MBLK** | **4500N03F_W** | **mg/L** | | **132206** |
| Client ID: **PBW** | Batch ID: **R132206** | TestNo: **SM4500-NO3** | | Analysis Date: **2/28/2019** | SeqNo: **3305193** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.048 | 0.050 | | | | | | | | | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **LCS-R132206** | **LCS** | **4500N03F_W** | **mg/L** | | **132206** |
| Client ID: **LCSW** | Batch ID: **R132206** | TestNo: **SM4500-NO3** | | Analysis Date: **2/28/2019** | SeqNo: **3305194** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.510 | 0.050 | 0.5000 | 0 | 102 | 85 | 115 | | | | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **N034178-005DDUP** | **DUP** | **4500N03F_W** | **mg/L** | | **132206** |
| Client ID: **ZZZZZZ** | Batch ID: **R132206** | TestNo: **SM4500-NO3** | | Analysis Date: **2/28/2019** | SeqNo: **3305198** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.282 | 0.050 | | | | | | 0.2715 | 3.69 | 20 | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **N034178-006DMS** | **MS** | **4500N03F_W** | **mg/L** | | **132206** |
| Client ID: **ZZZZZZ** | Batch ID: **R132206** | TestNo: **SM4500-NO3** | | Analysis Date: **2/28/2019** | SeqNo: **3305200** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 1.269 | 0.050 | 0.5000 | 0.7663 | 101 | 75 | 125 | | | | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **N034178-006DMSD** | **MSD** | **4500N03F_W** | **mg/L** | | **132206** |
| Client ID: **ZZZZZZ** | Batch ID: **R132206** | TestNo: **SM4500-NO3** | | Analysis Date: **2/28/2019** | SeqNo: **3305201** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 1.259 | 0.050 | 0.5000 | 0.7663 | 98.5 | 75 | 125 | 1.269 | 0.807 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | MB-R132259 | SampType: | MBLK | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132259 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132259 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/4/2019 | SeqNo: | 3307397 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID | LCS-R132259 | SampType: | LCS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132259 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132259 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/4/2019 | SeqNo: | 3307398 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.536 | 0.050 | 0.5000 | 0 | 107 | 85 | 115 | | | | |

| Sample ID | N034178-003DDUP | SampType: | DUP | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132259 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132259 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/4/2019 | SeqNo: | 3307400 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.166 | 0.050 | | | | | | 0.1763 | 6.02 | 20 | |

| Sample ID | N034178-004DMS | SampType: | MS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132259 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132259 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/4/2019 | SeqNo: | 3307402 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.711 | 0.050 | 0.5000 | 0.1840 | 105 | 75 | 125 | | | | |

| Sample ID | N034178-004DMSD | SampType: | MSD | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132259 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132259 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/4/2019 | SeqNo: | 3307403 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.739 | 0.050 | 0.5000 | 0.1840 | 111 | 75 | 125 | 0.7107 | 3.96 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-003

**Client Sample ID:** MW-60BR-245-LF_D-Q119
**Collection Date:** 2/14/2019 9:28:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Arsenic | 6.6 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 11:31 PM |
| Manganese | 21 | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 11:31 PM |
| Molybdenum | 62 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 11:31 PM |
| Selenium | 2.2 | 0.36 | 0.50 | | µg/L | 1 | 3/1/2019 05:46 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-004

**Client Sample ID:** MW-60BR-245-LF_S-Q119
**Collection Date:** 2/14/2019 8:37:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | Analyst: **CEI** | |
| Arsenic | 7.3 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 11:37 PM |
| Manganese | 21 | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 11:37 PM |
| Molybdenum | 63 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 11:37 PM |
| Selenium | 2.9 | 0.36 | 0.50 | | µg/L | 1 | 2/28/2019 11:37 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-005

**Client Sample ID:** MW-60BR-245-3V-Q119
**Collection Date:** 2/14/2019 1:35:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | | Analyst: **CEI** |
| Arsenic | 7.3 | 0.081 | 0.10 | | µg/L | 1 | 2/28/2019 11:43 PM |
| Manganese | 13 | 0.26 | 0.50 | | µg/L | 1 | 2/28/2019 11:43 PM |
| Molybdenum | 57 | 0.21 | 0.50 | | µg/L | 1 | 2/28/2019 11:43 PM |
| Selenium | 2.1 | 0.36 | 0.50 | | µg/L | 1 | 3/1/2019 05:52 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-006

**Client Sample ID:** MW-63-065-Q119
**Collection Date:** 2/14/2019 12:26:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | Analyst: **CEI** | |
| Arsenic | 1.6 | 0.081 | 0.10 | | µg/L | 1 | 3/1/2019 12:01 AM |
| Manganese | 22 | 0.26 | 0.50 | | µg/L | 1 | 3/1/2019 12:01 AM |
| Molybdenum | 18 | 0.21 | 0.50 | | µg/L | 1 | 3/1/2019 12:01 AM |
| Selenium | 0.83 | 0.36 | 0.50 | | µg/L | 1 | 3/1/2019 06:40 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-007

**Client Sample ID:** MW-58BR-Q119
**Collection Date:** 2/14/2019 1:45:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | Analyst: **CEI** | |
| Arsenic | 1.7 | 0.081 | 0.10 | | µg/L | 1 | 3/1/2019 12:07 AM |
| Manganese | 320 | 1.3 | 2.5 | | µg/L | 5 | 3/1/2019 12:13 AM |
| Molybdenum | 26 | 0.21 | 0.50 | | µg/L | 1 | 3/1/2019 12:07 AM |
| Selenium | 1.8 | 0.36 | 0.50 | | µg/L | 1 | 3/1/2019 12:07 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-008

**Client Sample ID:** TW-02D-Q119
**Collection Date:** 2/14/2019 9:25:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | Analyst: **CEI** | |
| Manganese | 4.6 | 0.26 | 0.50 | | µg/L | 1 | 3/1/2019 12:19 AM |
| Molybdenum | 11 | 0.21 | 0.50 | | µg/L | 1 | 3/1/2019 12:19 AM |
| Selenium | 2.4 | 0.36 | 0.50 | | µg/L | 1 | 3/1/2019 06:16 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-009

**Client Sample ID:** MW-901-Q119
**Collection Date:** 2/14/2019 9:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | Analyst: **CEI** | |
| Manganese | 11 | 0.26 | 0.50 | | µg/L | 1 | 3/1/2019 12:25 AM |
| Molybdenum | 11 | 0.21 | 0.50 | | µg/L | 1 | 3/1/2019 12:25 AM |
| Selenium | 2.2 | 0.36 | 0.50 | | µg/L | 1 | 3/1/2019 12:25 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-010

**Client Sample ID:** MW-62-110-Q119
**Collection Date:** 2/14/2019 2:30:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | Analyst: **CEI** | |
| Arsenic | 13 | 0.081 | 0.10 | | µg/L | 1 | 3/1/2019 12:31 AM |
| Manganese | 140 | 0.26 | 0.50 | | µg/L | 1 | 3/1/2019 12:31 AM |
| Molybdenum | 69 | 0.21 | 0.50 | | µg/L | 1 | 3/1/2019 12:31 AM |
| Selenium | 1.1 | 0.36 | 0.50 | | µg/L | 1 | 3/1/2019 06:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034178-011

**Client Sample ID:** MW-34-100-Q119
**Collection Date:** 2/14/2019 3:03:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190228B** | QC Batch: **72522** | | | PrepDate | **2/18/2019** | Analyst: **CEI** | |
| Arsenic | 1.4 | 0.081 | 0.10 | | µg/L | 1 | 3/1/2019 12:37 AM |
| Manganese | 110 | 0.26 | 0.50 | | µg/L | 1 | 3/1/2019 12:37 AM |
| Molybdenum | 62 | 0.21 | 0.50 | | µg/L | 1 | 3/1/2019 12:37 AM |
| Selenium | ND | 0.36 | 0.50 | | µg/L | 1 | 3/1/2019 12:37 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **MB-72522** | SampType: **MBLK** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/18/2019** | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72522** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/28/2019** | SeqNo: **3306001** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **LCS-72522** | SampType: **LCS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/18/2019** | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72522** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/28/2019** | SeqNo: **3306002** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.984 | 0.10 | 10.00 | 0 | 99.8 | 85 | 115 | | | | |
| Manganese | 104.249 | 0.50 | 100.0 | 0 | 104 | 85 | 115 | | | | |
| Molybdenum | 9.330 | 0.50 | 10.00 | 0 | 93.3 | 85 | 115 | | | | |
| Selenium | 9.653 | 0.50 | 10.00 | 0 | 96.5 | 85 | 115 | | | | |

| Sample ID **N034160-001A-MS** | SampType: **MS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/18/2019** | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72522** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/28/2019** | SeqNo: **3306009** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 44.187 | 0.50 | 10.00 | 32.38 | 118 | 75 | 125 | | | | |
| Selenium | 14.259 | 0.50 | 10.00 | 4.527 | 97.3 | 75 | 125 | | | | |

| Sample ID **N034160-001A-MSD** | SampType: **MSD** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **2/18/2019** | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72522** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/28/2019** | SeqNo: **3306010** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 44.452 | 0.50 | 10.00 | 32.38 | 121 | 75 | 125 | 44.19 | 0.597 | 20 | |
| Selenium | 14.021 | 0.50 | 10.00 | 4.527 | 94.9 | 75 | 125 | 14.26 | 1.68 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | N034160-001A-MS | SampType: | MS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/18/2019 | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72522 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306013 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 474.454 | 2.5 | 100.0 | 374.8 | 99.7 | 75 | 125 | | | | |

| Sample ID | N034160-001A-MSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/18/2019 | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72522 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306014 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 480.158 | 2.5 | 100.0 | 374.8 | 105 | 75 | 125 | 474.5 | 1.19 | 20 | |

| Sample ID | N034160-001A-MS | SampType: | MS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/18/2019 | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72522 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306476 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 10.506 | 0.10 | 10.00 | 0.2475 | 103 | 75 | 125 | | | | |

| Sample ID | N034160-001A-MS | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 2/18/2019 | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72522 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306477 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 10.380 | 0.10 | 10.00 | 0.2475 | 101 | 75 | 125 | 10.51 | 1.20 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# SAMPLE RECEIVING ITEMS

# ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

## CHAIN OF CUSTODY RECORD


Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com


Page 1 of 2

| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID: |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State: |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: | Sample Receipt Condition (Y / N): 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number 2; 6. Method of Cooling: ICE; Sample Temp: 2.3°C |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@pivox.com | P.O.# SWA-ASSET-C9817-057 |
| Submitted By: Joe Gatel | | Phone: 949-727-1400, ext 200 | Fax: |
| Title: Scientist | Phone: 916-786-3302 Fax: | | |
| Signature: Date: 2/14/2019 | Sampled By: Jordan Tetmire | | |
| I hereby authorize ASSET Labs to perform the tests indicated below. | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action. | | |
| Project Name: PG&E Topock - GMP | Signature: | Date: 2/14/2019 | |
| Project Number: RC000753.801D | | | |

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly) | (2x250 mL poly) | Metals Dissolved (SW 6020) Arsenic; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Cr; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Manganese; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Molybdenum; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Selenium; HNO3 (500 mL poly) | (500 mL poly) | (500 mL poly) | (500 mL poly) | (500 mL poly) | (500 mL poly) | (500 mL poly) | Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly) | Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly) | Specific Conductance (EPA 120.1) (1 liter poly) | Total Dissolved Solids (SM92540) (1 liter poly) | Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly) | (1 liter poly) | (500 mL poly) | (3x40 mL poly) | (250 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034178-01 | MW-704-Q119 | 2/14/2019 | 15:00 | | X | | | | | | | | | | | | | | | | | | | | | E | 1 | P | B | |
| 2 | -02 | MW-705-Q119 | 2/14/2019 | 15:40 | | X | | | | | | | | | | | | | | | | | | | | | E | 1 | P | B | |
| 3 | -03 | MW-60BR-245-LF_D-Q119 | 2/14/2019 | 9:28 | | X | | X | X | X | X | X | | | | | | | X | | X | | | | | | E | 4 | P | BNS | |
| 4 | -04 | MW-60BR-245-LF_S-Q119 | 2/14/2019 | 8:37 | | X | | X | X | X | X | X | | | | | | | X | | X | | | | | | E | 4 | P | BNS | |
| 5 | -05 | MW-60BR-245-3V-Q119 | 2/14/2019 | 13:35 | | X | | X | X | X | X | X | | | | | | | X | | X | | | | | | E | 4 | P | BNS | |
| 6 | -06 | MW-63-065-Q119 | 2/14/2019 | 12:26 | | X | | X | X | X | X | X | | | | | | | X | | X | | | | | | E | 4 | P | BNS | |
| 7 | -07 | MW-58BR-Q119 | 2/14/2019 | 13:45 | | X | | X | X | X | X | X | | | | | | | X | | X | | | | | | E | 4 | P | BNS | |
| 8 | -08 | TW-02D-Q119 | 2/14/2019 | 9:25 | | X | | | X | X | X | X | | | | | | | | | X | | | | | | E | 3 | P | BNS | |
| 9 | -09 | MW-901-Q119 | 2/14/2019 | 9:35 | | X | | | X | X | X | X | | | | | | | | | X | | | | | | E | 3 | P | BNS | |
| 10 | -10 | MW-62-110-Q119 | 2/14/2019 | 14:30 | | X | | X | X | X | X | X | | | | | | | X | | X | | | | | | E | 4 | P | BNS | |

| Relinquished by (Signature and Printed Name): | Date/Time: | Received by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| Jordan Tetmire | 2/14/19 1610 | JORDAN Lee | 2-14-19 1610 |
| Jordan Lee | 2-14-19 1650 | JORDAN Lee | 2-14-19 1650 |
| | | | |

**Turn Around Time (TAT)**

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

**Preservatives:**

| | | | |
|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C |
| Z=$Zn(AC)_2$ | O=NaOH | T=$Na_2S_2O_3$ | |
| Others/Specify: | B | (NH4)2SO4/NH4OH | |

**Container Type:**

| | | |
|---|---|---|
| T=Tube | V=VOA | P=Pint |
| J=Jar | B=Tedlar | G=Glass |
| M=Metal | M=Metal | C=Can |

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD



| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement: Others ✓ (Specify: RWQCB) |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | QA/QC: RWQCB ✓ |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: | Global ID: |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@pivox.com | P.O.# SWA-ASSET-C9817-057 |
| Submitted By: Joe Gatel | | Phone: 949-727-1400, ext 200 | Fax: |
| Title: Scientist | Phone: 916-786-3302 Fax: | | Specify State: |
| Signature: Date: 2/14/2019 | Sampled By: Jordan Teyma | | |
| I hereby authorize ASSET Labs to perform the tests indicated below. | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action. | | |
| Project Name: PG&E Topock - GMP | Signature: Date: 2/14/2019 | | |
| Project Number: RC000753.801D | | | |

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Sample Receipt Condition: 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number 2; 6. Method of Cooling: Ice; Sample Temp: 2.4°C; Courier:; Tracking No.:

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly) | (2x250 mL poly) | Metals Dissolved (SW 6020) Arsenic; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Cr; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Manganese; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Molybdenum; HNO3 (500 mL poly) | Metals Dissolved (SW 6020) Selenium; HNO3 (500 mL poly) | (500 mL poly) | (500 mL poly) | (500 mL poly) | (500 mL poly) | (500 mL poly) | (500 mL poly) | Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly) | Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly) | Specific Conductance (EPA 120.1) (1 liter poly) | Total Dissolved Solids (SM92540) (1 liter poly) | Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly) | (1 liter poly) | (500 mL poly) | (3x40 mL poly) | (250 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034178-11 | MW-34-100-Q119 | 2/14/2019 | 15:03 | | X | | X | X | X | X | X | | | | | | | X | | X | | | | | | | m | 4 | P | BNS | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| Jordan Teyma | 2/14/19 1440 | JORDAN IGC | 2-14-19 1610 |
| JORDAN IGC | 2/14/19 | JORDAN IGC | 2-14-19 1950 |
| | | | |

**Turn Around Time (TAT)**

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

**Terms**
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 5% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

**Preservatives:**

| | | | |
|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C |
| Z=Zn(AC)$_2$ | O=NaOH | T=$Na_2S_2O_3$ | |
| Others/Specify: | B | (NH4)2SO4/NH4OH | |

**Container Type:**

| | | |
|---|---|---|
| T=Tube | V=VOA | P=Pint |
| J=Jar | B=Tedlar | G=Glass |
| M=Metal | M=Metal | C=Can |

White=Laboratory Copy
Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 2/14/2019 | Workorder: | N034178 |
| Rep sample Temp (Deg C): | 2.3 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | N/A | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☑ | No ☐ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☐ | No ☐ | NA ☑ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments:

Checklist Completed By: RM 2/18/2019

Reviewed By: LG 022019

**Subject:** FW: N034177 and N034178 COCs and Work Order Summaries for Samples Received 2/14/2019
**From:** "Madsen, Laura" <Laura.Madsen@arcadis.com>
**Date:** 2/15/2019 1:32 PM
**To:** Yoandra Rodriguez <yoandra@assetlaboratories.com>, "nancy@assetlaboratories.com" <nancy@assetlaboratories.com>, "marlon@assetlaboratories.com" <marlon@assetlaboratories.com>
**CC:** "Gatel, Joe" <Joseph.Gatel@arcadis.com>, Tina Rice <Tina.Rice@critigen.com>, "Madsen, Laura" <Laura.Madsen@arcadis.com>

Hi Yoandra,
A few analytes were inadvertently left off the COC. Can you get these analysis from the 1 liter poly unpres that was submitted? These two samples will need these 5 analytes added.

N034178-08
N034178-09

| |
|---|
| Total dissolved solids |
| Chloride |
| Bromide |
| Alkalinity, total as CaCO3 |
| Sulfate |

Thanks!
Laura

---

**From:** Sample Control <samplecontrol.lv@assetlaboratories.com>
**Sent:** Friday, February 15, 2019 1:25 PM
**To:** Bush, Dan <Dan.Bush@arcadis.com>; Dan Moore <Daniel.Moore@critigen.com>
**Cc:** Madsen, Laura <Laura.Madsen@arcadis.com>; Sean.Maurel@arcadis.com; Tina Rice <Tina.Rice@critigen.com>; Kalib Sumter <Kalib.Sumter@critigen.com>; rsunjara@blainetech.com; Vadpey, Nick <Nicholas.Vadpey@arcadis.com>; Harmon, Alison <Ali.Harmon@arcadis.com>; Serna, Erica <Erica.Serna@arcadis.com>; jmahn@blainetech.com; Borelis, Mariah <Mariah.Borelis@arcadis.com>; Bloes, Marty <mbloes@pivox.com>
**Subject:** N034177 and N034178 COCs and Work Order Summaries for Samples Received 2/14/2019

Hi Dan Bush:

Enclosed are COCs and WO Summaries for samples received 2/14/2019. If you have any questions, please contact your Project Manager listed below.

**Marlon Cartin**
3151 W. Post Road
Las Vegas, Nevada
89118
**Tel. No.:** (702)-307-2659 Ext. 410
**Cel. No.:** (702)-439-0421
**Email:** marlon@assetlaboratories.com

Thank you for using ASSET Laboratories.

Sincerely,
Mary Ann Balilu
Sample Control Officer



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | **P:** 562.219.7435 | **F:** 562.219.7436
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | **P:** 702.307.2659 | **F:** 702.307.2691
www.assetlaboratories.com

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www.avast.com

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Attachments:

| | |
|---|---|
| ~WRD000.jpg | 0 bytes |
| N034177.pdf | 75.6 KB |
| N034177COC.xls | 17.0 KB |
| N034178.pdf | 141 KB |
| N034178COC.xls | 26.5 KB |

# ASSET Laboratories

## WORK ORDER Summary

*18-Feb-19*

**WorkOrder:** N034178

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/14/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034178-001A | MW-704-Q119 | 2/14/2019 3:00:00 PM | 2/28/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034178-002A | MW-705-Q119 | 2/14/2019 3:40:00 PM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034178-003A | MW-60BR-245-LF_D-Q119 | 2/14/2019 9:28:00 AM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034178-003B | | | 2/28/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034178-003C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034178-003D | | | 2/28/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034178-004A | MW-60BR-245-LF_S-Q119 | 2/14/2019 8:37:00 AM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034178-004B | | | 2/28/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034178-004C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034178-004D | | | 2/28/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034178-005A | MW-60BR-245-3V-Q119 | 2/14/2019 1:35:00 PM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034178-005B | | | 2/28/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034178-005C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034178-005D | | | 2/28/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034178-006A | MW-63-065-Q119 | 2/14/2019 12:26:00 PM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*18-Feb-19*

**WorkOrder:** N034178

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/14/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034178-006B | MW-63-065-Q119 | 2/14/2019 12:26:00 PM | 2/28/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034178-006C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034178-006D | | | 2/28/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034178-007A | MW-58BR-Q119 | 2/14/2019 1:45:00 PM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034178-007B | | | 2/28/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034178-007C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034178-007D | | | 2/28/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034178-008A | TW-02D-Q119 | 2/14/2019 9:25:00 AM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034178-008B | | | 2/28/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034178-008C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |

## WORK ORDER Summary

*18-Feb-19*

**WorkOrder:** N034178

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/14/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034178-008C | TW-02D-Q119 | 2/14/2019 9:25:00 AM | 2/28/2019 | Groundwater | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | WW |
| N034178-009A | MW-901-Q119 | 2/14/2019 9:35:00 AM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034178-009B | | | 2/28/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034178-009C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | WW |
| N034178-010A | MW-62-110-Q119 | 2/14/2019 2:30:00 PM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034178-010B | | | 2/28/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034178-010C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034178-010D | | | 2/28/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034178-011A | MW-34-100-Q119 | 2/14/2019 3:03:00 PM | 2/28/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034178-011B | | | 2/28/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

## WORK ORDER Summary

*18-Feb-19*

**WorkOrder:** N034178

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 2/14/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034178-011B | MW-34-100-Q119 | 2/14/2019 3:03:00 PM | 2/28/2019 | Groundwater | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 2/28/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034178-011C | | | 2/28/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| N034178-011D | | | 2/28/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034178-012A | FOLDER | 2/28/2019 | 2/28/2019 | | EDD | RWQCB | ☐ | ☐ | ☐ | LAB |
| | | | 2/28/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 2/28/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# List of Analysts

## ASSET Laboratories Work Order: N034178

| NAME | TEST METHOD |
|---|---|
| Quennie Manimtim | SM 4500-NO3F |
| Claire Ignacio | EPA 6020_Dissolved |
| Lilia Ramit | SM 2540C, SM 2320 B |
| Mark Gesmundo | EPA 120.1 |
| Hanah Glodoviza | EPA 218.6, EPA 300.0 |

# EPA 120.1

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R131888 **Analyst:** MG

**ASSET #:** N034178 **Date Analyzed:** 15-Feb

**Method:** EPA 120.1

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | | | X | | | |
| 11. LCS compounds within control limits. | | | X | | | |
| 12. MS/MSD RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 2/25/2019

2nd Level Reviewer: [illegible] 2/28/2019 Date: —

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

# Conductivity Logbook

**Date:** 2/15/19 1300

**Analyst:** MG

| Standard | Std ID | Reading | Comments |
|---|---|---|---|
| 11.26 µs/cm | CINV-181107A | 11.8 @ 20.0°C | % Rec: (90-110%) |
| 1410 \| | 190107D | 1408 @ 19.9°C | |
| 9988 \| | 160731 I | 9970 @ 19.8°C | |
| 99601 – | 181121B | 99400 @ 20.1°C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | N034177-1C | $H_2O$ | 2230 @ 19.1°C | |
| 2 | 1 1CDUP | | 2280 @ 18.8°C | |
| 3 | 2C | | 7650 @ 18.4°C | |
| 4 | N034176-3C | | 16340 @ 19.8°C | |
| 5 | 4C | | 16280 @ 19.3°C | |
| 6 | 5C | | 16410 @ 19.3°C | |
| 7 | 6C | | 6650 @ 18.2°C | |
| 8 | 7C | | 8320 @ 18.9°C | |
| 9 | 8C | | 4290 @ 18.6°C | |
| 10 | 9C | | 4180 @ 18.6°C | |
| Dup | ✓ 10C | | 11130 @ 18.2°C | Accept: 10% water, 20% soil |
| | Std Chk: | – | | % Rec: (90-110%) |

Julia Ramit 2/25/2019

**Date:**

**Analyst:** Cont'd

| Standard | Std ID | Reading | Comments |
|---|---|---|---|
| 1413 µs/cm | CINV-181022A | 1406 @ 20.2°C | % Rec: (90-110%) |
| 10000 \| | B | 9830 @ 20.4°C | |
| 99922 – | C | 96900 @ 20.5°C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | N034178-11C | $H_2O$ | 10980 @ 20.3°C | |
| 2 | 11C DUP | 1 | 11100 @ 19.9°C | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | 1413 µs/cm | CINV-181022A | 1410 @ 20.3°C | |
| 7 | 10000 \| | B | 9910 @ 20.5°C | |
| 8 | 99922 – | C | 97400 @ 20.6°C | |
| 9 | | | | |
| 10 | | | | |
| Dup | | | | Accept: 10% water, 20% soil |
| | Std Chk: | | | % Rec: (90-110%) |



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# SM 2540C

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72545 **Analyst:** LSR

**ASSET #:** N034178 **Date Analyzed:** 18-Feb

**Method:** EPA 160.1 / SM 2540C

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | | | |
| 11. LCS compounds within control limits. | X | | | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 2/28/2019

2nd Level Reviewer: 2/28/2019 Date:

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** SM 2540C
**TEST NAME:** Total Filterable Residue
**MATRIX:** Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N034178-008C,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(61.1226-61.0475)*1000000}{30}$$
$$= 2503.3333 \text{ mg/L}$$

Reporting result in two significant figures,

TDS= 2500 mg/L

Julia Ramit 2/28/2019

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/18/2019 12:56:52**
Prep End Date: **2/19/2019 10:25:00**
Reviewed/ Date: 2/28/2019
Initials/ Date: Lilia Ramit 2/28/2019

Prep Batch **72545** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**
Temp. (°C): **180**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72545 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-72545 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034121-006C | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034121-007C | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034121-008C | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034121-009C | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034121-010C | Groundwater | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034123-012E | Groundwater | | 75 | ☐ | 0 | 0 | 100 | 1.333 | | |
| N034177-001C | Groundwater | | 60 | ☐ | 0 | 0 | 100 | 1.667 | | |
| N034177-002C | Groundwater | | 20 | ☐ | 0 | 0 | 100 | 5.000 | | |
| N034177-002C-DU | Groundwater | | 20 | ☐ | 0 | 0 | 100 | 5.000 | | |
| N034178-008C | Groundwater | | 30 | ☐ | 0 | 0 | 100 | 3.333 | | |
| N034178-009C | Groundwater | | 30 | ☐ | 0 | 0 | 100 | 3.333 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10404 | Glass Fiber Filter, 47mm |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| IWST190107C | 1000 ppm NaCl | LCS | 100 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/18/2019 12:56:52**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Julia Ramit 2/28/2019

Prep Batch **72545** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72545 | Water | lw5T190107C | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-72545 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034121-006C | Groundwater | 1186 | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034121-007C | Groundwater | 1173 | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034121-008C | Groundwater | 1175 | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034121-009C | Groundwater | 1193 | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034121-010C | Groundwater | 1168 | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034123-012E | Groundwater | 1544 | 100 / 75 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034177-001C | Groundwater | 2230 | 100 / 60 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034177-002C | Groundwater | 7650 | 100 / 20 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034177-002C-DU | Groundwater | 1 | 100 / 20 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034178-008C | Groundwater | 4290 | 100 / 30 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034178-009C | Groundwater | 4180 | 100 / 30 | ☐ | 0 | 0 | 100 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10404

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

## SOLIDS RAW DATA

TEST : TSS/ TDS/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 2/18/19 1252 FF | MB 72545 | 100 | 68.1234 68.1238 | 68.1241 68.1240 | |
| EE | LCS " 72541 | 100 | 68.0953 68.0955 | 68.1929 68.1927 | |
| HH | N034121-006C | 100 | 69.8097 69.8101 | 69.8817 69.8815 | |
| GG | 7C | 100 | 67.7171 67.7175 | 67.7905 67.7902 | |
| IW | 8C | 100 | 76.4784 76.4787 | 76.5499 76.5498 | |
| KK | 9C | 100 | 70.6767 70.6770 | 70.7480 70.7477 | |
| AA | 10C | 100 | 68.3138 68.3142 | 68.3856 68.3853 | |
| LL | N034123-012E | 75 | 76.4106 76.4110 | 76.4814 76.4817 | |
| CC | N034177-00[illegible]C | 60 | 69.7781 69.7785 | 69.8613 69.8612 | |
| DD | 2C | 20 | 53.7372 53.7375 | 53.8226 53.8226 | |

Julia Ramit 2/28/2019



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ELAP Cert 2676 | NV Cert NV00922

# SOLIDS RAW DATA

TEST : TSS/ TDS/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 2/18/19 12 | N034177-002C DUP | 20 | 53.6019 53.6023 | 53.6885 53.6883 | |
| 9 | N034178-008C " | 30 | 61.0470 61.0475 | 61.1228 61.1226 | |
| 10 | 9C | 30 | 63.9564 63.9568 | 64.0310 64.0308 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | Julia Ramit 2/28/2019 | | | | |
| | 49.9997 @ 1025 2/19/19 | | | | |

ASSET Laboratories

Logbook#14

# TOTAL DISSOLVED SOLIDS, TDS

## TDS, mg/L = (A-B) X 10000*PF

where:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
PF = 100/volume of sample used in mL

| Date Finished: | vol of sample (mL) | weight of dish in grams (B) | weight in grams of dish + residue after drying (A) | (A-B)*10000 | prep fact (PF) | TDS, mg/L | CONDUCTIVITY | RATIO | Sample Type |
|---|---|---|---|---|---|---|---|---|---|
| 2/19/2019 | | | | | | | | | |
| MB-72545 | 100 | 68.1238 | 68.124 | 2 | 1 | 2 | | | MBLK |
| LCS-72545 | 100 | 68.0955 | 68.1927 | 972 | 1 | 972 | | | LCS |
| N034121-006C | 100 | 69.8101 | 69.8815 | 714 | 1 | 714 | 1186 | 0.602 | SAMP |
| N034121-007C | 100 | 67.7175 | 67.7902 | 727 | 1 | 727 | 1173 | 0.620 | SAMP |
| N034121-008C | 100 | 76.4787 | 76.5498 | 711 | 1 | 711 | 1175 | 0.605 | SAMP |
| N034121-009C | 100 | 70.677 | 70.7477 | 707 | 1 | 707 | 1193 | 0.593 | SAMP |
| N034121-010C | 100 | 68.3142 | 68.3853 | 711 | 1 | 711 | 1168 | 0.609 | SAMP |
| N034123-012E | 75 | 76.411 | 76.4817 | 707 | 1.33333333 | 942.666667 | 1544 | 0.611 | SAMP |
| N034177-001C | 60 | 69.7785 | 69.8612 | 827 | 1.66666667 | 1378.33333 | 2230 | 0.618 | SAMP |
| N034177-002C | 20 | 53.7375 | 53.8226 | 851 | 5 | 4255 | 7650 | 0.556 | SAMP |
| N034177-002CDUP | 20 | 53.6023 | 53.6883 | 860 | 5 | 4300 | 7650 | 0.562 | DUP |
| N034178-008C | 30 | 61.0475 | 61.1226 | 751 | 3.33333333 | 2503.33333 | 4290 | 0.584 | SAMP |
| N034178-009C | 30 | 63.9568 | 64.0308 | 740 | 3.33333333 | 2466.66667 | 4180 | 0.590 | SAMP |

Silvia Ramit 2/28/2019

# EPA 218.6

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R132145
**ASSET #:** N034178

**Instrument ID:** IC-07
**Analyst:** HSG
**Date Analyzed:** 2/26/2019

**Method:**

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | x | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | x | | |
| 3. ICV within ± 10% of expected value. | X | | | x | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | x | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | x | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | x | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | X | | | x | | |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | x | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | X | | | x | | |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | x | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | X | | | | | |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | x |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | X | | | x | | |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | x |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | X | | | x | | |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | X | | | | x | |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | X | | | x | | |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | x |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | x | | |
| 21. Are all samples analyzed within hold time? | X | | | x | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | x |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | x | | |
| 24. LCS compounds are within control limits. | X | | | x | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | x | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | x |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | x | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | x |
| 29. All manual integrations initialed, date and reasons included. | X | | | x | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | x | | |
| 31. All samples and QC raw data present in package. | X | | | x | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | x | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | x | | |
| 34 Is the QC summary report present and complete? | X | | | x | | |

Comments:

Dilution was necesaary in N034178-011A due to matrix interference.

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer HSG Date: 03/06/2019

2nd Level Reviewer 3/6/2019 Date:

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R132155
**ASSET #:** N034178

**Instrument ID:** IC-07
**Analyst:** HSG
**Date Analyzed:** 2/27/2019

**Method:**

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | x | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | x | | |
| 3. ICV within ± 10% of expected value. | X | | | x | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | x | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | x | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | x | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | X | | | x | | |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | x | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | X | | | x | | |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | x | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | X | | | x | | |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | x |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | X | | | x | | |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | x |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | X | | | | | |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | x |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | x |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | X | | | x | | |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | x |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | x | | |
| 21. Are all samples analyzed within hold time? | X | | | x | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | x |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | x | | |
| 24. LCS compounds are within control limits. | X | | | x | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | x | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | x |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | x | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | x |
| 29. All manual integrations initialed, date and reasons included. | X | | | x | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | x | | |
| 31. All samples and QC raw data present in package. | X | | | x | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | x | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | x | | |
| 34 Is the QC summary report present and complete? | X | | | x | | |

Comments:

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: HSG  Date: 03/06/2019

2nd Level Reviewer: 3/6/2019  Date: —

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 218.6
**TEST NAME:** HEXAVALENT CHROMIUM BY IC
**MATRIX:** Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N034178-003A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 3.5138 * ~~1~~ 5$$

$$Cr^{+6}, \mu g/L = ~~3.5138~~ 17.569$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = ~~3.5~~ 18}$$

NS 03/06/2019

# ANALYSIS RUN LOG

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 1:17 PM | Not Reported |
| 10 | ICV | ICV | 1 | Hexavalent Chromium | 02/21/19 1:28 PM | Reported |
| 11 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/21/19 1:37 PM | Reported |
| 12 | ICB | ICB | 1 | Hexavalent Chromium | 02/21/19 1:47 PM | Reported |
| 13 | MB-R132043 | MBLK | 1 | Hexavalent Chromium | 02/21/19 1:56 PM | Reported |
| 14 | LCS-R132043 | LCS | 1 | Hexavalent Chromium | 02/21/19 2:06 PM | Reported |
| 15 | N034269-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:18 PM | Not Reported |
| 16 | N034271-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:30 PM | Not Reported |
| 17 | N034271-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:39 PM | Not Reported |
| 18 | N034104-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:49 PM | Reported |
| 19 | N034107-018A | SAMP | 5 | Hexavalent Chromium | 02/21/19 2:58 PM | Reported |
| 20 | N034269-001AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:08 PM | Not Reported |
| 21 | N034271-002AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:17 PM | Not Reported |
| 22 | N034271-001A | SAMP | 100 | Hexavalent Chromium | 02/21/19 3:27 PM | Reported |
| 23 | CCV-1 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 3:36 PM | Reported |
| 24 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/21/19 3:46 PM | Reported |
| 25 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 3:55 PM | Not Reported |
| 26 | N034269-001A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:03 PM | Reported |
| 27 | N034269-001AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:14 PM | Reported |
| 28 | N034271-002A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:24 PM | Not Reported |
| 29 | N034271-002AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:33 PM | Not Reported |
| 30 | N034104-009AMS | MS | 1 | Hexavalent Chromium | 02/21/19 4:43 PM | Reported |
| 31 | N034104-009AMSD | MSD | 1 | Hexavalent Chromium | 02/21/19 4:52 PM | Reported |
| 32 | N034107-018ADUP | DUP | 5 | Hexavalent Chromium | 02/21/19 5:02 PM | Reported |
| 33 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 5:11 PM | Reported |
| 34 | N034271-002A | SAMP | 10 | Hexavalent Chromium | 02/21/19 5:20 PM | Not Reported |
| 35 | CCV-2 | CCV | 1 | Hexavalent Chromium | 02/21/19 5:30 PM | Reported |
| 36 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/21/19 5:39 PM | Reported |
| 37 | N034271-002AMS | MS | 10 | Hexavalent Chromium | 02/21/19 5:52 PM | Not Reported |
| 38 | N034121-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:03 PM | Reported |
| 39 | N034121-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:13 PM | Reported |
| 40 | N034121-003A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:22 PM | Reported |
| 41 | N034121-004A | SAMP | 50 | Hexavalent Chromium | 02/21/19 6:32 PM | Reported |
| 42 | N034121-005A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:41 PM | Reported |

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034121-006A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:50 PM | Reported |
| 44 | N034121-007A | SAMP | 20 | Hexavalent Chromium | 02/21/19 7:00 PM | Reported |
| 45 | N034121-008A | SAMP | 5 | Hexavalent Chromium | 02/21/19 7:09 PM | Not Reported |
| 46 | N034121-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:19 PM | Reported |
| 47 | CCV-3 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 7:28 PM | Reported |
| 48 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/21/19 7:38 PM | Reported |
| 49 | N034121-010A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:47 PM | Not Reported |
| 50 | N034121-011A | SAMP | 10 | Hexavalent Chromium | 02/21/19 7:57 PM | Reported |
| 51 | N034121-008A | SAMP | 10 | Hexavalent Chromium | 02/21/19 8:06 PM | Reported |
| 52 | N034121-011A | SAMP | 20 | Hexavalent Chromium | 02/21/19 8:16 PM | Not Reported |
| 53 | CCV-4 | CCV | 1 | Hexavalent Chromium | 02/21/19 8:25 PM | Reported |
| 54 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/21/19 8:35 PM | Reported |
| 55 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 8:44 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190221B** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **22/Feb/19 08:53:05** |
| *No. of Injections:* | **58** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 9 | 1000 | Unknown | | 02/21/2019 13:17 | Finished | BLANK |
| 10 | ICV,ICV,1, | 10 | 1000 | Unknown | | 02/21/2019 13:28 | Finished | ICV @5ppb, IWST-190221B |
| 11 | PQL@0.2ppb,CCV2, | 11 | 1000 | Unknown | | 02/21/2019 13:37 | Finished | PQL @ 0.2ppb |
| 12 | ICB,ICB,1, | 12 | 1000 | Unknown | | 02/21/2019 13:47 | Finished | ICB R190115A |
| 13 | MB-H2O,MBLK,1, | 13 | 1000 | Unknown | | 02/21/2019 13:56 | Finished | MB R190115A |
| 14 | LCS-H2O,LCS,1, | 14 | 1000 | Unknown | | 02/21/2019 14:06 | Finished | LCS @5ppb, IWST-190221B |
| 15 | N034269-001A,SAMP | 16 | 1000 | Unknown | | 02/21/2019 14:18 | Finished | SAMP,10mL |
| 16 | N034271-001A,SAMP | 17 | 1000 | Unknown | | 02/21/2019 14:30 | Finished | SAMP,10mL |
| 17 | N034271-002A,SAMP | 18 | 1000 | Unknown | | 02/21/2019 14:39 | Finished | SAMP,10mL |
| 18 | N034104-009A,SAMP | 19 | 1000 | Unknown | | 02/21/2019 14:49 | Finished | SAMP,10mL |
| 19 | N034107-018A,SAMP | 20 | 1000 | Unknown | | 02/21/2019 14:58 | Finished | SAMP,2>10mL |
| 20 | N034269-001AMS,MS | 21 | 1000 | Unknown | | 02/21/2019 15:08 | Finished | SAMP,10mL |
| 21 | N034271-002AMS,MS | 22 | 1000 | Unknown | | 02/21/2019 15:17 | Finished | SAMP,10mL |
| 22 | N034271-001A,SAMP | 23 | 1000 | Unknown | | 02/21/2019 15:27 | Finished | SAMP,10mL |
| 23 | CCV-1,CCV1,1, | 24 | 1000 | Unknown | | 02/21/2019 15:36 | Finished | CCV @10ppb, IWST-190221A |
| 24 | CCB-1,CCB,1, | 25 | 1000 | Unknown | | 02/21/2019 15:46 | Finished | CCB R190115A |
| 25 | N034271-001AMS,MS | 26 | 1000 | Unknown | | 02/21/2019 15:55 | Interrupted | SAMP,2>10mL |
| 26 | N034269-001A,SAMP | 27 | 1000 | Unknown | | 02/21/2019 16:03 | Finished | SAMP,2>10mL |
| 27 | N034269-001AMS,MS | 28 | 1000 | Unknown | | 02/21/2019 16:14 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 28 | N034271-002A,SAMP | 29 | 1000 | Unknown | | 02/21/2019 16:24 | Finished | SAMP,2>10mL |
| 29 | N034271-002AMS,MS | 30 | 1000 | Unknown | | 02/21/2019 16:33 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 30 | N034104-009AMS,MS | 31 | 1000 | Unknown | | 02/21/2019 16:43 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034104-009AMSD,M | 32 | 1000 | Unknown | | 02/21/2019 16:52 | Finished | MSD (1ppb), IWST-190221B,1( |
| 32 | N034107-018ADUP,D | 33 | 1000 | Unknown | | 02/21/2019 17:02 | Finished | DUP,10mL |
| 33 | N034271-001AMS,MS | 34 | 1000 | Unknown | | 02/21/2019 17:11 | Finished | SAMP,10mL |
| 34 | N034271-002A,SAMP | 35 | 1000 | Unknown | | 02/21/2019 17:20 | Finished | SAMP,1>10mL |
| 35 | CCV-2,CCV,1, | 36 | 1000 | Unknown | | 02/21/2019 17:30 | Finished | CCV @5ppb, IWST-190221A |
| 36 | CCB-2,CCB,1, | 37 | 1000 | Unknown | | 02/21/2019 17:39 | Finished | CCB R190115A |
| 37 | N034271-002AMS,MS | 1 | 1000 | Unknown | | 02/21/2019 17:52 | Finished | MS (1ppb), IWST-190221B,1>1 |
| 38 | N034121-001A,SAMP | 2 | 1000 | Unknown | | 02/21/2019 18:03 | Finished | SAMP,10mL |
| 39 | N034121-002A,SAMP | 3 | 1000 | Unknown | | 02/21/2019 18:13 | Finished | SAMP,10mL |
| 40 | N034121-003A,SAMP | 4 | 1000 | Unknown | | 02/21/2019 18:22 | Finished | SAMP,10mL |
| 41 | N034121-004A,SAMP | 5 | 1000 | Unknown | | 02/21/2019 18:32 | Finished | SAMP,10mL |
| 42 | N034121-005A,SAMP | 6 | 1000 | Unknown | | 02/21/2019 18:41 | Finished | SAMP,10mL |
| 43 | N034121-006A,SAMP | 7 | 1000 | Unknown | | 02/21/2019 18:50 | Finished | SAMP,10mL |
| 44 | N034121-007A,SAMP | 8 | 1000 | Unknown | | 02/21/2019 19:00 | Finished | SAMP,10mL |
| 45 | N034121-008A,SAMP | 9 | 1000 | Unknown | | 02/21/2019 19:09 | Finished | SAMP,10mL |
| 46 | N034121-009A,SAMP | 10 | 1000 | Unknown | | 02/21/2019 19:19 | Finished | SAMP,10mL |
| 47 | CCV-3,CCV1,1, | 11 | 1000 | Unknown | | 02/21/2019 19:28 | Finished | CCV @10ppb, IWST-190221A |
| 48 | CCB-3,CCB,1, | 12 | 1000 | Unknown | | 02/21/2019 19:38 | Finished | CCB R190115A |
| 49 | N034121-010A,SAMP | 13 | 1000 | Unknown | | 02/21/2019 19:47 | Finished | SAMP,10mL |
| 50 | N034121-011A,SAMP | 14 | 1000 | Unknown | | 02/21/2019 19:57 | Finished | SAMP,10mL |
| 51 | N034121-008A,SAMP | 15 | 1000 | Unknown | | 02/21/2019 20:06 | Finished | SAMP,1>10mL |
| 52 | N034121-011A,SAMP | 16 | 1000 | Unknown | | 02/21/2019 20:16 | Finished | SAMP,1>10mL |
| 53 | CCV-4,CCV,1, | 17 | 1000 | Unknown | | 02/21/2019 20:25 | Finished | CCV @5ppb, IWST-190221A |
| 54 | CCB-4,CCB,1, | 18 | 1000 | Unknown | | 02/21/2019 20:35 | Finished | CCB R190115A |
| 55 | BLANK | 19 | 1000 | Unknown | | 02/21/2019 20:44 | Finished | BLANK |
| 56 | SHUTDOWN | 20 | 1000 | Unknown | | 02/21/2019 20:53 | Finished | |
| 57 | Eluent: R190219B | 21 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 58 | PCR: R190220A | 22 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

**INJECTION LOG: 190226A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/26/19 8:52 AM | Not Reported |
| 10 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/26/19 9:13 AM | Not Reported |
| 11 | CCV-1 | CCV | 1 | Hexavalent Chromium | 02/26/19 9:23 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/26/19 9:33 AM | Reported |
| 13 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/26/19 9:42 AM | Reported |
| 14 | MB-R132121 | MBLK | 1 | Hexavalent Chromium | 02/26/19 9:59 AM | Reported |
| 15 | LCS-R132121 | LCS | 1 | Hexavalent Chromium | 02/26/19 10:10 AM | Reported |
| 16 | N034102-002A | SAMP | 5 | Hexavalent Chromium | 02/26/19 10:23 AM | Not Reported |
| 17 | N034102-002AMS | MS | 5 | Hexavalent Chromium | 02/26/19 10:34 AM | Not Reported |
| 18 | N034105-004A | SAMP | 1 | Hexavalent Chromium | 02/26/19 10:44 AM | Not Reported |
| 19 | N034105-004AMS | MS | 1 | Hexavalent Chromium | 02/26/19 10:53 AM | Not Reported |
| 20 | N034107-003A | SAMP | 50 | Hexavalent Chromium | 02/26/19 11:02 AM | Not Reported |
| 21 | N034107-003AMS | MS | 50 | Hexavalent Chromium | 02/26/19 11:12 AM | Not Reported |
| 22 | N034107-006A | SAMP | 50 | Hexavalent Chromium | 02/26/19 11:21 AM | Not Reported |
| 23 | N034107-006AMS | MS | 50 | Hexavalent Chromium | 02/26/19 11:31 AM | Not Reported |
| 24 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 02/26/19 11:40 AM | Reported |
| 25 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/26/19 11:50 AM | Reported |
| 26 | N034107-012A | SAMP | 1 | Hexavalent Chromium | 02/26/19 12:00 PM | Not Reported |
| 27 | N034107-012AMS | MS | 1 | Hexavalent Chromium | 02/26/19 12:11 PM | Not Reported |
| 28 | N034107-013A | SAMP | 1 | Hexavalent Chromium | 02/26/19 12:21 PM | Not Reported |
| 29 | N034107-013AMS | MS | 1 | Hexavalent Chromium | 02/26/19 12:30 PM | Not Reported |
| 30 | N034107-016A | SAMP | 1 | Hexavalent Chromium | 02/26/19 12:40 PM | Not Reported |
| 31 | N034107-016AMS | MS | 1 | Hexavalent Chromium | 02/26/19 12:49 PM | Not Reported |
| 32 | N034107-017A | SAMP | 1 | Hexavalent Chromium | 02/26/19 12:59 PM | Not Reported |
| 33 | N034107-017AMS | MS | 1 | Hexavalent Chromium | 02/26/19 1:08 PM | Not Reported |
| 34 | N034102-002AMS | MS | 5 | Hexavalent Chromium | 02/26/19 1:17 PM | Not Reported |
| 35 | N034105-004AMS | MS | 1 | Hexavalent Chromium | 02/26/19 1:27 PM | Not Reported |
| 36 | CCV-3 | CCV | 1 | Hexavalent Chromium | 02/26/19 1:36 PM | Reported |
| 37 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/26/19 1:46 PM | Reported |
| 38 | N034238-002B | SAMP | 1 | Hexavalent Chromium | 02/26/19 1:55 PM | Reported |
| 39 | N034238-002BMS | MS | 1 | Hexavalent Chromium | 02/26/19 2:05 PM | Reported |
| 40 | N034238-002BMSD | MSD | 1 | Hexavalent Chromium | 02/26/19 2:14 PM | Reported |
| 41 | N034107-012A | SAMP | 5 | Hexavalent Chromium | 02/26/19 2:24 PM | Reported |
| 42 | N034107-012AMS | MS | 5 | Hexavalent Chromium | 02/26/19 2:33 PM | Reported |

**INJECTION LOG: 190226A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034107-012ADUP | DUP | 5 | Hexavalent Chromium | 02/26/19 2:43 PM | Reported |
| 44 | N034107-006A | SAMP | 100 | Hexavalent Chromium | 02/26/19 2:52 PM | Reported |
| 45 | N034107-006AMS | MS | 100 | Hexavalent Chromium | 02/26/19 3:02 PM | Reported |
| 46 | N034129-008A | SAMP | 1 | Hexavalent Chromium | 02/26/19 3:11 PM | Reported |
| 47 | N034129-008AMS | MS | 1 | Hexavalent Chromium | 02/26/19 3:20 PM | Reported |
| 48 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/26/19 3:30 PM | Reported |
| 49 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/26/19 3:39 PM | Reported |
| 50 | N034129-011A | SAMP | 1 | Hexavalent Chromium | 02/26/19 3:49 PM | Reported |
| 51 | N034129-011AMS | MS | 1 | Hexavalent Chromium | 02/26/19 3:58 PM | Reported |
| 52 | N034129-012A | SAMP | 1 | Hexavalent Chromium | 02/26/19 4:08 PM | Reported |
| 53 | N034129-012AMS | MS | 1 | Hexavalent Chromium | 02/26/19 4:17 PM | Reported |
| 54 | N034129-013A | SAMP | 1 | Hexavalent Chromium | 02/26/19 4:27 PM | Reported |
| 55 | N034129-013AMS | MS | 1 | Hexavalent Chromium | 02/26/19 4:36 PM | Reported |
| 56 | N034129-014A | SAMP | 1 | Hexavalent Chromium | 02/26/19 4:46 PM | Reported |
| 57 | N034129-014AMS | MS | 1 | Hexavalent Chromium | 02/26/19 4:55 PM | Reported |
| 58 | N034121-006A | SAMP | 1 | Hexavalent Chromium | 02/26/19 5:05 PM | Reported |
| 59 | LCS-R132145 | LCS | 1 | Hexavalent Chromium | 02/26/19 5:14 PM | Reported |
| 60 | CCV-5 | CCV | 1 | Hexavalent Chromium | 02/26/19 5:25 PM | Reported |
| 61 | CCB-5 | CCB | 1 | Hexavalent Chromium | 02/26/19 5:36 PM | Reported |
| 62 | MB-R132145 | MBLK | 1 | Hexavalent Chromium | 02/26/19 5:46 PM | Reported |
| 63 | N034178-001A | SAMP | 1 | Hexavalent Chromium | 02/26/19 5:58 PM | Reported |
| 64 | N034178-001AMS | MS | 1 | Hexavalent Chromium | 02/26/19 6:07 PM | Reported |
| 65 | N034178-002A | SAMP | 1 | Hexavalent Chromium | 02/26/19 6:16 PM | Reported |
| 66 | N034178-002AMS | MS | 1 | Hexavalent Chromium | 02/26/19 6:26 PM | Reported |
| 67 | N034178-003A | SAMP | 1 | Hexavalent Chromium | 02/26/19 6:35 PM | Reported |
| 68 | N034178-003AMS | MS | 1 | Hexavalent Chromium | 02/26/19 6:45 PM | Reported |
| 69 | N034178-004A | SAMP | 1 | Hexavalent Chromium | 02/26/19 6:54 PM | Reported |
| 70 | N034178-004AMS | MS | 1 | Hexavalent Chromium | 02/26/19 7:04 PM | Reported |
| 71 | N034178-003AMSD | MSD | 1 | Hexavalent Chromium | 02/26/19 7:13 PM | Reported |
| 72 | CCV-6 | CCV1 | 1 | Hexavalent Chromium | 02/26/19 7:23 PM | Reported |
| 73 | CCB-6 | CCB | 1 | Hexavalent Chromium | 02/26/19 7:32 PM | Reported |
| 74 | N034178-005A | SAMP | 1 | Hexavalent Chromium | 02/26/19 7:42 PM | Reported |
| 75 | N034178-005AMS | MS | 1 | Hexavalent Chromium | 02/26/19 7:51 PM | Reported |
| 76 | N034178-006A | SAMP | 1 | Hexavalent Chromium | 02/26/19 8:01 PM | Reported |
| 77 | N034178-006AMS | MS | 1 | Hexavalent Chromium | 02/26/19 8:10 PM | Reported |
| 78 | N034178-007A | SAMP | 1 | Hexavalent Chromium | 02/26/19 8:19 PM | Reported |
| 79 | N034178-007AMS | MS | 1 | Hexavalent Chromium | 02/26/19 8:29 PM | Reported |
| 80 | N034178-008A | SAMP | 1 | Hexavalent Chromium | 02/26/19 8:38 PM | Reported |
| 81 | N034178-008AMS | MS | 1 | Hexavalent Chromium | 02/26/19 8:48 PM | Reported |
| 82 | N034178-006ADUP | DUP | 1 | Hexavalent Chromium | 02/26/19 8:57 PM | Reported |
| 83 | N034178-009A | SAMP | 1 | Hexavalent Chromium | 02/26/19 9:07 PM | Reported |
| 84 | CCV-7 | CCV | 1 | Hexavalent Chromium | 02/26/19 9:16 PM | Reported |

**INJECTION LOG: 190226A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 85 | CCB-7 | CCB | 1 | Hexavalent Chromium | 02/26/19 9:26 PM | Reported |
| 86 | N034178-009AMS | MS | 1 | Hexavalent Chromium | 02/26/19 9:35 PM | Reported |
| 87 | N034178-010A | SAMP | 1 | Hexavalent Chromium | 02/26/19 9:45 PM | Not Reported |
| 88 | N034178-010AMS | MS | 1 | Hexavalent Chromium | 02/26/19 9:54 PM | Not Reported |
| 89 | N034178-011A | SAMP | 5 | Hexavalent Chromium | 02/26/19 10:04 PM | Reported |
| 90 | N034178-011AMS | MS | 5 | Hexavalent Chromium | 02/26/19 10:13 PM | Reported |
| 91 | N034178-011A | SAMP | 1 | Hexavalent Chromium | 02/26/19 10:22 PM | Not Reported |
| 92 | N034178-011AMS | MS | 1 | Hexavalent Chromium | 02/26/19 10:32 PM | Not Reported |
| 93 | CCV-8 | CCV1 | 1 | Hexavalent Chromium | 02/26/19 10:41 PM | Reported |
| 94 | CCB-8 | CCB | 1 | Hexavalent Chromium | 02/26/19 10:51 PM | Reported |
| 95 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/26/19 11:00 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190226A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **27/Feb/19 00:09:44** |
| *No. of Injections:* | **98** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 1 | 1000 | Unknown | | 02/26/2019 08:52 | Finished | BLANK |
| 10 | BLANK | 1 | 1000 | Unknown | | 02/26/2019 09:13 | Finished | BLANK |
| 11 | CCV-1,CCV,1, | 2 | 1000 | Unknown | | 02/26/2019 09:23 | Finished | CCV @5ppb, IWST-190221B |
| 12 | PQL@0.2ppb,CCV2,1 | 3 | 1000 | Unknown | | 02/26/2019 09:33 | Finished | PQL @ 0.2ppb |
| 13 | CCB-1,CCB,1, | 4 | 1000 | Unknown | | 02/26/2019 09:42 | Finished | CCB R190115A |
| 14 | MB-H2O,MBLK,1, | 5 | 1000 | Unknown | | 02/26/2019 09:59 | Finished | MB R190115A |
| 15 | LCS-H2O,LCS,1, | 6 | 1000 | Unknown | | 02/26/2019 10:10 | Finished | LCS @5ppb, IWST-190221B |
| 16 | N034102-002A,SAMF | 7 | 1000 | Unknown | | 02/26/2019 10:23 | Finished | SAMP,2>10mL |
| 17 | N034102-002AMS,MS | 8 | 1000 | Unknown | | 02/26/2019 10:34 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 18 | N034105-004A,SAMF | 9 | 1000 | Unknown | | 02/26/2019 10:44 | Finished | SAMP,10mL |
| 19 | N034105-004AMS,MS | 10 | 1000 | Unknown | | 02/26/2019 10:53 | Finished | MS (5ppb), IWST-190221B,10 |
| 20 | N034107-003A,SAMF | 11 | 1000 | Unknown | | 02/26/2019 11:02 | Finished | SAMP,0.2>10mL |
| 21 | N034107-003AMS,MS | 12 | 1000 | Unknown | | 02/26/2019 11:12 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 22 | N034107-006A,SAMF | 13 | 1000 | Unknown | | 02/26/2019 11:21 | Finished | SAMP,0.2>10mL |
| 23 | N034107-006AMS,MS | 14 | 1000 | Unknown | | 02/26/2019 11:31 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 24 | CCV-2,CCV1,1, | 15 | 1000 | Unknown | | 02/26/2019 11:40 | Finished | CCV @10ppb, IWST-190221A |
| 25 | CCB-2,CCB,1, | 16 | 1000 | Unknown | | 02/26/2019 11:50 | Finished | CCB R190115A |
| 26 | N034107-012A,SAMF | 17 | 1000 | Unknown | | 02/26/2019 12:00 | Finished | SAMP,10mL |
| 27 | N034107-012AMS,MS | 18 | 1000 | Unknown | | 02/26/2019 12:11 | Finished | MS (5ppb), IWST-190221B,10 |
| 28 | N034107-013A,SAMF | 19 | 1000 | Unknown | | 02/26/2019 12:21 | Finished | SAMP,10mL |
| 29 | N034107-013AMS,MS | 20 | 1000 | Unknown | | 02/26/2019 12:30 | Finished | MS (5ppb), IWST-190221B,10 |
| 30 | N034107-016A,SAMF | 21 | 1000 | Unknown | | 02/26/2019 12:40 | Finished | SAMP,10mL |
| 31 | N034107-016AMS,MS | 22 | 1000 | Unknown | | 02/26/2019 12:49 | Finished | MS (5ppb), IWST-190221B,10 |
| 32 | N034107-017A,SAMF | 23 | 1000 | Unknown | | 02/26/2019 12:59 | Finished | SAMP,10mL |
| 33 | N034107-017AMS,MS | 24 | 1000 | Unknown | | 02/26/2019 13:08 | Finished | MS (5ppb), IWST-190221B,10 |
| 34 | N034102-002AMS,MS | 25 | 1000 | Unknown | | 02/26/2019 13:17 | Finished | SAMP,10mL |
| 35 | N034105-004AMS,MS | 26 | 1000 | Unknown | | 02/26/2019 13:27 | Finished | MS (5ppb), IWST-190221B,10 |
| 36 | CCV-3,CCV,1, | 27 | 1000 | Unknown | | 02/26/2019 13:36 | Finished | CCV @5ppb, IWST-190221A |
| 37 | CCB-3,CCB,1, | 28 | 1000 | Unknown | | 02/26/2019 13:46 | Finished | CCB R190115A |
| 38 | N034238-002B,SAMF | 29 | 1000 | Unknown | | 02/26/2019 13:55 | Finished | SAMP,1>10mL |
| 39 | N034238-002BMS,MS | 30 | 1000 | Unknown | | 02/26/2019 14:05 | Finished | MS (1ppb), IWST-190221B,10 |
| 40 | N034238-002BMSD,M | 31 | 1000 | Unknown | | 02/26/2019 14:14 | Finished | SAMP,10mL |
| 41 | N034107-012A,SAMF | 32 | 1000 | Unknown | | 02/26/2019 14:24 | Finished | SAMP,2>10mL |
| 42 | N034107-012AMS,MS | 33 | 1000 | Unknown | | 02/26/2019 14:33 | Finished | SAMP,10mL |
| 43 | N034107-012ADUP,D | 34 | 1000 | Unknown | | 02/26/2019 14:43 | Finished | SAMP,10mL |
| 44 | N034107-006A,SAMF | 35 | 1000 | Unknown | | 02/26/2019 14:52 | Finished | SAMP,0.5>10mL |
| 45 | N034107-006AMS,MS | 36 | 1000 | Unknown | | 02/26/2019 15:02 | Finished | SAMP,0.5>10mL |
| 46 | N034129-008A,SAMF | 37 | 1000 | Unknown | | 02/26/2019 15:11 | Finished | SAMP,0.005>10mL |
| 47 | N034129-008AMS,MS | 38 | 1000 | Unknown | | 02/26/2019 15:20 | Finished | SAMP,0.2>10mL |
| 48 | CCV-4,CCV1,1, | 39 | 1000 | Unknown | | 02/26/2019 15:30 | Finished | CCV @10ppb, IWST-190221A |
| 49 | CCB-4,CCB,1, | 40 | 1000 | Unknown | | 02/26/2019 15:39 | Finished | CCB R190115A |
| 50 | N034129-011A,SAMF | 41 | 1000 | Unknown | | 02/26/2019 15:49 | Finished | MS (1ppb), IWST-190221B,10 |
| 51 | N034129-011AMS,MS | 42 | 1000 | Unknown | | 02/26/2019 15:58 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 52 | N034129-012A,SAMF | 43 | 1000 | Unknown | | 02/26/2019 16:08 | Finished | MS (5ppb), IWST-190221B,10 |
| 53 | N034129-012AMS,MS | 44 | 1000 | Unknown | | 02/26/2019 16:17 | Finished | MS (5ppb), IWST-190221B,10 |
| 54 | N034129-013A,SAMF | 45 | 1000 | Unknown | | 02/26/2019 16:27 | Finished | MS (5ppb), IWST-190221B,0.5 |
| 55 | N034129-013AMS,MS | 46 | 1000 | Unknown | | 02/26/2019 16:36 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 56 | N034129-014A,SAMF | 47 | 1000 | Unknown | | 02/26/2019 16:46 | Finished | SAMP,0.2>10mL |
| 57 | N034129-014AMS,MS | 48 | 1000 | Unknown | | 02/26/2019 16:55 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 58 | N034121-006A,SAMF | 49 | 1000 | Unknown | | 02/26/2019 17:05 | Finished | SAMP,0.0025>10mL |
| 59 | LCS-H2O,LCS,1, | 50 | 1000 | Unknown | | 02/26/2019 17:14 | Finished | SAMP,10mL |
| 60 | CCV-5,CCV,1, | 1 | 1000 | Unknown | | 02/26/2019 17:25 | Finished | CCV @5ppb, IWST-190221A |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | CCB-5,CCB,1, | 2 | 1000 | Unknown | | 02/26/2019 17:36 | Finished | CCB R190115A |
| 62 | MB-H2O,MBLK,1, | 3 | 1000 | Unknown | | 02/26/2019 17:46 | Finished | SAMP,10mL |
| 63 | N034178-001A,SAMF | 4 | 1000 | Unknown | | 02/26/2019 17:58 | Finished | MS (1ppb), IWST-190221B,10 |
| 64 | N034178-001AMS,MS | 5 | 1000 | Unknown | | 02/26/2019 18:07 | Finished | SAMP,10mL |
| 65 | N034178-002A,SAMF | 6 | 1000 | Unknown | | 02/26/2019 18:16 | Finished | MS (1ppb), IWST-190221B,10 |
| 66 | N034178-002AMS,MS | 7 | 1000 | Unknown | | 02/26/2019 18:26 | Finished | SAMP,10mL |
| 67 | N034178-003A,SAMF | 8 | 1000 | Unknown | | 02/26/2019 18:35 | Finished | MS (1ppb), IWST-190221B,10 |
| 68 | N034178-003AMS,MS | 9 | 1000 | Unknown | | 02/26/2019 18:45 | Finished | SAMP,10mL |
| 69 | N034178-004A,SAMF | 10 | 1000 | Unknown | | 02/26/2019 18:54 | Finished | MS (1ppb), IWST-190221B,10 |
| 70 | N034178-004AMS,MS | 11 | 1000 | Unknown | | 02/26/2019 19:04 | Finished | SAMP,10mL |
| 71 | N034178-003AMSD,M | 12 | 1000 | Unknown | | 02/26/2019 19:13 | Finished | MS (1ppb), IWST-190221B,10 |
| 72 | CCV-6,CCV1,1, | 13 | 1000 | Unknown | | 02/26/2019 19:23 | Finished | CCV @10ppb, IWST-190221A |
| 73 | CCB-6,CCB,1, | 14 | 1000 | Unknown | | 02/26/2019 19:32 | Finished | CCB R190115A |
| 74 | N034178-005A,SAMF | 15 | 1000 | Unknown | | 02/26/2019 19:42 | Finished | SAMP,10mL |
| 75 | N034178-005AMS,MS | 16 | 1000 | Unknown | | 02/26/2019 19:51 | Finished | MS (1ppb), IWST-190221B,10 |
| 76 | N034178-006A,SAMF | 17 | 1000 | Unknown | | 02/26/2019 20:01 | Finished | SAMP,10mL |
| 77 | N034178-006AMS,MS | 18 | 1000 | Unknown | | 02/26/2019 20:10 | Finished | MS (1ppb), IWST-190221B,10 |
| 78 | N034178-007A,SAMF | 19 | 1000 | Unknown | | 02/26/2019 20:19 | Finished | SAMP,10mL |
| 79 | N034178-007AMS,MS | 20 | 1000 | Unknown | | 02/26/2019 20:29 | Finished | MS (1ppb), IWST-190221B,10 |
| 80 | N034178-008A,SAMF | 21 | 1000 | Unknown | | 02/26/2019 20:38 | Finished | SAMP,10mL |
| 81 | N034178-008AMS,MS | 22 | 1000 | Unknown | | 02/26/2019 20:48 | Finished | MS (1ppb), IWST-190221B,10 |
| 82 | N034178-006ADUP,D | 23 | 1000 | Unknown | | 02/26/2019 20:57 | Finished | SAMP,10mL |
| 83 | N034178-009A,SAMF | 24 | 1000 | Unknown | | 02/26/2019 21:07 | Finished | MS (1ppb), IWST-190221B,10 |
| 84 | CCV-7,CCV,1, | 25 | 1000 | Unknown | | 02/26/2019 21:16 | Finished | CCV @5ppb, IWST-190221A |
| 85 | CCB-7,CCB,1, | 26 | 1000 | Unknown | | 02/26/2019 21:26 | Finished | CCB R190115A |
| 86 | N034178-009AMS,MS | 27 | 1000 | Unknown | | 02/26/2019 21:35 | Finished | SAMP,10mL |
| 87 | N034178-010A,SAMF | 28 | 1000 | Unknown | | 02/26/2019 21:45 | Finished | MS (1ppb), IWST-190221B,10 |
| 88 | N034178-010AMS,MS | 29 | 1000 | Unknown | | 02/26/2019 21:54 | Finished | SAMP,10mL |
| 89 | N034178-011A,SAMF | 30 | 1000 | Unknown | | 02/26/2019 22:04 | Finished | MS (1ppb), IWST-190221B,10 |
| 90 | N034178-011AMS,MS | 31 | 1000 | Unknown | | 02/26/2019 22:13 | Finished | SAMP,10mL |
| 91 | N034178-011A,SAMF | 32 | 1000 | Unknown | | 02/26/2019 22:22 | Finished | SAMP,10mL |
| 92 | N034178-011AMS,MS | 33 | 1000 | Unknown | | 02/26/2019 22:32 | Finished | SAMP,10mL |
| 93 | CCV-8,CCV1,1, | 34 | 1000 | Unknown | | 02/26/2019 22:41 | Finished | CCV @10ppb, IWST-190221A |
| 94 | CCB-8,CCB,1, | 35 | 1000 | Unknown | | 02/26/2019 22:51 | Finished | CCB R190115A |
| 95 | BLANK | 36 | 1000 | Unknown | | 02/26/2019 23:00 | Finished | BLANK |
| 96 | SHUTDOWN | 37 | 1000 | Unknown | | 02/26/2019 23:10 | Finished | |
| 97 | Eluent: R190226B | 38 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 98 | PCR: R190226A | 39 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

**INJECTION LOG: 190227A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/27/19 8:32 AM | Not Reported |
| 10 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/27/19 8:50 AM | Not Reported |
| 11 | CCV-1 | CCV | 1 | Hexavalent Chromium | 02/27/19 9:01 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/27/19 9:10 AM | Reported |
| 13 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/27/19 9:20 AM | Reported |
| 14 | MB-R132155 | MBLK | 1 | Hexavalent Chromium | 02/27/19 9:30 AM | Reported |
| 15 | LCS-R132155 | LCS | 1 | Hexavalent Chromium | 02/27/19 9:41 AM | Reported |
| 16 | N034342-001A | SAMP | 1 | Hexavalent Chromium | 02/27/19 9:53 AM | Not Reported |
| 17 | N034344-001A | SAMP | 1 | Hexavalent Chromium | 02/27/19 10:05 AM | Not Reported |
| 18 | N034178-010A | SAMP | 5 | Hexavalent Chromium | 02/27/19 10:14 AM | Reported |
| 19 | N034178-010AMS | MS | 5 | Hexavalent Chromium | 02/27/19 10:24 AM | Reported |
| 20 | N034342-001AMS | MS | 1 | Hexavalent Chromium | 02/27/19 10:33 AM | Not Reported |
| 21 | N034344-001AMS | MS | 1 | Hexavalent Chromium | 02/27/19 10:43 AM | Not Reported |
| 22 | N034342-001A | SAMP | 5 | Hexavalent Chromium | 02/27/19 10:52 AM | Reported |
| 23 | N034342-001AMS | MS | 5 | Hexavalent Chromium | 02/27/19 11:02 AM | Reported |
| 24 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 02/27/19 11:11 AM | Reported |
| 25 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/27/19 11:20 AM | Reported |
| 26 | N034344-001A | SAMP | 5 | Hexavalent Chromium | 02/27/19 11:30 AM | Reported |
| 27 | N034344-001AMS | MS | 5 | Hexavalent Chromium | 02/27/19 11:39 AM | Reported |
| 28 | N034178-010AMSD | MSD | 5 | Hexavalent Chromium | 02/27/19 11:49 AM | Reported |
| 29 | N034342-001ADUP | DUP | 5 | Hexavalent Chromium | 02/27/19 11:58 AM | Reported |
| 30 | N034121-001A | SAMP | 1 | Hexavalent Chromium | 02/27/19 12:08 PM | Not Reported |
| 31 | N034121-001AMS | MS | 1 | Hexavalent Chromium | 02/27/19 12:17 PM | Not Reported |
| 32 | N034121-002A | SAMP | 1 | Hexavalent Chromium | 02/27/19 12:27 PM | Not Reported |
| 33 | N034121-002AMS | MS | 1 | Hexavalent Chromium | 02/27/19 12:36 PM | Not Reported |
| 34 | N034123-020A | SAMP | 1 | Hexavalent Chromium | 02/27/19 12:46 PM | Not Reported |
| 35 | N034123-020AMS | MS | 1 | Hexavalent Chromium | 02/27/19 12:55 PM | Not Reported |
| 36 | CCV-3 | CCV | 1 | Hexavalent Chromium | 02/27/19 1:04 PM | Reported |
| 37 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/27/19 1:14 PM | Reported |
| 38 | N034182-001A | SAMP | 5 | Hexavalent Chromium | 02/27/19 1:23 PM | Not Reported |
| 39 | N034182-002A | SAMP | 1 | Hexavalent Chromium | 02/27/19 1:33 PM | Not Reported |
| 40 | N034182-004A | SAMP | 10 | Hexavalent Chromium | 02/27/19 1:42 PM | Reported |
| 41 | N034182-005A | SAMP | 10 | Hexavalent Chromium | 02/27/19 1:52 PM | Reported |
| 42 | N034182-006A | SAMP | 5 | Hexavalent Chromium | 02/27/19 2:01 PM | Reported |

**INJECTION LOG: 190227A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034182-007A | SAMP | 1 | Hexavalent Chromium | 02/27/19 2:11 PM | Reported |
| 44 | N034182-008A | SAMP | 1 | Hexavalent Chromium | 02/27/19 2:20 PM | Reported |
| 45 | N034182-009A | SAMP | 50 | Hexavalent Chromium | 02/27/19 2:30 PM | Not Reported |
| 46 | N034182-010A | SAMP | 200 | Hexavalent Chromium | 02/27/19 2:39 PM | Reported |
| 47 | N034182-011A | SAMP | 5 | Hexavalent Chromium | 02/27/19 2:49 PM | Reported |
| 48 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/27/19 2:58 PM | Reported |
| 49 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/27/19 3:07 PM | Reported |
| 50 | N034182-012A | SAMP | 50 | Hexavalent Chromium | 02/27/19 3:17 PM | Not Reported |
| 51 | N034182-013A | SAMP | 20 | Hexavalent Chromium | 02/27/19 3:26 PM | Reported |
| 52 | N034182-001A | SAMP | 10 | Hexavalent Chromium | 02/27/19 3:36 PM | Reported |
| 53 | N034182-002A | SAMP | 50 | Hexavalent Chromium | 02/27/19 3:45 PM | Reported |
| 54 | N034182-009A | SAMP | 1 | Hexavalent Chromium | 02/27/19 3:55 PM | Reported |
| 55 | N034182-012A | SAMP | 1 | Hexavalent Chromium | 02/27/19 4:04 PM | Reported |
| 56 | MB-R132187 | MBLK | 1 | Hexavalent Chromium | 02/27/19 4:14 PM | Reported |
| 57 | LCS-R132187 | LCS | 1 | Hexavalent Chromium | 02/27/19 4:23 PM | Reported |
| 58 | N034183-001A | SAMP | 1 | Hexavalent Chromium | 02/27/19 4:33 PM | Reported |
| 59 | N034183-003A | SAMP | 1 | Hexavalent Chromium | 02/27/19 4:42 PM | Reported |
| 60 | CCV-5 | CCV | 1 | Hexavalent Chromium | 02/27/19 5:04 PM | Reported |
| 61 | CCB-5 | CCB | 1 | Hexavalent Chromium | 02/27/19 5:15 PM | Reported |
| 62 | N034183-004A | SAMP | 1 | Hexavalent Chromium | 02/27/19 5:24 PM | Reported |
| 63 | N034183-005A | SAMP | 50 | Hexavalent Chromium | 02/27/19 5:34 PM | Reported |
| 64 | N034183-006A | SAMP | 1 | Hexavalent Chromium | 02/27/19 5:43 PM | Reported |
| 65 | N034183-007A | SAMP | 1 | Hexavalent Chromium | 02/27/19 5:53 PM | Reported |
| 66 | N034183-009A | SAMP | 1 | Hexavalent Chromium | 02/27/19 6:02 PM | Reported |
| 67 | N034183-010A | SAMP | 1 | Hexavalent Chromium | 02/27/19 6:12 PM | Reported |
| 68 | N034183-003AMS | MS | 1 | Hexavalent Chromium | 02/27/19 6:21 PM | Reported |
| 69 | N034183-003AMSD | MSD | 1 | Hexavalent Chromium | 02/27/19 6:31 PM | Reported |
| 70 | N034183-004ADUP | DUP | 1 | Hexavalent Chromium | 02/27/19 6:40 PM | Reported |
| 71 | N034183-005AMS | MS | 50 | Hexavalent Chromium | 02/27/19 6:49 PM | Reported |
| 72 | CCV-6 | CCV1 | 1 | Hexavalent Chromium | 02/27/19 6:59 PM | Reported |
| 73 | CCB-6 | CCB | 1 | Hexavalent Chromium | 02/27/19 7:08 PM | Reported |
| 74 | N034183-011A | SAMP | 50 | Hexavalent Chromium | 02/27/19 7:18 PM | Reported |
| 75 | N034183-012A | SAMP | 5 | Hexavalent Chromium | 02/27/19 7:27 PM | Not Reported |
| 76 | N034183-013A | SAMP | 1 | Hexavalent Chromium | 02/27/19 7:37 PM | Reported |
| 77 | N034183-014A | SAMP | 1 | Hexavalent Chromium | 02/27/19 7:46 PM | Reported |
| 78 | N034183-015A | SAMP | 1 | Hexavalent Chromium | 02/27/19 7:56 PM | Reported |
| 79 | N034183-016A | SAMP | 1 | Hexavalent Chromium | 02/27/19 8:05 PM | Reported |
| 80 | N034183-017A | SAMP | 1 | Hexavalent Chromium | 02/27/19 8:15 PM | Reported |
| 81 | N034183-018A | SAMP | 1 | Hexavalent Chromium | 02/27/19 8:24 PM | Reported |
| 82 | N034183-019A | SAMP | 1 | Hexavalent Chromium | 02/27/19 8:33 PM | Reported |
| 83 | N034183-020A | SAMP | 10 | Hexavalent Chromium | 02/27/19 8:43 PM | Not Reported |
| 84 | CCV-7 | CCV | 1 | Hexavalent Chromium | 02/27/19 8:52 PM | Reported |

**INJECTION LOG: 190227A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 85 | CCB-7 | CCB | 1 | Hexavalent Chromium | 02/27/19 9:02 PM | Reported |
| 86 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/27/19 9:11 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190227A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **28/Feb/19 08:57:53** |
| *No. of Injections:* | **89** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 1 | 1000 | Unknown | | 02/27/2019 08:32 | Finished | BLANK |
| 10 | BLANK | 1 | 1000 | Unknown | | 02/27/2019 08:50 | Finished | BLANK |
| 11 | CCV-1,CCV,1, | 2 | 1000 | Unknown | | 02/27/2019 09:01 | Finished | CCV @5ppb, IWST-190221B |
| 12 | PQL@0.2ppb,CCV2,1 | 3 | 1000 | Unknown | | 02/27/2019 09:10 | Finished | PQL @ 0.2ppb |
| 13 | CCB-1,CCB,1, | 4 | 1000 | Unknown | | 02/27/2019 09:20 | Finished | CCB R190115A |
| 14 | MB-H2O,MBLK,1, | 5 | 1000 | Unknown | | 02/27/2019 09:30 | Finished | MB R190115A |
| 15 | LCS-H2O,LCS,1, | 6 | 1000 | Unknown | | 02/27/2019 09:41 | Finished | LCS @5ppb, IWST-190221B |
| 16 | N034342-001A,SAMF | 7 | 1000 | Unknown | | 02/27/2019 09:53 | Finished | SAMP,10mL |
| 17 | N034344-001A,SAMF | 8 | 1000 | Unknown | | 02/27/2019 10:05 | Finished | SAMP,10mL |
| 18 | N034178-010A,SAMF | 9 | 1000 | Unknown | | 02/27/2019 10:14 | Finished | SAMP,2>10mL |
| 19 | N034178-010AMS,MS | 10 | 1000 | Unknown | | 02/27/2019 10:24 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 20 | N034342-001AMS,MS | 11 | 1000 | Unknown | | 02/27/2019 10:33 | Finished | MS (1ppb), IWST-190221B,10 |
| 21 | N034344-001AMS,MS | 12 | 1000 | Unknown | | 02/27/2019 10:43 | Finished | MS (1ppb), IWST-190221B,10 |
| 22 | N034342-001A,SAMF | 13 | 1000 | Unknown | | 02/27/2019 10:52 | Finished | SAMP,2>10mL |
| 23 | N034342-001AMS,MS | 14 | 1000 | Unknown | | 02/27/2019 11:02 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 24 | CCV-2,CCV1,1, | 15 | 1000 | Unknown | | 02/27/2019 11:11 | Finished | CCV @10ppb, IWST-190221A |
| 25 | CCB-2,CCB,1, | 16 | 1000 | Unknown | | 02/27/2019 11:20 | Finished | CCB R190115A |
| 26 | N034344-001A,SAMF | 17 | 1000 | Unknown | | 02/27/2019 11:30 | Finished | SAMP,2>10mL |
| 27 | N034344-001AMS,MS | 18 | 1000 | Unknown | | 02/27/2019 11:39 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 28 | N034178-010AMSD,M | 19 | 1000 | Unknown | | 02/27/2019 11:49 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 29 | N034342-001ADUP,D | 20 | 1000 | Unknown | | 02/27/2019 11:58 | Finished | DUP,2>10mL |
| 30 | N034121-001A,SAMF | 21 | 1000 | Unknown | | 02/27/2019 12:08 | Finished | SAMP,10mL |
| 31 | N034121-001AMS,MS | 22 | 1000 | Unknown | | 02/27/2019 12:17 | Finished | MS (1ppb), IWST-190221B,10 |
| 32 | N034121-002A,SAMF | 23 | 1000 | Unknown | | 02/27/2019 12:27 | Finished | SAMP,10mL |
| 33 | N034121-002AMS,MS | 24 | 1000 | Unknown | | 02/27/2019 12:36 | Finished | MS (1ppb), IWST-190221B,10 |
| 34 | N034123-020A,SAMF | 25 | 1000 | Unknown | | 02/27/2019 12:46 | Finished | SAMP,2>10mL |
| 35 | N034123-020AMS,MS | 26 | 1000 | Unknown | | 02/27/2019 12:55 | Finished | MS (5ppb), IWST-190221B,2>1 |
| 36 | CCV-3,CCV,1, | 27 | 1000 | Unknown | | 02/27/2019 13:04 | Finished | CCV @5ppb, IWST-190221A |
| 37 | CCB-3,CCB,1, | 28 | 1000 | Unknown | | 02/27/2019 13:14 | Finished | CCB R190115A |
| 38 | N034182-001A,SAMF | 29 | 1000 | Unknown | | 02/27/2019 13:23 | Finished | SAMP,2>10mL |
| 39 | N034182-002A,SAMF | 30 | 1000 | Unknown | | 02/27/2019 13:33 | Finished | SAMP,10mL |
| 40 | N034182-004A,SAMF | 31 | 1000 | Unknown | | 02/27/2019 13:42 | Finished | SAMP,1>10mL |
| 41 | N034182-005A,SAMF | 32 | 1000 | Unknown | | 02/27/2019 13:52 | Finished | SAMP,1>10mL |
| 42 | N034182-006A,SAMF | 33 | 1000 | Unknown | | 02/27/2019 14:01 | Finished | SAMP,2>10mL |
| 43 | N034182-007A,SAMF | 34 | 1000 | Unknown | | 02/27/2019 14:11 | Finished | SAMP,10mL |
| 44 | N034182-008A,SAMF | 35 | 1000 | Unknown | | 02/27/2019 14:20 | Finished | SAMP,10mL |
| 45 | N034182-009A,SAMF | 36 | 1000 | Unknown | | 02/27/2019 14:30 | Finished | SAMP,0.2>10mL |
| 46 | N034182-010A,SAMF | 37 | 1000 | Unknown | | 02/27/2019 14:39 | Finished | SAMP,0.05>10mL |
| 47 | N034182-011A,SAMF | 38 | 1000 | Unknown | | 02/27/2019 14:49 | Finished | SAMP,2>10mL |
| 48 | CCV-4,CCV1,1, | 39 | 1000 | Unknown | | 02/27/2019 14:58 | Finished | CCV @10ppb, IWST-190221A |
| 49 | CCB-4,CCB,1, | 40 | 1000 | Unknown | | 02/27/2019 15:07 | Finished | CCB R190115A |
| 50 | N034182-012A,SAMF | 41 | 1000 | Unknown | | 02/27/2019 15:17 | Finished | SAMP,0.2>10mL |
| 51 | N034182-013A,SAMF | 42 | 1000 | Unknown | | 02/27/2019 15:26 | Finished | SAMP,0.5>10mL |
| 52 | N034182-001A,SAMF | 43 | 1000 | Unknown | | 02/27/2019 15:36 | Finished | SAMP,1>10mL |
| 53 | N034182-002A,SAMF | 44 | 1000 | Unknown | | 02/27/2019 15:45 | Finished | SAMP,0.2>10mL |
| 54 | N034182-009A,SAMF | 45 | 1000 | Unknown | | 02/27/2019 15:55 | Finished | SAMP,10mL |
| 55 | N034182-012A,SAMF | 46 | 1000 | Unknown | | 02/27/2019 16:04 | Finished | SAMP,10mL |
| 56 | MB-H2O,MBLK,1, | 47 | 1000 | Unknown | | 02/27/2019 16:14 | Finished | MB R190115A |
| 57 | LCS-H2O,LCS,1, | 48 | 1000 | Unknown | | 02/27/2019 16:23 | Finished | LCS @5ppb, IWST-190221B |
| 58 | N034183-001A,SAMF | 49 | 1000 | Unknown | | 02/27/2019 16:33 | Finished | SAMP,10mL |
| 59 | N034183-003A,SAMF | 50 | 1000 | Unknown | | 02/27/2019 16:42 | Finished | SAMP,10mL |
| 60 | CCV-5,CCV,1, | 1 | 1000 | Unknown | | 02/27/2019 17:04 | Finished | CCV @5ppb, IWST-190221A |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | CCB-5,CCB,1, | 2 | 1000 | Unknown | | 02/27/2019 17:15 | Finished | CCB R190115A |
| 62 | N034183-004A,SAMF | 3 | 1000 | Unknown | | 02/27/2019 17:24 | Finished | SAMP,10mL |
| 63 | N034183-005A,SAMF | 4 | 1000 | Unknown | | 02/27/2019 17:34 | Finished | SAMP,0.2>10mL |
| 64 | N034183-006A,SAMF | 5 | 1000 | Unknown | | 02/27/2019 17:43 | Finished | SAMP,10mL |
| 65 | N034183-007A,SAMF | 6 | 1000 | Unknown | | 02/27/2019 17:53 | Finished | SAMP,10mL |
| 66 | N034183-009A,SAMF | 7 | 1000 | Unknown | | 02/27/2019 18:02 | Finished | SAMP,10mL |
| 67 | N034183-010A,SAMF | 8 | 1000 | Unknown | | 02/27/2019 18:12 | Finished | SAMP,10mL |
| 68 | N034183-003AMS,MS | 9 | 1000 | Unknown | | 02/27/2019 18:21 | Finished | MS (1ppb), IWST-190221B,10 |
| 69 | N034183-003AMSD,M | 10 | 1000 | Unknown | | 02/27/2019 18:31 | Finished | MSD (1ppb), IWST-190221B,1( |
| 70 | N034183-004ADUP,D | 11 | 1000 | Unknown | | 02/27/2019 18:40 | Finished | DUP,10mL |
| 71 | N034183-005AMS,MS | 12 | 1000 | Unknown | | 02/27/2019 18:49 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 72 | CCV-6,CCV1,1, | 13 | 1000 | Unknown | | 02/27/2019 18:59 | Finished | CCV @10ppb, IWST-190221A |
| 73 | CCB-6,CCB,1, | 14 | 1000 | Unknown | | 02/27/2019 19:08 | Finished | CCB R190115A |
| 74 | N034183-011A,SAMF | 15 | 1000 | Unknown | | 02/27/2019 19:18 | Finished | SAMP,0.2>10mL |
| 75 | N034183-012A,SAMF | 16 | 1000 | Unknown | | 02/27/2019 19:27 | Finished | SAMP,2>10mL |
| 76 | N034183-013A,SAMF | 17 | 1000 | Unknown | | 02/27/2019 19:37 | Finished | SAMP,10mL |
| 77 | N034183-014A,SAMF | 18 | 1000 | Unknown | | 02/27/2019 19:46 | Finished | SAMP,10mL |
| 78 | N034183-015A,SAMF | 19 | 1000 | Unknown | | 02/27/2019 19:56 | Finished | SAMP,10mL |
| 79 | N034183-016A,SAMF | 20 | 1000 | Unknown | | 02/27/2019 20:05 | Finished | SAMP,10mL |
| 80 | N034183-017A,SAMF | 21 | 1000 | Unknown | | 02/27/2019 20:15 | Finished | SAMP,10mL |
| 81 | N034183-018A,SAMF | 22 | 1000 | Unknown | | 02/27/2019 20:24 | Finished | SAMP,10mL |
| 82 | N034183-019A,SAMF | 23 | 1000 | Unknown | | 02/27/2019 20:33 | Finished | SAMP,10mL |
| 83 | N034183-020A,SAMF | 24 | 1000 | Unknown | | 02/27/2019 20:43 | Finished | SAMP,1>10mL |
| 84 | CCV-7,CCV,1, | 25 | 1000 | Unknown | | 02/27/2019 20:52 | Finished | CCV @5ppb, IWST-190221A |
| 85 | CCB-7,CCB,1, | 26 | 1000 | Unknown | | 02/27/2019 21:02 | Finished | CCB R190115A |
| 86 | BLANK | 27 | 1000 | Unknown | | 02/27/2019 21:11 | Finished | BLANK |
| 87 | SHUTDOWN | 28 | 1000 | Unknown | | 02/27/2019 21:21 | Finished | |
| 88 | Eluent: R190226B | 29 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 89 | PCR: R190226A | 30 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# SAMPLE PREPARATION LOG

# Hexavalent Chromium Preparation and Runlog

## Sample Preparation

Date Prepared: 2/15/19
Time Prepared: 1500
Prepared By: MG

Reagent ID:
Sulfuric Acid: 0563
Diphenylcarbazide: CINV-181102A
NH4OH + NH4SO4 eluent: R190226B
NH4OH + NH4SO4 buffer: R190115A

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | N034178-1A | 9.77 | – | ~250mL | ~250mL | | |
| 2) | 2A | 9.71 | – | | | | |
| 3) | 3A | 9.69 | – | | | | |
| 4) | 4A | 9.73 | – | | | | |
| 5) | 5A | 9.74 | – | | | | |
| 6) | 6A | 9.40 | – | | | | |
| 7) | 7A | 9.68 | – | | | | |
| 8) | 8A | 9.65 | – | | | | |
| 9) | 9A | 9.53 | – | | | | |
| 10) | 10A | 9.60 | – | | | | |
| 11) | 11A | 9.50 | | | | | |
| 12) | | | | | | | |
| 13) | | | | | | | |
| 14) | | | | | | | |
| 15) | | | | | | | |

## Sample Preparation

Date Prepared: 2/16/19
Time Prepared: 0840
Prepared By: HSG

Slope: 96.62
pH 4: 4.03
10: 10.02
7: 7.02

Reagent ID:
Sulfuric Acid: 0563
Diphenylcarbazide: CINV-181102A
NH4OH + NH4SO4 eluent: R190218C/R190226B/R190301A
NH4OH + NH4SO4 buffer: R190115A/R190211C

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | N034190-1A | 7.21 | 9.56 | ~250 mL | ~250mL | 5mL buffer | R190115A |
| 2) | 2A | 9.34 | – | | | | |
| 3) | 3A | 9.39 | – | | | | |
| 4) | 4A | 9.10 | 9.32 | | | #3 drops 6N NaOH | |
| 5) | 5A | 8.97 | 9.40 | | | #5 drops 6N NaOH | |
| 6) | 6A | 9.32 | – | | | | |
| 7) | 7A | 9.55 | – | | | | |
| 8) | 8A | 9.37 | – | | | | |
| 9) | 9A | 9.68 | – | | | | |
| 10) | 10A | 9.68 | – | | | | |
| 11) | N034191-1A | 8.40 | 9.30 | | | #6 drops 6N NaOH | |
| 12) | 2A | 7.08 | 9.45 | | | 5mL buffer R190115A | |
| 13) | N034192-1A | 9.50 | – | | | | |
| 14) | 2A | 9.52 | – | | | | |
| 15) | 3A | 9.61 | – | | | | |
| | 4A | 9.60 | – | | | | |
| | 5A | 9.56 | – | | | | |

Logbook No. 15

# INITIAL CALIBRATION DATA SUMMARY

**(EPA 218.6) - INITIAL CALIBRATION**

Instrument ID: IC-07
Date Calibrated: 2/21/2019

Initial Calibration:

| Hexavalent Chromium | STD1 | STD2 | STD3 | STD4 | STD5 | STD6 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0.2 | 1 | 5 | 10 | 15 | 20 | $R^2$ |
| Area,mAU*min | 0.0556 | 0.2392 | 1.2310 | 2.4655 | 3.7365 | 4.9505 | 1.0000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock | Working |
|---|---|---|
| Standard Concentration: | 1,000,000 PPB | 1,000 PPB |
| Standard ID: | ISST-170814H | IWST-~~181022C~~ |

190221A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

NS 03/06/2019
for HSG

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3303247** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.126 | 0.20 | 5.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3303248** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.232 | 0.20 | 0.2000 | 0 | 116 | 80 | 120 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303250** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.214 | 0.20 | 0.2000 | 0 | 107 | 80 | 120 | | | | |

| Sample ID **CCV-4** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303251** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 9.591 | 0.20 | 10.00 | 0 | 95.9 | 95 | 105 | | | | |

| Sample ID **CCV-5** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303254** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.955 | 0.20 | 5.000 | 0 | 99.1 | 95 | 105 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCV-6** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303266** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 9.864 | 0.20 | 10.00 | 0 | 98.6 | 95 | 105 | | | | |

| Sample ID **CCV-7** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303278** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.989 | 0.20 | 5.000 | 0 | 99.8 | 95 | 105 | | | | |

| Sample ID **CCV-8** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303283** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 9.594 | 0.20 | 10.00 | 0 | 95.9 | 95 | 105 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132155** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132155** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3303754** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.126 | 0.20 | 5.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132155** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132155** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3303755** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.232 | 0.20 | 0.2000 | 0 | 116 | 80 | 120 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132155** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132155** | TestNo: **EPA 218.6** | | Analysis Date: **2/27/2019** | SeqNo: **3303757** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.015 | 0.20 | 5.000 | 0 | 100 | 95 | 105 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132155** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132155** | TestNo: **EPA 218.6** | | Analysis Date: **2/27/2019** | SeqNo: **3303758** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.217 | 0.20 | 0.2000 | 0 | 109 | 80 | 120 | | | | |

| Sample ID **CCV-2** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132155** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132155** | TestNo: **EPA 218.6** | | Analysis Date: **2/27/2019** | SeqNo: **3303766** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 9.907 | 0.20 | 10.00 | 0 | 99.1 | 95 | 105 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132155** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132155** | TestNo: **EPA 218.6** | | Analysis Date: **2/27/2019** | SeqNo: **3303772** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.984 | 0.20 | 5.000 | 0 | 99.7 | 95 | 105 | | | | |

| Sample ID **CCV-4** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132155** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132155** | TestNo: **EPA 218.6** | | Analysis Date: **2/27/2019** | SeqNo: **3304692** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.032 | 0.20 | 10.00 | 0 | 100 | 95 | 105 | | | | |

| Sample ID **CCV-5** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132155** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132155** | TestNo: **EPA 218.6** | | Analysis Date: **2/27/2019** | SeqNo: **3304699** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.977 | 0.20 | 5.000 | 0 | 99.5 | 95 | 105 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3303249** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303252** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-5** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303255** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-6** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303267** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-7** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303279** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCB-8** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132145** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132145** | TestNo: **EPA 218.6** | | Analysis Date: **2/26/2019** | SeqNo: **3303284** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132155** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132155** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3303756** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132155** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132155** | TestNo: **EPA 218.6** | | Analysis Date: **2/27/2019** | SeqNo: **3303759** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132155** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132155** | TestNo: **EPA 218.6** | | Analysis Date: **2/27/2019** | SeqNo: **3303767** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132155** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132155** | TestNo: **EPA 218.6** | | Analysis Date: **2/27/2019** | SeqNo: **3303773** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132155** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132155** | TestNo: **EPA 218.6** | | Analysis Date: **2/27/2019** | SeqNo: **3304693** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCB-5** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132155** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132155** | TestNo: **EPA 218.6** | | Analysis Date: **2/27/2019** | SeqNo: **3304700** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# RETENTION TIME SUMMARY

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/26/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.106 | |
| CCV-1 | 4.098 | |
| CCV-2 | 4.098 | |
| CCV-3 | 4.106 | |
| CCV-4 | 4.115 | |
| CCV-5 | 4.106 | |
| CCV-6 | 4.123 | |
| CCV-7 | 4.098 | |
| CCV-8 | 4.115 | |

| | |
|---|---|
| **Average** | 4.107 |
| **Actual RT Window** | 4.027 - 4.187 |
| **Applied RT Window** | 3.907 - 4.307 |

| | | |
|---|---|---|
| MB-R132121 | N.A. | N.A. |
| LCS-R132121 | 4.090 | PASS |
| N034102-002A | N.A. | N.A. |
| N034102-002AMS | 4.040 | PASS |
| N034105-004A | 4.056 | PASS |
| N034105-004AMS | 4.056 | PASS |
| N034107-003A | 4.098 | PASS |
| N034107-003AMS | 4.098 | PASS |
| N034107-006A | 4.098 | PASS |
| N034107-006AMS | 4.098 | PASS |
| N034107-012A | 4.090 | PASS |
| N034107-012AMS | 4.090 | PASS |
| N034107-013A | 4.073 | PASS |
| N034107-013AMS | 4.090 | PASS |
| N034107-016A | 4.090 | PASS |
| N034107-016AMS | 4.090 | PASS |
| N034107-017A | 4.090 | PASS |
| N034107-017AMS | 4.090 | PASS |
| N034102-002AMS | 4.048 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/26/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.106 | |
| CCV-1 | 4.098 | |
| CCV-2 | 4.098 | |
| CCV-3 | 4.106 | |
| CCV-4 | 4.115 | |
| CCV-5 | 4.106 | |
| CCV-6 | 4.123 | |
| CCV-7 | 4.098 | |
| CCV-8 | 4.115 | |
| **Average** | 4.107 | |
| **Actual RT Window** | 4.027 - 4.187 | |
| **Applied RT Window** | 3.907 - 4.307 | |
| N034105-004AMS | 4.065 | PASS |
| N034238-002B | 4.090 | PASS |
| N034238-002BMS | 4.098 | PASS |
| N034238-002BMSD | 4.098 | PASS |
| N034107-012A | 4.106 | PASS |
| N034107-012AMS | 4.106 | PASS |
| N034107-012ADUP | 4.098 | PASS |
| N034107-006A | 4.090 | PASS |
| N034107-006AMS | 4.115 | PASS |
| N034129-008A | 4.081 | PASS |
| N034129-008AMS | 4.090 | PASS |
| N034129-011A | 4.081 | PASS |
| N034129-011AMS | 4.090 | PASS |
| N034129-012A | 4.081 | PASS |
| N034129-012AMS | 4.090 | PASS |
| N034129-013A | 4.098 | PASS |
| N034129-013AMS | 4.090 | PASS |
| N034129-014A | 4.073 | PASS |
| N034129-014AMS | 4.090 | PASS |
| N034121-006A | 4.081 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/26/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.106 | |
| CCV-1 | 4.098 | |
| CCV-2 | 4.098 | |
| CCV-3 | 4.106 | |
| CCV-4 | 4.115 | |
| CCV-5 | 4.106 | |
| CCV-6 | 4.123 | |
| CCV-7 | 4.098 | |
| CCV-8 | 4.115 | |
| **Average** | 4.107 | |
| **Actual RT Window** | 4.027 - 4.187 | |
| **Applied RT Window** | 3.907 - 4.307 | |
| LCS-R132145 | 4.098 | PASS |
| MB-R132145 | N.A. | N.A. |
| N034178-001A | 4.098 | PASS |
| N034178-001AMS | 4.098 | PASS |
| N034178-002A | 4.081 | PASS |
| N034178-002AMS | 4.098 | PASS |
| N034178-003A | 4.040 | PASS |
| N034178-003AMS | 4.031 | PASS |
| N034178-004A | 4.031 | PASS |
| N034178-004AMS | 4.031 | PASS |
| N034178-003AMSD | 4.031 | PASS |
| N034178-005A | 4.073 | PASS |
| N034178-005AMS | 4.065 | PASS |
| N034178-006A | 3.981 | PASS |
| N034178-006AMS | 3.990 | PASS |
| N034178-007A | 4.023 | PASS |
| N034178-007AMS | 4.023 | PASS |
| N034178-008A | 4.106 | PASS |
| N034178-008AMS | 4.098 | PASS |
| N034178-006ADUP | 3.990 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/26/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.106 | |
| CCV-1 | 4.098 | |
| CCV-2 | 4.098 | |
| CCV-3 | 4.106 | |
| CCV-4 | 4.115 | |
| CCV-5 | 4.106 | |
| CCV-6 | 4.123 | |
| CCV-7 | 4.098 | |
| CCV-8 | 4.115 | |
| **Average** | 4.107 | |
| **Actual RT Window** | 4.027 - 4.187 | |
| **Applied RT Window** | 3.907 - 4.307 | |
| N034178-009A | 4.106 | PASS |
| N034178-009AMS | 4.090 | PASS |
| N034178-010A | N.A. | N.A. |
| N034178-010AMS | N.A. | N.A. |
| N034178-011A | N.A. | N.A. |
| N034178-011AMS | 4.073 | PASS |
| N034178-011A | N.A. | N.A. |
| N034178-011AMS | N.A. | N.A. |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/27/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.106 | |
| CCV-1 | 4.098 | |
| CCV-2 | 4.098 | |
| CCV-3 | 4.098 | |
| CCV-4 | 4.098 | |
| CCV-5 | 4.090 | |
| CCV-6 | 4.098 | |
| CCV-7 | 4.098 | |

| | | |
|---|---|---|
| **Average** | 4.097 | |
| **Actual RT Window** | 4.017 - | 4.177 |
| **Applied RT Window** | 3.897 - | 4.297 |

| | | |
|---|---|---|
| MB-R132155 | N.A. | N.A. |
| LCS-R132155 | 4.106 | PASS |
| N034342-001A | N.A. | N.A. |
| N034344-001A | N.A. | N.A. |
| N034178-010A | N.A. | N.A. |
| N034178-010AMS | 4.056 | PASS |
| N034342-001AMS | 3.815 | FAIL |
| N034344-001AMS | N.A. | N.A. |
| N034342-001A | N.A. | N.A. |
| N034342-001AMS | 4.056 | PASS |
| N034344-001A | N.A. | N.A. |
| N034344-001AMS | 4.040 | PASS |
| N034178-010AMSD | 4.056 | PASS |
| N034342-001ADUP | N.A. | N.A. |
| N034121-001A | 4.090 | PASS |
| N034121-001AMS | 4.090 | PASS |
| N034121-002A | 4.090 | PASS |
| N034121-002AMS | 4.098 | PASS |
| N034123-020A | 4.098 | PASS |
| N034123-020AMS | 4.098 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/27/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.106 | |
| CCV-1 | 4.098 | |
| CCV-2 | 4.098 | |
| CCV-3 | 4.098 | |
| CCV-4 | 4.098 | |
| CCV-5 | 4.090 | |
| CCV-6 | 4.098 | |
| CCV-7 | 4.098 | |
| **Average** | 4.097 | |
| **Actual RT Window** | 4.017 - 4.177 | |
| **Applied RT Window** | 3.897 - 4.297 | |
| N034182-001A | 4.090 | PASS |
| N034182-002A | 4.081 | PASS |
| N034182-004A | 4.098 | PASS |
| N034182-005A | 4.098 | PASS |
| N034182-006A | 4.090 | PASS |
| N034182-007A | N.A. | N.A. |
| N034182-008A | N.A. | N.A. |
| N034182-009A | N.A. | N.A. |
| N034182-010A | 4.098 | PASS |
| N034182-011A | 4.098 | PASS |
| N034182-012A | N.A. | N.A. |
| N034182-013A | 4.098 | PASS |
| N034182-001A | 4.098 | PASS |
| N034182-002A | 4.098 | PASS |
| N034182-009A | N.A. | N.A. |
| N034182-012A | N.A. | N.A. |
| MB-R132187 | N.A. | N.A. |
| LCS-R132187 | 4.098 | PASS |
| N034183-001A | N.A. | N.A. |
| N034183-003A | 4.081 | PASS |
| N034183-004A | 4.081 | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 2/27/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.106 | |
| CCV-1 | 4.098 | |
| CCV-2 | 4.098 | |
| CCV-3 | 4.098 | |
| CCV-4 | 4.098 | |
| CCV-5 | 4.090 | |
| CCV-6 | 4.098 | |
| CCV-7 | 4.098 | |
| **Average** | 4.097 | |
| **Actual RT Window** | 4.017 - 4.177 | |
| **Applied RT Window** | 3.897 - 4.297 | |
| N034183-005A | 4.090 | PASS |
| N034183-006A | 4.090 | PASS |
| N034183-007A | 4.090 | PASS |
| N034183-009A | N.A. | N.A. |
| N034183-010A | N.A. | N.A. |
| N034183-003AMS | 4.081 | PASS |
| N034183-003AMSD | 4.073 | PASS |
| N034183-004ADUP | 4.090 | PASS |
| N034183-005AMS | 4.098 | PASS |
| N034183-011A | 4.098 | PASS |
| N034183-012A | 4.090 | PASS |
| N034183-013A | N.A. | N.A. |
| N034183-014A | N.A. | N.A. |
| N034183-015A | N.A. | N.A. |
| N034183-016A | N.A. | N.A. |
| N034183-017A | 4.081 | PASS |
| N034183-018A | N.A. | N.A. |
| N034183-019A | N.A. | N.A. |
| N034183-020A | 4.090 | PASS |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

| Datafile | 170505 | 170508 | 170509 | 170510 | 170511 | 170512 | 170515 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte** | **#1** | **#2** | **#3** | **#4** | **#5** | **#6** | **#7** | **Spike Conc., mg/L** | **SD** | **$t_{(n-1)}$ value** | **MDL** | **PQL** | **Remarks** |
| Hexavalent Chromium | 0.1949 | 0.2135 | 0.1840 | 0.1828 | 0.2011 | 0.1936 | 0.1911 | 0.20 | 0.0105 | 3.143 | **0.0331** | **0.20** | OK,meets criteria |

Students' **t** Values at 99% CL

| # | $t_{(n-1)}$ |
|---|---|
| 10 | 2.821 |
| 9 | 2.896 |
| 8 | 2.998 |
| 7 | 3.143 |

## LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

| Compound | MDL | LOD Spike Conc., µg/L | LOD actual Conc., µg/L |
|---|---|---|---|
| Hexavalent Chromium | 0.0331 | 0.100 | 0.116 |

| Compound | PQL | PQL Spike Conc., µg/L | PQL actual Conc., µg/L | % Recovery |
|---|---|---|---|---|
| Hexavalent Chromium | 0.200 | 0.200 | 0.201 | **100** |

# RAW DATA

# INITIAL CALIBRATION

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 1:17 PM | Not Reported |
| 10 | ICV | ICV | 1 | Hexavalent Chromium | 02/21/19 1:28 PM | Reported |
| 11 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/21/19 1:37 PM | Reported |
| 12 | ICB | ICB | 1 | Hexavalent Chromium | 02/21/19 1:47 PM | Reported |
| 13 | MB-R132043 | MBLK | 1 | Hexavalent Chromium | 02/21/19 1:56 PM | Reported |
| 14 | LCS-R132043 | LCS | 1 | Hexavalent Chromium | 02/21/19 2:06 PM | Reported |
| 15 | N034269-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:18 PM | Not Reported |
| 16 | N034271-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:30 PM | Not Reported |
| 17 | N034271-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:39 PM | Not Reported |
| 18 | N034104-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:49 PM | Reported |
| 19 | N034107-018A | SAMP | 5 | Hexavalent Chromium | 02/21/19 2:58 PM | Reported |
| 20 | N034269-001AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:08 PM | Not Reported |
| 21 | N034271-002AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:17 PM | Not Reported |
| 22 | N034271-001A | SAMP | 100 | Hexavalent Chromium | 02/21/19 3:27 PM | Reported |
| 23 | CCV-1 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 3:36 PM | Reported |
| 24 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/21/19 3:46 PM | Reported |
| 25 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 3:55 PM | Not Reported |
| 26 | N034269-001A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:03 PM | Reported |
| 27 | N034269-001AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:14 PM | Reported |
| 28 | N034271-002A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:24 PM | Not Reported |
| 29 | N034271-002AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:33 PM | Not Reported |
| 30 | N034104-009AMS | MS | 1 | Hexavalent Chromium | 02/21/19 4:43 PM | Reported |
| 31 | N034104-009AMSD | MSD | 1 | Hexavalent Chromium | 02/21/19 4:52 PM | Reported |
| 32 | N034107-018ADUP | DUP | 5 | Hexavalent Chromium | 02/21/19 5:02 PM | Reported |
| 33 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 5:11 PM | Reported |
| 34 | N034271-002A | SAMP | 10 | Hexavalent Chromium | 02/21/19 5:20 PM | Not Reported |
| 35 | CCV-2 | CCV | 1 | Hexavalent Chromium | 02/21/19 5:30 PM | Reported |
| 36 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/21/19 5:39 PM | Reported |
| 37 | N034271-002AMS | MS | 10 | Hexavalent Chromium | 02/21/19 5:52 PM | Not Reported |
| 38 | N034121-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:03 PM | Reported |
| 39 | N034121-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:13 PM | Reported |
| 40 | N034121-003A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:22 PM | Reported |
| 41 | N034121-004A | SAMP | 50 | Hexavalent Chromium | 02/21/19 6:32 PM | Reported |
| 42 | N034121-005A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:41 PM | Reported |

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034121-006A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:50 PM | Reported |
| 44 | N034121-007A | SAMP | 20 | Hexavalent Chromium | 02/21/19 7:00 PM | Reported |
| 45 | N034121-008A | SAMP | 5 | Hexavalent Chromium | 02/21/19 7:09 PM | Not Reported |
| 46 | N034121-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:19 PM | Reported |
| 47 | CCV-3 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 7:28 PM | Reported |
| 48 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/21/19 7:38 PM | Reported |
| 49 | N034121-010A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:47 PM | Not Reported |
| 50 | N034121-011A | SAMP | 10 | Hexavalent Chromium | 02/21/19 7:57 PM | Reported |
| 51 | N034121-008A | SAMP | 10 | Hexavalent Chromium | 02/21/19 8:06 PM | Reported |
| 52 | N034121-011A | SAMP | 20 | Hexavalent Chromium | 02/21/19 8:16 PM | Not Reported |
| 53 | CCV-4 | CCV | 1 | Hexavalent Chromium | 02/21/19 8:25 PM | Reported |
| 54 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/21/19 8:35 PM | Reported |
| 55 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 8:44 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190221B** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **22/Feb/19 08:53:05** |
| *No. of Injections:* | **58** | *Updated By:* | **ics 5000** |

## Injection Details

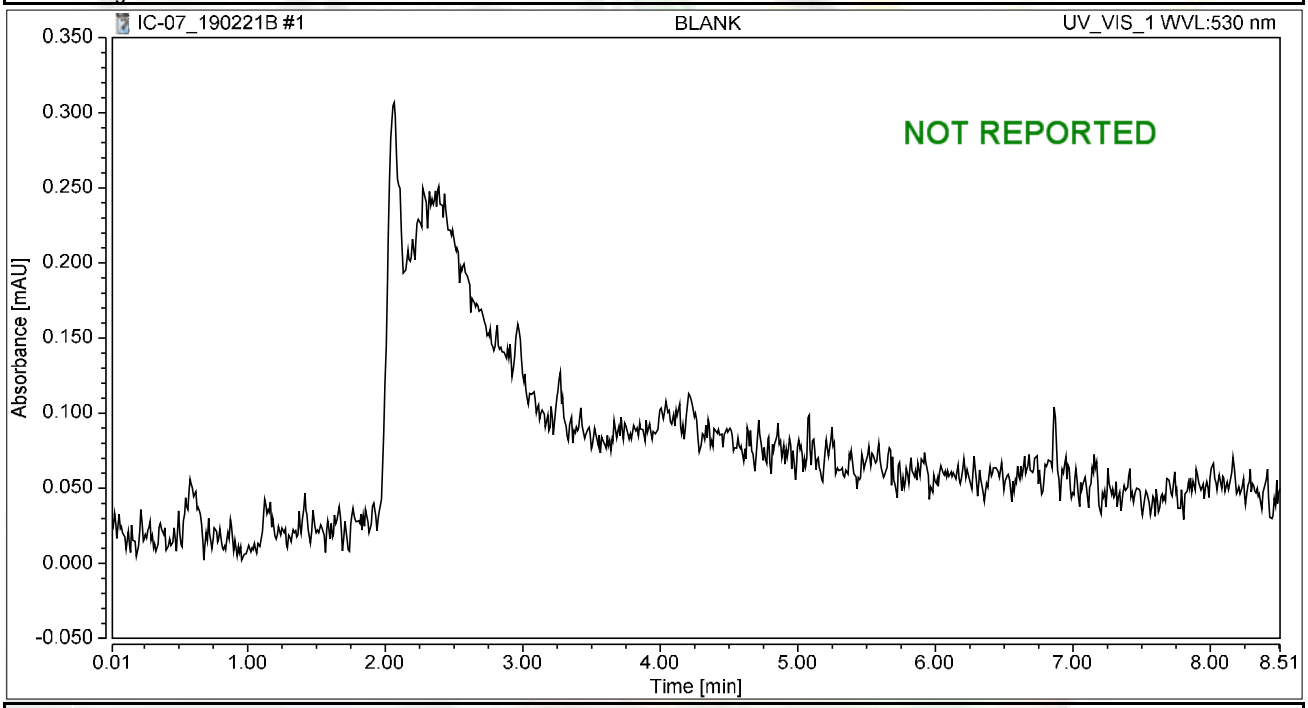
| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 9 | 1000 | Unknown | | 02/21/2019 13:17 | Finished | BLANK |
| 10 | ICV,ICV,1, | 10 | 1000 | Unknown | | 02/21/2019 13:28 | Finished | ICV @5ppb, IWST-190221B |
| 11 | PQL@0.2ppb,CCV2,1 | 11 | 1000 | Unknown | | 02/21/2019 13:37 | Finished | PQL @ 0.2ppb |
| 12 | ICB,ICB,1, | 12 | 1000 | Unknown | | 02/21/2019 13:47 | Finished | ICB R190115A |
| 13 | MB-H2O,MBLK,1, | 13 | 1000 | Unknown | | 02/21/2019 13:56 | Finished | MB R190115A |
| 14 | LCS-H2O,LCS,1, | 14 | 1000 | Unknown | | 02/21/2019 14:06 | Finished | LCS @5ppb, IWST-190221B |
| 15 | N034269-001A,SAMF | 16 | 1000 | Unknown | | 02/21/2019 14:18 | Finished | SAMP,10mL |
| 16 | N034271-001A,SAMF | 17 | 1000 | Unknown | | 02/21/2019 14:30 | Finished | SAMP,10mL |
| 17 | N034271-002A,SAMF | 18 | 1000 | Unknown | | 02/21/2019 14:39 | Finished | SAMP,10mL |
| 18 | N034104-009A,SAMF | 19 | 1000 | Unknown | | 02/21/2019 14:49 | Finished | SAMP,10mL |
| 19 | N034107-018A,SAMF | 20 | 1000 | Unknown | | 02/21/2019 14:58 | Finished | SAMP,2>10mL |
| 20 | N034269-001AMS,MS | 21 | 1000 | Unknown | | 02/21/2019 15:08 | Finished | SAMP,10mL |
| 21 | N034271-002AMS,MS | 22 | 1000 | Unknown | | 02/21/2019 15:17 | Finished | SAMP,10mL |
| 22 | N034271-001A,SAMF | 23 | 1000 | Unknown | | 02/21/2019 15:27 | Finished | SAMP,10mL |
| 23 | CCV-1,CCV1,1, | 24 | 1000 | Unknown | | 02/21/2019 15:36 | Finished | CCV @10ppb, IWST-190221A |
| 24 | CCB-1,CCB,1, | 25 | 1000 | Unknown | | 02/21/2019 15:46 | Finished | CCB R190115A |
| 25 | N034271-001AMS,MS | 26 | 1000 | Unknown | | 02/21/2019 15:55 | Interrupted | SAMP,2>10mL |
| 26 | N034269-001A,SAMF | 27 | 1000 | Unknown | | 02/21/2019 16:03 | Finished | SAMP,2>10mL |
| 27 | N034269-001AMS,MS | 28 | 1000 | Unknown | | 02/21/2019 16:14 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 28 | N034271-002A,SAMF | 29 | 1000 | Unknown | | 02/21/2019 16:24 | Finished | SAMP,2>10mL |
| 29 | N034271-002AMS,MS | 30 | 1000 | Unknown | | 02/21/2019 16:33 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 30 | N034104-009AMS,MS | 31 | 1000 | Unknown | | 02/21/2019 16:43 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034104-009AMSD,M | 32 | 1000 | Unknown | | 02/21/2019 16:52 | Finished | MSD (1ppb), IWST-190221B,10 |
| 32 | N034107-018ADUP,D | 33 | 1000 | Unknown | | 02/21/2019 17:02 | Finished | DUP,10mL |
| 33 | N034271-001AMS,MS | 34 | 1000 | Unknown | | 02/21/2019 17:11 | Finished | SAMP,10mL |
| 34 | N034271-002A,SAMF | 35 | 1000 | Unknown | | 02/21/2019 17:20 | Finished | SAMP,1>10mL |
| 35 | CCV-2,CCV,1, | 36 | 1000 | Unknown | | 02/21/2019 17:30 | Finished | CCV @5ppb, IWST-190221A |
| 36 | CCB-2,CCB,1, | 37 | 1000 | Unknown | | 02/21/2019 17:39 | Finished | CCB R190115A |
| 37 | N034271-002AMS,MS | 1 | 1000 | Unknown | | 02/21/2019 17:52 | Finished | MS (1ppb), IWST-190221B,1>1 |
| 38 | N034121-001A,SAMF | 2 | 1000 | Unknown | | 02/21/2019 18:03 | Finished | SAMP,10mL |
| 39 | N034121-002A,SAMF | 3 | 1000 | Unknown | | 02/21/2019 18:13 | Finished | SAMP,10mL |
| 40 | N034121-003A,SAMF | 4 | 1000 | Unknown | | 02/21/2019 18:22 | Finished | SAMP,10mL |
| 41 | N034121-004A,SAMF | 5 | 1000 | Unknown | | 02/21/2019 18:32 | Finished | SAMP,10mL |
| 42 | N034121-005A,SAMF | 6 | 1000 | Unknown | | 02/21/2019 18:41 | Finished | SAMP,10mL |
| 43 | N034121-006A,SAMF | 7 | 1000 | Unknown | | 02/21/2019 18:50 | Finished | SAMP,10mL |
| 44 | N034121-007A,SAMF | 8 | 1000 | Unknown | | 02/21/2019 19:00 | Finished | SAMP,10mL |
| 45 | N034121-008A,SAMF | 9 | 1000 | Unknown | | 02/21/2019 19:09 | Finished | SAMP,10mL |
| 46 | N034121-009A,SAMF | 10 | 1000 | Unknown | | 02/21/2019 19:19 | Finished | SAMP,10mL |
| 47 | CCV-3,CCV1,1, | 11 | 1000 | Unknown | | 02/21/2019 19:28 | Finished | CCV @10ppb, IWST-190221A |
| 48 | CCB-3,CCB,1, | 12 | 1000 | Unknown | | 02/21/2019 19:38 | Finished | CCB R190115A |
| 49 | N034121-010A,SAMF | 13 | 1000 | Unknown | | 02/21/2019 19:47 | Finished | SAMP,10mL |
| 50 | N034121-011A,SAMF | 14 | 1000 | Unknown | | 02/21/2019 19:57 | Finished | SAMP,10mL |
| 51 | N034121-008A,SAMF | 15 | 1000 | Unknown | | 02/21/2019 20:06 | Finished | SAMP,1>10mL |
| 52 | N034121-011A,SAMF | 16 | 1000 | Unknown | | 02/21/2019 20:16 | Finished | SAMP,1>10mL |
| 53 | CCV-4,CCV,1, | 17 | 1000 | Unknown | | 02/21/2019 20:25 | Finished | CCV @5ppb, IWST-190221A |
| 54 | CCB-4,CCB,1, | 18 | 1000 | Unknown | | 02/21/2019 20:35 | Finished | CCB R190115A |
| 55 | BLANK | 19 | 1000 | Unknown | | 02/21/2019 20:44 | Finished | BLANK |
| 56 | SHUTDOWN | 20 | 1000 | Unknown | | 02/21/2019 20:53 | Finished | |
| 57 | Eluent: R190219B | 21 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 58 | PCR: R190220A | 22 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 11:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

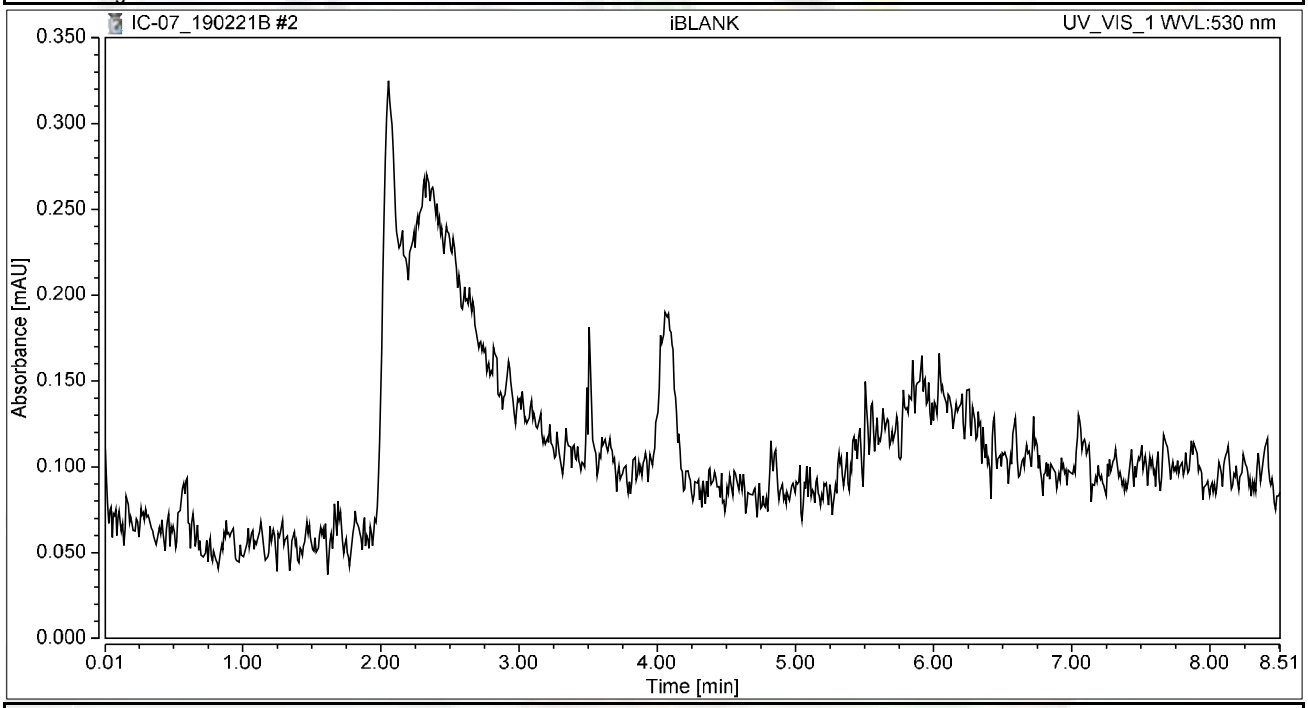
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **iBLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:04** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

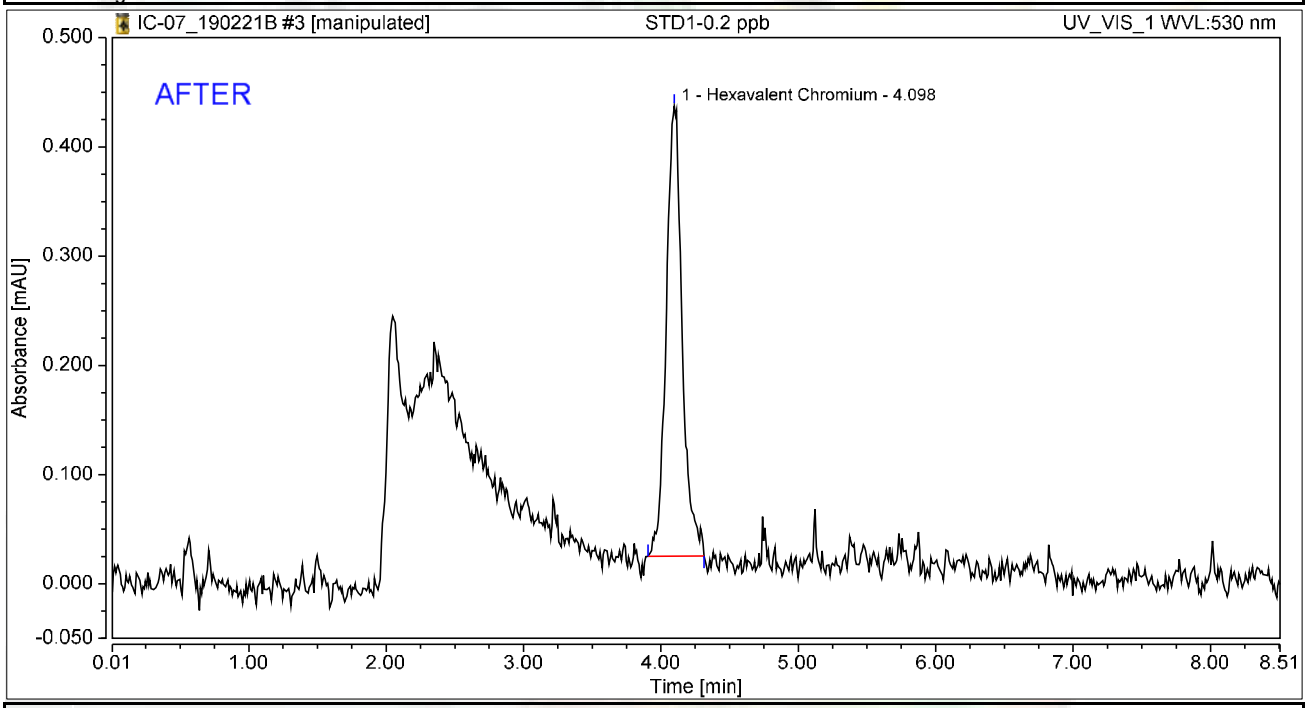
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD1-0.2 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **01** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.056 | 0.412 | 100.00 | 100.00 | 0.2243 |
| **Total:** | | | **0.056** | **0.412** | **100.00** | **100.00** | |

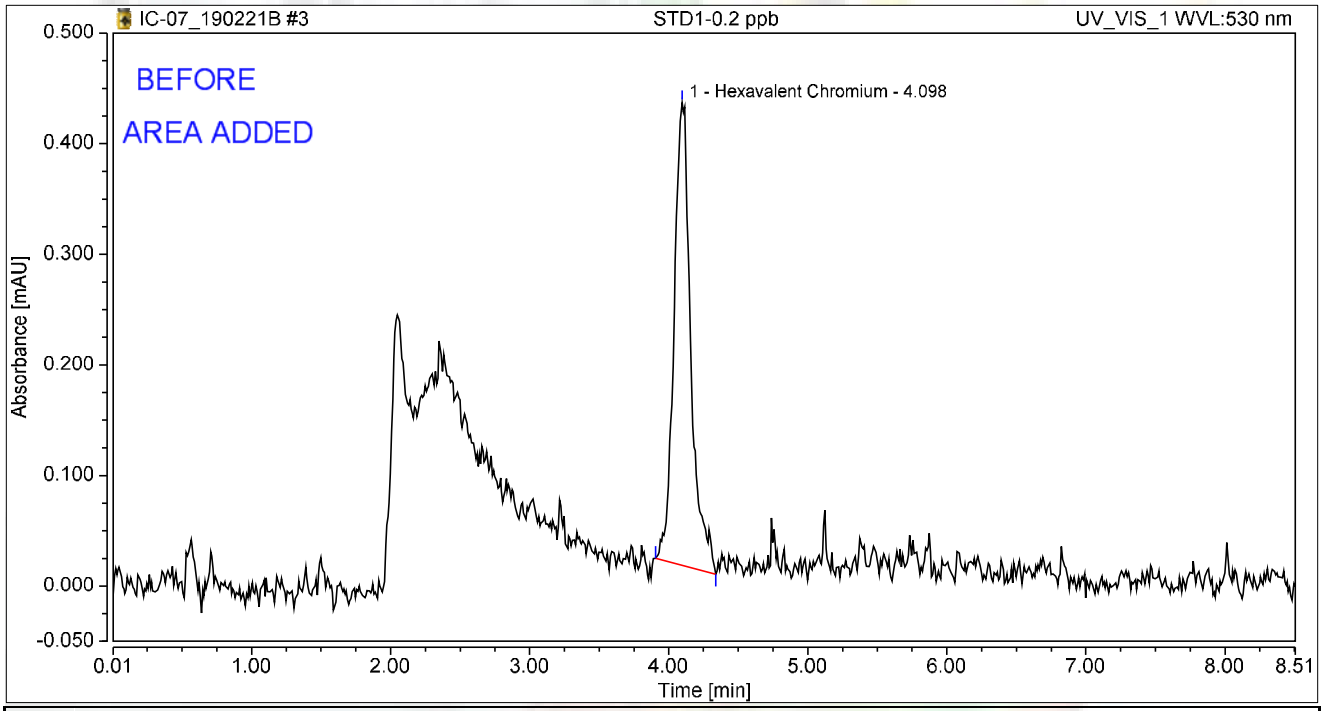
Reviewed by:
Nancy 2/28/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD1-0.2 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **01** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

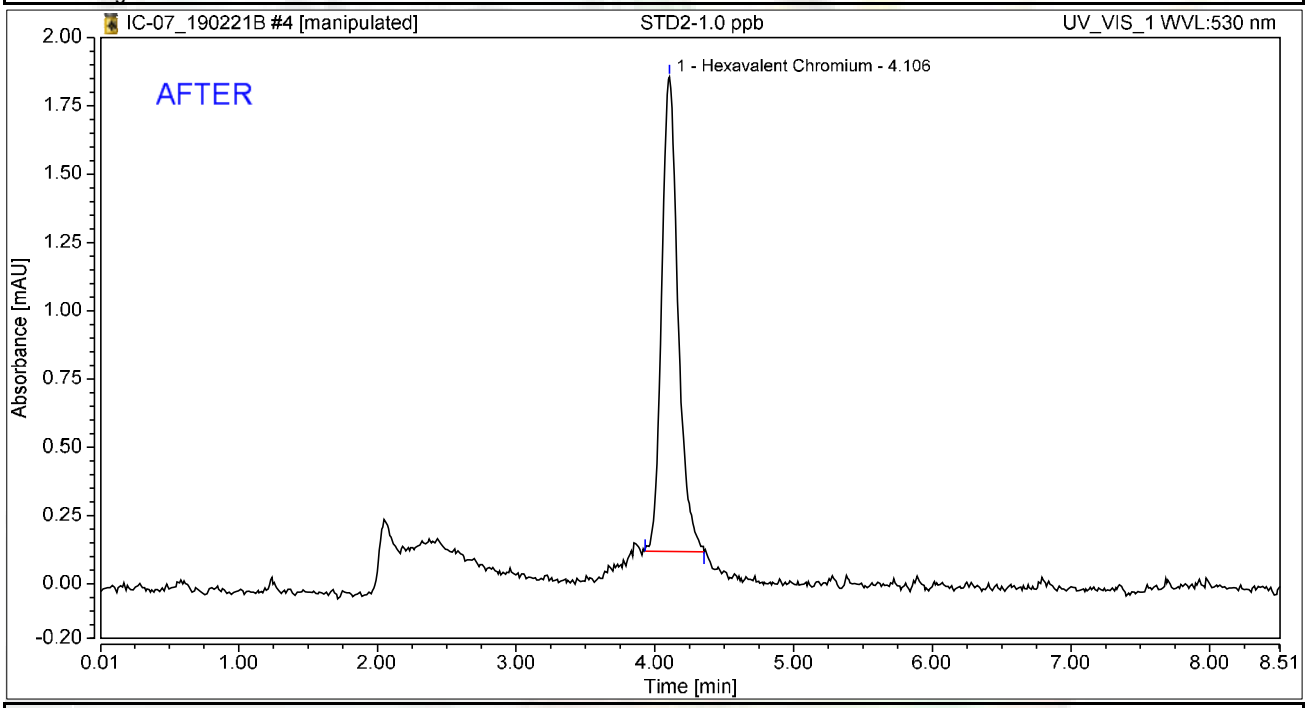
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.059 | 0.418 | 100.00 | 100.00 | 0.2356 |
| **Total:** | | | **0.059** | **0.418** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

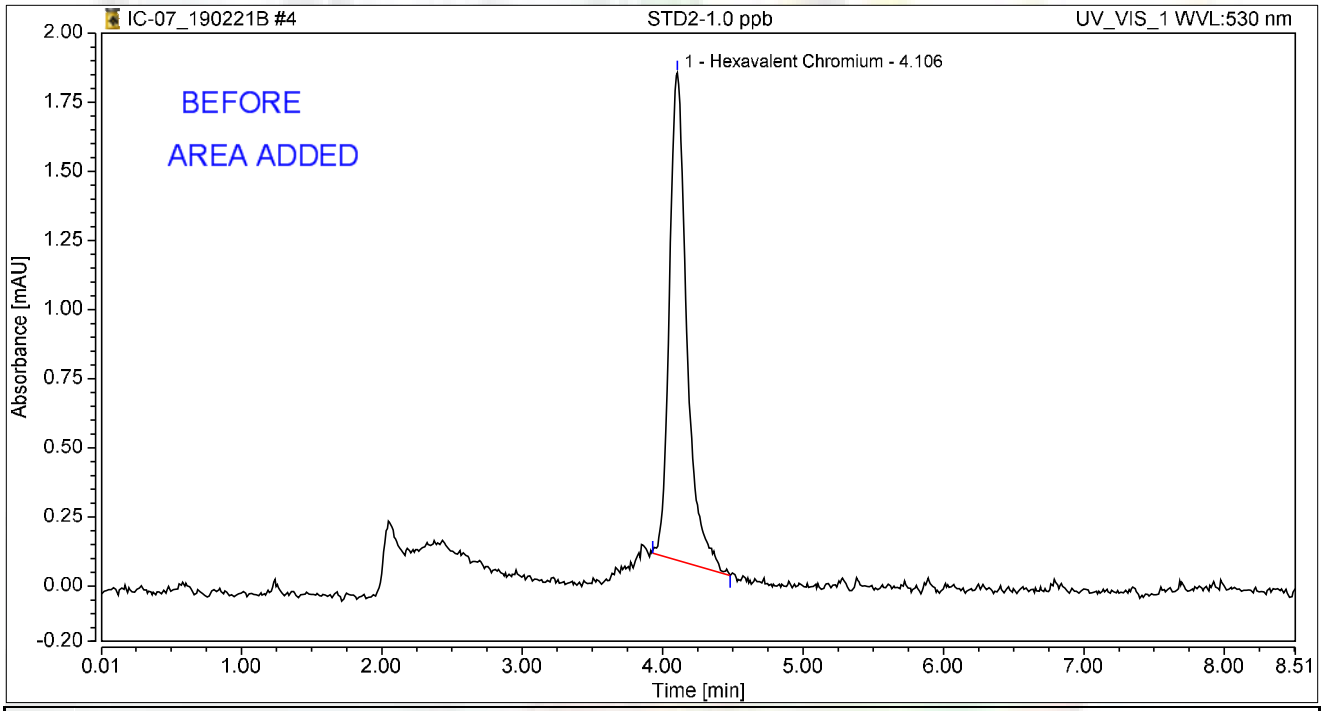
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.239 | 1.738 | 100.00 | 100.00 | 0.9651 |
| **Total:** | | | **0.239** | **1.738** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

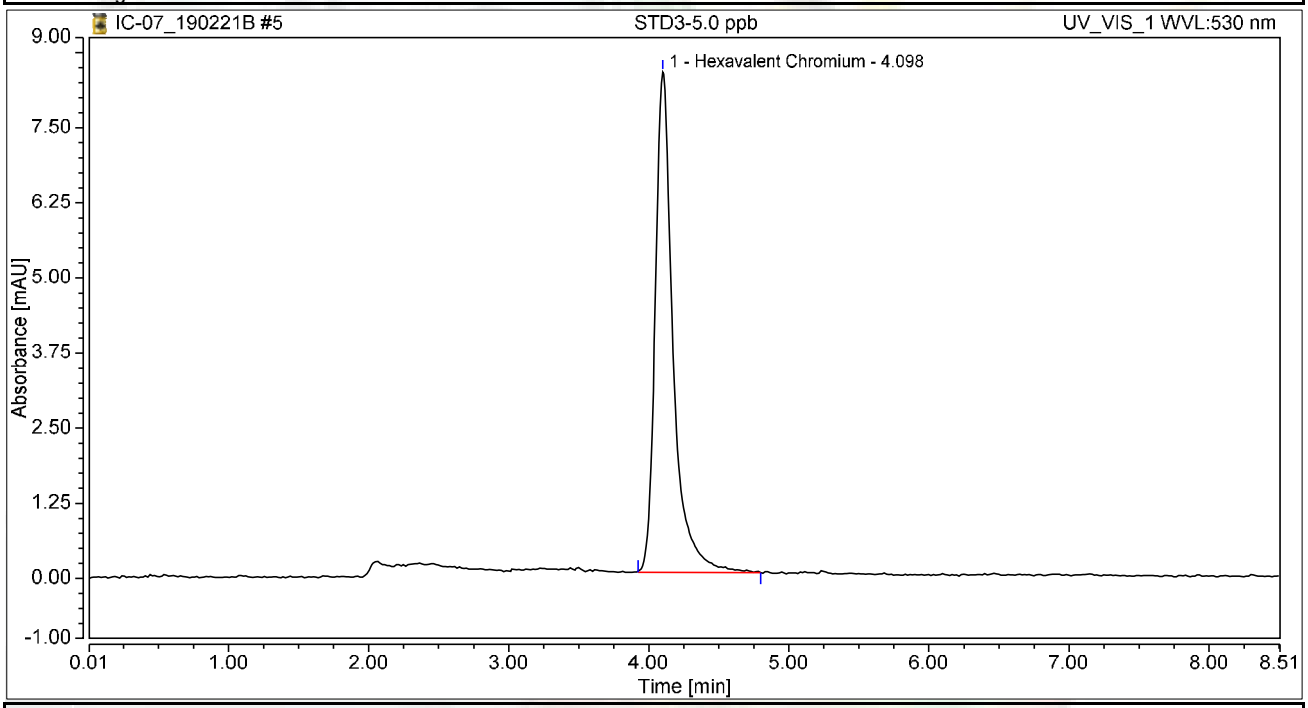
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.255 | 1.763 | 100.00 | 100.00 | 1.0261 |
| **Total:** | | | **0.255** | **1.763** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD3-5.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **03** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

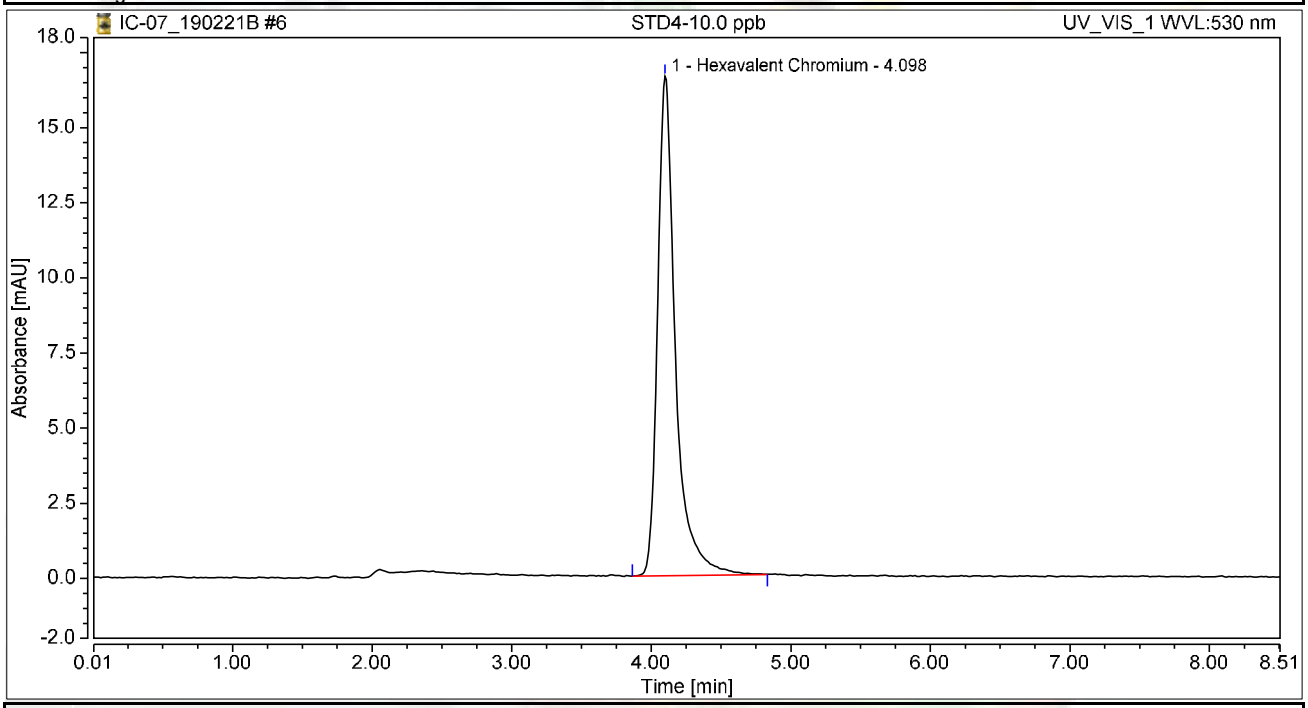
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.231 | 8.323 | 100.00 | 100.00 | 4.9676 |
| **Total:** | | | **1.231** | **8.323** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD4-10.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **04** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

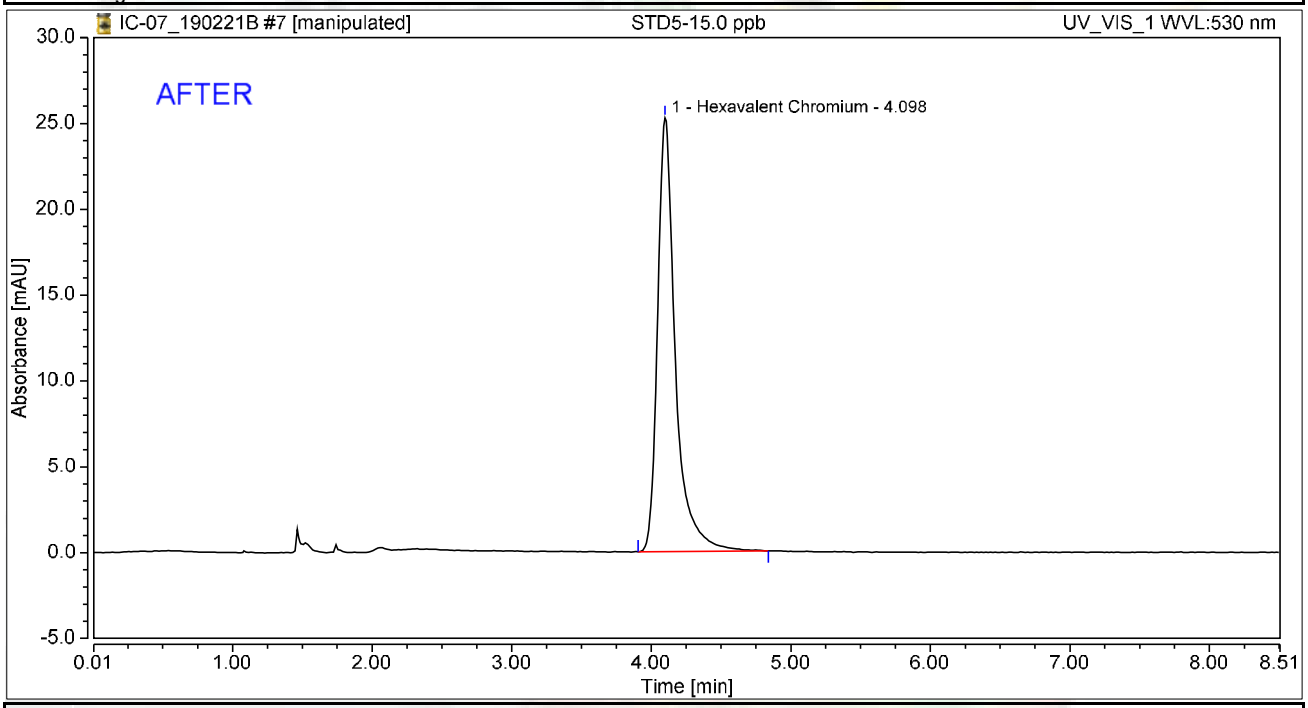
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.466 | 16.618 | 100.00 | 100.00 | 9.9491 |
| **Total:** | | | **2.466** | **16.618** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

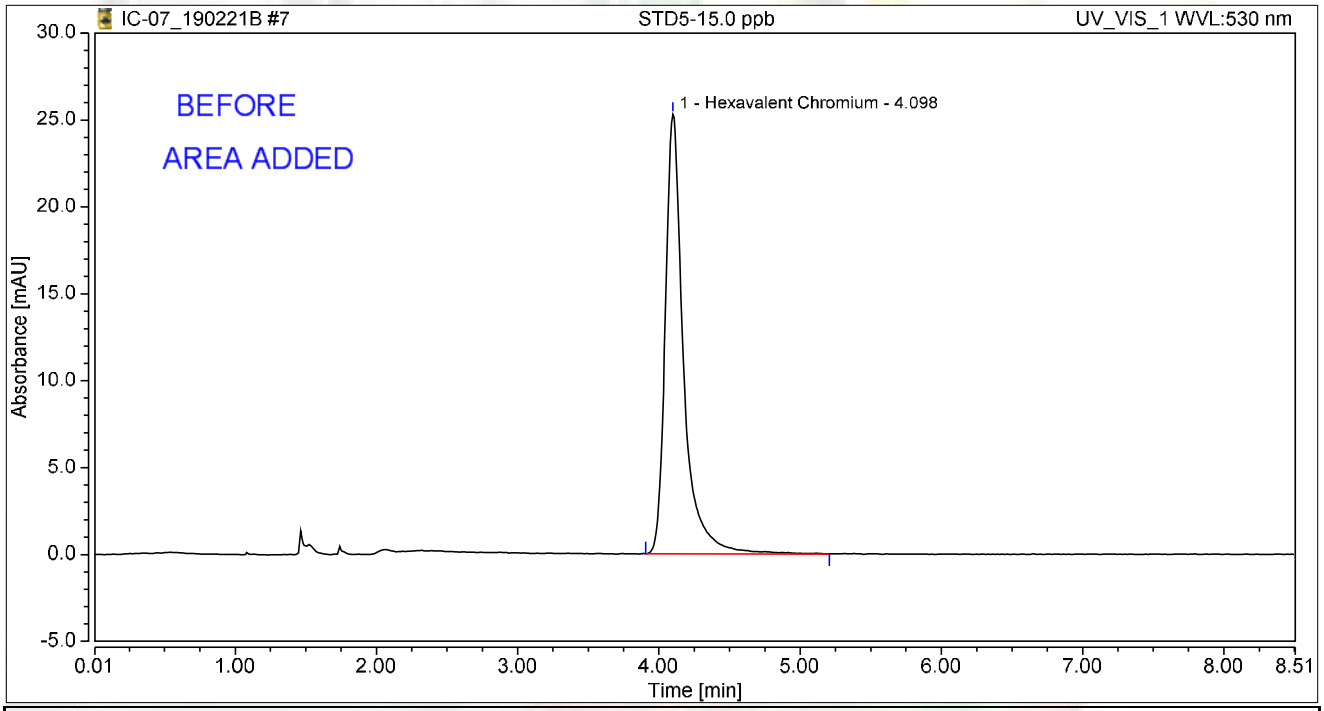
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 3.736 | 25.276 | 100.00 | 100.00 | 15.0777 |
| **Total:** | | | **3.736** | **25.276** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

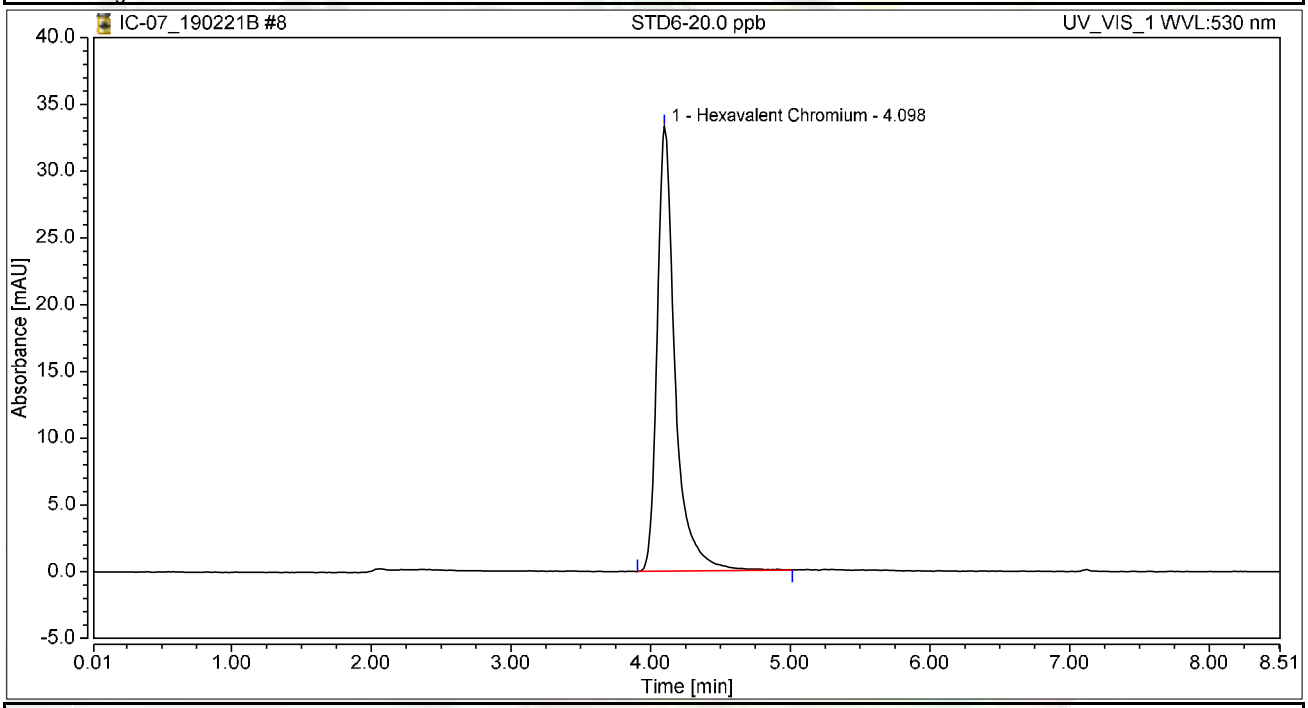
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 3.784 | 25.291 | 100.00 | 100.00 | 15.2098 |
| **Total:** | | | **3.784** | **25.291** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD6-20.0 ppb** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **06** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:03** | *Sample Weight:* | **1.0000** |

## Chromatogram



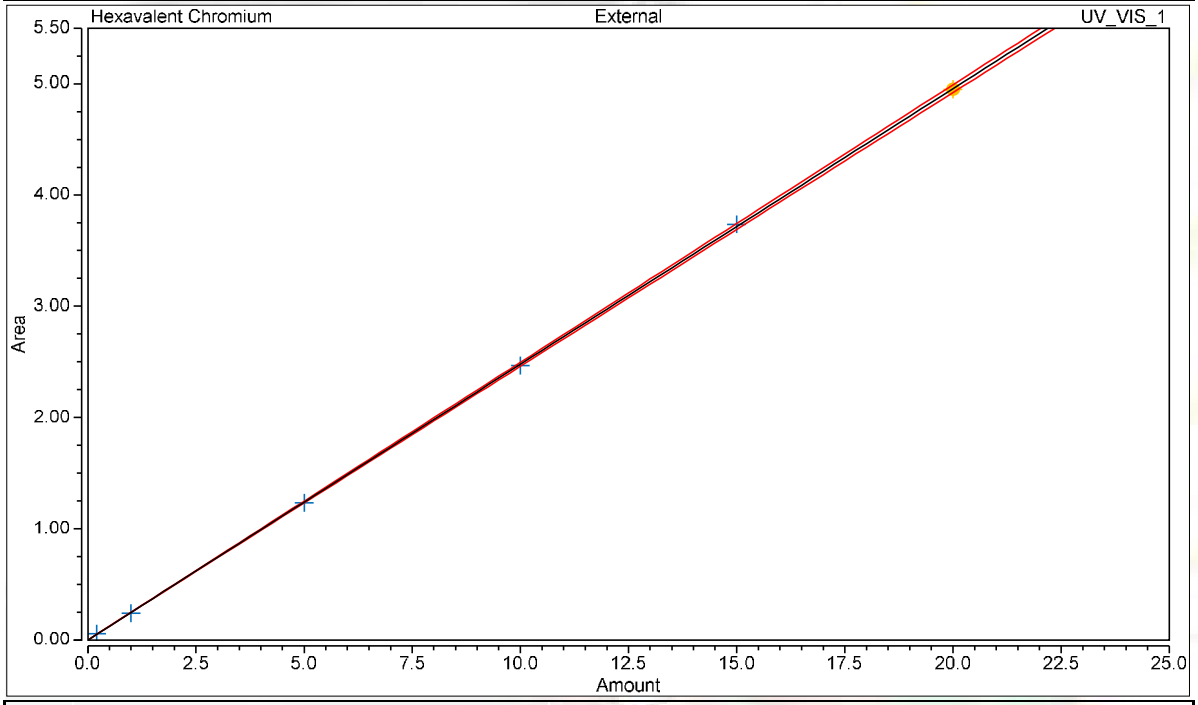

## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 4.951 | 33.317 | 100.00 | 100.00 | 19.9768 |
| **Total:** | | | **4.951** | **33.317** | **100.00** | **100.00** | |

# Initial Calibration Summary

| Calibration Details | Hexavalent Chromium | | |
|---|---|---|---|
| *Calibration Type* | Lin | *Offset (C0)* | 0.0000 |
| *Evaluation Type* | Area | *Slope (C1)* | 0.2478 |
| *Number of Calibration Points* | 6 | *Curve (C2)* | 0.0000 |
| *Number of disabled Calibration Points* | 0 | *R-Square* | 0.99996 |

Calibration Plot Hexavalent Chromium




Calibration Results Hexavalent Chromium

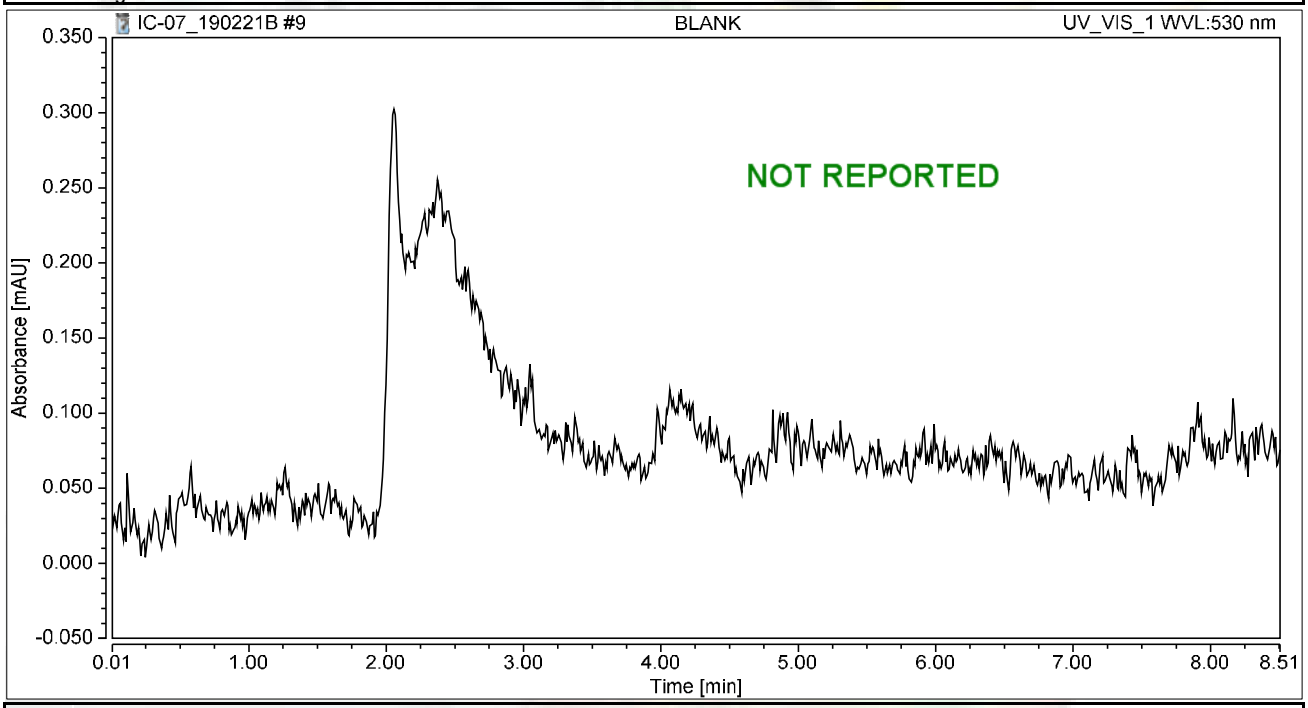
| No. | Injection Name | Calibration Level | X Value | Y Value | Area mAU*min | Height mAU |
|---|---|---|---|---|---|---|
| 3 | STD1-0.2 ppb | 01 | 0.2000 | 0.0556 | 0.056 | 0.412 |
| 4 | STD2-1.0 ppb | 02 | 1.0000 | 0.2392 | 0.239 | 1.738 |
| 5 | STD3-5.0 ppb | 03 | 5.0000 | 1.2310 | 1.231 | 8.323 |
| 6 | STD4-10.0 ppb | 04 | 10.0000 | 2.4655 | 2.466 | 16.618 |
| 7 | STD5-15.0 ppb | 05 | 15.0000 | 3.7365 | 3.736 | 25.276 |
| 8 | STD6-20.0 ppb | 06 | 20.0000 | 4.9505 | 4.951 | 33.317 |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

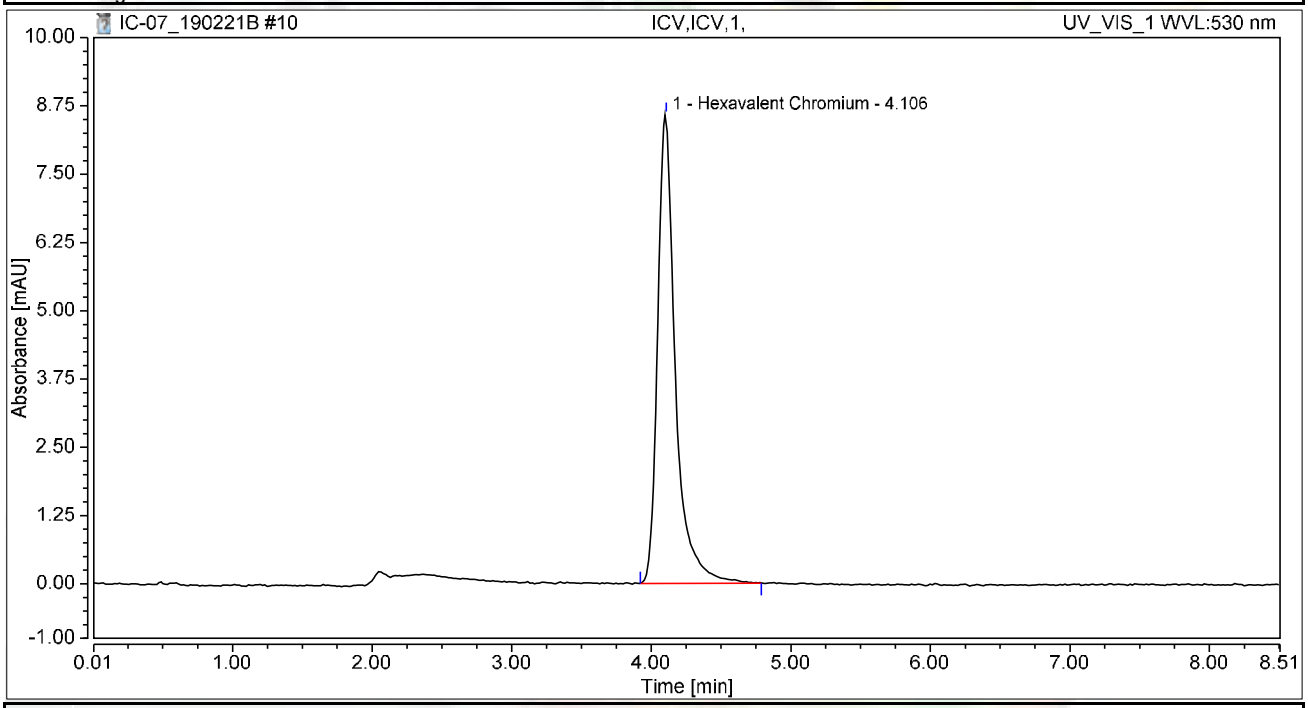
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICV,ICV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:28** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

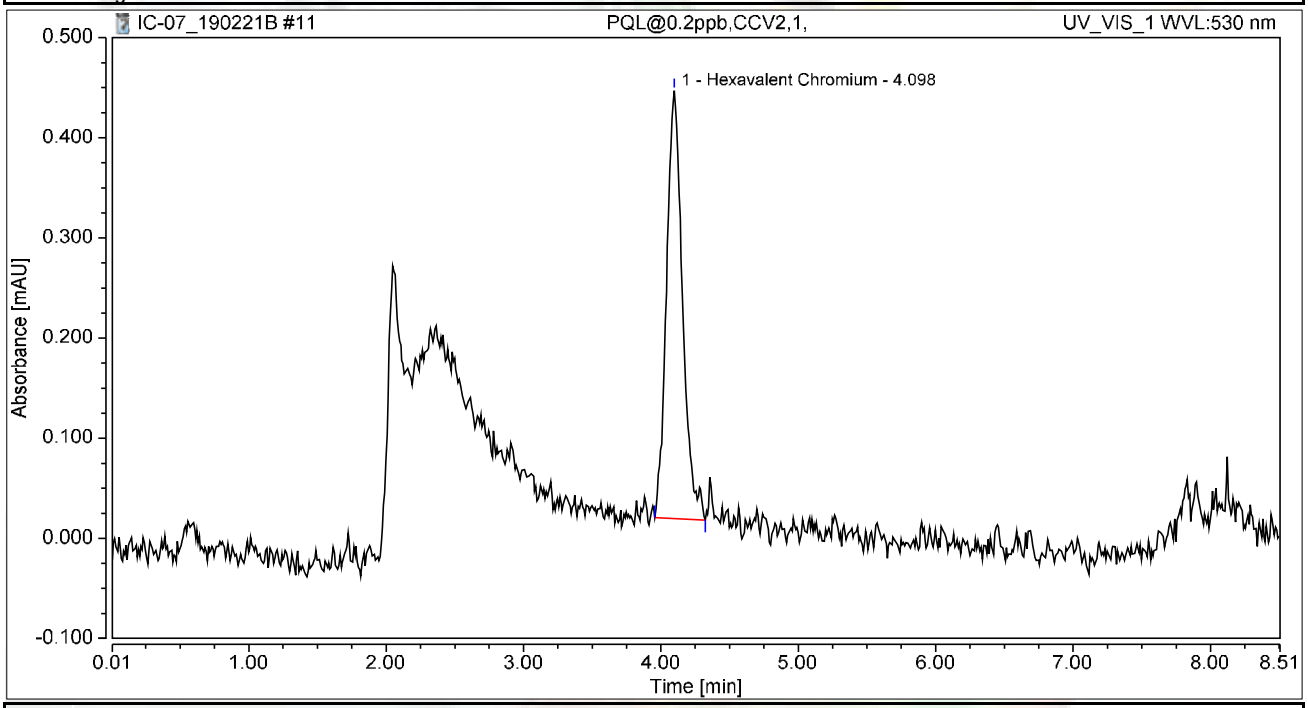
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.270 | 8.585 | 100.00 | 100.00 | 5.1256 |
| **Total:** | | | **1.270** | **8.585** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:37** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

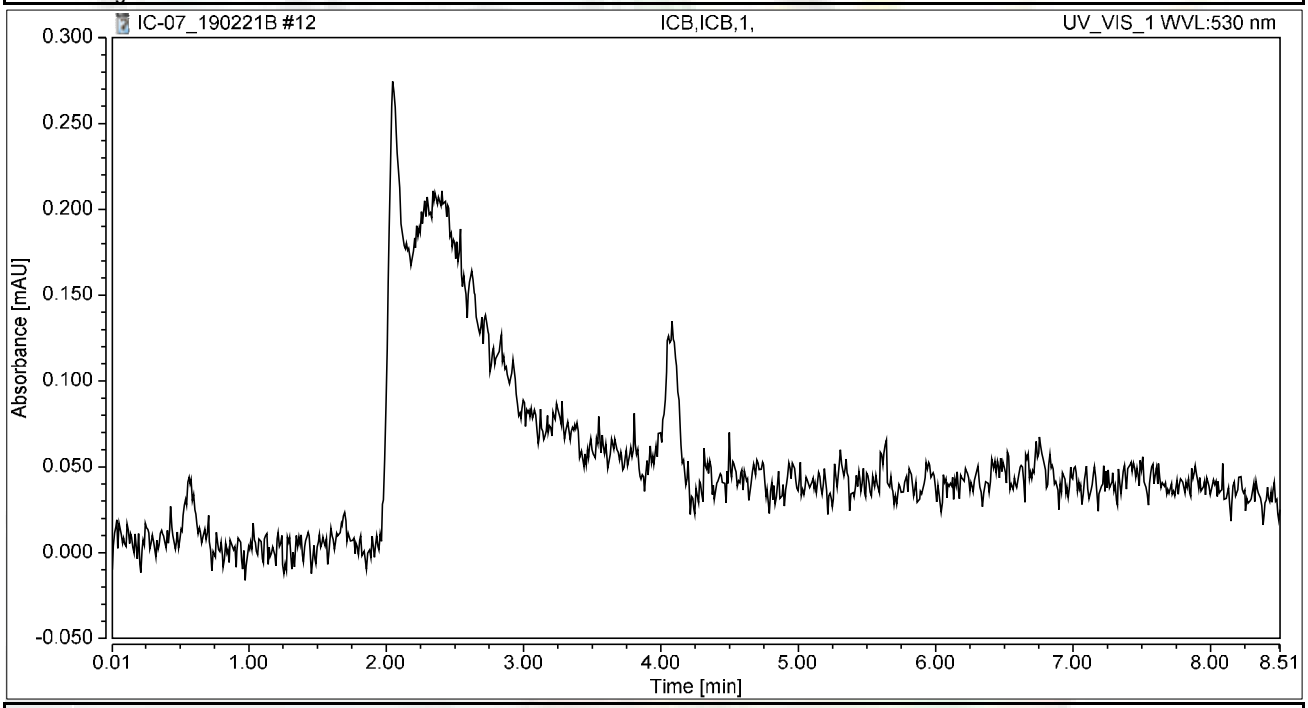
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.058 | 0.427 | 100.00 | 100.00 | 0.2324 |
| **Total:** | | | **0.058** | **0.427** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICB,ICB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:47** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# RAW DATA

**INJECTION LOG: 190226A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/26/19 8:52 AM | Not Reported |
| 10 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/26/19 9:13 AM | Not Reported |
| 11 | CCV-1 | CCV | 1 | Hexavalent Chromium | 02/26/19 9:23 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/26/19 9:33 AM | Reported |
| 13 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/26/19 9:42 AM | Reported |
| 14 | MB-R132121 | MBLK | 1 | Hexavalent Chromium | 02/26/19 9:59 AM | Reported |
| 15 | LCS-R132121 | LCS | 1 | Hexavalent Chromium | 02/26/19 10:10 AM | Reported |
| 16 | N034102-002A | SAMP | 5 | Hexavalent Chromium | 02/26/19 10:23 AM | Not Reported |
| 17 | N034102-002AMS | MS | 5 | Hexavalent Chromium | 02/26/19 10:34 AM | Not Reported |
| 18 | N034105-004A | SAMP | 1 | Hexavalent Chromium | 02/26/19 10:44 AM | Not Reported |
| 19 | N034105-004AMS | MS | 1 | Hexavalent Chromium | 02/26/19 10:53 AM | Not Reported |
| 20 | N034107-003A | SAMP | 50 | Hexavalent Chromium | 02/26/19 11:02 AM | Not Reported |
| 21 | N034107-003AMS | MS | 50 | Hexavalent Chromium | 02/26/19 11:12 AM | Not Reported |
| 22 | N034107-006A | SAMP | 50 | Hexavalent Chromium | 02/26/19 11:21 AM | Not Reported |
| 23 | N034107-006AMS | MS | 50 | Hexavalent Chromium | 02/26/19 11:31 AM | Not Reported |
| 24 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 02/26/19 11:40 AM | Reported |
| 25 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/26/19 11:50 AM | Reported |
| 26 | N034107-012A | SAMP | 1 | Hexavalent Chromium | 02/26/19 12:00 PM | Not Reported |
| 27 | N034107-012AMS | MS | 1 | Hexavalent Chromium | 02/26/19 12:11 PM | Not Reported |
| 28 | N034107-013A | SAMP | 1 | Hexavalent Chromium | 02/26/19 12:21 PM | Not Reported |
| 29 | N034107-013AMS | MS | 1 | Hexavalent Chromium | 02/26/19 12:30 PM | Not Reported |
| 30 | N034107-016A | SAMP | 1 | Hexavalent Chromium | 02/26/19 12:40 PM | Not Reported |
| 31 | N034107-016AMS | MS | 1 | Hexavalent Chromium | 02/26/19 12:49 PM | Not Reported |
| 32 | N034107-017A | SAMP | 1 | Hexavalent Chromium | 02/26/19 12:59 PM | Not Reported |
| 33 | N034107-017AMS | MS | 1 | Hexavalent Chromium | 02/26/19 1:08 PM | Not Reported |
| 34 | N034102-002AMS | MS | 5 | Hexavalent Chromium | 02/26/19 1:17 PM | Not Reported |
| 35 | N034105-004AMS | MS | 1 | Hexavalent Chromium | 02/26/19 1:27 PM | Not Reported |
| 36 | CCV-3 | CCV | 1 | Hexavalent Chromium | 02/26/19 1:36 PM | Reported |
| 37 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/26/19 1:46 PM | Reported |
| 38 | N034238-002B | SAMP | 1 | Hexavalent Chromium | 02/26/19 1:55 PM | Reported |
| 39 | N034238-002BMS | MS | 1 | Hexavalent Chromium | 02/26/19 2:05 PM | Reported |
| 40 | N034238-002BMSD | MSD | 1 | Hexavalent Chromium | 02/26/19 2:14 PM | Reported |
| 41 | N034107-012A | SAMP | 5 | Hexavalent Chromium | 02/26/19 2:24 PM | Reported |
| 42 | N034107-012AMS | MS | 5 | Hexavalent Chromium | 02/26/19 2:33 PM | Reported |

updated dilution of some samples as per HSG

Nancy 3/5/2019

**INJECTION LOG: 190226A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034107-012ADUP | DUP | 5 | Hexavalent Chromium | 02/26/19 2:43 PM | Reported |
| 44 | N034107-006A | SAMP | 100 | Hexavalent Chromium | 02/26/19 2:52 PM | Reported |
| 45 | N034107-006AMS | MS | 100 | Hexavalent Chromium | 02/26/19 3:02 PM | Reported |
| 46 | N034129-008A | SAMP | 1 | Hexavalent Chromium | 02/26/19 3:11 PM | Reported |
| 47 | N034129-008AMS | MS | 1 | Hexavalent Chromium | 02/26/19 3:20 PM | Reported |
| 48 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/26/19 3:30 PM | Reported |
| 49 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/26/19 3:39 PM | Reported |
| 50 | N034129-011A | SAMP | 1 | Hexavalent Chromium | 02/26/19 3:49 PM | Reported |
| 51 | N034129-011AMS | MS | 1 | Hexavalent Chromium | 02/26/19 3:58 PM | Reported |
| 52 | N034129-012A | SAMP | 1 | Hexavalent Chromium | 02/26/19 4:08 PM | Reported |
| 53 | N034129-012AMS | MS | 1 | Hexavalent Chromium | 02/26/19 4:17 PM | Reported |
| 54 | N034129-013A | SAMP | 1 | Hexavalent Chromium | 02/26/19 4:27 PM | Reported |
| 55 | N034129-013AMS | MS | 1 | Hexavalent Chromium | 02/26/19 4:36 PM | Reported |
| 56 | N034129-014A | SAMP | 1 | Hexavalent Chromium | 02/26/19 4:46 PM | Reported |
| 57 | N034129-014AMS | MS | 1 | Hexavalent Chromium | 02/26/19 4:55 PM | Reported |
| 58 | N034121-006A | SAMP | 1 | Hexavalent Chromium | 02/26/19 5:05 PM | Reported |
| 59 | LCS-R132145 | LCS | 1 | Hexavalent Chromium | 02/26/19 5:14 PM | Reported |
| 60 | CCV-5 | CCV | 1 | Hexavalent Chromium | 02/26/19 5:25 PM | Reported |
| 61 | CCB-5 | CCB | 1 | Hexavalent Chromium | 02/26/19 5:36 PM | Reported |
| 62 | MB-R132145 | MBLK | 1 | Hexavalent Chromium | 02/26/19 5:46 PM | Reported |
| 63 | N034178-001A | SAMP | 1 | Hexavalent Chromium | 02/26/19 5:58 PM | Reported |
| 64 | N034178-001AMS | MS | 1 | Hexavalent Chromium | 02/26/19 6:07 PM | Reported |
| 65 | N034178-002A | SAMP | 1 | Hexavalent Chromium | 02/26/19 6:16 PM | Reported |
| 66 | N034178-002AMS | MS | 1 | Hexavalent Chromium | 02/26/19 6:26 PM | Reported |
| 67 | N034178-003A | SAMP | 1 | Hexavalent Chromium | 02/26/19 6:35 PM | Reported |
| 68 | N034178-003AMS | MS | 1 | Hexavalent Chromium | 02/26/19 6:45 PM | Reported |
| 69 | N034178-004A | SAMP | 1 | Hexavalent Chromium | 02/26/19 6:54 PM | Reported |
| 70 | N034178-004AMS | MS | 1 | Hexavalent Chromium | 02/26/19 7:04 PM | Reported |
| 71 | N034178-003AMSD | MSD | 1 | Hexavalent Chromium | 02/26/19 7:13 PM | Reported |
| 72 | CCV-6 | CCV1 | 1 | Hexavalent Chromium | 02/26/19 7:23 PM | Reported |
| 73 | CCB-6 | CCB | 1 | Hexavalent Chromium | 02/26/19 7:32 PM | Reported |
| 74 | N034178-005A | SAMP | 1 | Hexavalent Chromium | 02/26/19 7:42 PM | Reported |
| 75 | N034178-005AMS | MS | 1 | Hexavalent Chromium | 02/26/19 7:51 PM | Reported |
| 76 | N034178-006A | SAMP | 1 | Hexavalent Chromium | 02/26/19 8:01 PM | Reported |
| 77 | N034178-006AMS | MS | 1 | Hexavalent Chromium | 02/26/19 8:10 PM | Reported |
| 78 | N034178-007A | SAMP | 1 | Hexavalent Chromium | 02/26/19 8:19 PM | Reported |
| 79 | N034178-007AMS | MS | 1 | Hexavalent Chromium | 02/26/19 8:29 PM | Reported |
| 80 | N034178-008A | SAMP | 1 | Hexavalent Chromium | 02/26/19 8:38 PM | Reported |
| 81 | N034178-008AMS | MS | 1 | Hexavalent Chromium | 02/26/19 8:48 PM | Reported |
| 82 | N034178-006ADUP | DUP | 1 | Hexavalent Chromium | 02/26/19 8:57 PM | Reported |
| 83 | N034178-009A | SAMP | 1 | Hexavalent Chromium | 02/26/19 9:07 PM | Reported |
| 84 | CCV-7 | CCV | 1 | Hexavalent Chromium | 02/26/19 9:16 PM | Reported |

**INJECTION LOG: 190226A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 85 | CCB-7 | CCB | 1 | Hexavalent Chromium | 02/26/19 9:26 PM | Reported |
| 86 | N034178-009AMS | MS | ~~1~~ 20 | Hexavalent Chromium | 02/26/19 9:35 PM | Reported |
| 87 | N034178-010A | SAMP | 1 | Hexavalent Chromium | 02/26/19 9:45 PM | Not Reported |
| 88 | N034178-010AMS | MS | 1 | Hexavalent Chromium | 02/26/19 9:54 PM | Not Reported |
| 89 | N034178-011A | SAMP | 5 | Hexavalent Chromium | 02/26/19 10:04 PM | Reported |
| 90 | N034178-011AMS | MS | 5 | Hexavalent Chromium | 02/26/19 10:13 PM | Reported |
| 91 | N034178-011A | SAMP | 1 | Hexavalent Chromium | 02/26/19 10:22 PM | Not Reported |
| 92 | N034178-011AMS | MS | 1 | Hexavalent Chromium | 02/26/19 10:32 PM | Not Reported |
| 93 | CCV-8 | CCV1 | 1 | Hexavalent Chromium | 02/26/19 10:41 PM | Reported |
| 94 | CCB-8 | CCB | 1 | Hexavalent Chromium | 02/26/19 10:51 PM | Reported |
| 95 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/26/19 11:00 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190226A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **27/Feb/19 00:09:44** |
| *No. of Injections:* | **98** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 1 | 1000 | Unknown | | 02/26/2019 08:52 | Finished | BLANK |
| 10 | BLANK | 1 | 1000 | Unknown | | 02/26/2019 09:13 | Finished | BLANK |
| 11 | CCV-1,CCV,1, | 2 | 1000 | Unknown | | 02/26/2019 09:23 | Finished | CCV @5ppb, IWST-190221B |
| 12 | PQL@0.2ppb,CCV2,1 | 3 | 1000 | Unknown | | 02/26/2019 09:33 | Finished | PQL @ 0.2ppb |
| 13 | CCB-1,CCB,1, | 4 | 1000 | Unknown | | 02/26/2019 09:42 | Finished | CCB R190115A |
| 14 | MB-H2O,MBLK,1, | 5 | 1000 | Unknown | | 02/26/2019 09:59 | Finished | MB R190115A |
| 15 | LCS-H2O,LCS,1, | 6 | 1000 | Unknown | | 02/26/2019 10:10 | Finished | LCS @5ppb, IWST-190221B |
| 16 | N034102-002A,SAMF | 7 | 1000 | Unknown | | 02/26/2019 10:23 | Finished | SAMP,2>10mL |
| 17 | N034102-002AMS,MS | 8 | 1000 | Unknown | | 02/26/2019 10:34 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 18 | N034105-004A,SAMF | 9 | 1000 | Unknown | | 02/26/2019 10:44 | Finished | SAMP,10mL |
| 19 | N034105-004AMS,MS | 10 | 1000 | Unknown | | 02/26/2019 10:53 | Finished | MS (5ppb), IWST-190221B,10 |
| 20 | N034107-003A,SAMF | 11 | 1000 | Unknown | | 02/26/2019 11:02 | Finished | SAMP,0.2>10mL |
| 21 | N034107-003AMS,MS | 12 | 1000 | Unknown | | 02/26/2019 11:12 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 22 | N034107-006A,SAMF | 13 | 1000 | Unknown | | 02/26/2019 11:21 | Finished | SAMP,0.2>10mL |
| 23 | N034107-006AMS,MS | 14 | 1000 | Unknown | | 02/26/2019 11:31 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 24 | CCV-2,CCV1,1, | 15 | 1000 | Unknown | | 02/26/2019 11:40 | Finished | CCV @10ppb, IWST-190221A |
| 25 | CCB-2,CCB,1, | 16 | 1000 | Unknown | | 02/26/2019 11:50 | Finished | CCB R190115A |
| 26 | N034107-012A,SAMF | 17 | 1000 | Unknown | | 02/26/2019 12:00 | Finished | SAMP,10mL |
| 27 | N034107-012AMS,MS | 18 | 1000 | Unknown | | 02/26/2019 12:11 | Finished | MS (5ppb), IWST-190221B,10 |
| 28 | N034107-013A,SAMF | 19 | 1000 | Unknown | | 02/26/2019 12:21 | Finished | SAMP,10mL |
| 29 | N034107-013AMS,MS | 20 | 1000 | Unknown | | 02/26/2019 12:30 | Finished | MS (5ppb), IWST-190221B,10 |
| 30 | N034107-016A,SAMF | 21 | 1000 | Unknown | | 02/26/2019 12:40 | Finished | SAMP,10mL |
| 31 | N034107-016AMS,MS | 22 | 1000 | Unknown | | 02/26/2019 12:49 | Finished | MS (5ppb), IWST-190221B,10 |
| 32 | N034107-017A,SAMF | 23 | 1000 | Unknown | | 02/26/2019 12:59 | Finished | SAMP,10mL |
| 33 | N034107-017AMS,MS | 24 | 1000 | Unknown | | 02/26/2019 13:08 | Finished | MS (5ppb), IWST-190221B,10 |
| 34 | N034102-002AMS,MS | 25 | 1000 | Unknown | | 02/26/2019 13:17 | Finished | SAMP,10mL |
| 35 | N034105-004AMS,MS | 26 | 1000 | Unknown | | 02/26/2019 13:27 | Finished | MS (5ppb), IWST-190221B,10 |
| 36 | CCV-3,CCV,1, | 27 | 1000 | Unknown | | 02/26/2019 13:36 | Finished | CCV @5ppb, IWST-190221A |
| 37 | CCB-3,CCB,1, | 28 | 1000 | Unknown | | 02/26/2019 13:46 | Finished | CCB R190115A |
| 38 | N034238-002B,SAMF | 29 | 1000 | Unknown | | 02/26/2019 13:55 | Finished | SAMP,1>10mL |
| 39 | N034238-002BMS,MS | 30 | 1000 | Unknown | | 02/26/2019 14:05 | Finished | MS (1ppb), IWST-190221B,10 |
| 40 | N034238-002BMSD,M | 31 | 1000 | Unknown | | 02/26/2019 14:14 | Finished | SAMP,10mL |
| 41 | N034107-012A,SAMF | 32 | 1000 | Unknown | | 02/26/2019 14:24 | Finished | SAMP,2>10mL |
| 42 | N034107-012AMS,MS | 33 | 1000 | Unknown | | 02/26/2019 14:33 | Finished | SAMP,10mL |
| 43 | N034107-012ADUP,D | 34 | 1000 | Unknown | | 02/26/2019 14:43 | Finished | SAMP,10mL |
| 44 | N034107-006A,SAMF | 35 | 1000 | Unknown | | 02/26/2019 14:52 | Finished | SAMP,0.5>10mL |
| 45 | N034107-006AMS,MS | 36 | 1000 | Unknown | | 02/26/2019 15:02 | Finished | SAMP,0.5>10mL |
| 46 | N034129-008A,SAMF | 37 | 1000 | Unknown | | 02/26/2019 15:11 | Finished | SAMP,0.005>10mL |
| 47 | N034129-008AMS,MS | 38 | 1000 | Unknown | | 02/26/2019 15:20 | Finished | SAMP,0.2>10mL |
| 48 | CCV-4,CCV1,1, | 39 | 1000 | Unknown | | 02/26/2019 15:30 | Finished | CCV @10ppb, IWST-190221A |
| 49 | CCB-4,CCB,1, | 40 | 1000 | Unknown | | 02/26/2019 15:39 | Finished | CCB R190115A |
| 50 | N034129-011A,SAMF | 41 | 1000 | Unknown | | 02/26/2019 15:49 | Finished | MS (1ppb), IWST-190221B,10 |
| 51 | N034129-011AMS,MS | 42 | 1000 | Unknown | | 02/26/2019 15:58 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 52 | N034129-012A,SAMF | 43 | 1000 | Unknown | | 02/26/2019 16:08 | Finished | MS (5ppb), IWST-190221B,10 |
| 53 | N034129-012AMS,MS | 44 | 1000 | Unknown | | 02/26/2019 16:17 | Finished | MS (5ppb), IWST-190221B,10 |
| 54 | N034129-013A,SAMF | 45 | 1000 | Unknown | | 02/26/2019 16:27 | Finished | MS (5ppb), IWST-190221B,0.5 |
| 55 | N034129-013AMS,MS | 46 | 1000 | Unknown | | 02/26/2019 16:36 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 56 | N034129-014A,SAMF | 47 | 1000 | Unknown | | 02/26/2019 16:46 | Finished | SAMP,0.2>10mL |
| 57 | N034129-014AMS,MS | 48 | 1000 | Unknown | | 02/26/2019 16:55 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 58 | N034121-006A,SAMF | 49 | 1000 | Unknown | | 02/26/2019 17:05 | Finished | SAMP,0.0025>10mL |
| 59 | LCS-H2O,LCS,1, | 50 | 1000 | Unknown | | 02/26/2019 17:14 | Finished | SAMP,10mL |
| 60 | CCV-5,CCV,1, | 1 | 1000 | Unknown | | 02/26/2019 17:25 | Finished | CCV @5ppb, IWST-190221A |

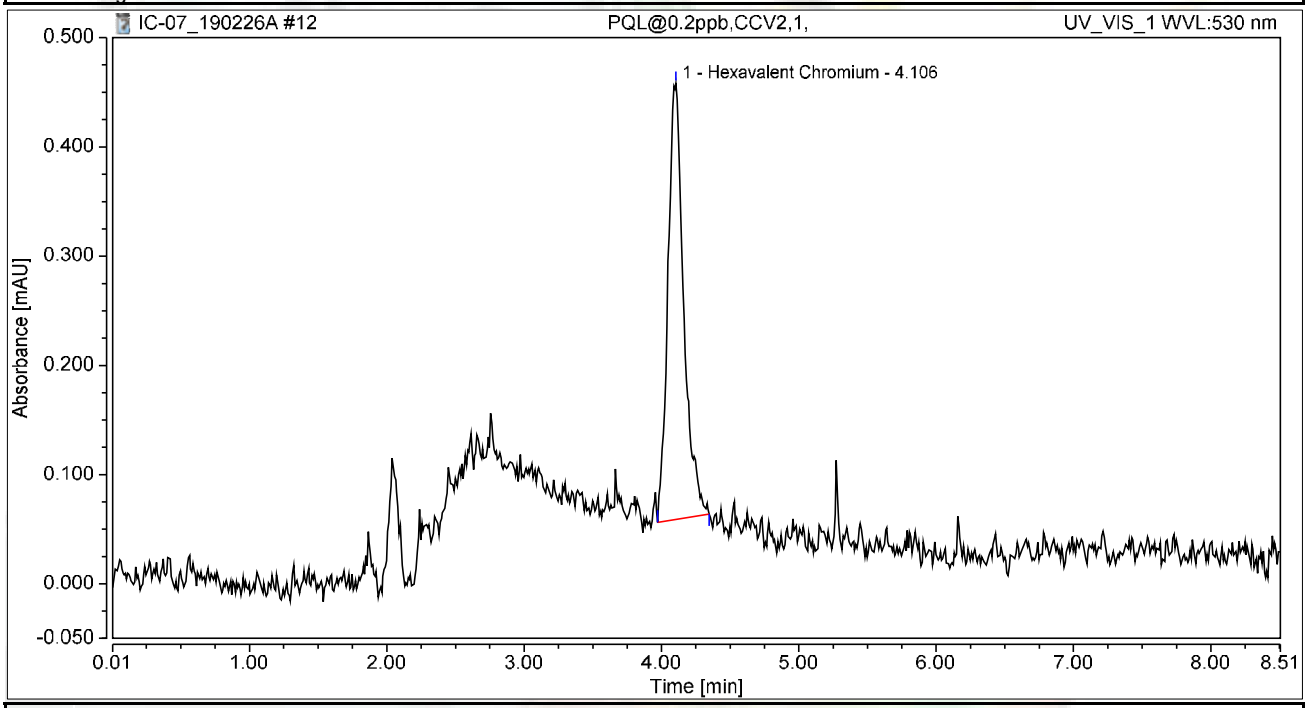
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | CCB-5,CCB,1, | 2 | 1000 | Unknown | | 02/26/2019 17:36 | Finished | CCB R190115A |
| 62 | MB-H2O,MBLK,1, | 3 | 1000 | Unknown | | 02/26/2019 17:46 | Finished | SAMP,10mL |
| 63 | N034178-001A,SAMF | 4 | 1000 | Unknown | | 02/26/2019 17:58 | Finished | MS (1ppb), IWST-190221B,10 |
| 64 | N034178-001AMS,MS | 5 | 1000 | Unknown | | 02/26/2019 18:07 | Finished | SAMP,10mL |
| 65 | N034178-002A,SAMF | 6 | 1000 | Unknown | | 02/26/2019 18:16 | Finished | MS (1ppb), IWST-190221B,10 |
| 66 | N034178-002AMS,MS | 7 | 1000 | Unknown | | 02/26/2019 18:26 | Finished | SAMP,10mL |
| 67 | N034178-003A,SAMF | 8 | 1000 | Unknown | | 02/26/2019 18:35 | Finished | MS (1ppb), IWST-190221B,10 |
| 68 | N034178-003AMS,MS | 9 | 1000 | Unknown | | 02/26/2019 18:45 | Finished | SAMP,10mL |
| 69 | N034178-004A,SAMF | 10 | 1000 | Unknown | | 02/26/2019 18:54 | Finished | MS (1ppb), IWST-190221B,10 |
| 70 | N034178-004AMS,MS | 11 | 1000 | Unknown | | 02/26/2019 19:04 | Finished | SAMP,10mL |
| 71 | N034178-003AMSD,M | 12 | 1000 | Unknown | | 02/26/2019 19:13 | Finished | MS (1ppb), IWST-190221B,10 |
| 72 | CCV-6,CCV1,1, | 13 | 1000 | Unknown | | 02/26/2019 19:23 | Finished | CCV @10ppb, IWST-190221A |
| 73 | CCB-6,CCB,1, | 14 | 1000 | Unknown | | 02/26/2019 19:32 | Finished | CCB R190115A |
| 74 | N034178-005A,SAMF | 15 | 1000 | Unknown | | 02/26/2019 19:42 | Finished | SAMP,10mL |
| 75 | N034178-005AMS,MS | 16 | 1000 | Unknown | | 02/26/2019 19:51 | Finished | MS (1ppb), IWST-190221B,10 |
| 76 | N034178-006A,SAMF | 17 | 1000 | Unknown | | 02/26/2019 20:01 | Finished | SAMP,10mL |
| 77 | N034178-006AMS,MS | 18 | 1000 | Unknown | | 02/26/2019 20:10 | Finished | MS (1ppb), IWST-190221B,10 |
| 78 | N034178-007A,SAMF | 19 | 1000 | Unknown | | 02/26/2019 20:19 | Finished | SAMP,10mL |
| 79 | N034178-007AMS,MS | 20 | 1000 | Unknown | | 02/26/2019 20:29 | Finished | MS (1ppb), IWST-190221B,10 |
| 80 | N034178-008A,SAMF | 21 | 1000 | Unknown | | 02/26/2019 20:38 | Finished | SAMP,10mL |
| 81 | N034178-008AMS,MS | 22 | 1000 | Unknown | | 02/26/2019 20:48 | Finished | MS (1ppb), IWST-190221B,10 |
| 82 | N034178-006ADUP,D | 23 | 1000 | Unknown | | 02/26/2019 20:57 | Finished | SAMP,10mL |
| 83 | N034178-009A,SAMF | 24 | 1000 | Unknown | | 02/26/2019 21:07 | Finished | MS (1ppb), IWST-190221B,10 |
| 84 | CCV-7,CCV,1, | 25 | 1000 | Unknown | | 02/26/2019 21:16 | Finished | CCV @5ppb, IWST-190221A |
| 85 | CCB-7,CCB,1, | 26 | 1000 | Unknown | | 02/26/2019 21:26 | Finished | CCB R190115A |
| 86 | N034178-009AMS,MS | 27 | 1000 | Unknown | | 02/26/2019 21:35 | Finished | SAMP,10mL |
| 87 | N034178-010A,SAMF | 28 | 1000 | Unknown | | 02/26/2019 21:45 | Finished | MS (1ppb), IWST-190221B,10 |
| 88 | N034178-010AMS,MS | 29 | 1000 | Unknown | | 02/26/2019 21:54 | Finished | SAMP,10mL |
| 89 | N034178-011A,SAMF | 30 | 1000 | Unknown | | 02/26/2019 22:04 | Finished | MS (1ppb), IWST-190221B,10 |
| 90 | N034178-011AMS,MS | 31 | 1000 | Unknown | | 02/26/2019 22:13 | Finished | SAMP,10mL |
| 91 | N034178-011A,SAMF | 32 | 1000 | Unknown | | 02/26/2019 22:22 | Finished | SAMP,10mL |
| 92 | N034178-011AMS,MS | 33 | 1000 | Unknown | | 02/26/2019 22:32 | Finished | SAMP,10mL |
| 93 | CCV-8,CCV1,1, | 34 | 1000 | Unknown | | 02/26/2019 22:41 | Finished | CCV @10ppb, IWST-190221A |
| 94 | CCB-8,CCB,1, | 35 | 1000 | Unknown | | 02/26/2019 22:51 | Finished | CCB R190115A |
| 95 | BLANK | 36 | 1000 | Unknown | | 02/26/2019 23:00 | Finished | BLANK |
| 96 | SHUTDOWN | 37 | 1000 | Unknown | | 02/26/2019 23:10 | Finished | |
| 97 | Eluent: R190226B | 38 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 98 | PCR: R190226A | 39 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 09:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

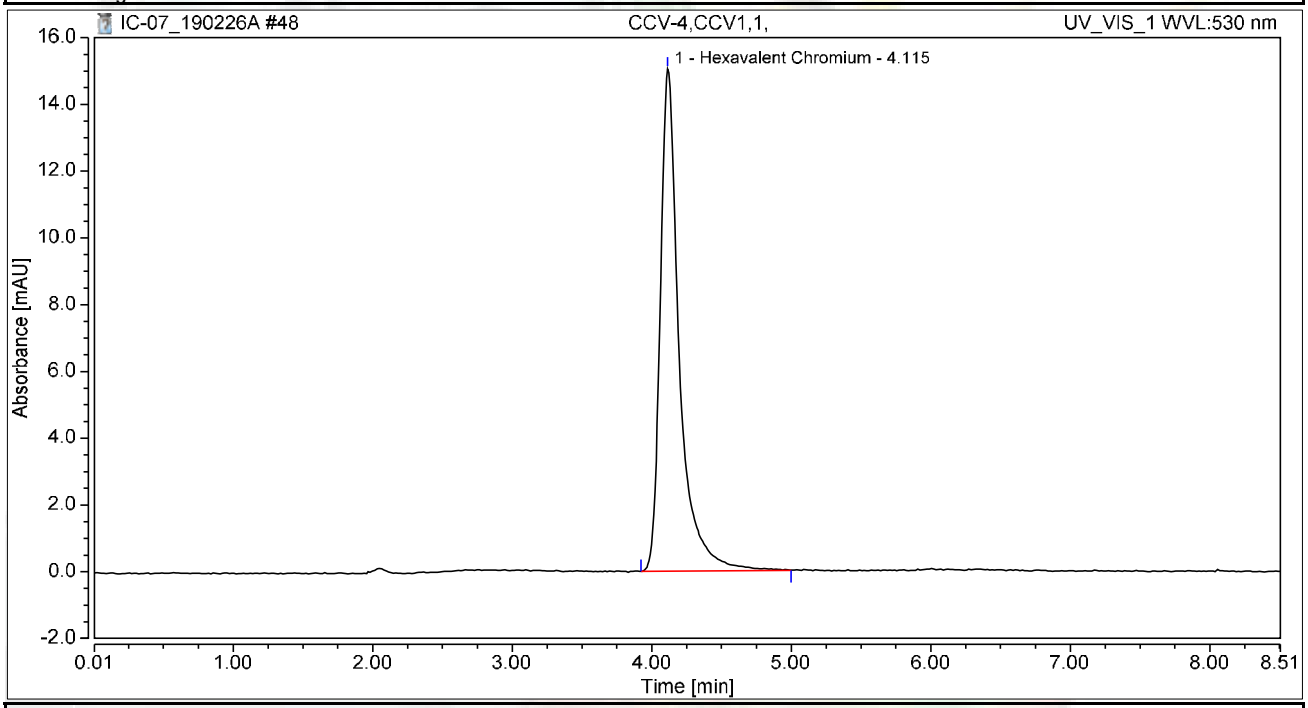
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.053 | 0.399 | 100.00 | 100.00 | 0.2139 |
| **Total:** | | | **0.053** | **0.399** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-4,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **39** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 15:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

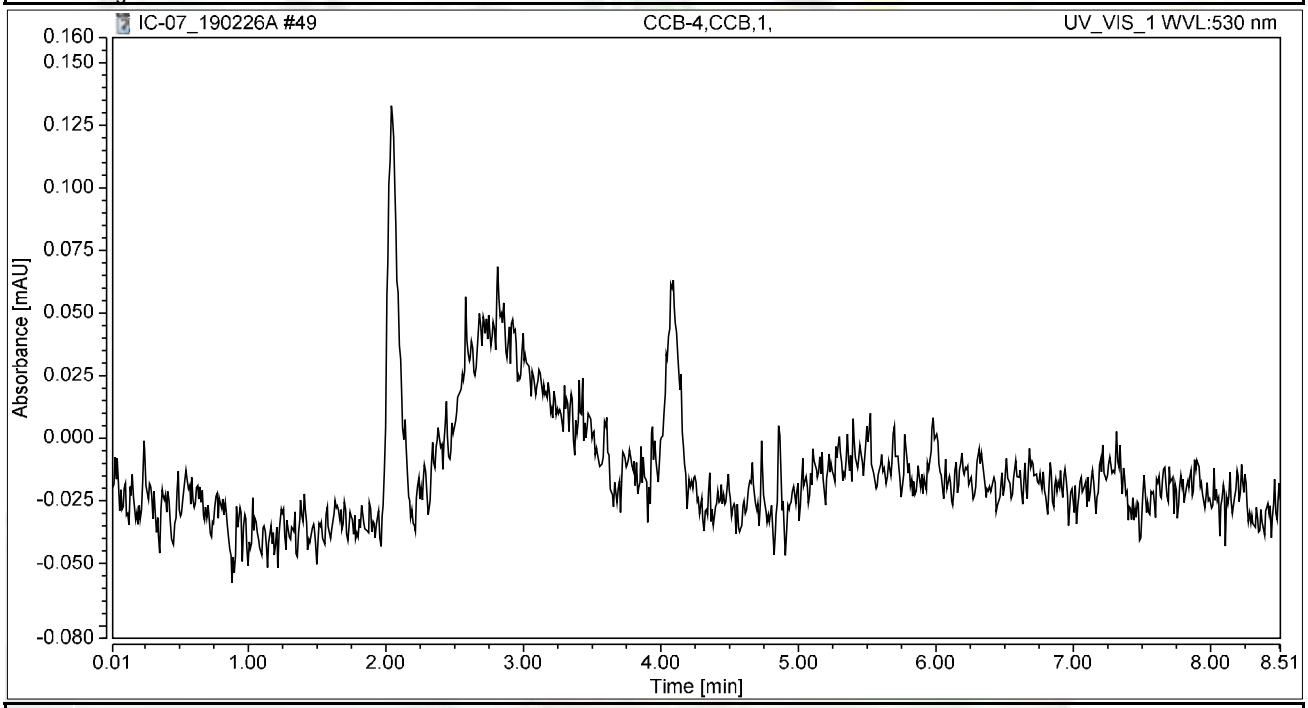
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 2.377 | 15.040 | 100.00 | 100.00 | 9.5910 |
| **Total:** | | | **2.377** | **15.040** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-4,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **40** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 15:39** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

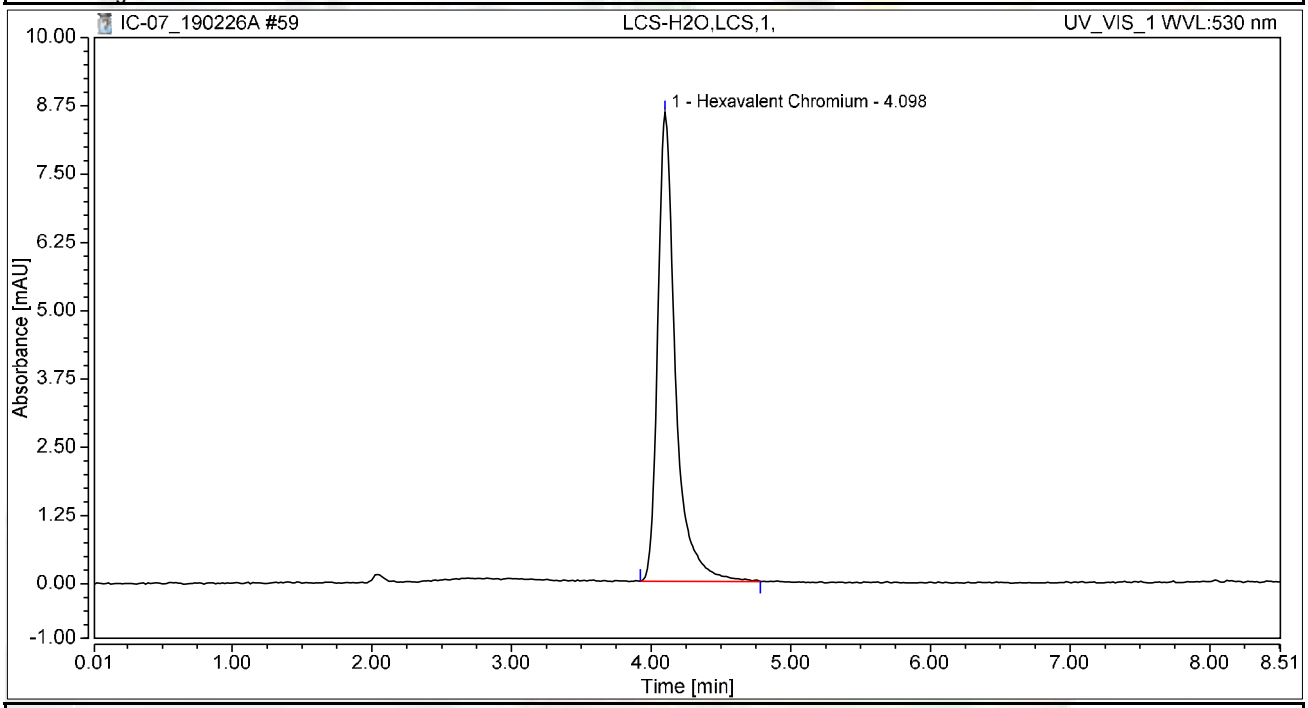
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **LCS-H2O,LCS,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **50** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 17:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

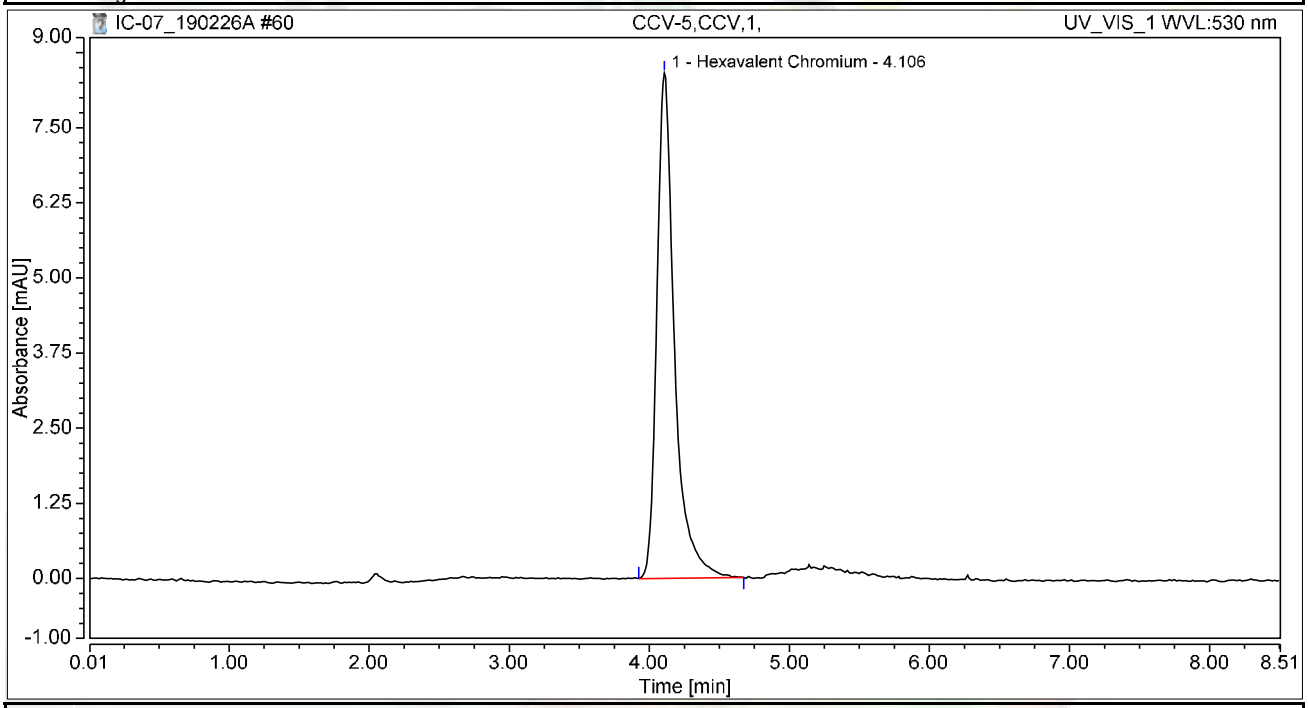
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.264 | 8.581 | 100.00 | 100.00 | 5.1014 |
| **Total:** | | | **1.264** | **8.581** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-5,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 17:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

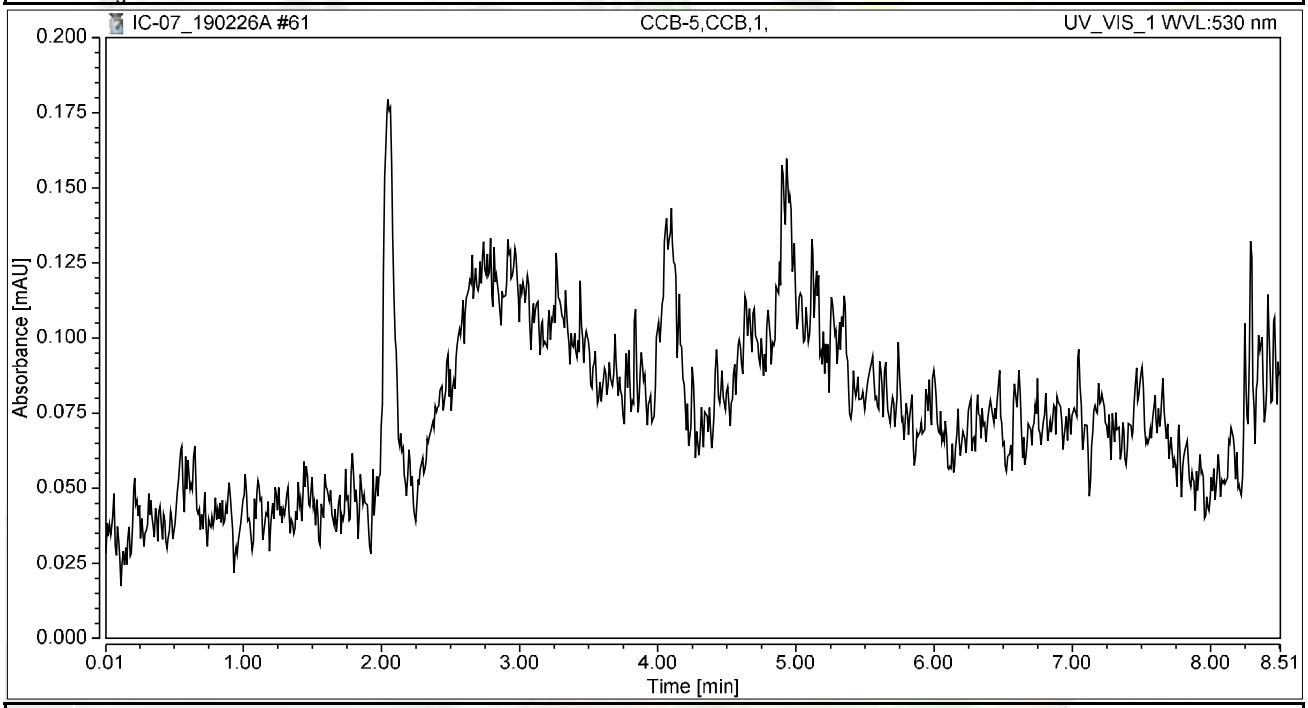
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.228 | 8.413 | 100.00 | 100.00 | 4.9554 |
| **Total:** | | | **1.228** | **8.413** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-5,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 17:36** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

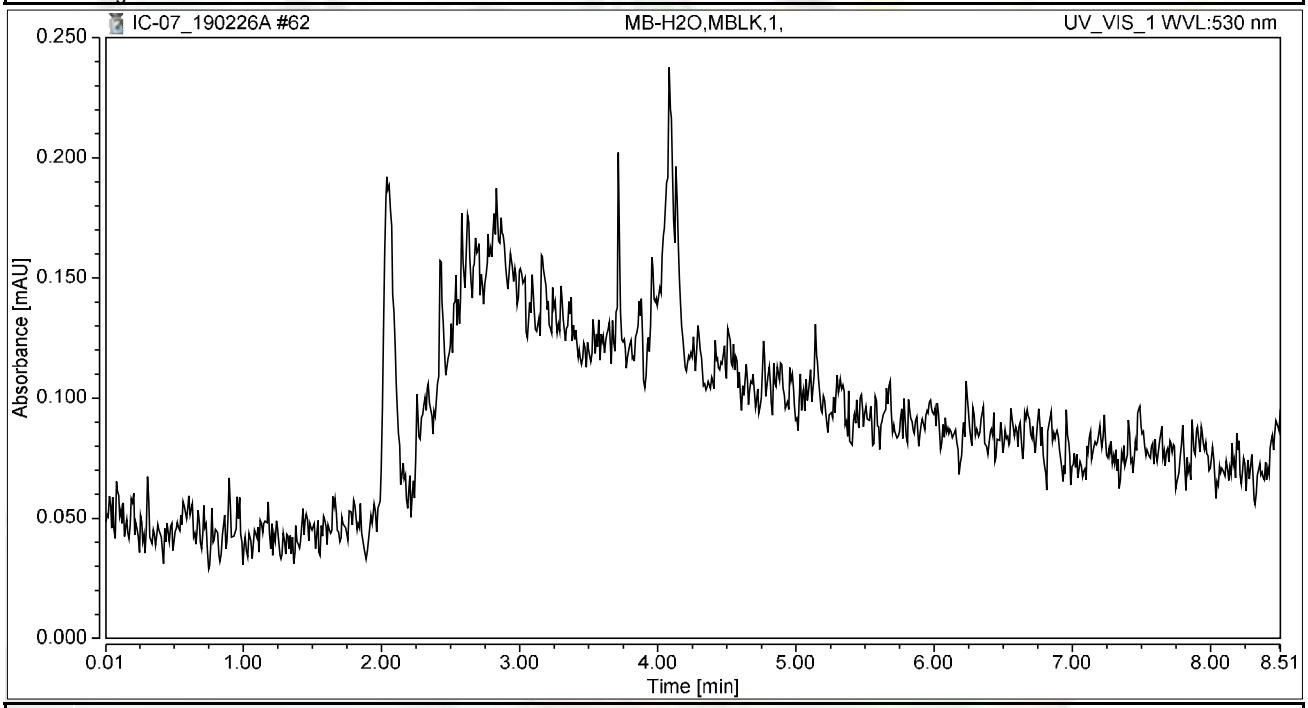
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **MB-H2O,MBLK,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 17:46** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

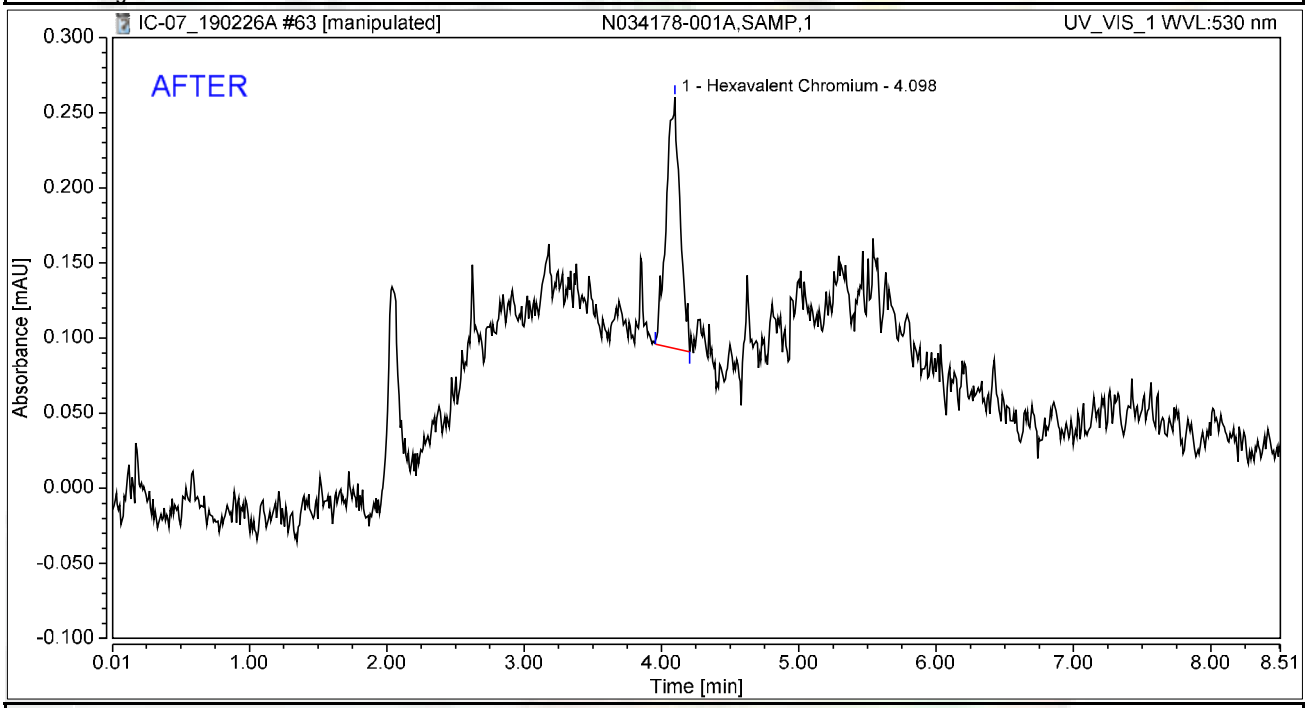
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 17:58** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

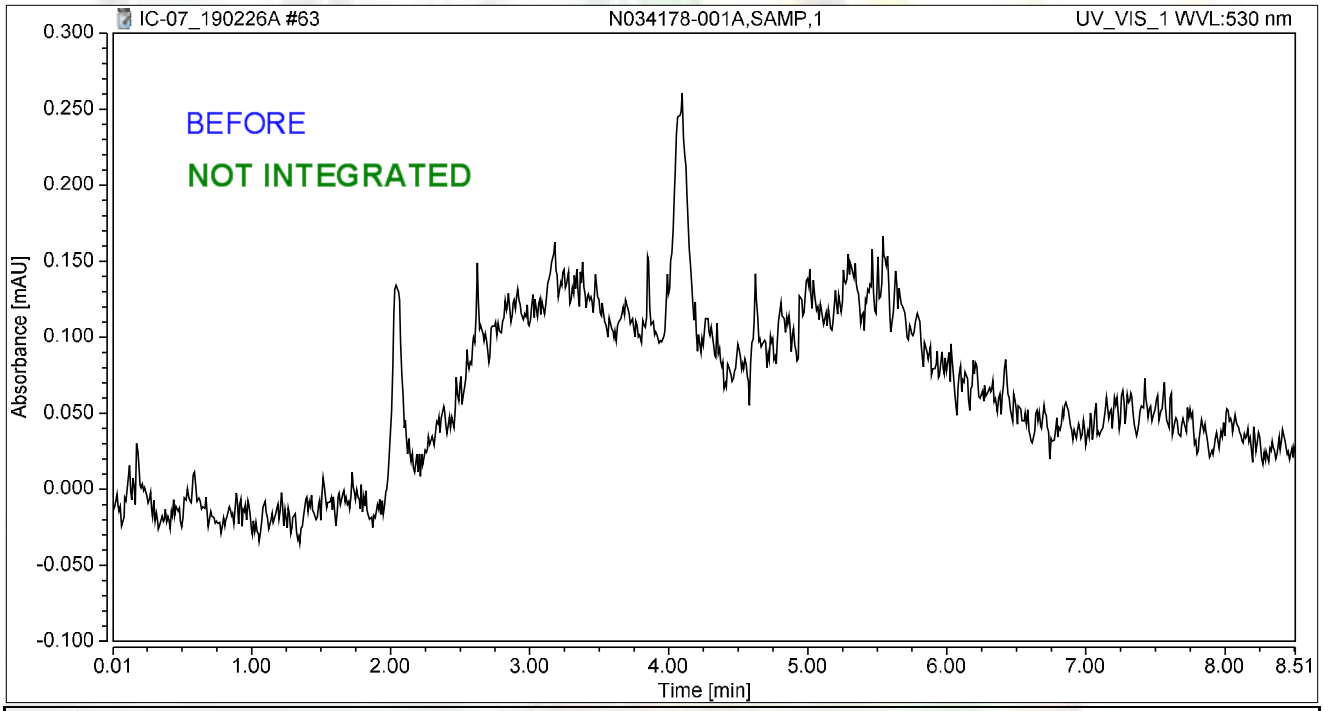
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.019 | 0.167 | 100.00 | 100.00 | 0.0778 |
| **Total:** | | | **0.019** | **0.167** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 17:58** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

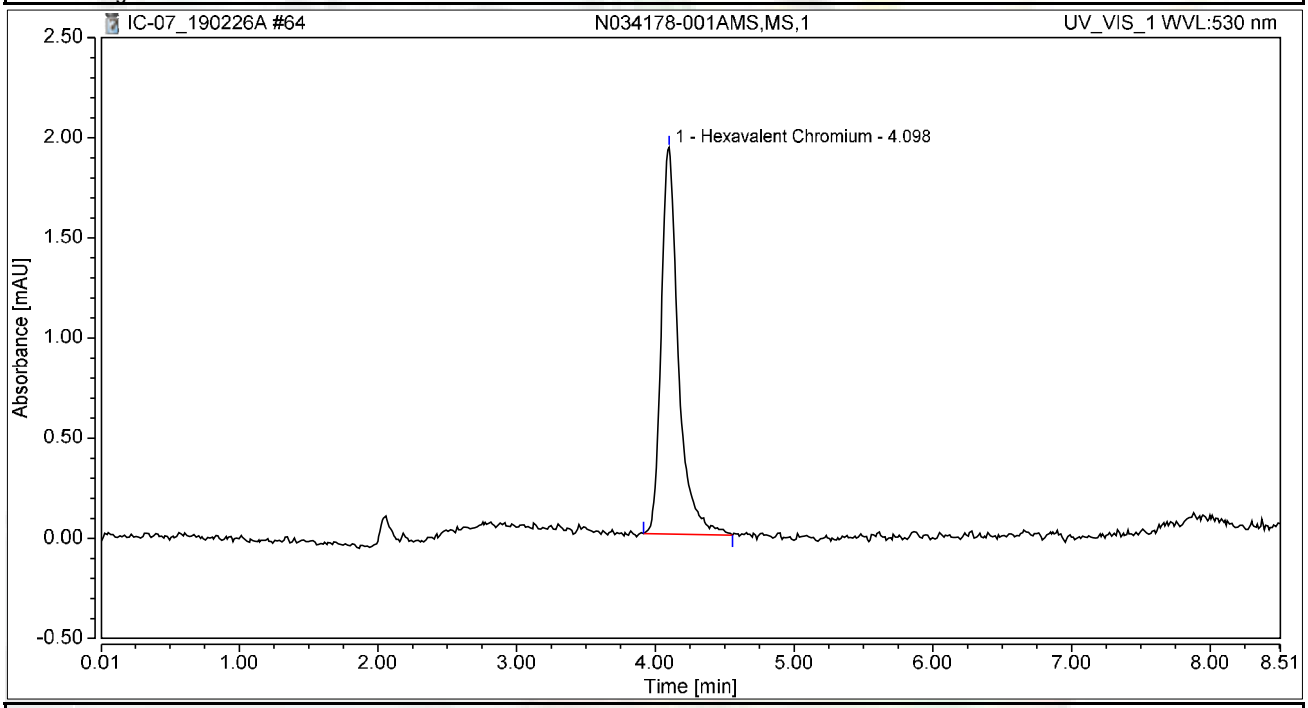
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 18:07** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

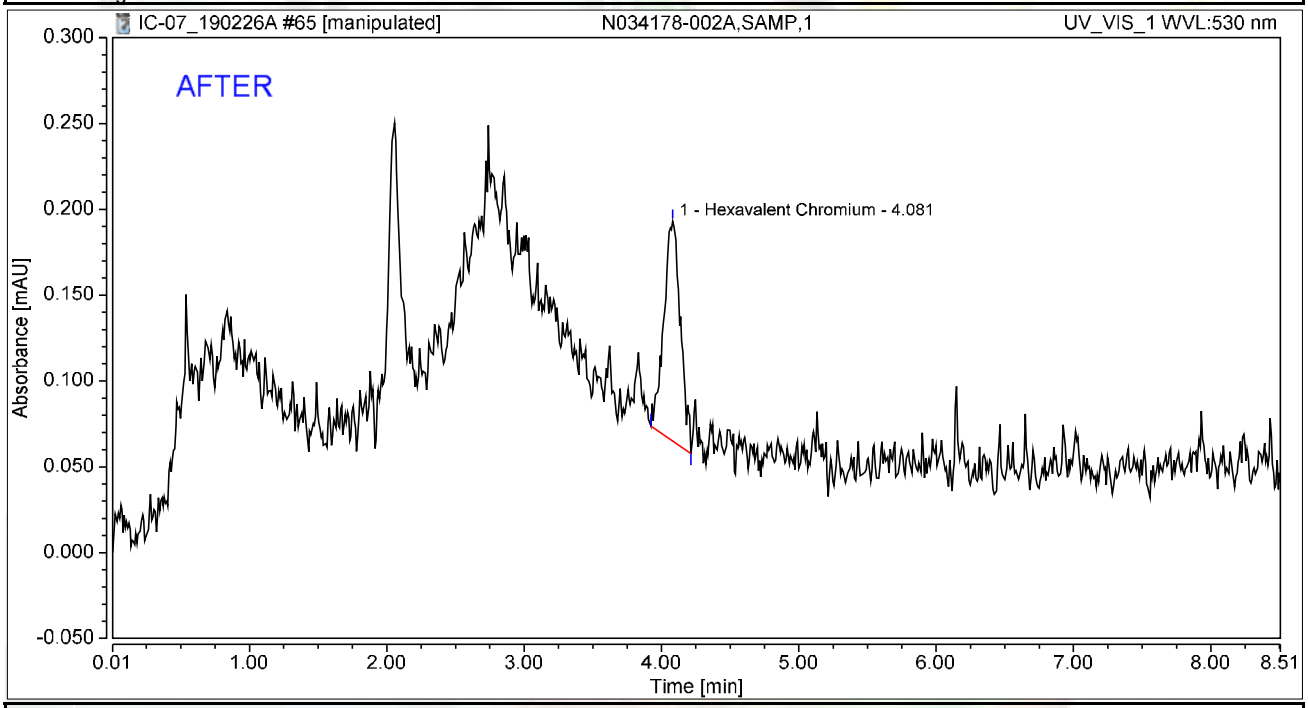
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.278 | 1.930 | 100.00 | 100.00 | 1.1210 |
| **Total:** | | | **0.278** | **1.930** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 18:16** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.018 | 0.128 | 100.00 | 100.00 | 0.0726 |
| **Total:** | | | **0.018** | **0.128** | **100.00** | **100.00** | |



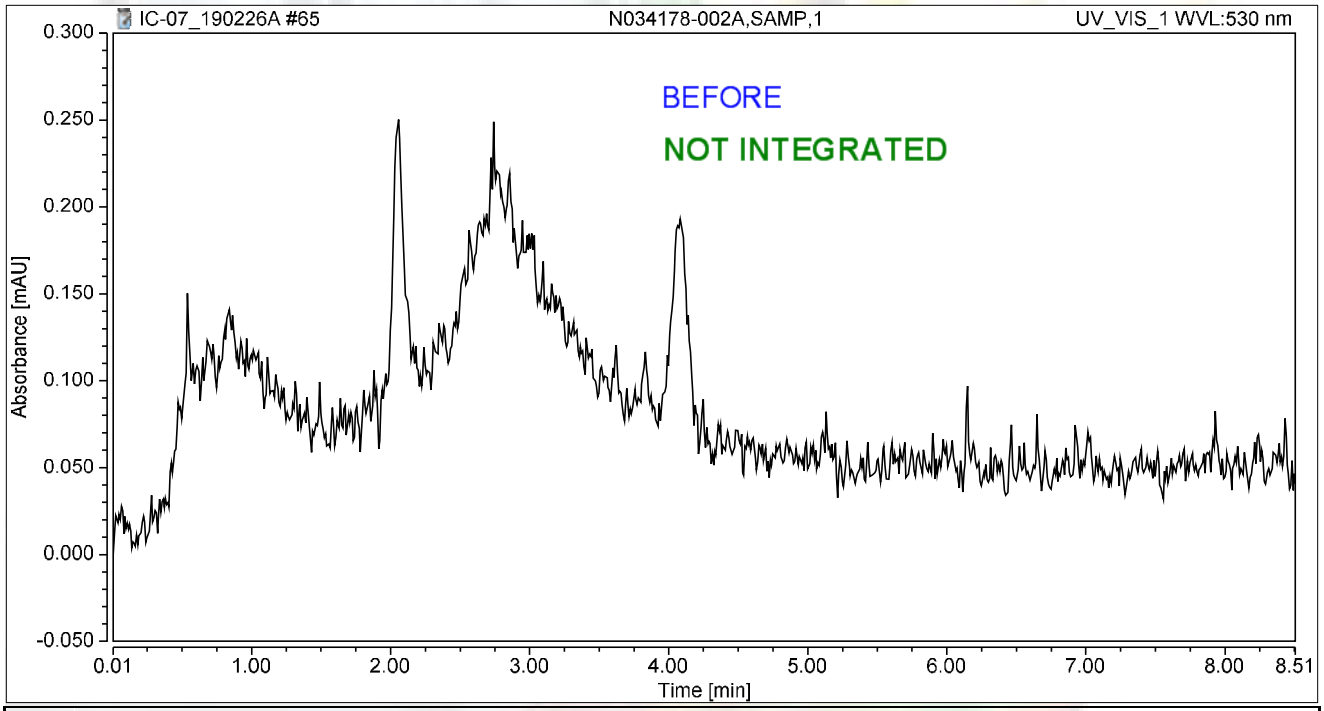
Reviewed by:
Nancy 3/5/2019 IC-07 HSG 2/27/2019 12:18:33 AM

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 18:16** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

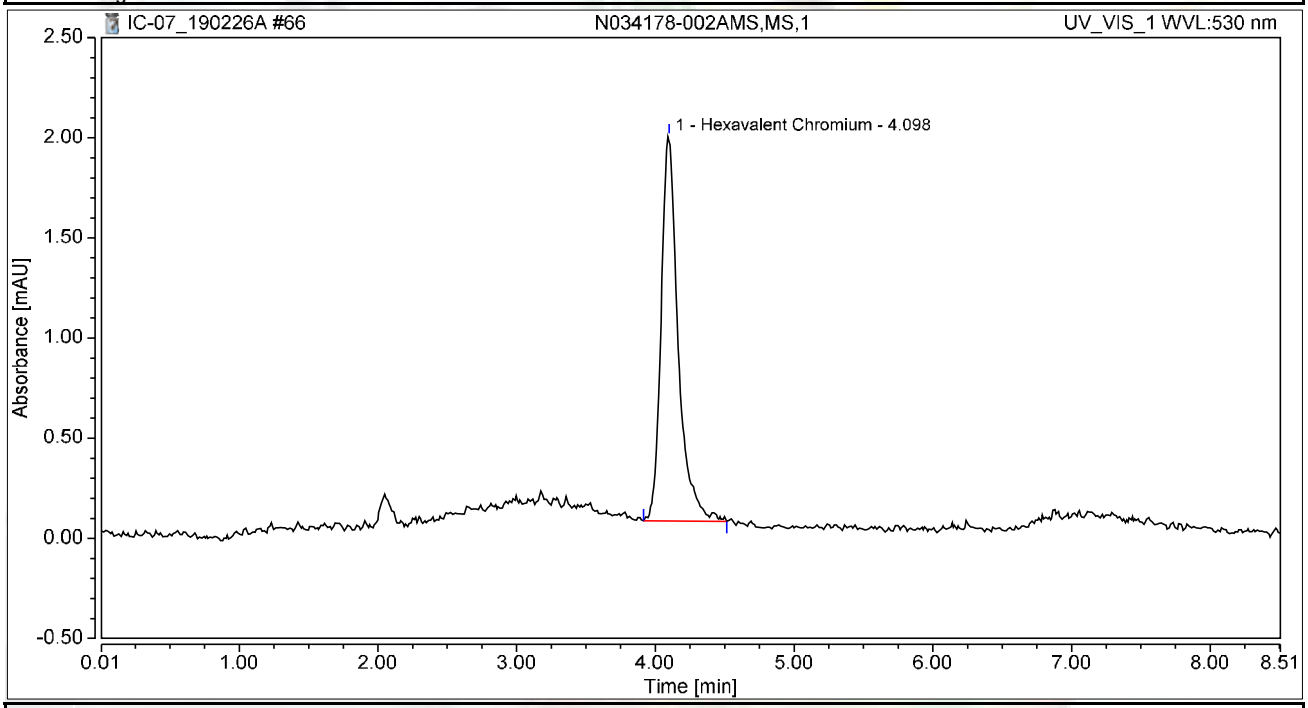
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-002AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 18:26** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.274 | 1.922 | 100.00 | 100.00 | 1.1075 |
| **Total:** | | | **0.274** | **1.922** | **100.00** | **100.00** | |

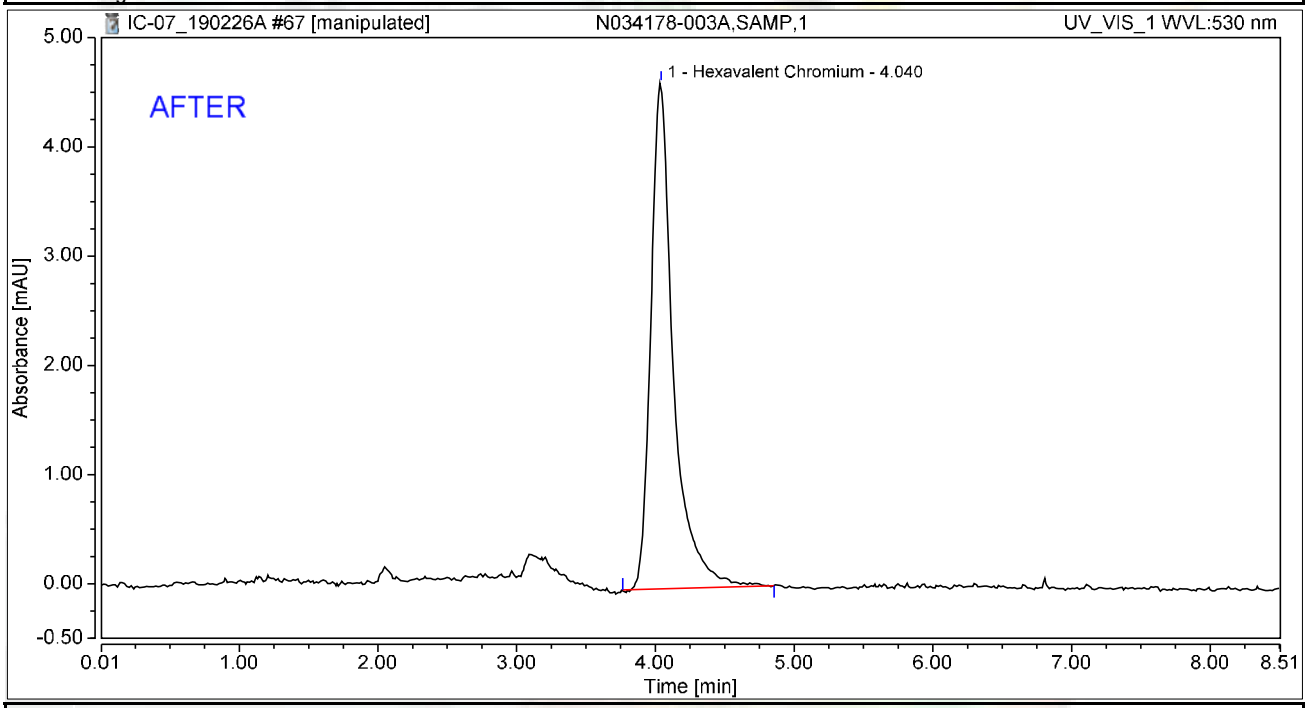
# Chromatogram and Results

## Injection Details

5

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-003A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 18:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.040 | 0.871 | 4.629 | 100.00 | 100.00 | 3.5138 |
| **Total:** | | | **0.871** | **4.629** | **100.00** | **100.00** | |



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IC-07 HSG 2/27/2019 12:18:33 AM

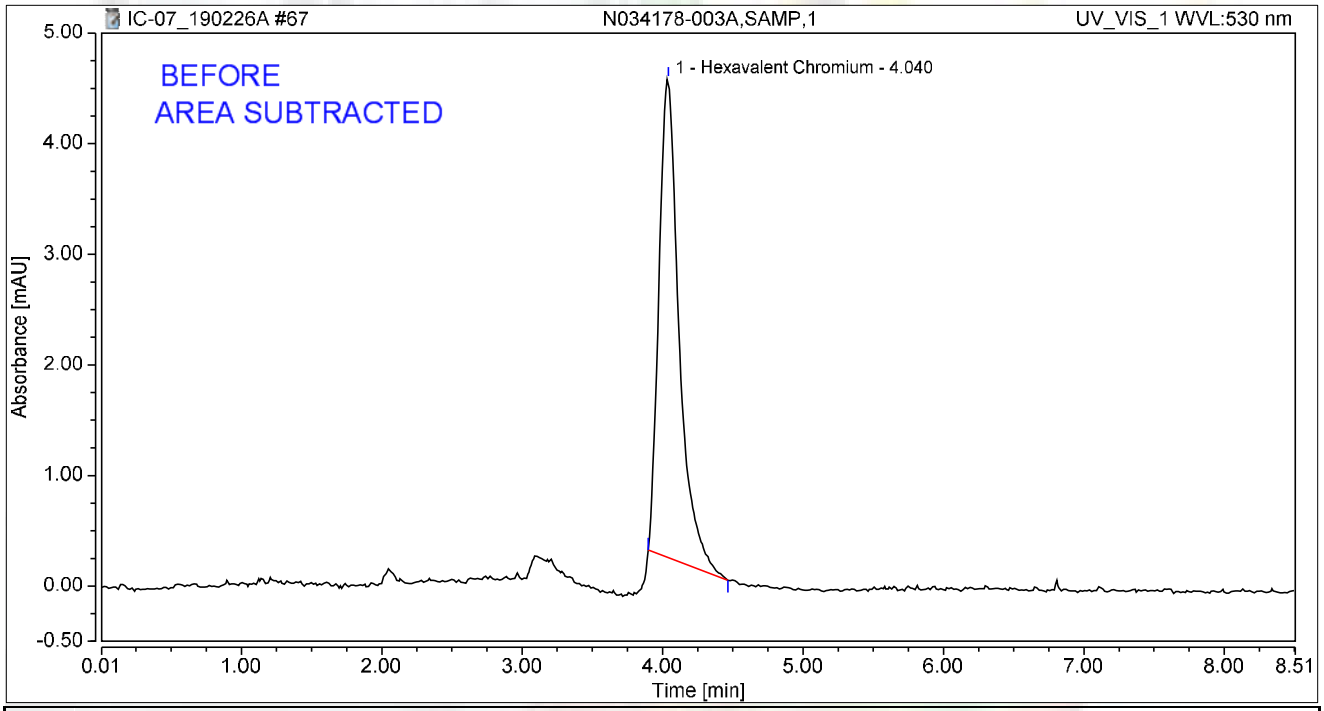
# Chromatogram and Results

## Injection Details

5

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-003A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 18:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.040 | 0.721 | 4.323 | 100.00 | 100.00 | 2.9086 |
| **Total:** | | | **0.721** | **4.323** | **100.00** | **100.00** | |

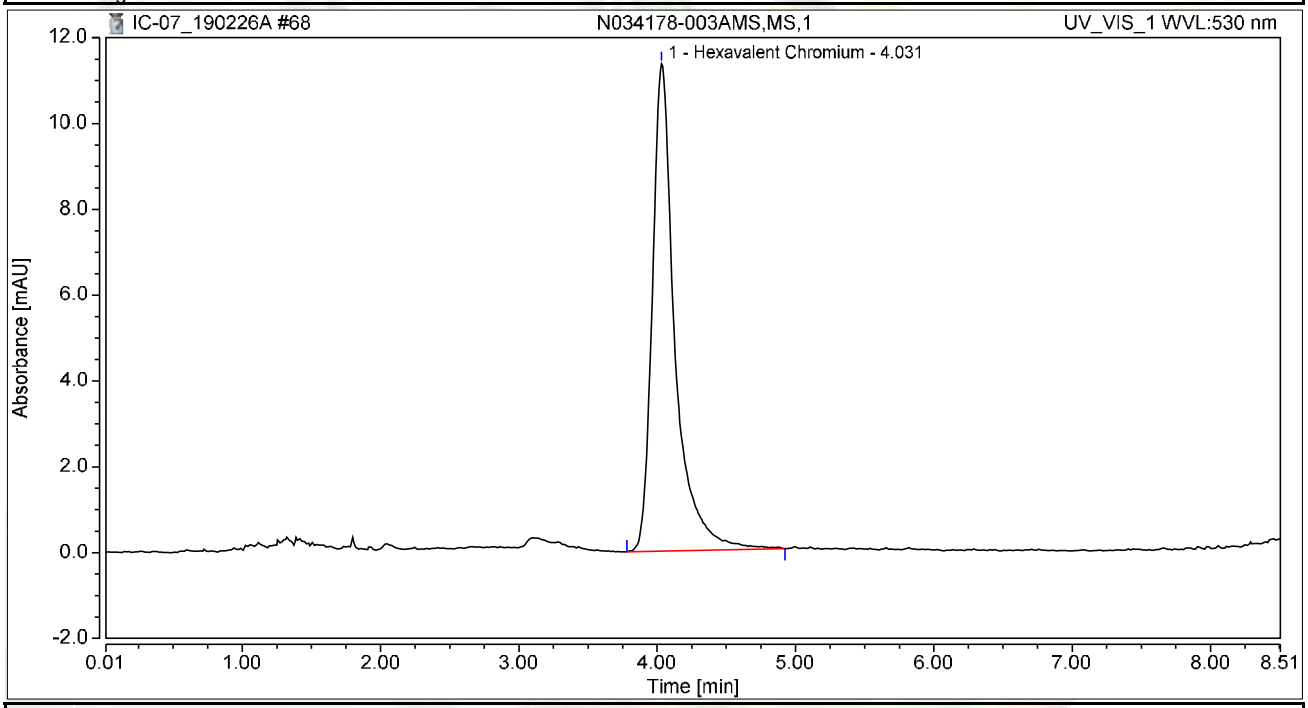
# Chromatogram and Results

## Injection Details

5

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-003AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 18:45** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.031 | 2.153 | 11.358 | 100.00 | 100.00 | 8.6889 |
| **Total:** | | | **2.153** | **11.358** | **100.00** | **100.00** | |

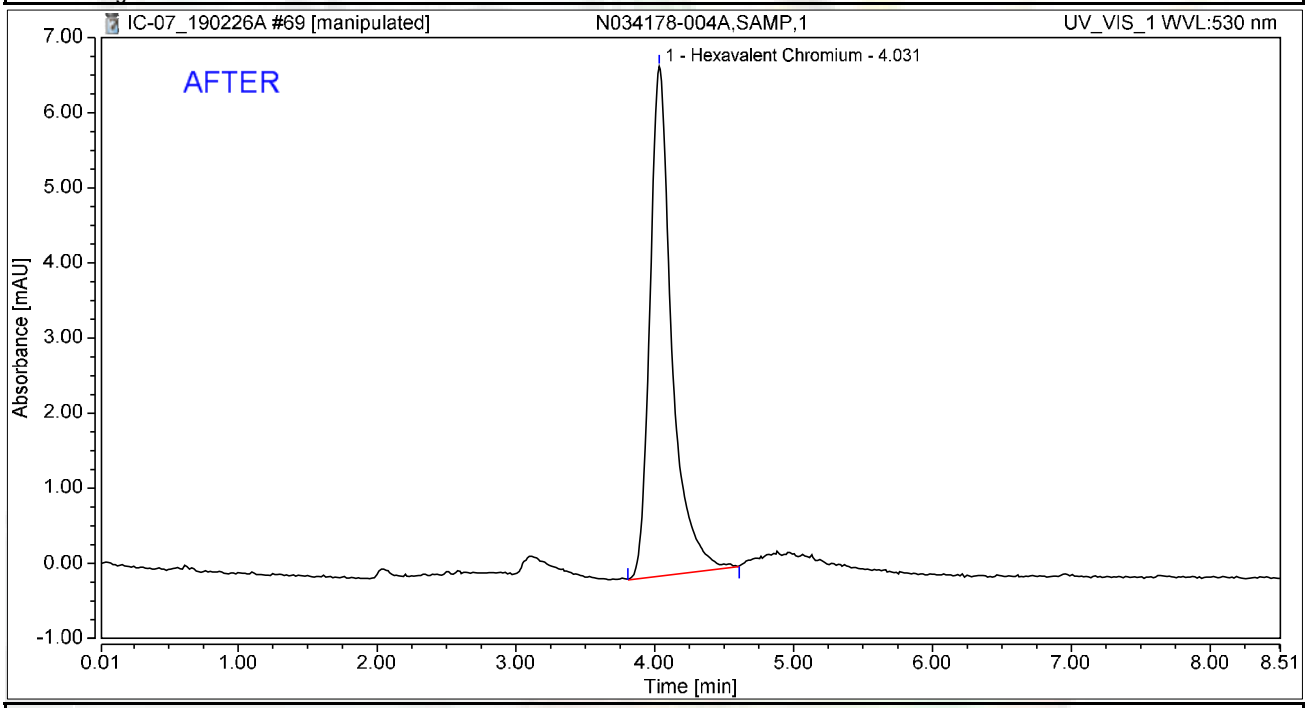
# Chromatogram and Results

## Injection Details

5

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-004A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 18:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

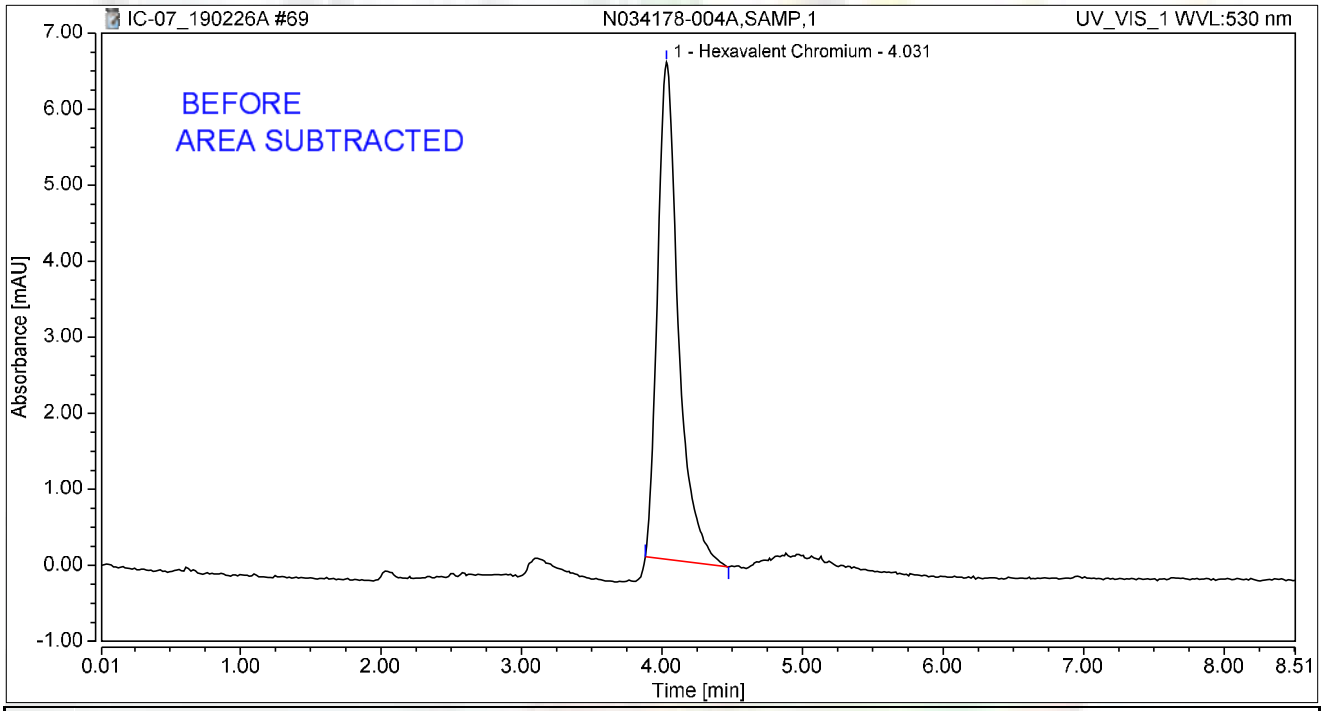
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.031 | 1.245 | 6.785 | 100.00 | 100.00 | 5.0241 |
| **Total:** | | | **1.245** | **6.785** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-004A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 18:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

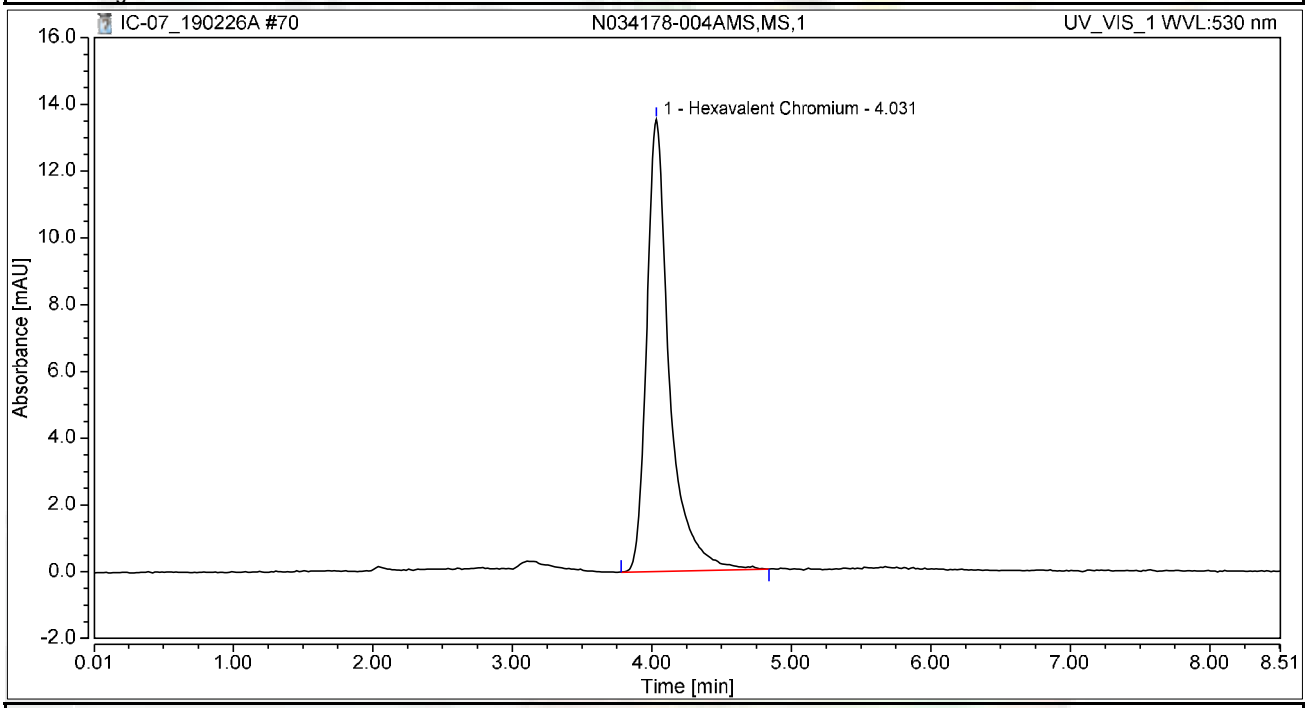
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.031 | 1.126 | 6.537 | 100.00 | 100.00 | 4.5440 |
| **Total:** | | | **1.126** | **6.537** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-004AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 19:04** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.031 | 2.555 | 13.541 | 100.00 | 100.00 | 10.3118 |
| **Total:** | | | **2.555** | **13.541** | **100.00** | **100.00** | |

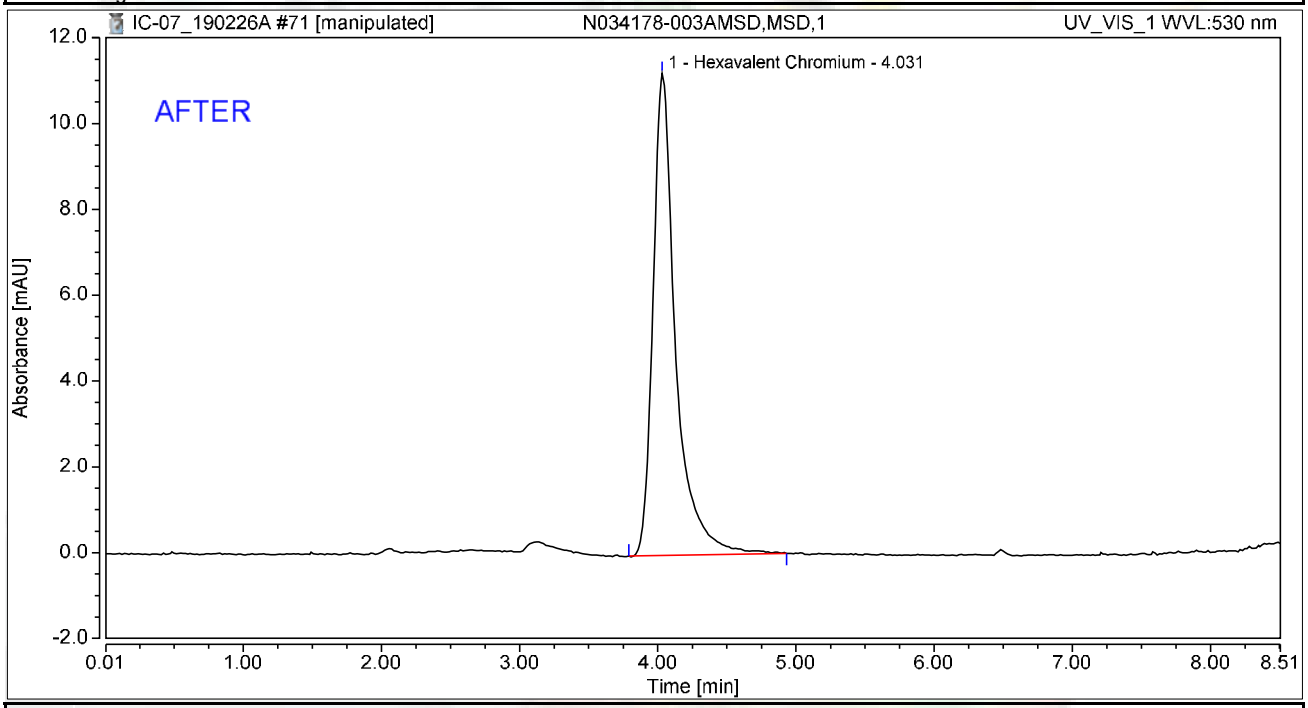
# Chromatogram and Results

## Injection Details

5

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-003AMSD,MSD,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 19:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

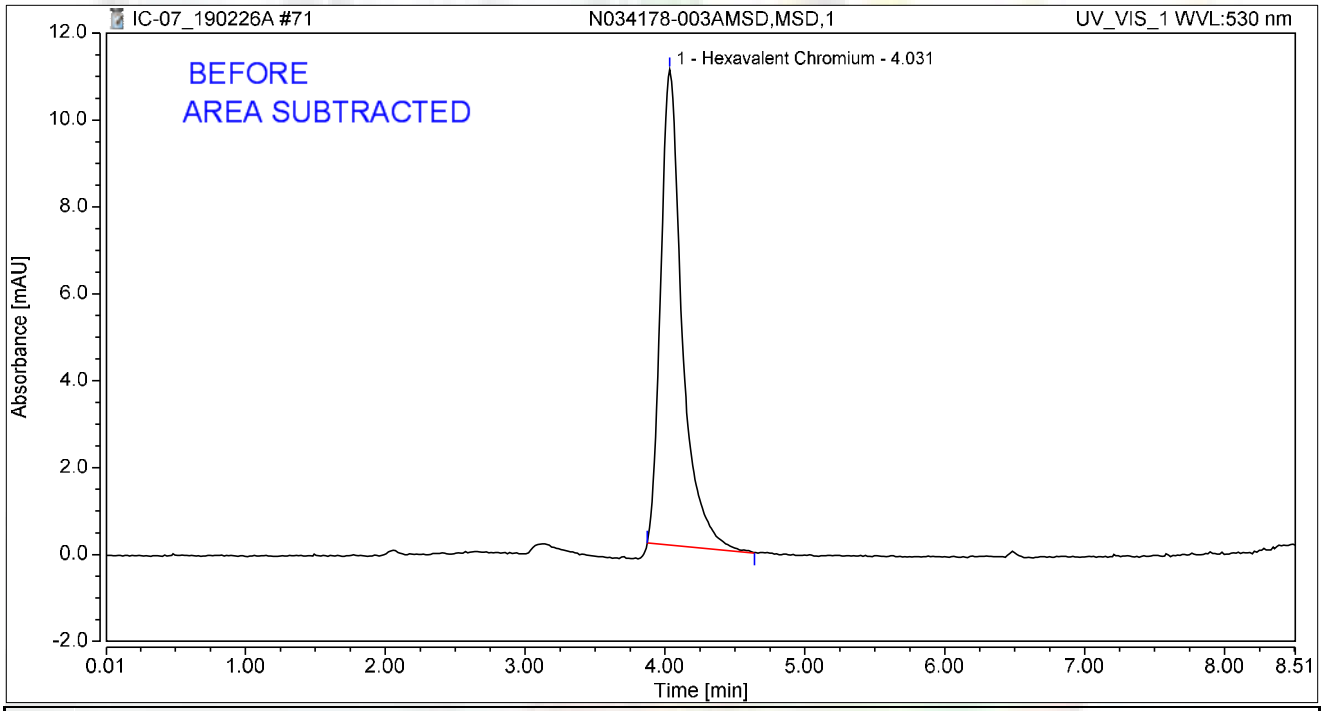
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.031 | 2.129 | 11.231 | 100.00 | 100.00 | 8.5915 |
| **Total:** | | | **2.129** | **11.231** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-003AMSD,MSD,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 19:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

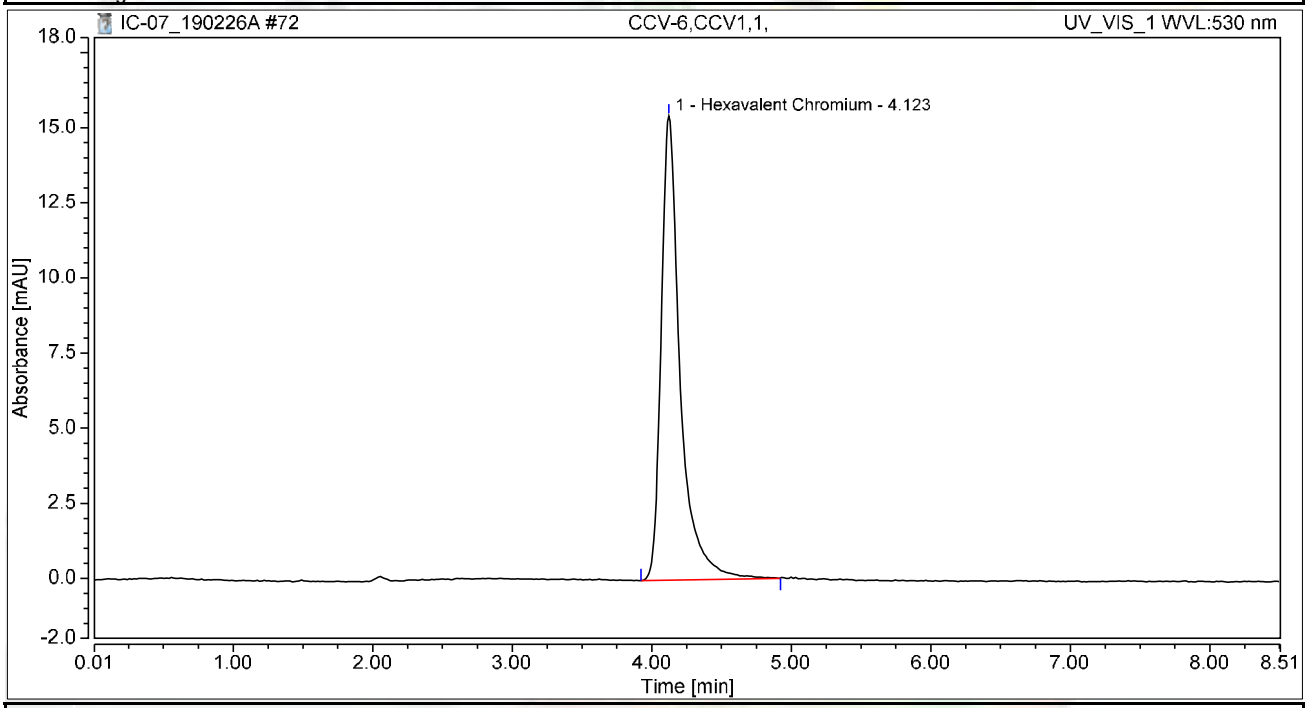
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.031 | 1.951 | 10.944 | 100.00 | 100.00 | 7.8745 |
| **Total:** | | | **1.951** | **10.944** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-6,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 19:23** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

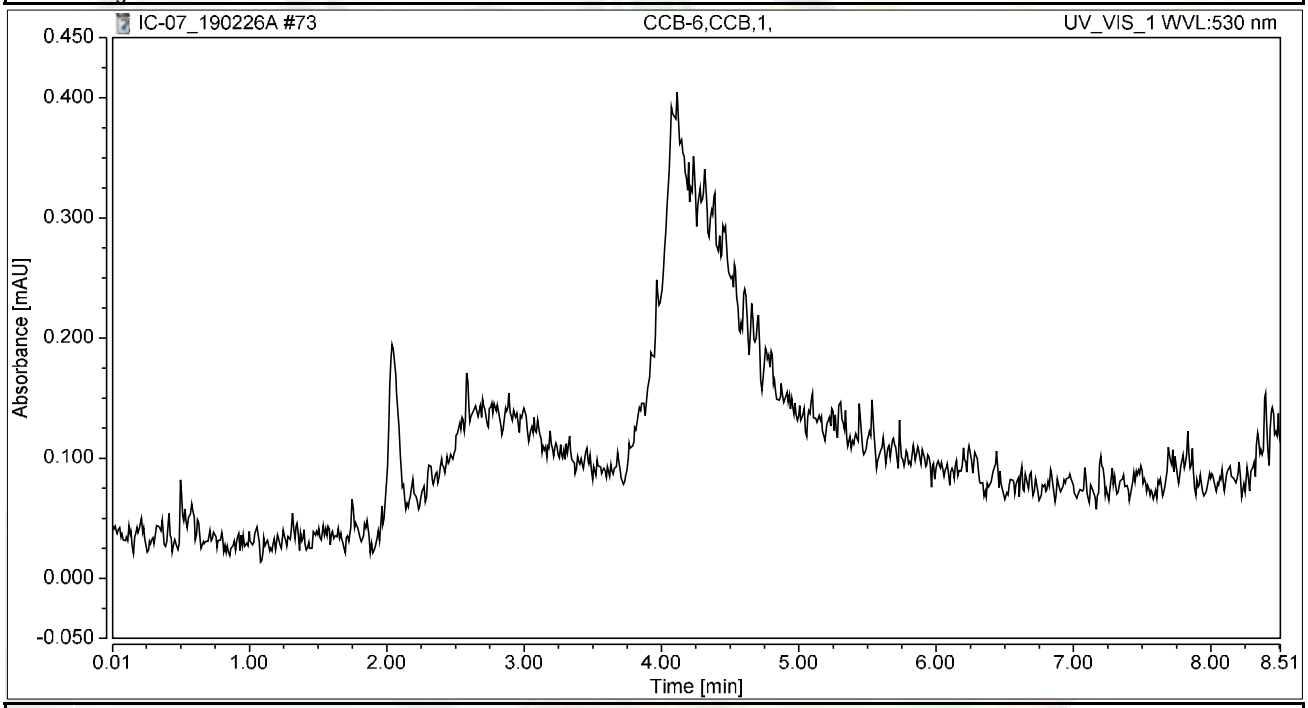
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.123 | 2.444 | 15.447 | 100.00 | 100.00 | 9.8635 |
| **Total:** | | | **2.444** | **15.447** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-6,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 19:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

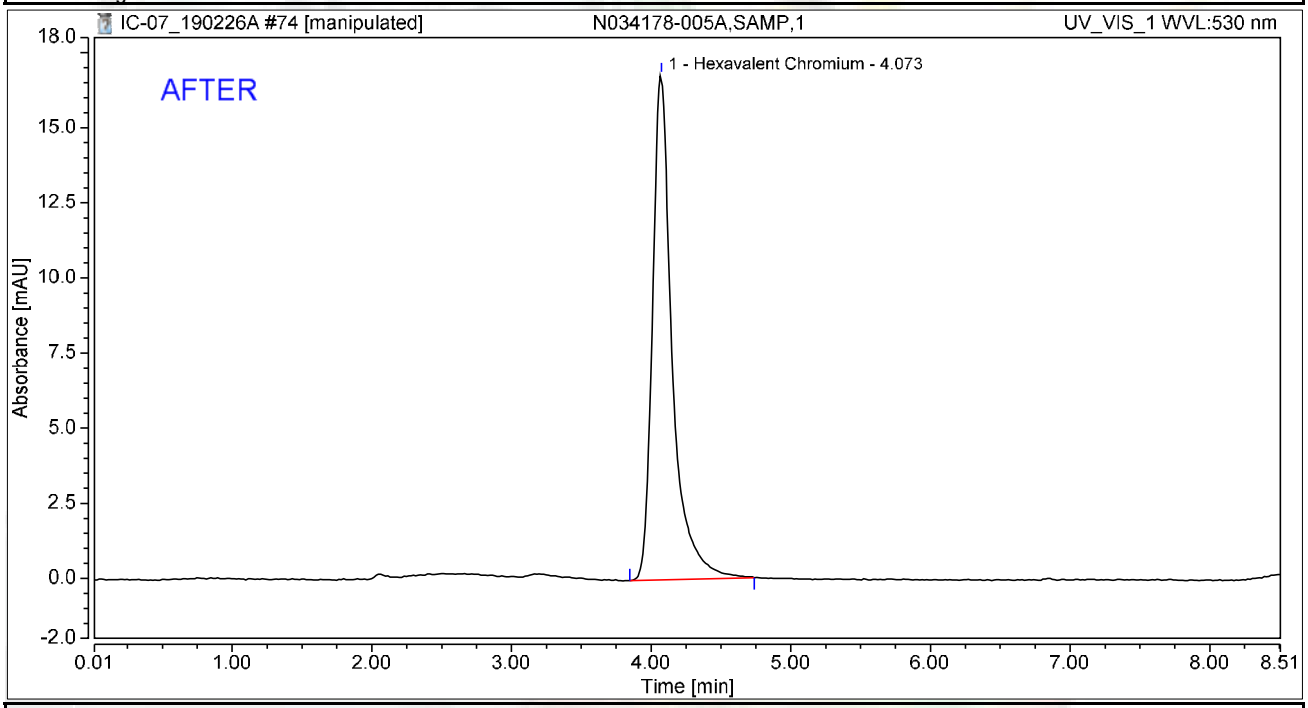
# Chromatogram and Results

## Injection Details

10

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-005A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 19:42** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

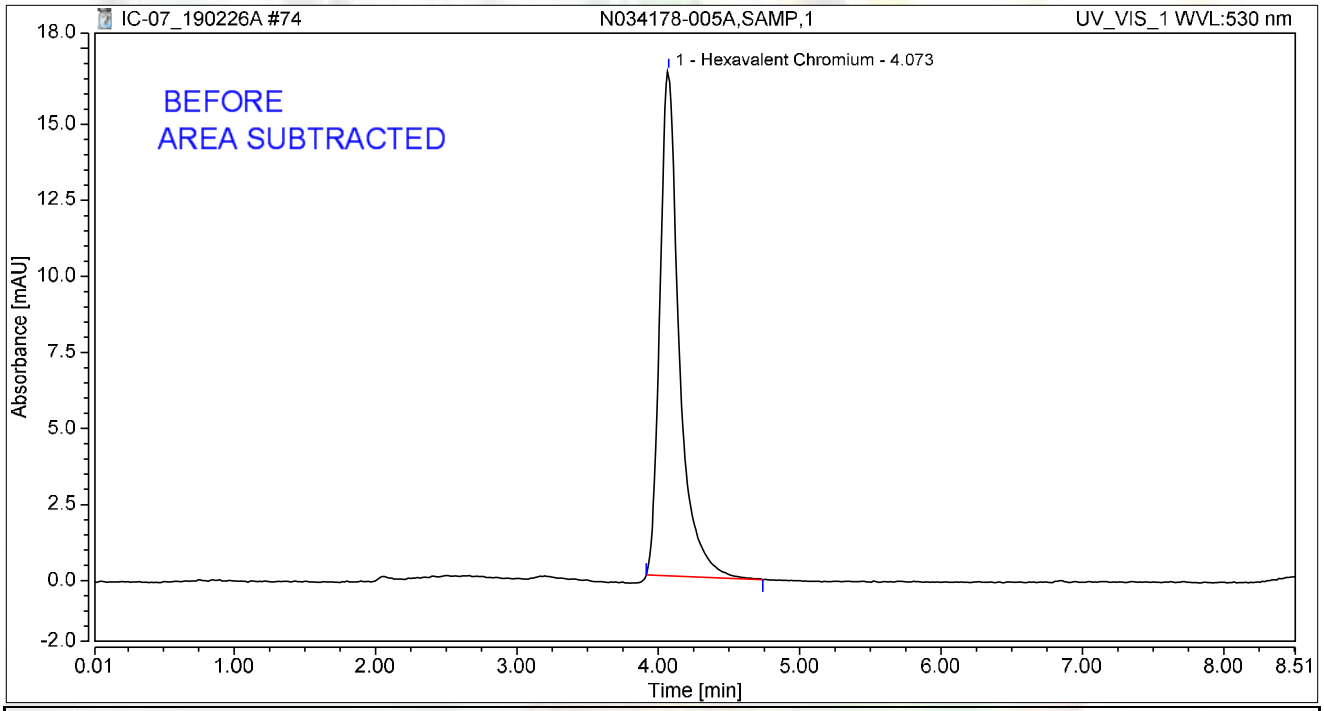
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 2.752 | 16.812 | 100.00 | 100.00 | 11.1041 |
| **Total:** | | | **2.752** | **16.812** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-005A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 19:42** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 2.645 | 16.611 | 100.00 | 100.00 | 10.6744 |
| **Total:** | | | **2.645** | **16.611** | **100.00** | **100.00** | |

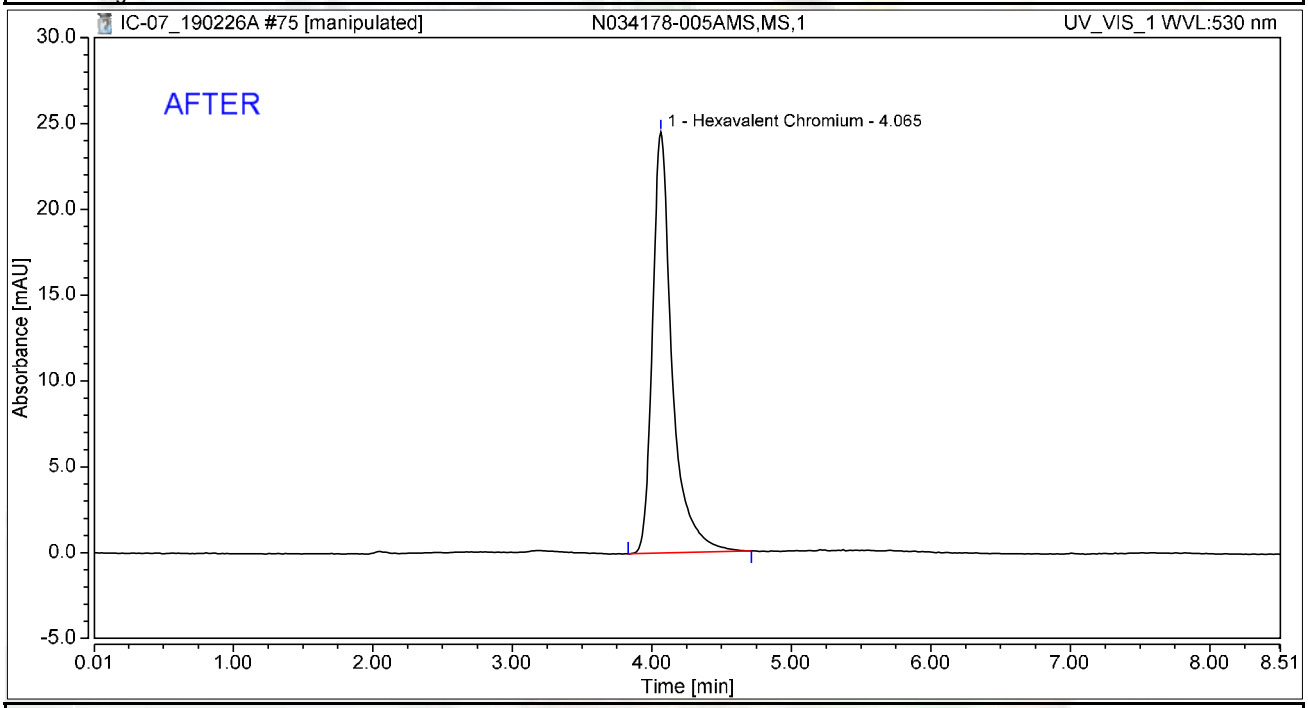
# Chromatogram and Results

## Injection Details

10

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-005AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 19:51** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

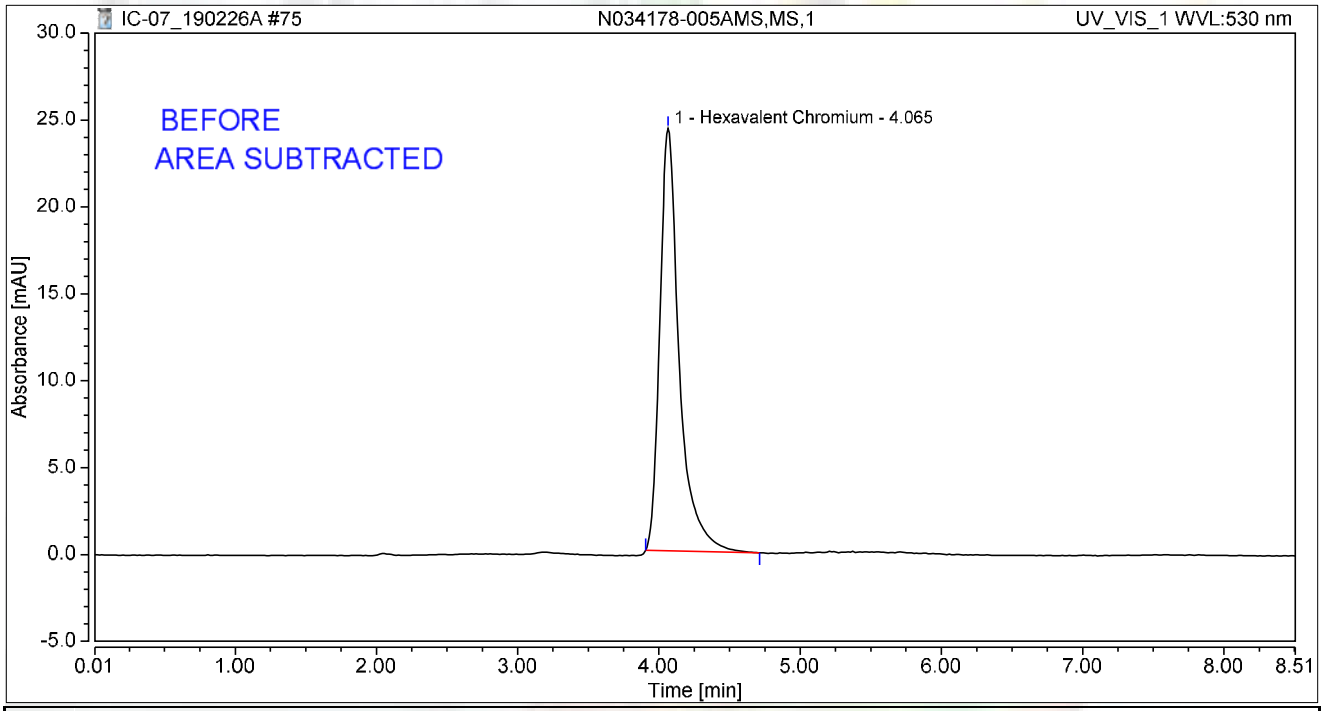
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.065 | 4.000 | 24.539 | 100.00 | 100.00 | 16.1412 |
| **Total:** | | | **4.000** | **24.539** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-005AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 19:51** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

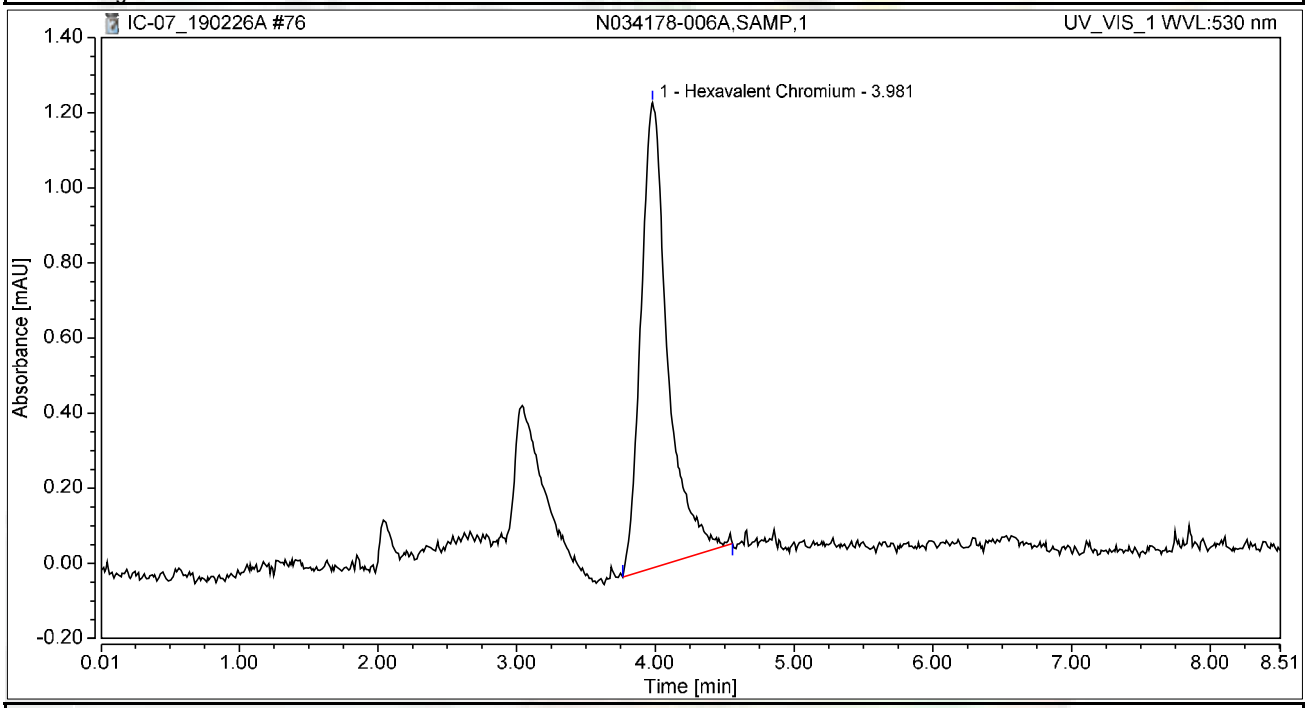
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.065 | 3.879 | 24.307 | 100.00 | 100.00 | 15.6513 |
| **Total:** | | | **3.879** | **24.307** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-006A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 20:01** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

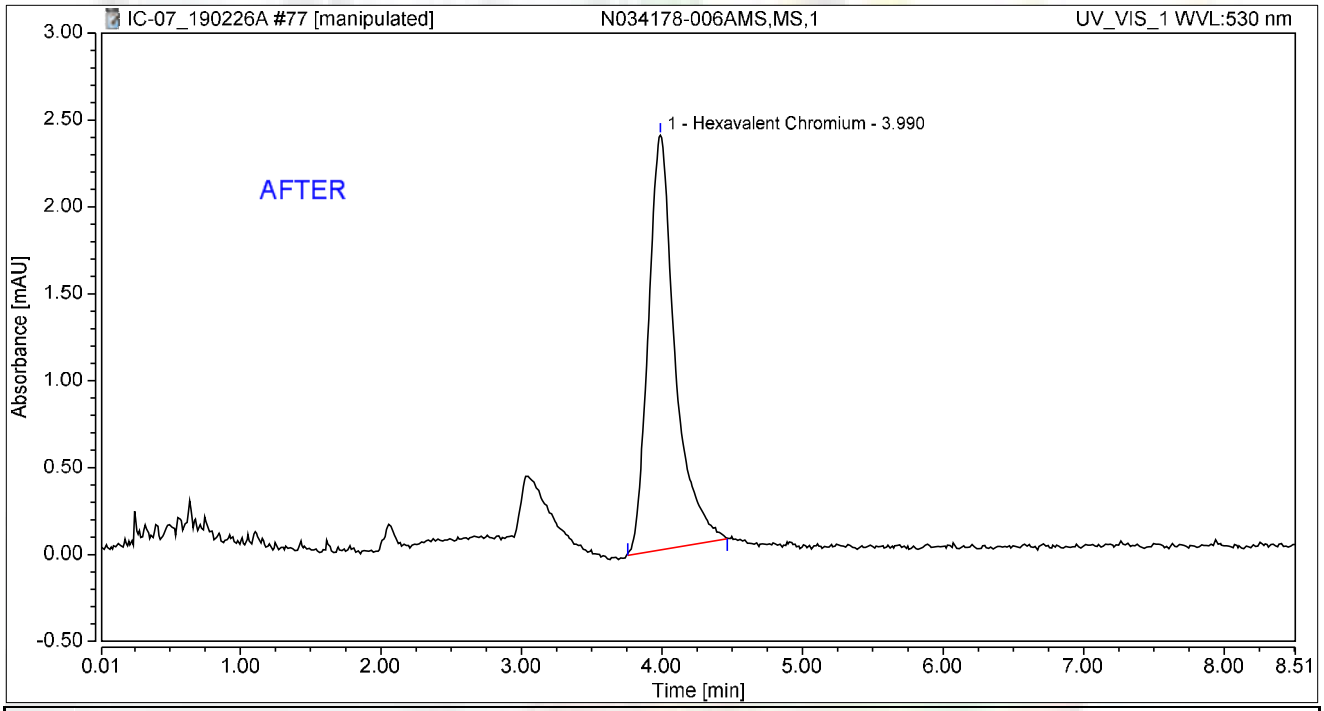
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.981 | 0.278 | 1.239 | 100.00 | 100.00 | 1.1205 |
| **Total:** | | | **0.278** | **1.239** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-006AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 20:10** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.990 | 0.527 | 2.386 | 100.00 | 100.00 | 2.1271 |
| **Total:** | | | **0.527** | **2.386** | **100.00** | **100.00** | |

jba 3/5/2019

Reviewed by:
Nancy 3/5/2019

My first report/Integration

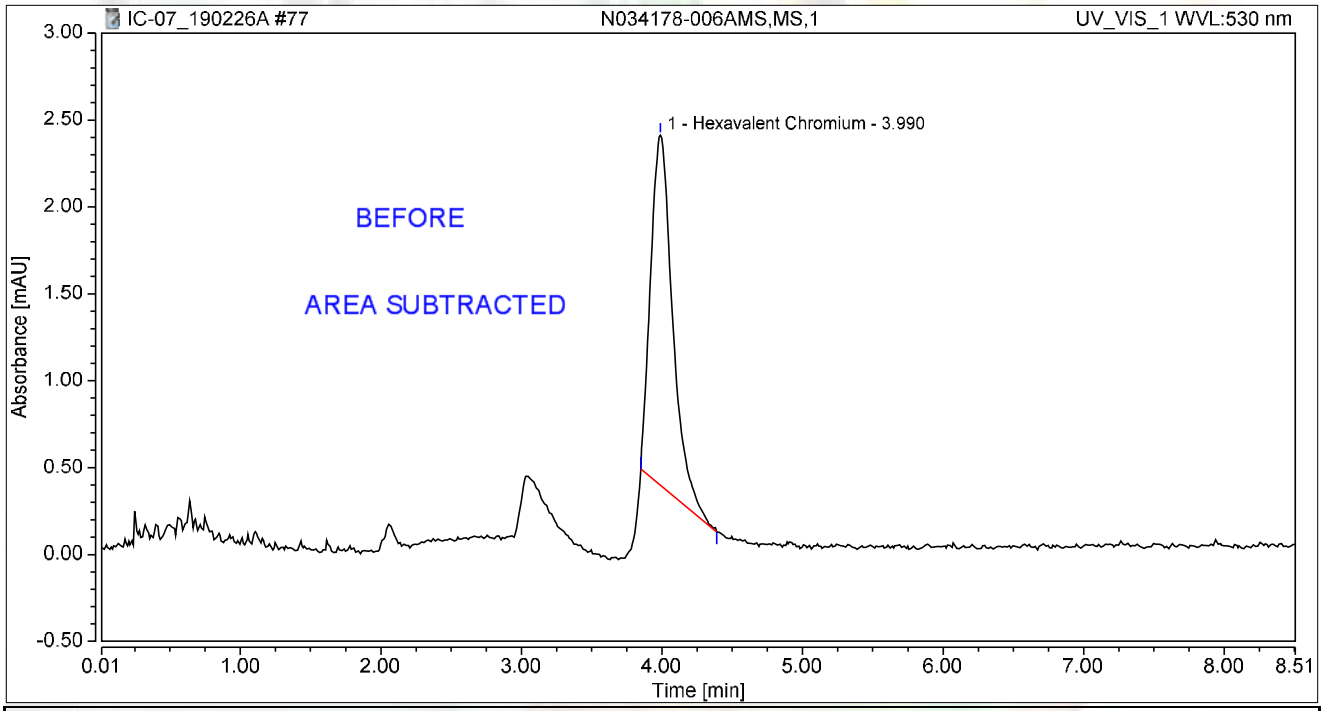
Chromeleon (c) Dionex
Version 7.1.1.1127

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-006AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 20:10** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.990 | 0.366 | 2.016 | 100.00 | 100.00 | 1.4784 |
| **Total:** | | | **0.366** | **2.016** | **100.00** | **100.00** | |

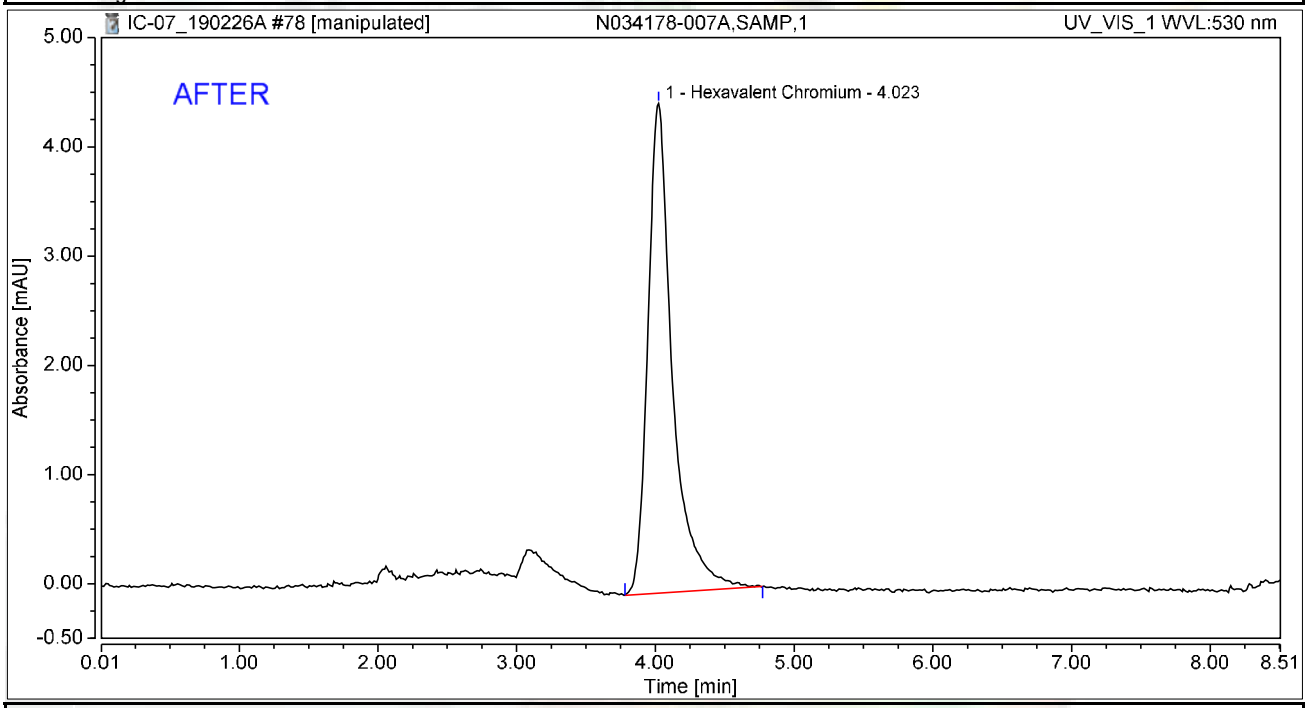
jba 3/5/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-007A,SAMP,1** 2 | *Run Time (min):* | **8.50** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 20:19** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.023 | 0.919 | 4.480 | 100.00 | 100.00 | 3.7064 |
| **Total:** | | | **0.919** | **4.480** | **100.00** | **100.00** | |

Reviewed by:
Nancy 3/5/2019

My first report/Integration

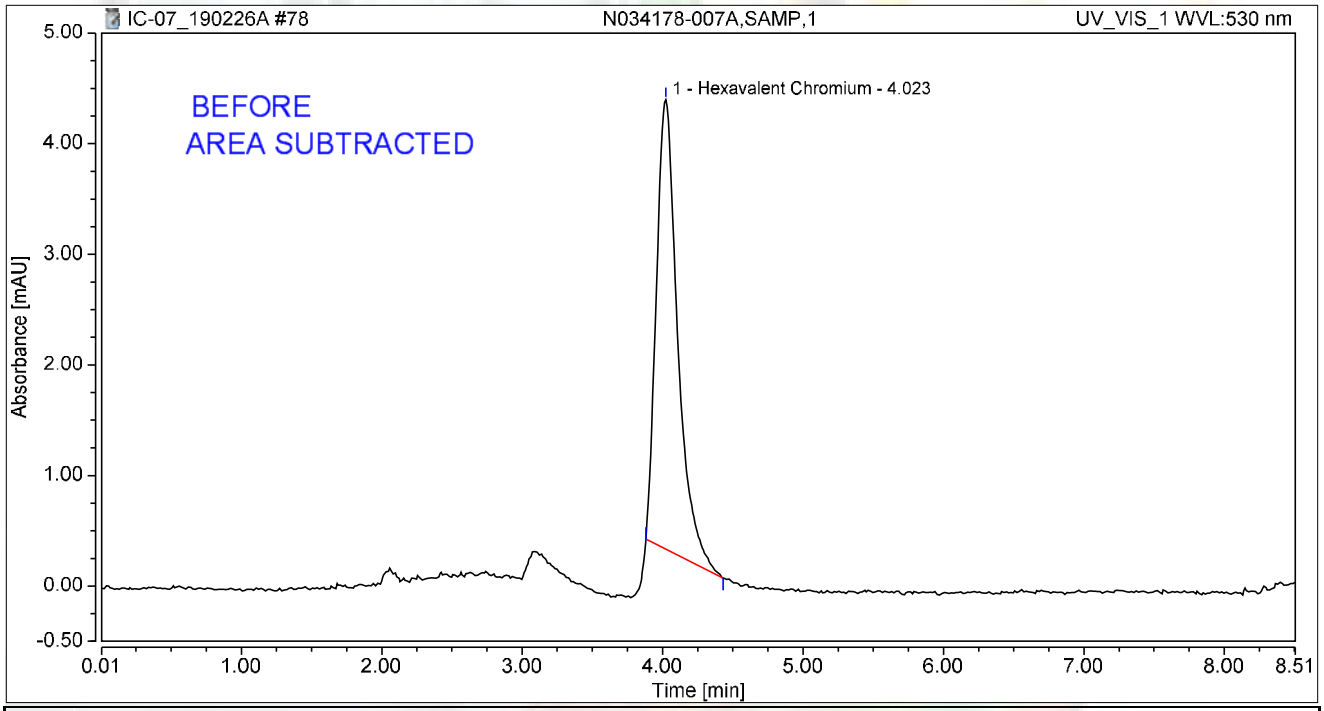
Chromeleon (c) Dionex
Version 7.1.1.1127

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-007A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 20:19** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

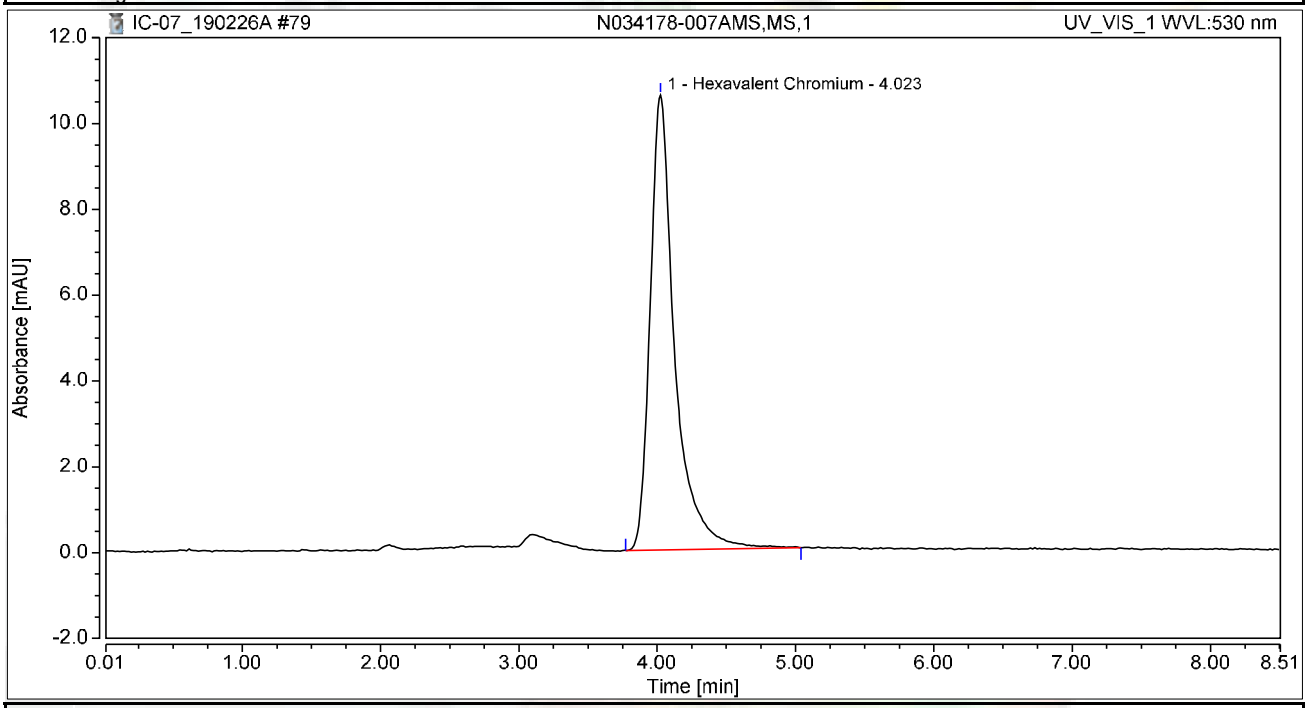
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.023 | 0.713 | 4.063 | 100.00 | 100.00 | 2.8786 |
| **Total:** | | | **0.713** | **4.063** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-007AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **20** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 20:29** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.023 | 2.184 | 10.602 | 100.00 | 100.00 | 8.8144 |
| **Total:** | | | **2.184** | **10.602** | **100.00** | **100.00** | |

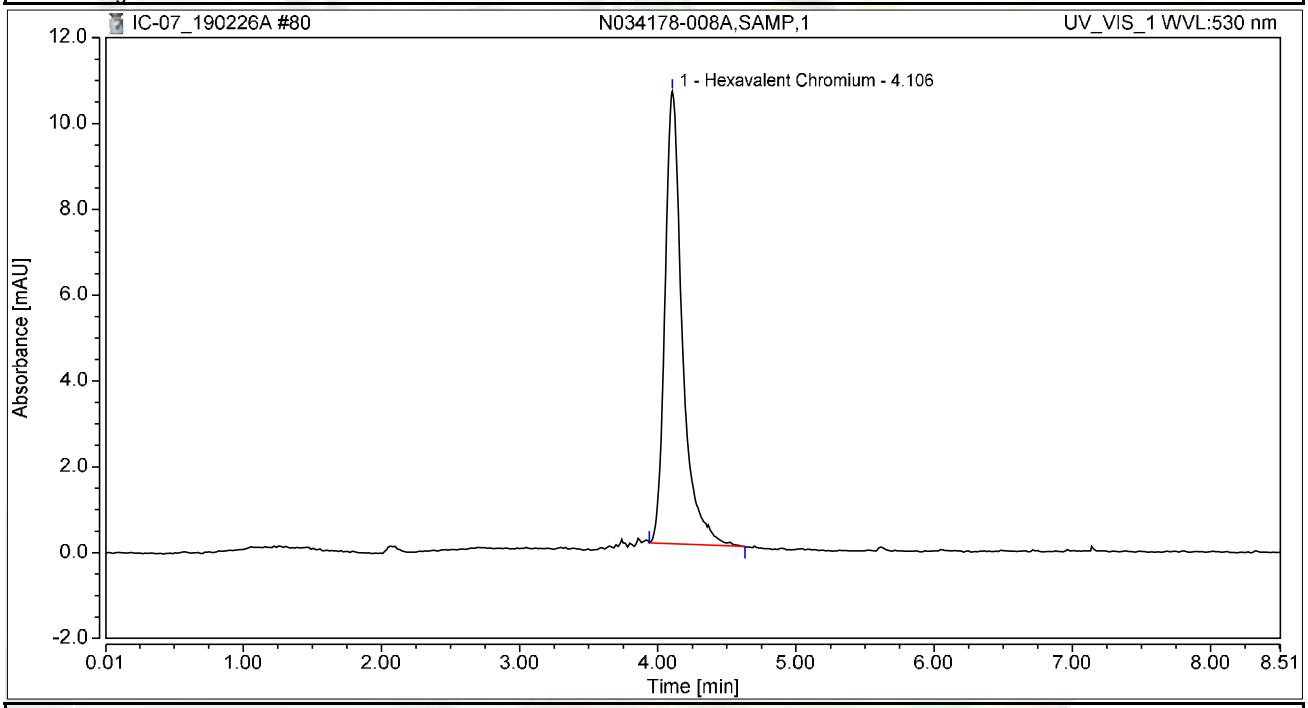
# Chromatogram and Results

## Injection Details

20

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-008A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 20:38** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.540 | 10.545 | 100.00 | 100.00 | 6.2126 |
| **Total:** | | | **1.540** | **10.545** | **100.00** | **100.00** | |

Reviewed by:
Nancy 3/5/2019
My first report integration

Chromeleon (c) Dionex
Version 7.1.1.1127

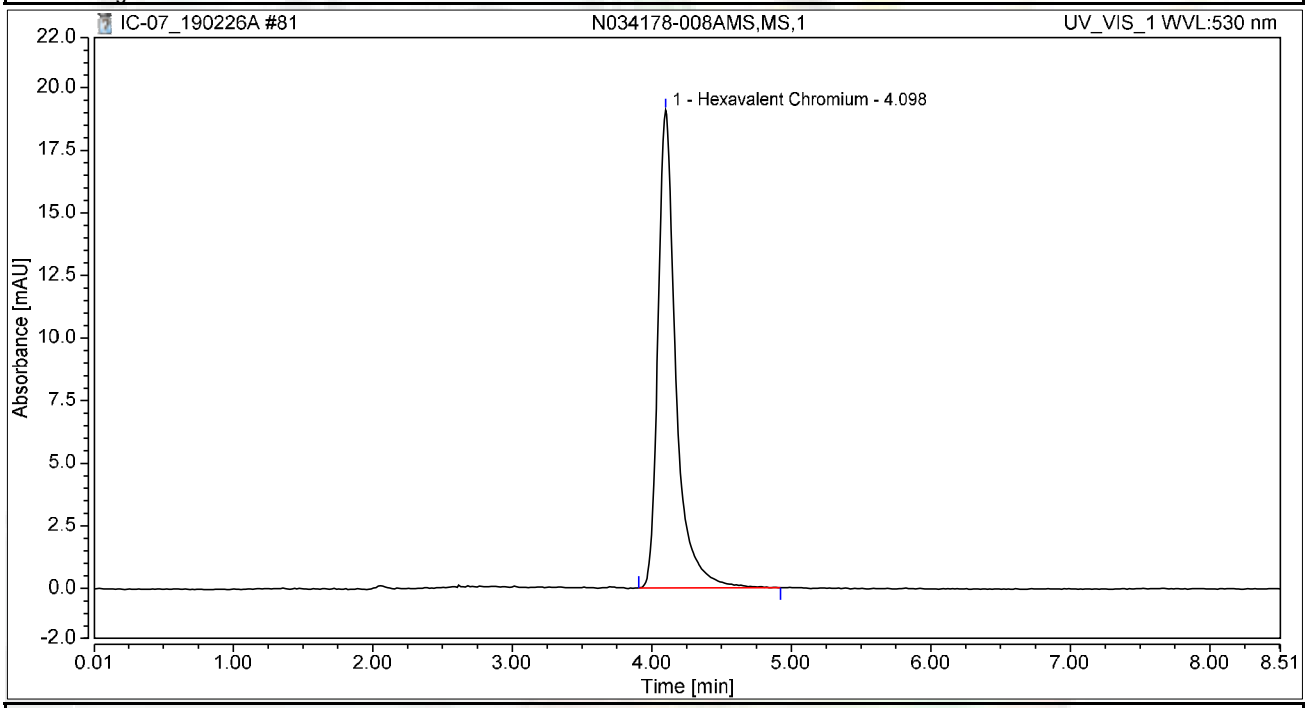
# Chromatogram and Results

## Injection Details

20

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-008AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 20:48** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

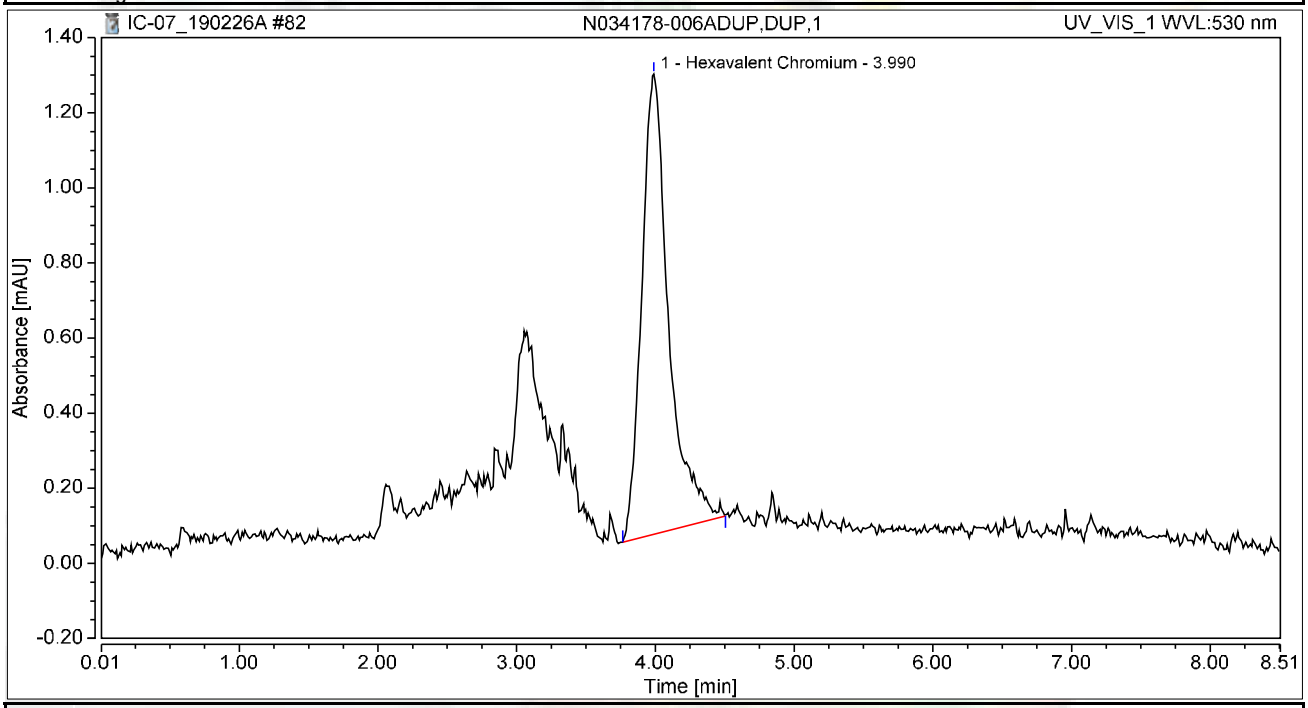
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.835 | 19.070 | 100.00 | 100.00 | 11.4385 |
| **Total:** | | | **2.835** | **19.070** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-006ADUP,DUP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **23** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 20:57** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.990 | 0.275 | 1.225 | 100.00 | 100.00 | 1.1115 |
| **Total:** | | | **0.275** | **1.225** | **100.00** | **100.00** | |

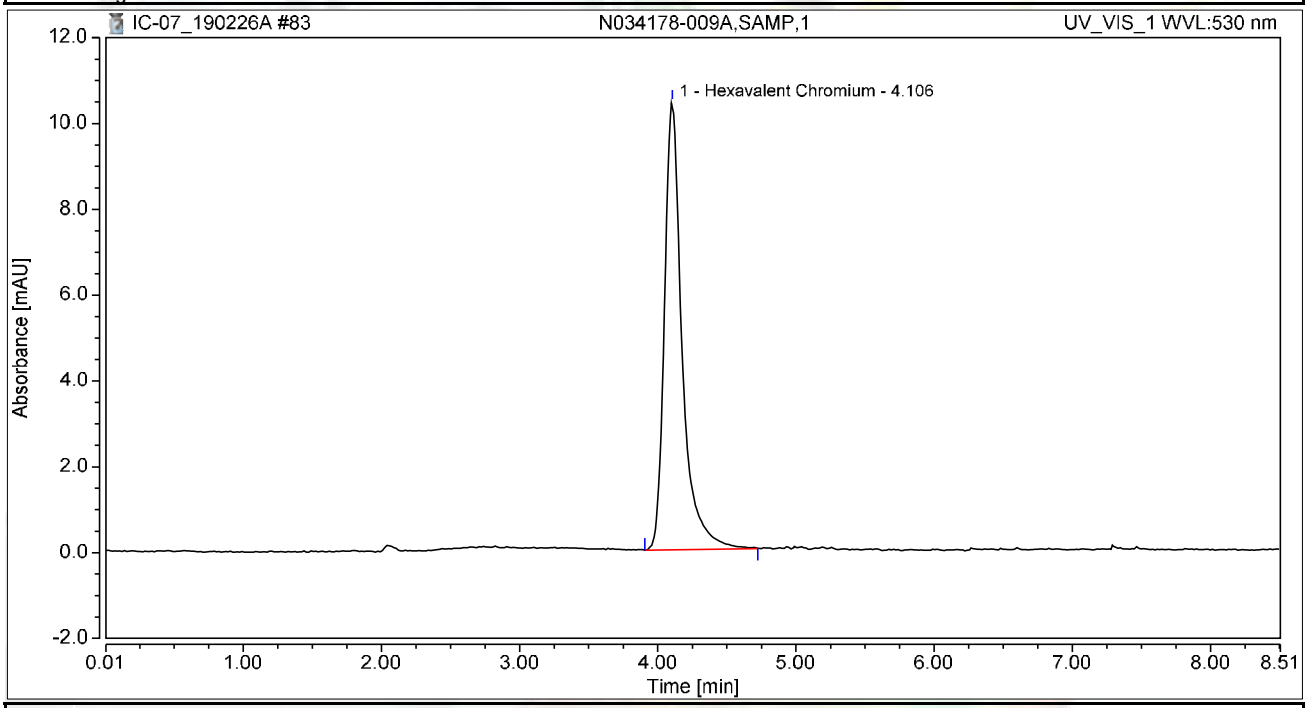
# Chromatogram and Results

## Injection Details

20

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-009A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **24** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 21:07** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

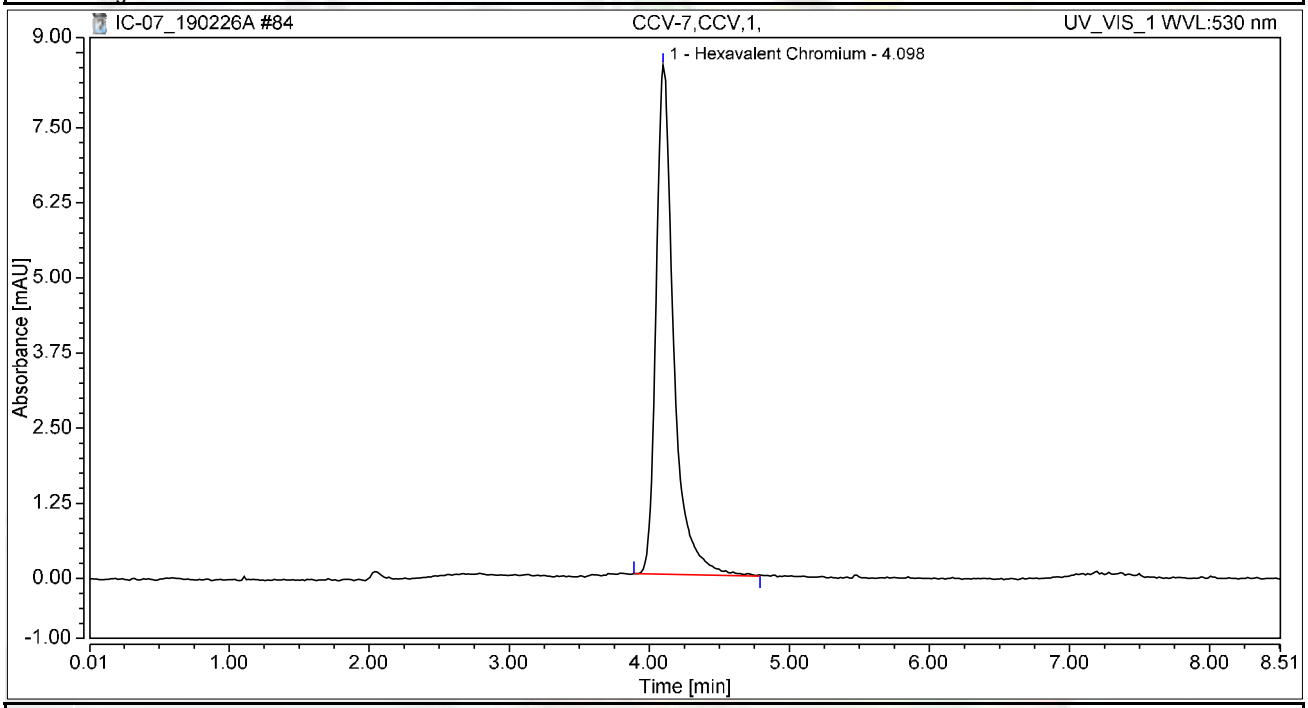
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.545 | 10.431 | 100.00 | 100.00 | 6.2356 |
| **Total:** | | | **1.545** | **10.431** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-7,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 21:16** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

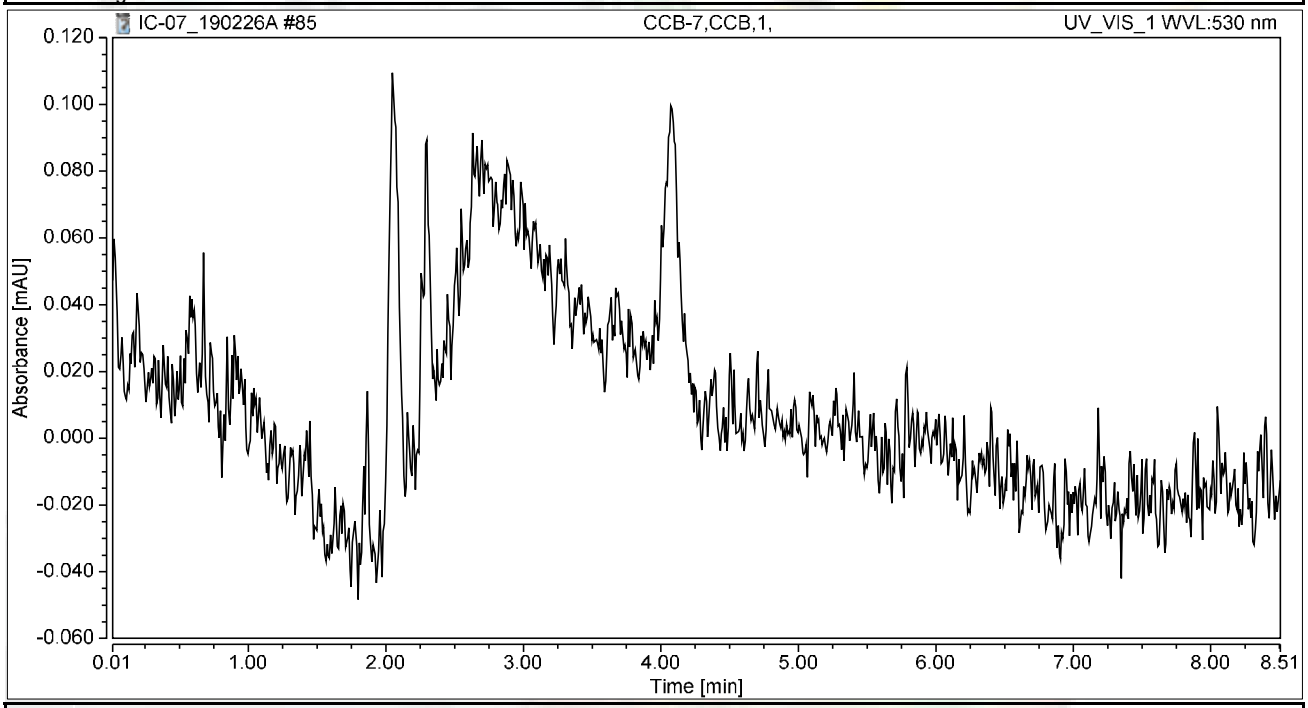
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.236 | 8.471 | 100.00 | 100.00 | 4.9885 |
| **Total:** | | | **1.236** | **8.471** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-7,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **26** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 21:26** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

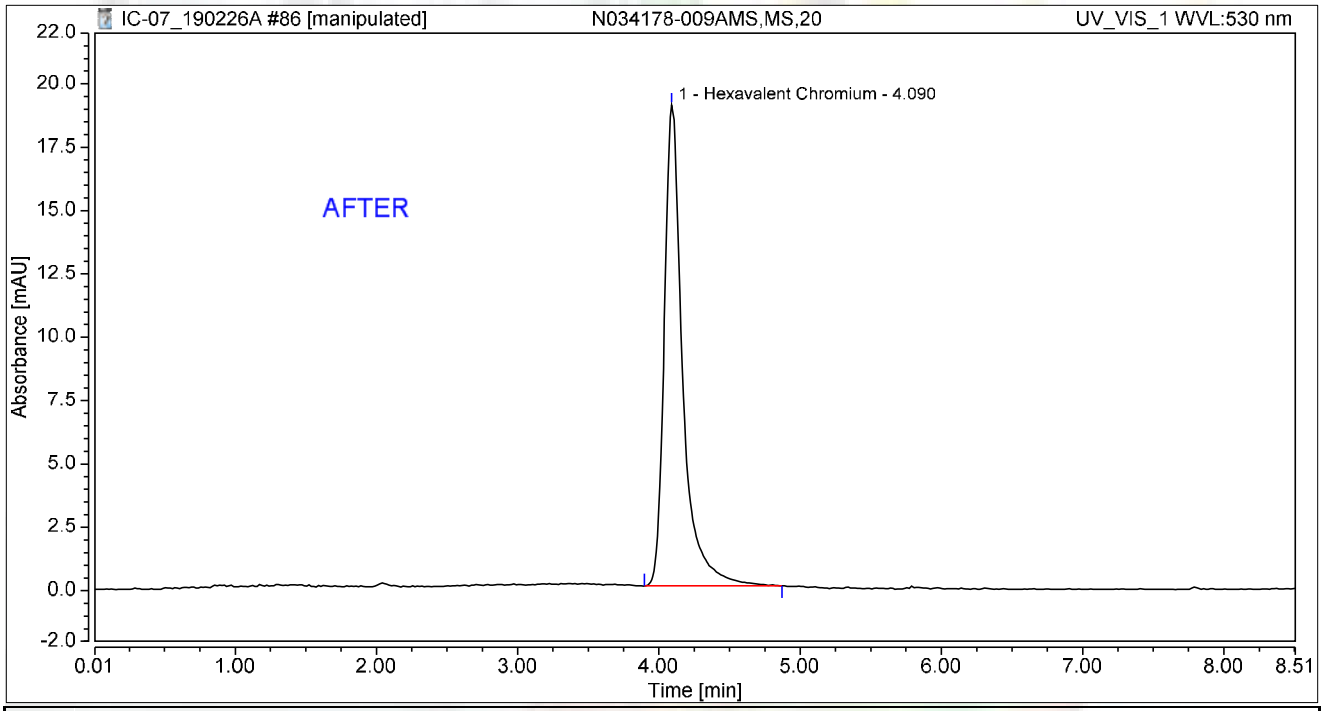
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-009AMS,MS,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 21:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 2.870 | 18.965 | 100.00 | 100.00 | 11.5832 |
| **Total:** | | | **2.870** | **18.965** | **100.00** | **100.00** | |

jba 3/5/2019

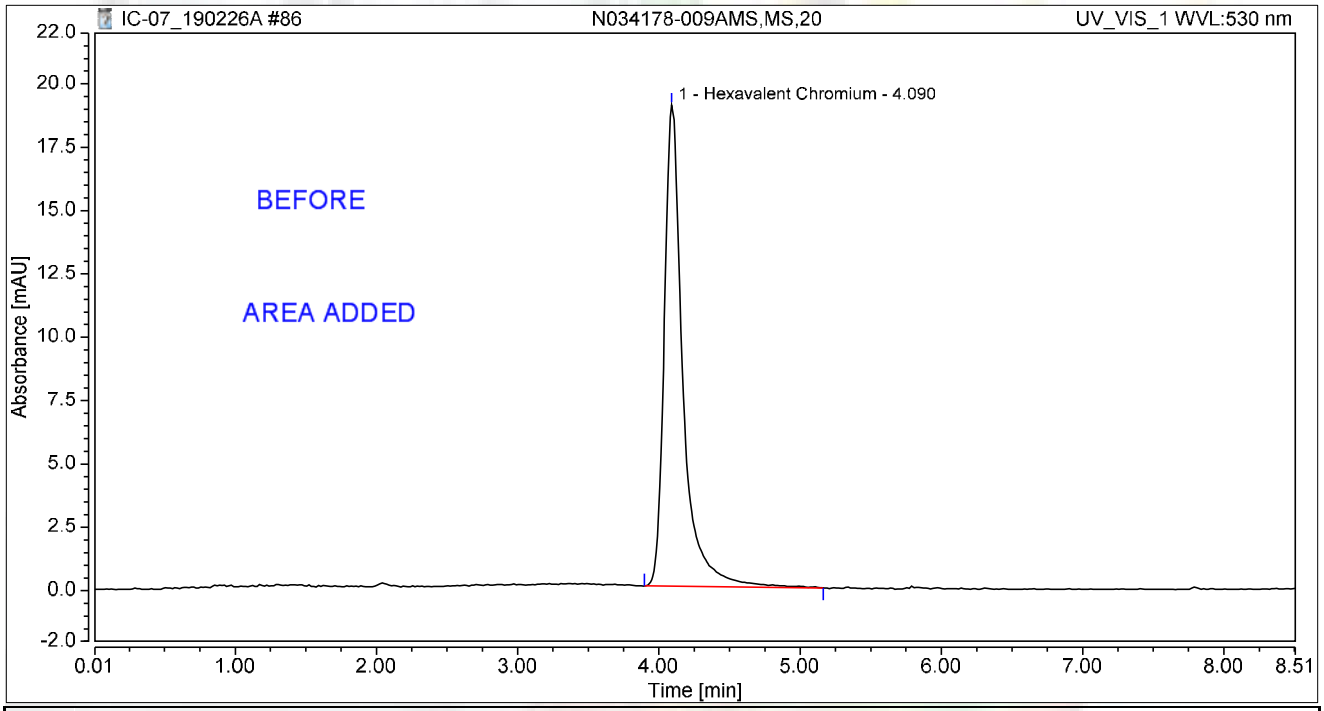
Reviewed by:
Nancy 3/5/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-009AMS,MS,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 21:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 2.915 | 18.978 | 100.00 | 100.00 | 11.7629 |
| **Total:** | | | **2.915** | **18.978** | **100.00** | **100.00** | |

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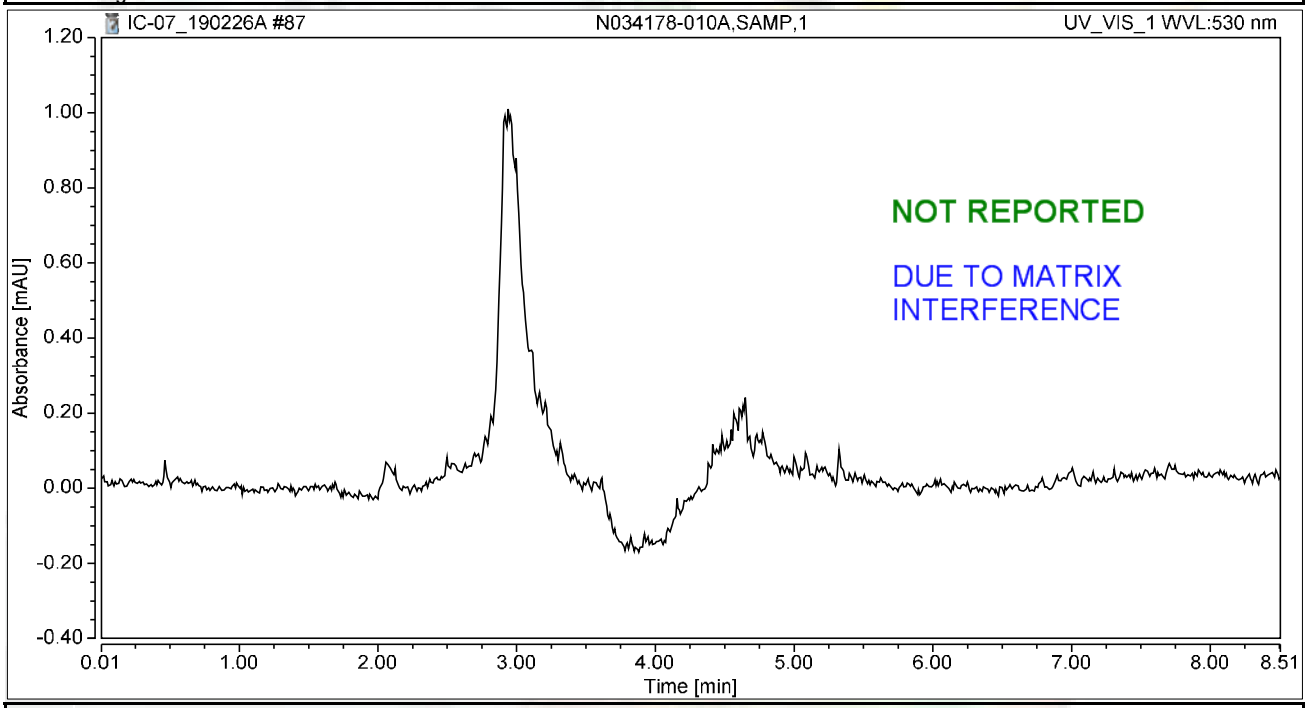
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-010A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **28** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 21:45** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

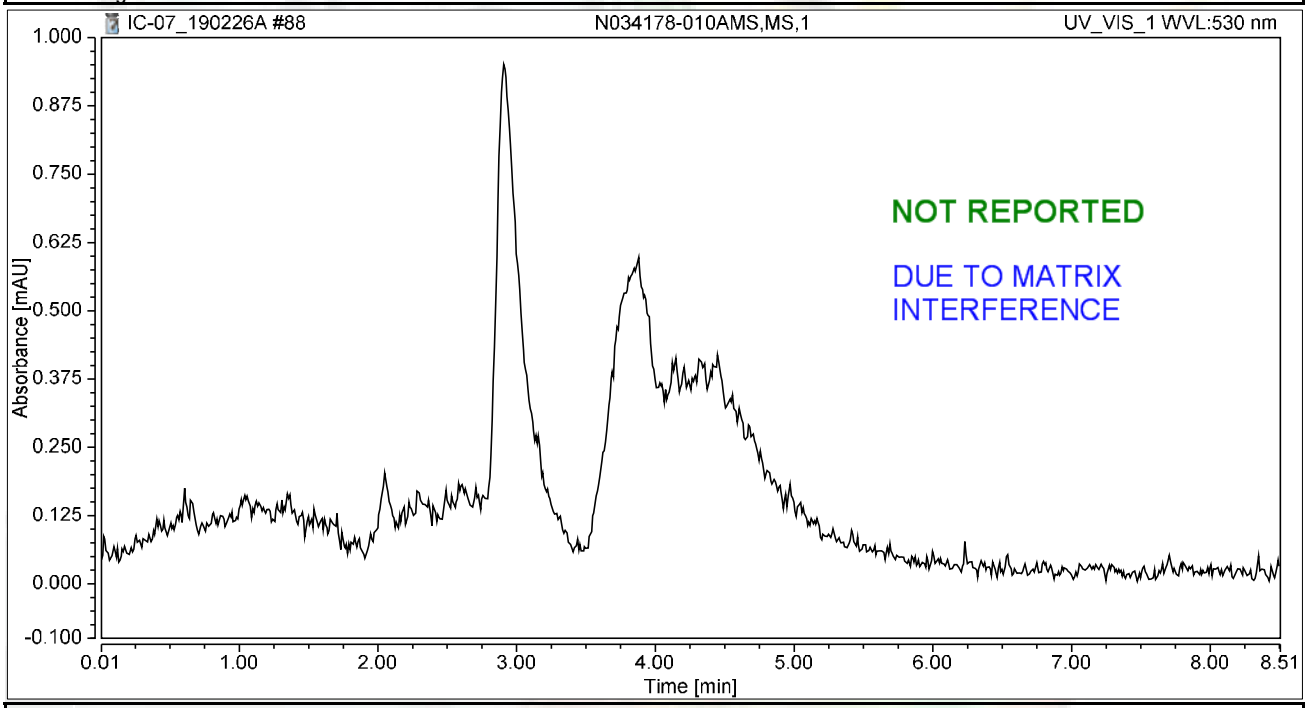
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-010AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **29** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 21:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

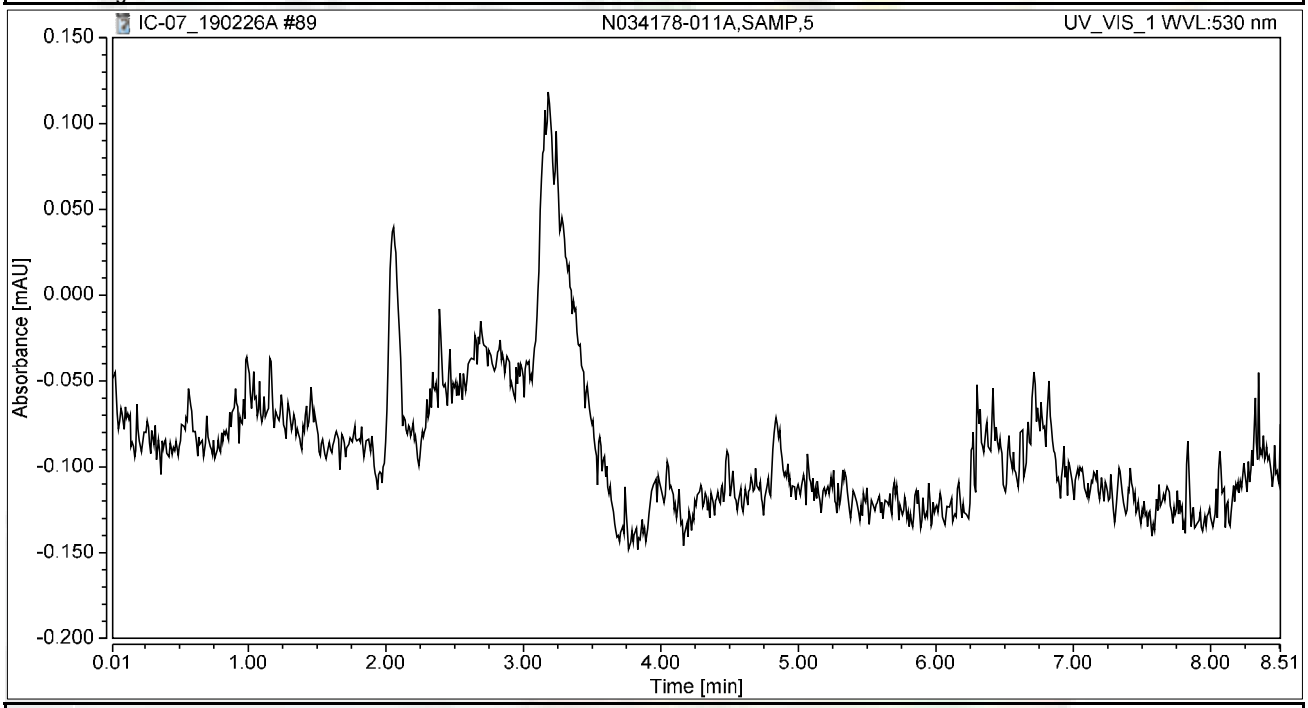
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-011A,SAMP,5** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **30** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 22:04** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

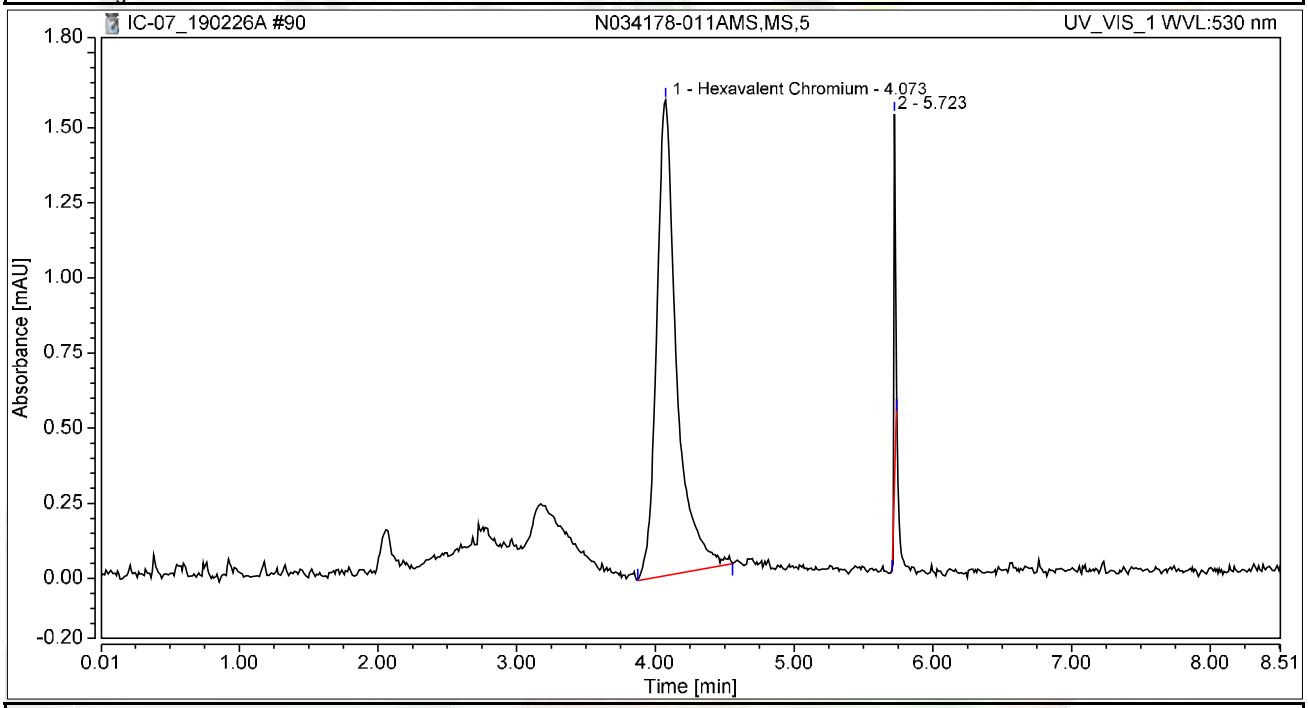
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-011AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **31** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 22:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

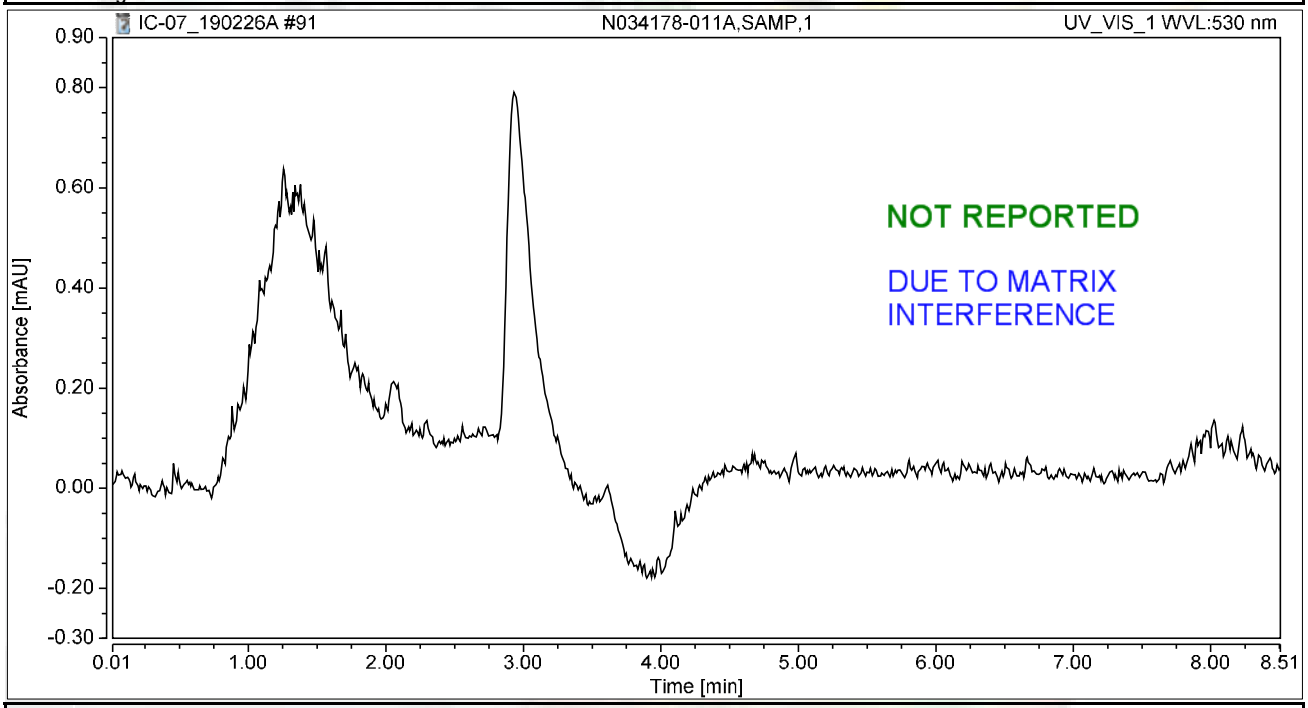
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 0.264 | 1.583 | 94.69 | 56.17 | 1.0652 |
| 2 | | 5.723 | 0.015 | 1.235 | 5.31 | 43.83 | n.a. |
| **Total:** | | | **0.279** | **2.819** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-011A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **32** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 22:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

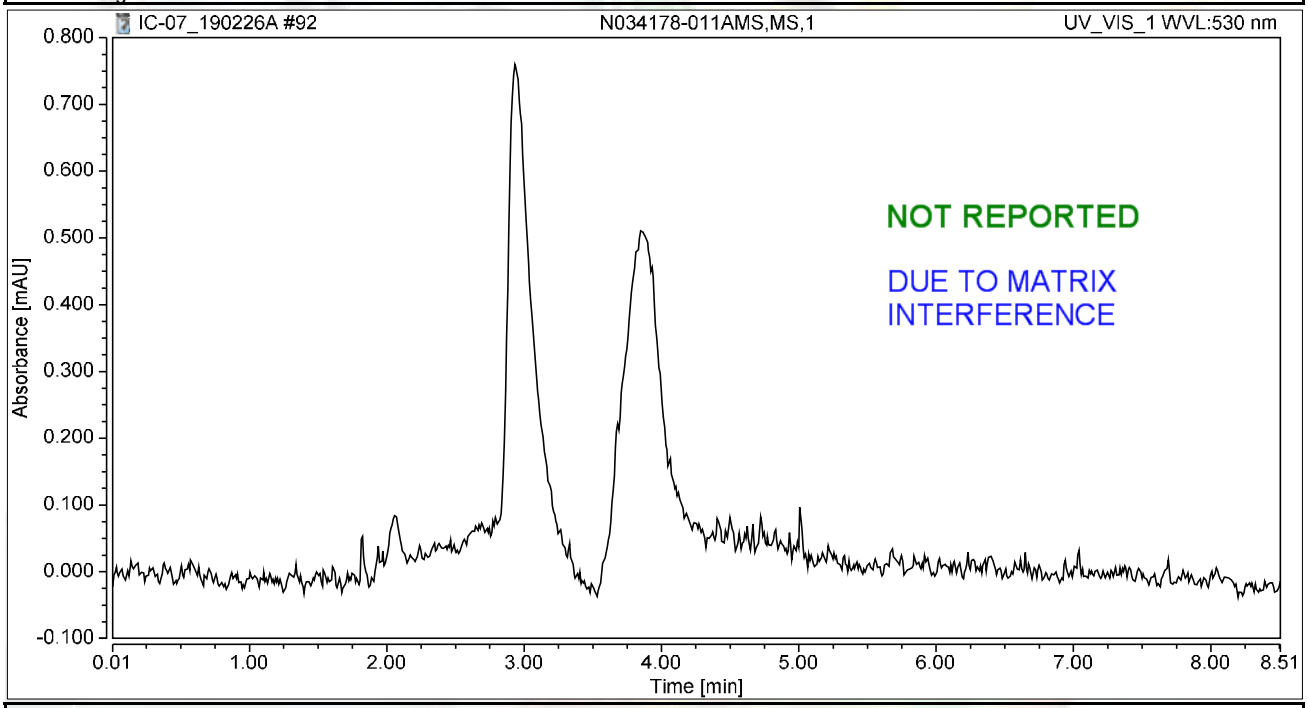
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-011AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **33** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 22:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

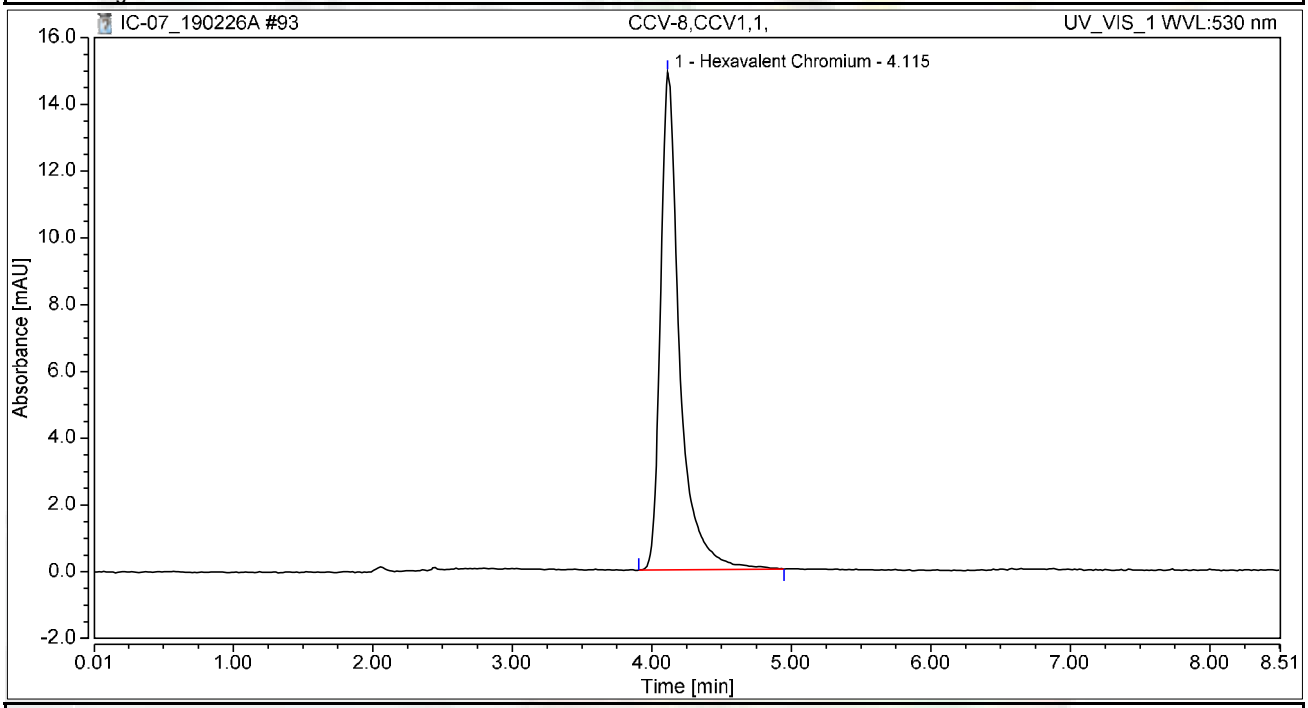
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-8,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **34** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 22:41** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

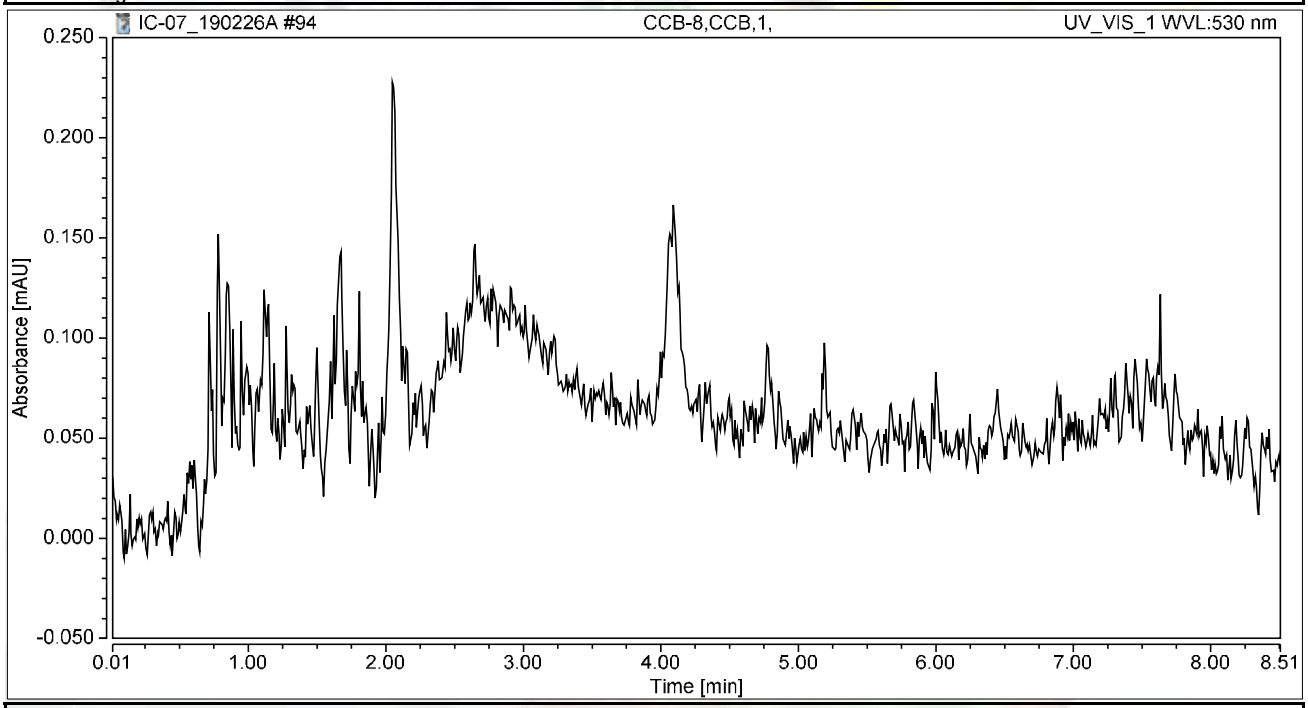
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.115 | 2.378 | 14.903 | 100.00 | 100.00 | 9.5944 |
| **Total:** | | | **2.378** | **14.903** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-8,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **35** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 22:51** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

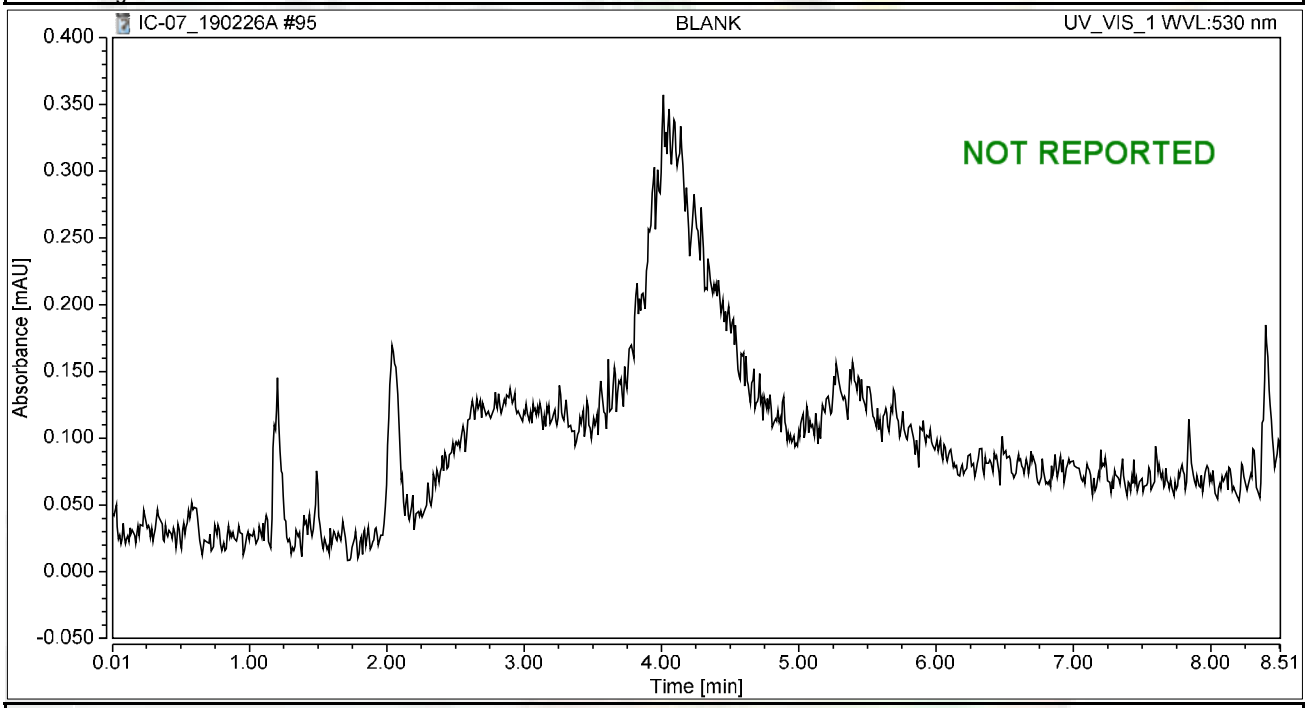
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **36** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **26/Feb/19 23:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# RAW DATA

**INJECTION LOG: 190227A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/27/19 8:32 AM | Not Reported |
| 10 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/27/19 8:50 AM | Not Reported |
| 11 | CCV-1 | CCV | 1 | Hexavalent Chromium | 02/27/19 9:01 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/27/19 9:10 AM | Reported |
| 13 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/27/19 9:20 AM | Reported |
| 14 | MB-R132155 | MBLK | 1 | Hexavalent Chromium | 02/27/19 9:30 AM | Reported |
| 15 | LCS-R132155 | LCS | 1 | Hexavalent Chromium | 02/27/19 9:41 AM | Reported |
| 16 | N034342-001A | SAMP | 1 | Hexavalent Chromium | 02/27/19 9:53 AM | Not Reported |
| 17 | N034344-001A | SAMP | 1 | Hexavalent Chromium | 02/27/19 10:05 AM | Not Reported |
| 18 | N034178-010A | SAMP | 5 | Hexavalent Chromium | 02/27/19 10:14 AM | Reported |
| 19 | N034178-010AMS | MS | 5 | Hexavalent Chromium | 02/27/19 10:24 AM | Reported |
| 20 | N034342-001AMS | MS | 1 | Hexavalent Chromium | 02/27/19 10:33 AM | Not Reported |
| 21 | N034344-001AMS | MS | 1 | Hexavalent Chromium | 02/27/19 10:43 AM | Not Reported |
| 22 | N034342-001A | SAMP | 5 | Hexavalent Chromium | 02/27/19 10:52 AM | Reported |
| 23 | N034342-001AMS | MS | 5 | Hexavalent Chromium | 02/27/19 11:02 AM | Reported |
| 24 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 02/27/19 11:11 AM | Reported |
| 25 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/27/19 11:20 AM | Reported |
| 26 | N034344-001A | SAMP | 5 | Hexavalent Chromium | 02/27/19 11:30 AM | Reported |
| 27 | N034344-001AMS | MS | 5 | Hexavalent Chromium | 02/27/19 11:39 AM | Reported |
| 28 | N034178-010AMSD | MSD | 5 | Hexavalent Chromium | 02/27/19 11:49 AM | Reported |
| 29 | N034342-001ADUP | DUP | 5 | Hexavalent Chromium | 02/27/19 11:58 AM | Reported |
| 30 | N034121-001A | SAMP | 1 | Hexavalent Chromium | 02/27/19 12:08 PM | Not Reported |
| 31 | N034121-001AMS | MS | 1 | Hexavalent Chromium | 02/27/19 12:17 PM | Not Reported |
| 32 | N034121-002A | SAMP | 1 | Hexavalent Chromium | 02/27/19 12:27 PM | Not Reported |
| 33 | N034121-002AMS | MS | 1 | Hexavalent Chromium | 02/27/19 12:36 PM | Not Reported |
| 34 | N034123-020A | SAMP | 1 | Hexavalent Chromium | 02/27/19 12:46 PM | Not Reported |
| 35 | N034123-020AMS | MS | 1 | Hexavalent Chromium | 02/27/19 12:55 PM | Not Reported |
| 36 | CCV-3 | CCV | 1 | Hexavalent Chromium | 02/27/19 1:04 PM | Reported |
| 37 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/27/19 1:14 PM | Reported |
| 38 | N034182-001A | SAMP | 5 | Hexavalent Chromium | 02/27/19 1:23 PM | Not Reported |
| 39 | N034182-002A | SAMP | 1 | Hexavalent Chromium | 02/27/19 1:33 PM | Not Reported |
| 40 | N034182-004A | SAMP | 10 | Hexavalent Chromium | 02/27/19 1:42 PM | Reported |
| 41 | N034182-005A | SAMP | 10 | Hexavalent Chromium | 02/27/19 1:52 PM | Reported |
| 42 | N034182-006A | SAMP | 5 | Hexavalent Chromium | 02/27/19 2:01 PM | Reported |

**INJECTION LOG: 190227A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034182-007A | SAMP | 1 | Hexavalent Chromium | 02/27/19 2:11 PM | Reported |
| 44 | N034182-008A | SAMP | 1 | Hexavalent Chromium | 02/27/19 2:20 PM | Reported |
| 45 | N034182-009A | SAMP | 50 | Hexavalent Chromium | 02/27/19 2:30 PM | Not Reported |
| 46 | N034182-010A | SAMP | 200 | Hexavalent Chromium | 02/27/19 2:39 PM | Reported |
| 47 | N034182-011A | SAMP | 5 | Hexavalent Chromium | 02/27/19 2:49 PM | Reported |
| 48 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 02/27/19 2:58 PM | Reported |
| 49 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/27/19 3:07 PM | Reported |
| 50 | N034182-012A | SAMP | 50 | Hexavalent Chromium | 02/27/19 3:17 PM | Not Reported |
| 51 | N034182-013A | SAMP | 20 | Hexavalent Chromium | 02/27/19 3:26 PM | Reported |
| 52 | N034182-001A | SAMP | 10 | Hexavalent Chromium | 02/27/19 3:36 PM | Reported |
| 53 | N034182-002A | SAMP | 50 | Hexavalent Chromium | 02/27/19 3:45 PM | Reported |
| 54 | N034182-009A | SAMP | 1 | Hexavalent Chromium | 02/27/19 3:55 PM | Reported |
| 55 | N034182-012A | SAMP | 1 | Hexavalent Chromium | 02/27/19 4:04 PM | Reported |
| 56 | MB-R132187 | MBLK | 1 | Hexavalent Chromium | 02/27/19 4:14 PM | Reported |
| 57 | LCS-R132187 | LCS | 1 | Hexavalent Chromium | 02/27/19 4:23 PM | Reported |
| 58 | N034183-001A | SAMP | 1 | Hexavalent Chromium | 02/27/19 4:33 PM | Reported |
| 59 | N034183-003A | SAMP | 1 | Hexavalent Chromium | 02/27/19 4:42 PM | Reported |
| 60 | CCV-5 | CCV | 1 | Hexavalent Chromium | 02/27/19 5:04 PM | Reported |
| 61 | CCB-5 | CCB | 1 | Hexavalent Chromium | 02/27/19 5:15 PM | Reported |
| 62 | N034183-004A | SAMP | 1 | Hexavalent Chromium | 02/27/19 5:24 PM | Reported |
| 63 | N034183-005A | SAMP | 50 | Hexavalent Chromium | 02/27/19 5:34 PM | Reported |
| 64 | N034183-006A | SAMP | 1 | Hexavalent Chromium | 02/27/19 5:43 PM | Reported |
| 65 | N034183-007A | SAMP | 1 | Hexavalent Chromium | 02/27/19 5:53 PM | Reported |
| 66 | N034183-009A | SAMP | 1 | Hexavalent Chromium | 02/27/19 6:02 PM | Reported |
| 67 | N034183-010A | SAMP | 1 | Hexavalent Chromium | 02/27/19 6:12 PM | Reported |
| 68 | N034183-003AMS | MS | 1 | Hexavalent Chromium | 02/27/19 6:21 PM | Reported |
| 69 | N034183-003AMSD | MSD | 1 | Hexavalent Chromium | 02/27/19 6:31 PM | Reported |
| 70 | N034183-004ADUP | DUP | 1 | Hexavalent Chromium | 02/27/19 6:40 PM | Reported |
| 71 | N034183-005AMS | MS | 50 | Hexavalent Chromium | 02/27/19 6:49 PM | Reported |
| 72 | CCV-6 | CCV1 | 1 | Hexavalent Chromium | 02/27/19 6:59 PM | Reported |
| 73 | CCB-6 | CCB | 1 | Hexavalent Chromium | 02/27/19 7:08 PM | Reported |
| 74 | N034183-011A | SAMP | 50 | Hexavalent Chromium | 02/27/19 7:18 PM | Reported |
| 75 | N034183-012A | SAMP | 5 | Hexavalent Chromium | 02/27/19 7:27 PM | Not Reported |
| 76 | N034183-013A | SAMP | 1 | Hexavalent Chromium | 02/27/19 7:37 PM | Reported |
| 77 | N034183-014A | SAMP | 1 | Hexavalent Chromium | 02/27/19 7:46 PM | Reported |
| 78 | N034183-015A | SAMP | 1 | Hexavalent Chromium | 02/27/19 7:56 PM | Reported |
| 79 | N034183-016A | SAMP | 1 | Hexavalent Chromium | 02/27/19 8:05 PM | Reported |
| 80 | N034183-017A | SAMP | 1 | Hexavalent Chromium | 02/27/19 8:15 PM | Reported |
| 81 | N034183-018A | SAMP | 1 | Hexavalent Chromium | 02/27/19 8:24 PM | Reported |
| 82 | N034183-019A | SAMP | 1 | Hexavalent Chromium | 02/27/19 8:33 PM | Reported |
| 83 | N034183-020A | SAMP | 10 | Hexavalent Chromium | 02/27/19 8:43 PM | Not Reported |
| 84 | CCV-7 | CCV | 1 | Hexavalent Chromium | 02/27/19 8:52 PM | Reported |

**INJECTION LOG: 190227A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 85 | CCB-7 | CCB | 1 | Hexavalent Chromium | 02/27/19 9:02 PM | Reported |
| 86 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/27/19 9:11 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190227A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **28/Feb/19 08:57:53** |
| *No. of Injections:* | **89** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 1 | 1000 | Unknown | | 02/27/2019 08:32 | Finished | BLANK |
| 10 | BLANK | 1 | 1000 | Unknown | | 02/27/2019 08:50 | Finished | BLANK |
| 11 | CCV-1,CCV,1, | 2 | 1000 | Unknown | | 02/27/2019 09:01 | Finished | CCV @5ppb, IWST-190221B |
| 12 | PQL@0.2ppb,CCV2,1 | 3 | 1000 | Unknown | | 02/27/2019 09:10 | Finished | PQL @ 0.2ppb |
| 13 | CCB-1,CCB,1, | 4 | 1000 | Unknown | | 02/27/2019 09:20 | Finished | CCB R190115A |
| 14 | MB-H2O,MBLK,1, | 5 | 1000 | Unknown | | 02/27/2019 09:30 | Finished | MB R190115A |
| 15 | LCS-H2O,LCS,1, | 6 | 1000 | Unknown | | 02/27/2019 09:41 | Finished | LCS @5ppb, IWST-190221B |
| 16 | N034342-001A,SAMF | 7 | 1000 | Unknown | | 02/27/2019 09:53 | Finished | SAMP,10mL |
| 17 | N034344-001A,SAMF | 8 | 1000 | Unknown | | 02/27/2019 10:05 | Finished | SAMP,10mL |
| 18 | N034178-010A,SAMF | 9 | 1000 | Unknown | | 02/27/2019 10:14 | Finished | SAMP,2>10mL |
| 19 | N034178-010AMS,MS | 10 | 1000 | Unknown | | 02/27/2019 10:24 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 20 | N034342-001AMS,MS | 11 | 1000 | Unknown | | 02/27/2019 10:33 | Finished | MS (1ppb), IWST-190221B,10 |
| 21 | N034344-001AMS,MS | 12 | 1000 | Unknown | | 02/27/2019 10:43 | Finished | MS (1ppb), IWST-190221B,10 |
| 22 | N034342-001A,SAMF | 13 | 1000 | Unknown | | 02/27/2019 10:52 | Finished | SAMP,2>10mL |
| 23 | N034342-001AMS,MS | 14 | 1000 | Unknown | | 02/27/2019 11:02 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 24 | CCV-2,CCV1,1, | 15 | 1000 | Unknown | | 02/27/2019 11:11 | Finished | CCV @10ppb, IWST-190221A |
| 25 | CCB-2,CCB,1, | 16 | 1000 | Unknown | | 02/27/2019 11:20 | Finished | CCB R190115A |
| 26 | N034344-001A,SAMF | 17 | 1000 | Unknown | | 02/27/2019 11:30 | Finished | SAMP,2>10mL |
| 27 | N034344-001AMS,MS | 18 | 1000 | Unknown | | 02/27/2019 11:39 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 28 | N034178-010AMSD,M | 19 | 1000 | Unknown | | 02/27/2019 11:49 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 29 | N034342-001ADUP,D | 20 | 1000 | Unknown | | 02/27/2019 11:58 | Finished | DUP,2>10mL |
| 30 | N034121-001A,SAMF | 21 | 1000 | Unknown | | 02/27/2019 12:08 | Finished | SAMP,10mL |
| 31 | N034121-001AMS,MS | 22 | 1000 | Unknown | | 02/27/2019 12:17 | Finished | MS (1ppb), IWST-190221B,10 |
| 32 | N034121-002A,SAMF | 23 | 1000 | Unknown | | 02/27/2019 12:27 | Finished | SAMP,10mL |
| 33 | N034121-002AMS,MS | 24 | 1000 | Unknown | | 02/27/2019 12:36 | Finished | MS (1ppb), IWST-190221B,10 |
| 34 | N034123-020A,SAMF | 25 | 1000 | Unknown | | 02/27/2019 12:46 | Finished | SAMP,2>10mL |
| 35 | N034123-020AMS,MS | 26 | 1000 | Unknown | | 02/27/2019 12:55 | Finished | MS (5ppb), IWST-190221B,2>1 |
| 36 | CCV-3,CCV,1, | 27 | 1000 | Unknown | | 02/27/2019 13:04 | Finished | CCV @5ppb, IWST-190221A |
| 37 | CCB-3,CCB,1, | 28 | 1000 | Unknown | | 02/27/2019 13:14 | Finished | CCB R190115A |
| 38 | N034182-001A,SAMF | 29 | 1000 | Unknown | | 02/27/2019 13:23 | Finished | SAMP,2>10mL |
| 39 | N034182-002A,SAMF | 30 | 1000 | Unknown | | 02/27/2019 13:33 | Finished | SAMP,10mL |
| 40 | N034182-004A,SAMF | 31 | 1000 | Unknown | | 02/27/2019 13:42 | Finished | SAMP,1>10mL |
| 41 | N034182-005A,SAMF | 32 | 1000 | Unknown | | 02/27/2019 13:52 | Finished | SAMP,1>10mL |
| 42 | N034182-006A,SAMF | 33 | 1000 | Unknown | | 02/27/2019 14:01 | Finished | SAMP,2>10mL |
| 43 | N034182-007A,SAMF | 34 | 1000 | Unknown | | 02/27/2019 14:11 | Finished | SAMP,10mL |
| 44 | N034182-008A,SAMF | 35 | 1000 | Unknown | | 02/27/2019 14:20 | Finished | SAMP,10mL |
| 45 | N034182-009A,SAMF | 36 | 1000 | Unknown | | 02/27/2019 14:30 | Finished | SAMP,0.2>10mL |
| 46 | N034182-010A,SAMF | 37 | 1000 | Unknown | | 02/27/2019 14:39 | Finished | SAMP,0.05>10mL |
| 47 | N034182-011A,SAMF | 38 | 1000 | Unknown | | 02/27/2019 14:49 | Finished | SAMP,2>10mL |
| 48 | CCV-4,CCV1,1, | 39 | 1000 | Unknown | | 02/27/2019 14:58 | Finished | CCV @10ppb, IWST-190221A |
| 49 | CCB-4,CCB,1, | 40 | 1000 | Unknown | | 02/27/2019 15:07 | Finished | CCB R190115A |
| 50 | N034182-012A,SAMF | 41 | 1000 | Unknown | | 02/27/2019 15:17 | Finished | SAMP,0.2>10mL |
| 51 | N034182-013A,SAMF | 42 | 1000 | Unknown | | 02/27/2019 15:26 | Finished | SAMP,0.5>10mL |
| 52 | N034182-001A,SAMF | 43 | 1000 | Unknown | | 02/27/2019 15:36 | Finished | SAMP,1>10mL |
| 53 | N034182-002A,SAMF | 44 | 1000 | Unknown | | 02/27/2019 15:45 | Finished | SAMP,0.2>10mL |
| 54 | N034182-009A,SAMF | 45 | 1000 | Unknown | | 02/27/2019 15:55 | Finished | SAMP,10mL |
| 55 | N034182-012A,SAMF | 46 | 1000 | Unknown | | 02/27/2019 16:04 | Finished | SAMP,10mL |
| 56 | MB-H2O,MBLK,1, | 47 | 1000 | Unknown | | 02/27/2019 16:14 | Finished | MB R190115A |
| 57 | LCS-H2O,LCS,1, | 48 | 1000 | Unknown | | 02/27/2019 16:23 | Finished | LCS @5ppb, IWST-190221B |
| 58 | N034183-001A,SAMF | 49 | 1000 | Unknown | | 02/27/2019 16:33 | Finished | SAMP,10mL |
| 59 | N034183-003A,SAMF | 50 | 1000 | Unknown | | 02/27/2019 16:42 | Finished | SAMP,10mL |
| 60 | CCV-5,CCV,1, | 1 | 1000 | Unknown | | 02/27/2019 17:04 | Finished | CCV @5ppb, IWST-190221A |

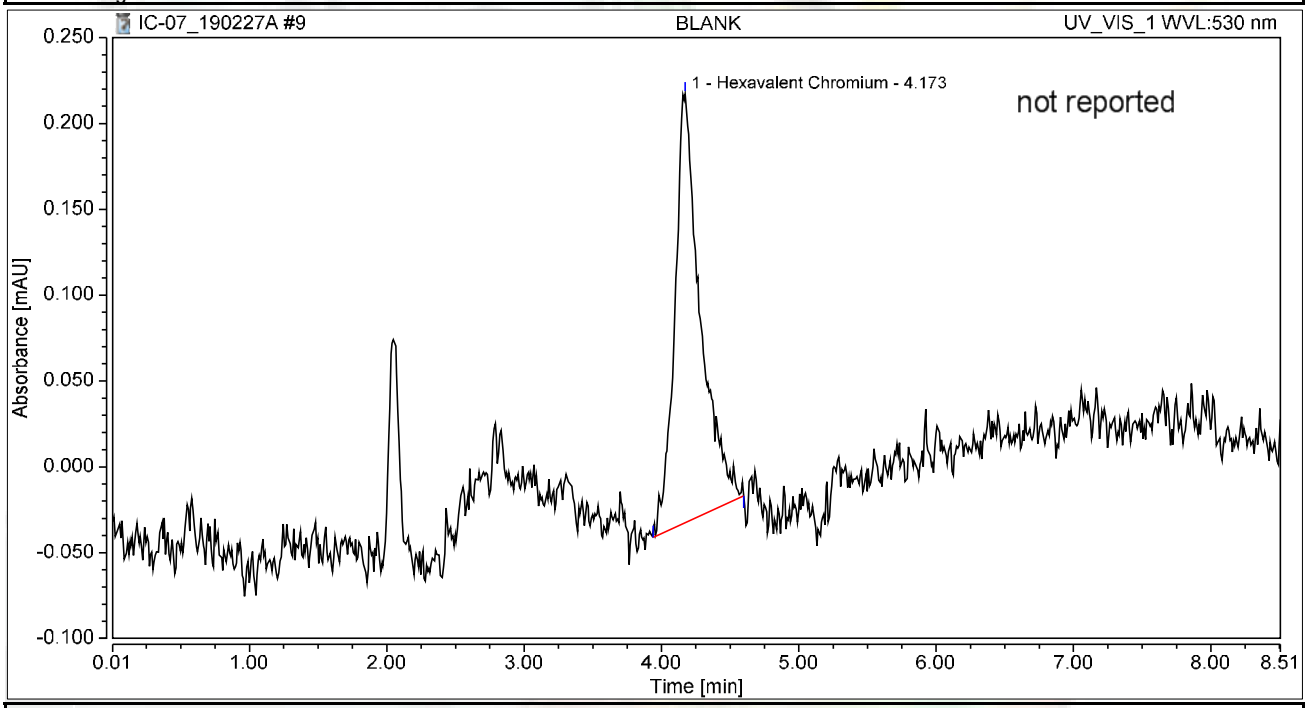
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | CCB-5,CCB,1, | 2 | 1000 | Unknown | | 02/27/2019 17:15 | Finished | CCB R190115A |
| 62 | N034183-004A,SAMF | 3 | 1000 | Unknown | | 02/27/2019 17:24 | Finished | SAMP,10mL |
| 63 | N034183-005A,SAMF | 4 | 1000 | Unknown | | 02/27/2019 17:34 | Finished | SAMP,0.2>10mL |
| 64 | N034183-006A,SAMF | 5 | 1000 | Unknown | | 02/27/2019 17:43 | Finished | SAMP,10mL |
| 65 | N034183-007A,SAMF | 6 | 1000 | Unknown | | 02/27/2019 17:53 | Finished | SAMP,10mL |
| 66 | N034183-009A,SAMF | 7 | 1000 | Unknown | | 02/27/2019 18:02 | Finished | SAMP,10mL |
| 67 | N034183-010A,SAMF | 8 | 1000 | Unknown | | 02/27/2019 18:12 | Finished | SAMP,10mL |
| 68 | N034183-003AMS,MS | 9 | 1000 | Unknown | | 02/27/2019 18:21 | Finished | MS (1ppb), IWST-190221B,10 |
| 69 | N034183-003AMSD,M | 10 | 1000 | Unknown | | 02/27/2019 18:31 | Finished | MSD (1ppb), IWST-190221B,1( |
| 70 | N034183-004ADUP,D | 11 | 1000 | Unknown | | 02/27/2019 18:40 | Finished | DUP,10mL |
| 71 | N034183-005AMS,MS | 12 | 1000 | Unknown | | 02/27/2019 18:49 | Finished | MS (5ppb), IWST-190221B,0.2 |
| 72 | CCV-6,CCV1,1, | 13 | 1000 | Unknown | | 02/27/2019 18:59 | Finished | CCV @10ppb, IWST-190221A |
| 73 | CCB-6,CCB,1, | 14 | 1000 | Unknown | | 02/27/2019 19:08 | Finished | CCB R190115A |
| 74 | N034183-011A,SAMF | 15 | 1000 | Unknown | | 02/27/2019 19:18 | Finished | SAMP,0.2>10mL |
| 75 | N034183-012A,SAMF | 16 | 1000 | Unknown | | 02/27/2019 19:27 | Finished | SAMP,2>10mL |
| 76 | N034183-013A,SAMF | 17 | 1000 | Unknown | | 02/27/2019 19:37 | Finished | SAMP,10mL |
| 77 | N034183-014A,SAMF | 18 | 1000 | Unknown | | 02/27/2019 19:46 | Finished | SAMP,10mL |
| 78 | N034183-015A,SAMF | 19 | 1000 | Unknown | | 02/27/2019 19:56 | Finished | SAMP,10mL |
| 79 | N034183-016A,SAMF | 20 | 1000 | Unknown | | 02/27/2019 20:05 | Finished | SAMP,10mL |
| 80 | N034183-017A,SAMF | 21 | 1000 | Unknown | | 02/27/2019 20:15 | Finished | SAMP,10mL |
| 81 | N034183-018A,SAMF | 22 | 1000 | Unknown | | 02/27/2019 20:24 | Finished | SAMP,10mL |
| 82 | N034183-019A,SAMF | 23 | 1000 | Unknown | | 02/27/2019 20:33 | Finished | SAMP,10mL |
| 83 | N034183-020A,SAMF | 24 | 1000 | Unknown | | 02/27/2019 20:43 | Finished | SAMP,1>10mL |
| 84 | CCV-7,CCV,1, | 25 | 1000 | Unknown | | 02/27/2019 20:52 | Finished | CCV @5ppb, IWST-190221A |
| 85 | CCB-7,CCB,1, | 26 | 1000 | Unknown | | 02/27/2019 21:02 | Finished | CCB R190115A |
| 86 | BLANK | 27 | 1000 | Unknown | | 02/27/2019 21:11 | Finished | BLANK |
| 87 | SHUTDOWN | 28 | 1000 | Unknown | | 02/27/2019 21:21 | Finished | |
| 88 | Eluent: R190226B | 29 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 89 | PCR: R190226A | 30 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 08:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

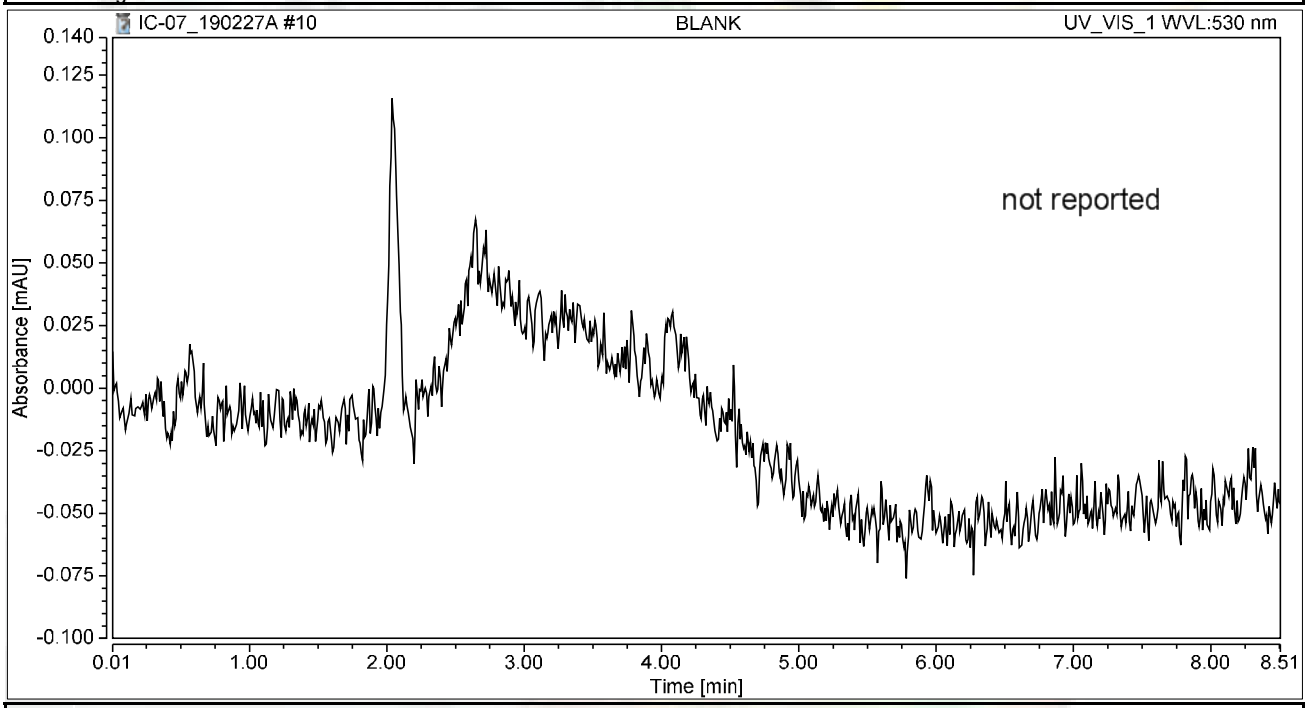
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.173 | 0.054 | 0.250 | 100.00 | 100.00 | 0.2193 |
| **Total:** | | | **0.054** | **0.250** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 08:50** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

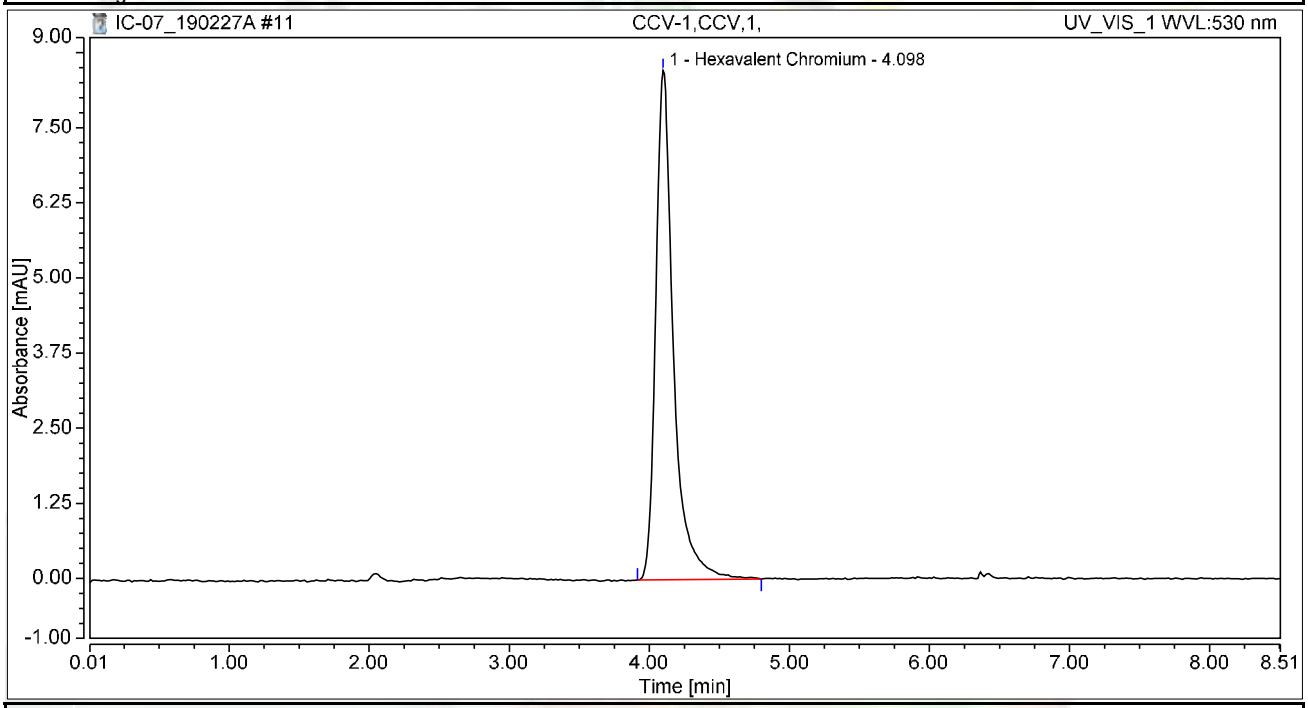
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-1,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 09:01** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

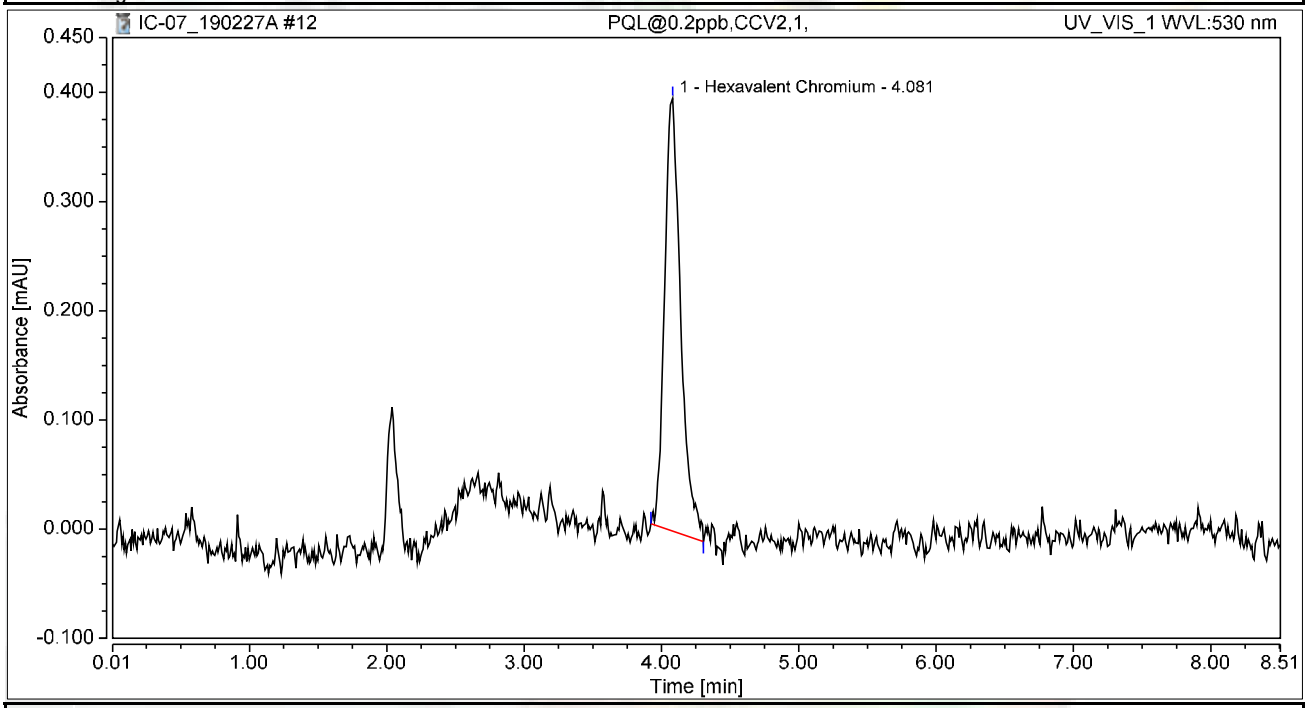
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.243 | 8.478 | 100.00 | 100.00 | 5.0152 |
| **Total:** | | | **1.243** | **8.478** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 09:10** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

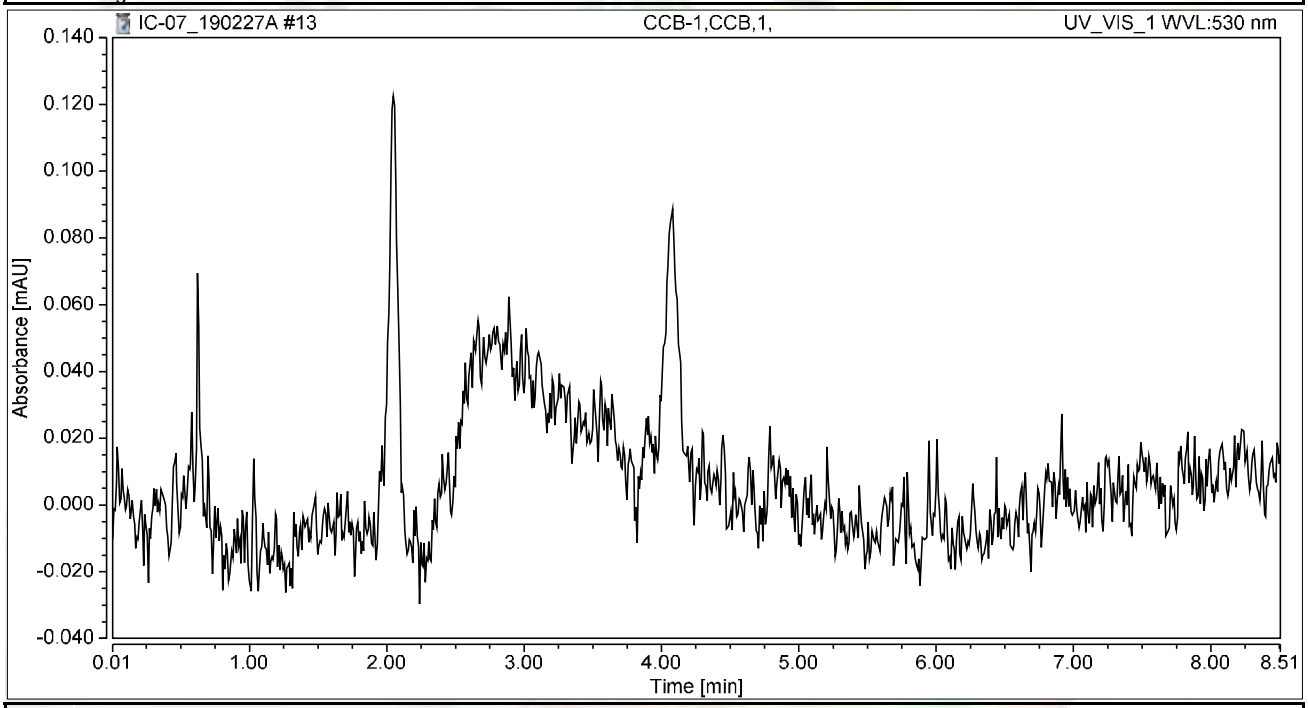
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.054 | 0.396 | 100.00 | 100.00 | 0.2173 |
| **Total:** | | | **0.054** | **0.396** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-1,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 09:20** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

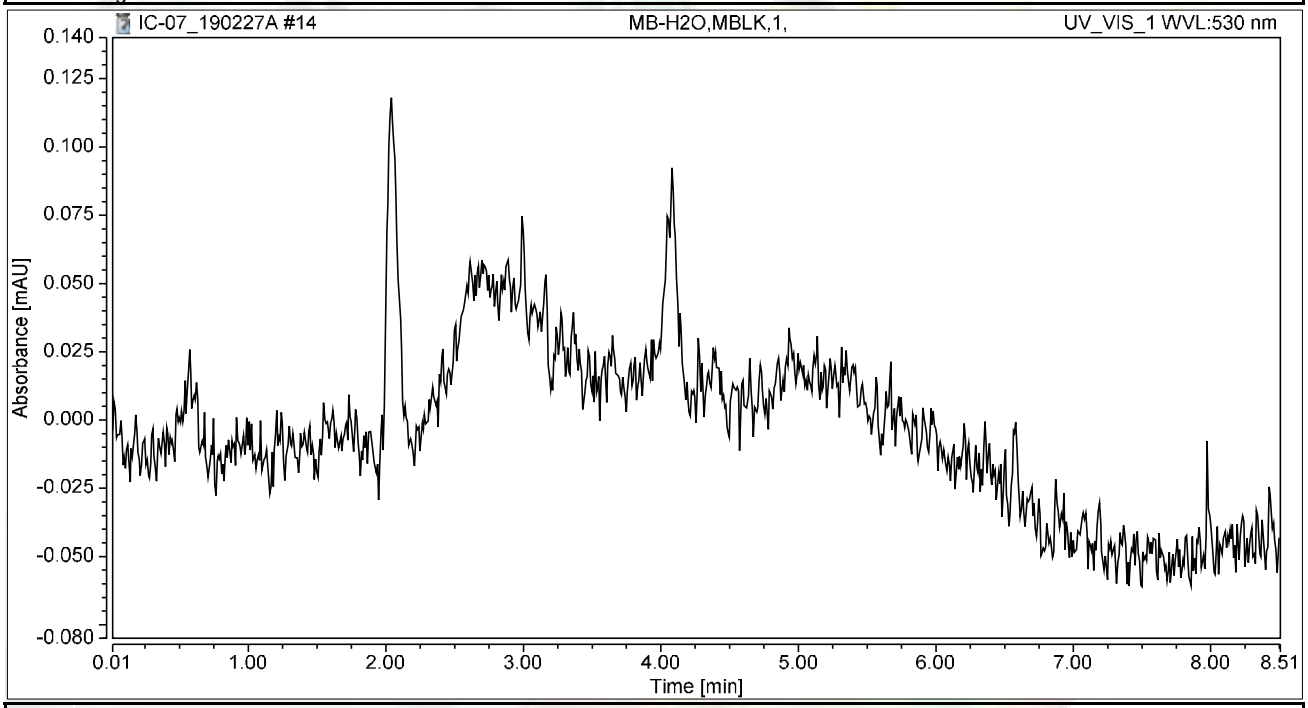
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **MB-H2O,MBLK,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 09:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

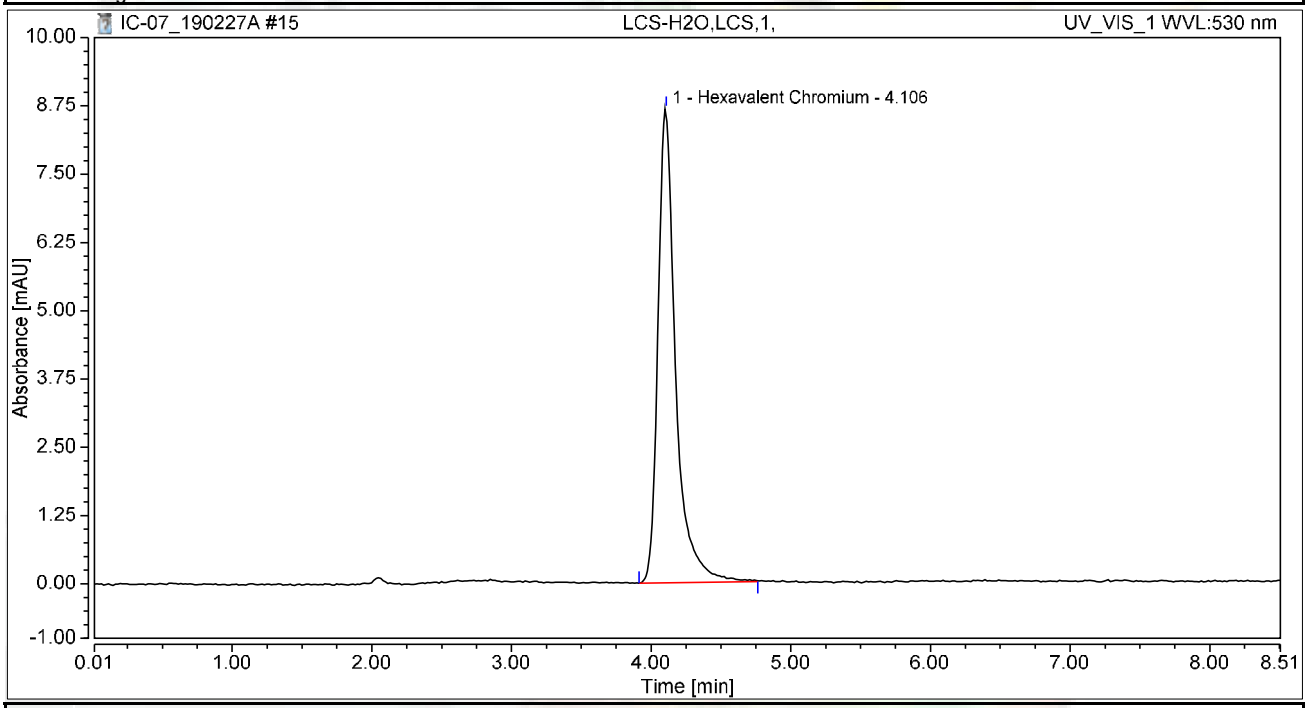
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **LCS-H2O,LCS,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 09:41** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

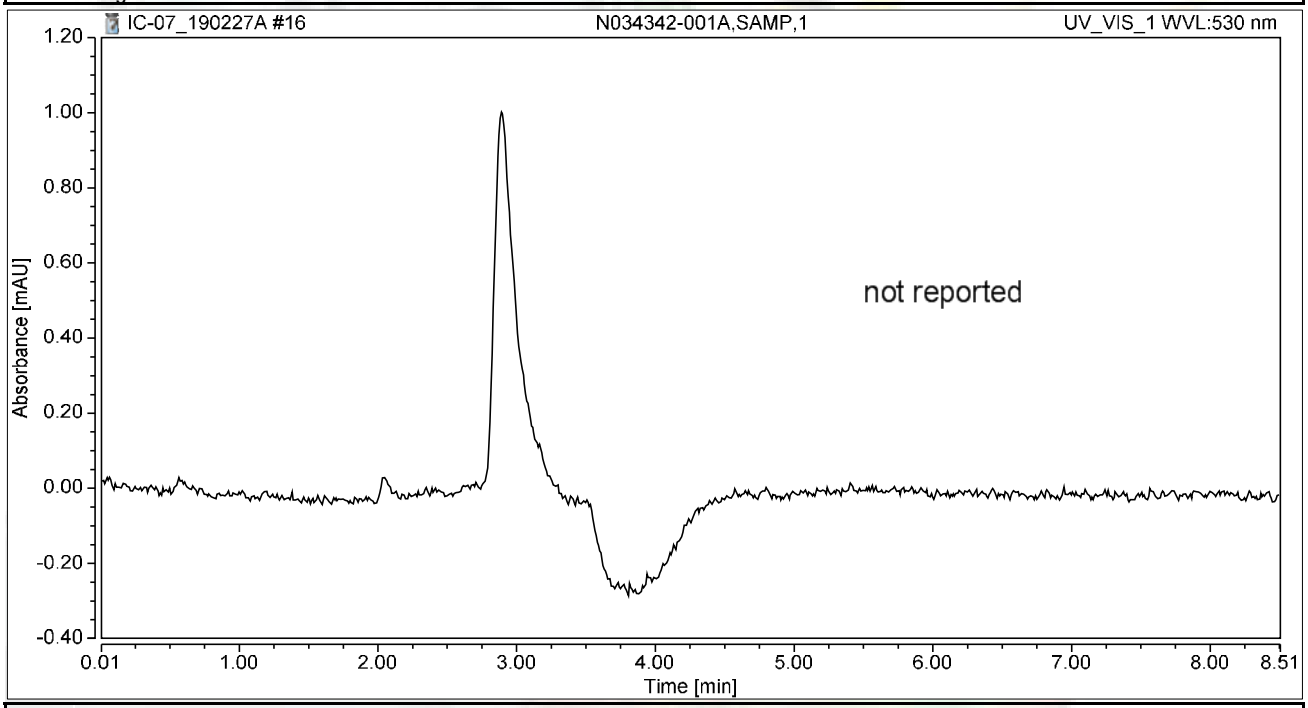
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.275 | 8.683 | 100.00 | 100.00 | 5.1465 |
| **Total:** | | | **1.275** | **8.683** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034342-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 09:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

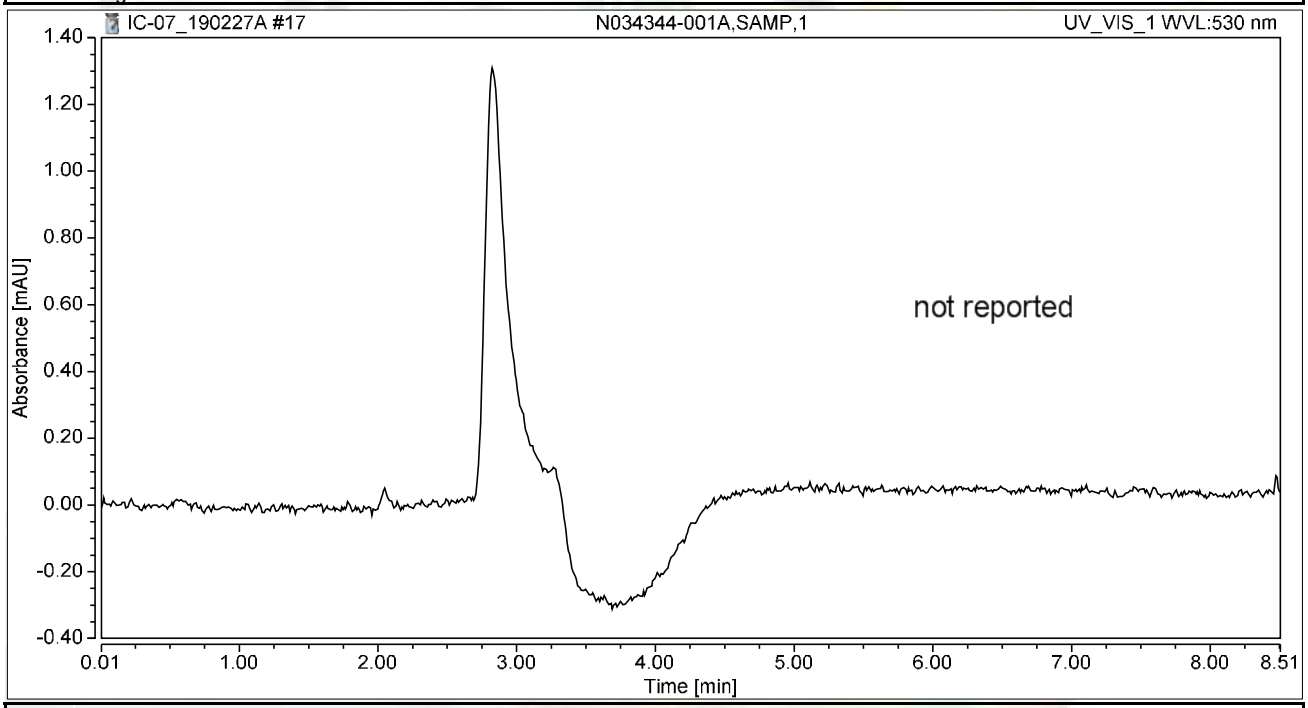
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034344-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 10:05** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

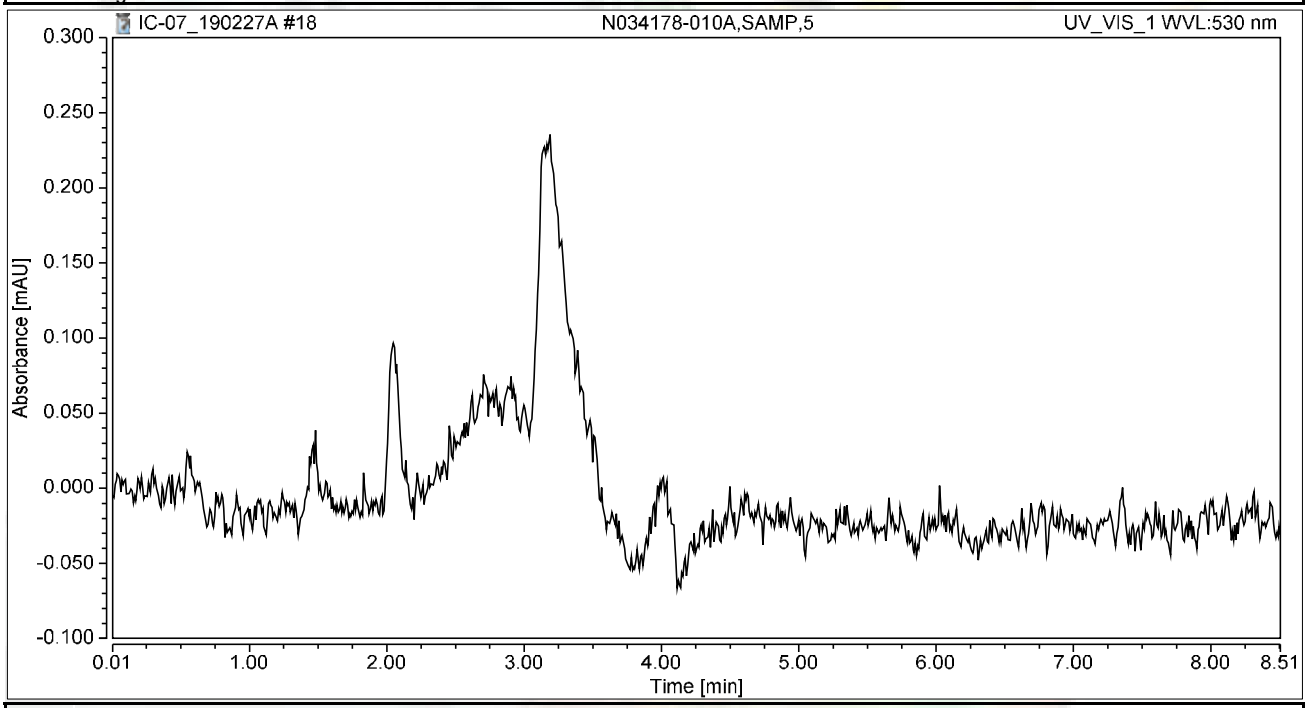
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-010A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 10:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

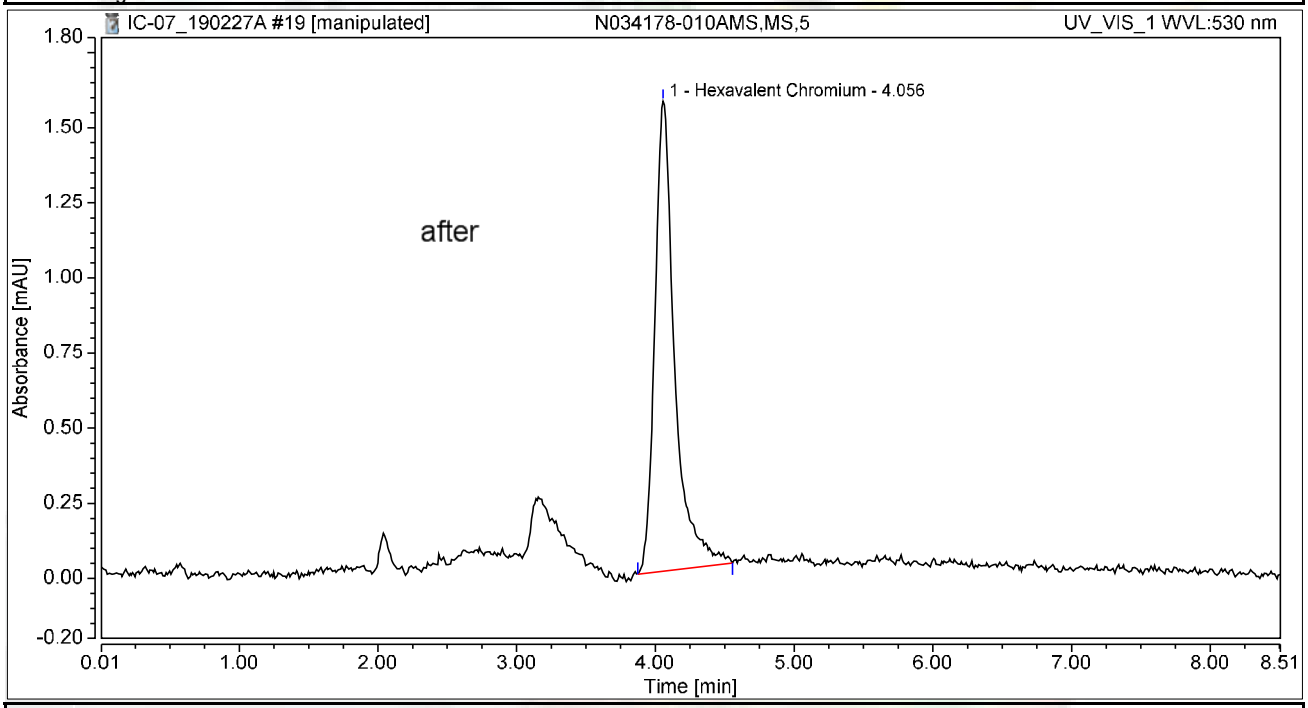
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-010AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 10:24** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.056 | 0.260 | 1.565 | 100.00 | 100.00 | 1.0483 |
| **Total:** | | | **0.260** | **1.565** | **100.00** | **100.00** | |

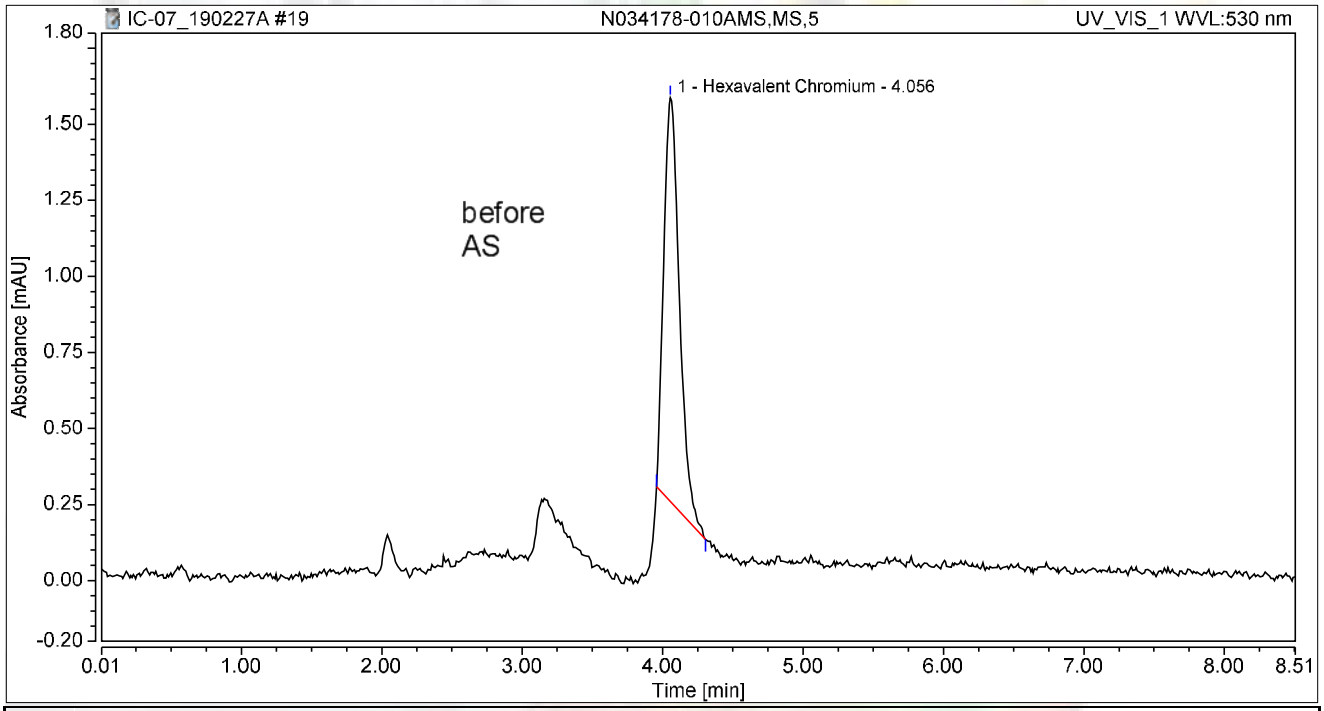
Reviewed by:
Nancy 3/2/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-010AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 10:24** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

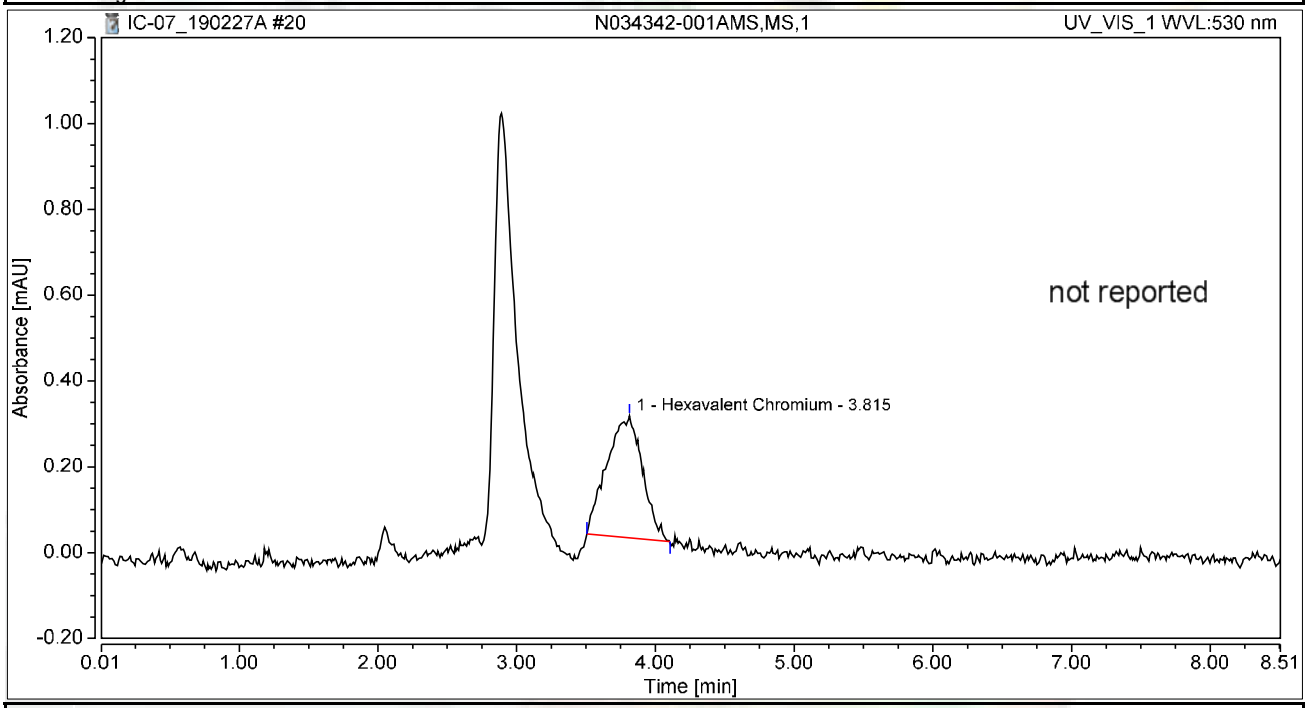
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.056 | 0.173 | 1.329 | 100.00 | 100.00 | 0.6979 |
| **Total:** | | | **0.173** | **1.329** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034342-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 10:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

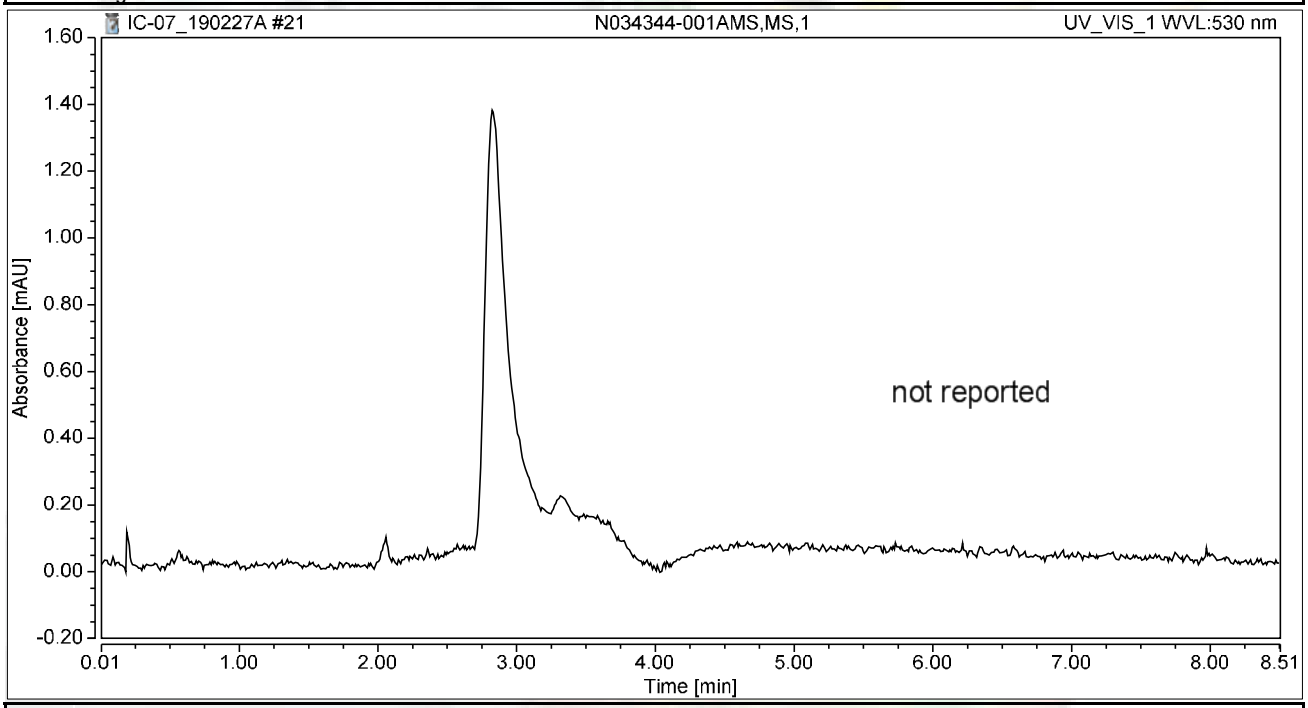
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.815 | 0.084 | 0.285 | 100.00 | 100.00 | 0.3408 |
| **Total:** | | | **0.084** | **0.285** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034344-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 10:43** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

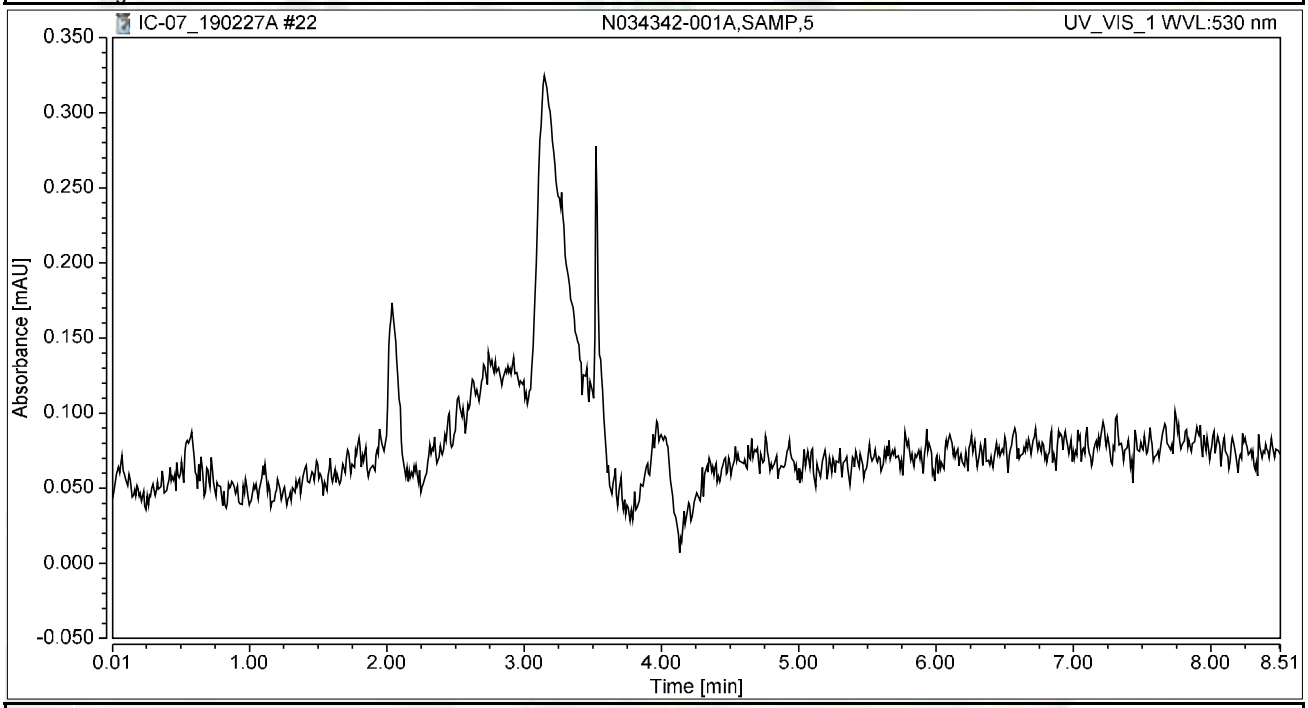
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034342-001A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 10:52** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

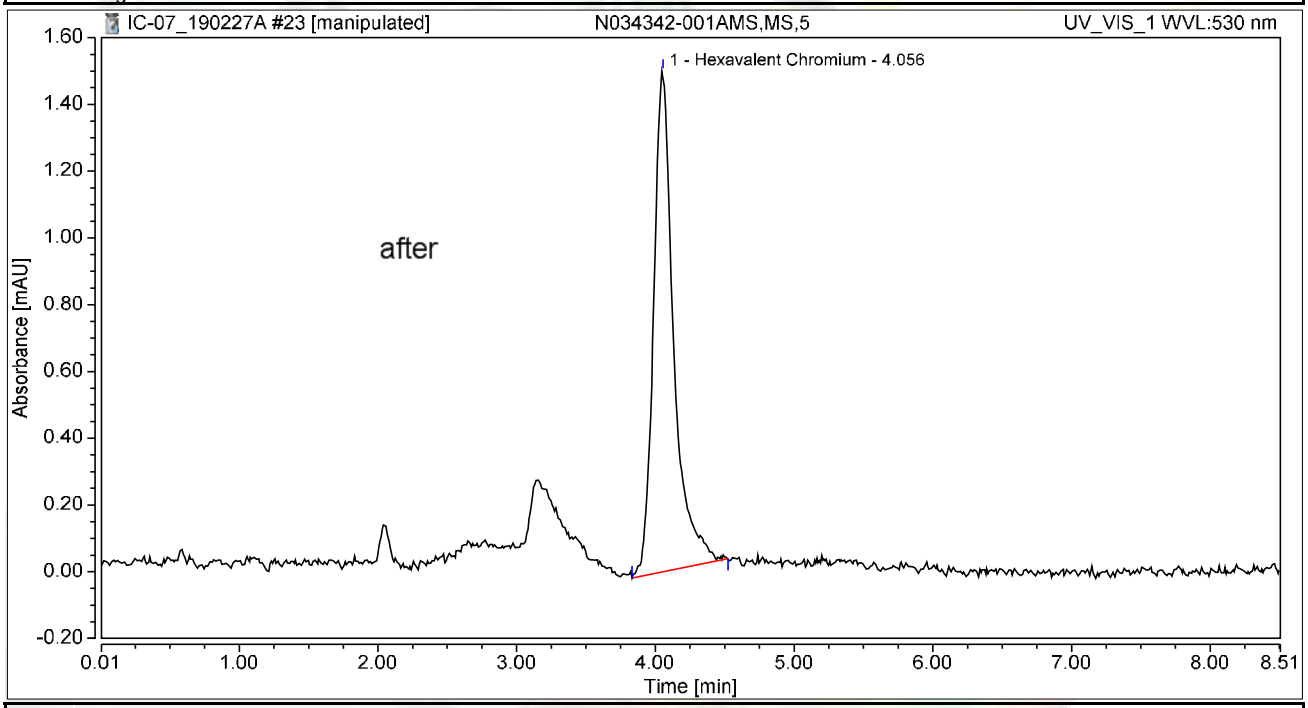
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034342-001AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 11:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.056 | 0.252 | 1.499 | 100.00 | 100.00 | 1.0181 |
| **Total:** | | | **0.252** | **1.499** | **100.00** | **100.00** | |

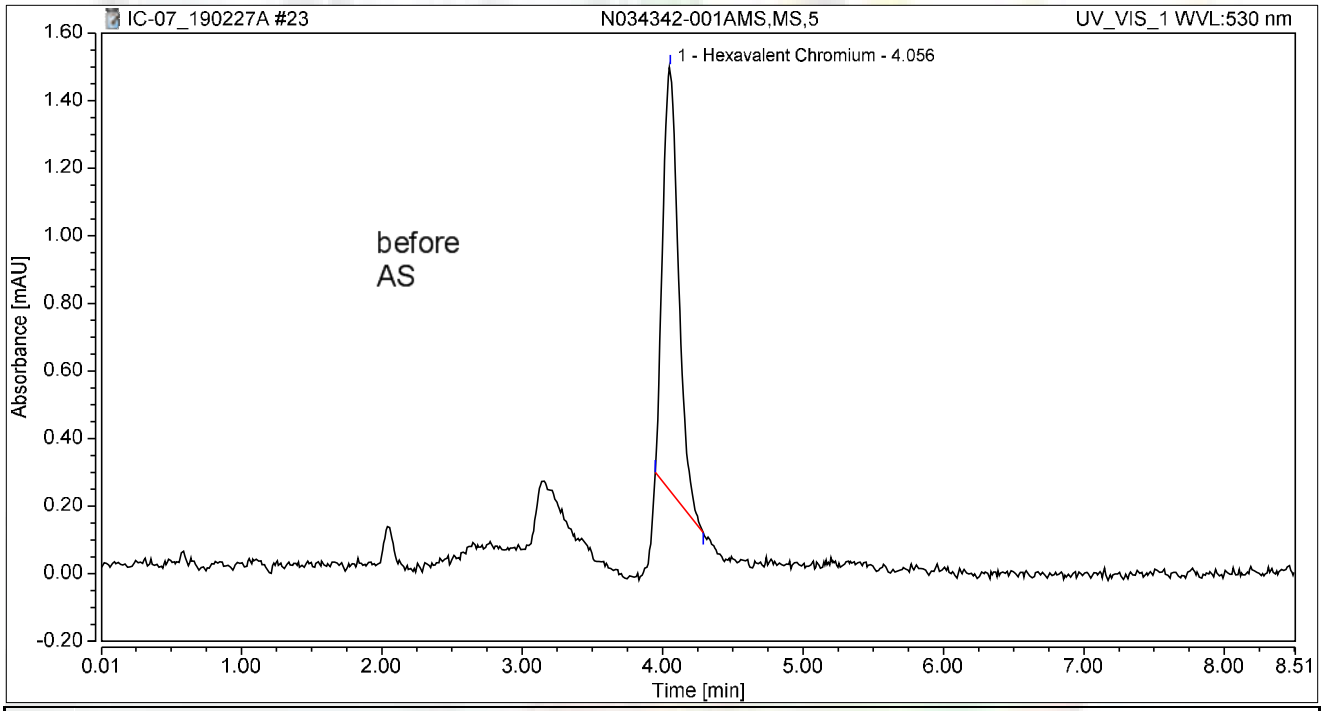
Reviewed by:
Nancy 3/2/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034342-001AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 11:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

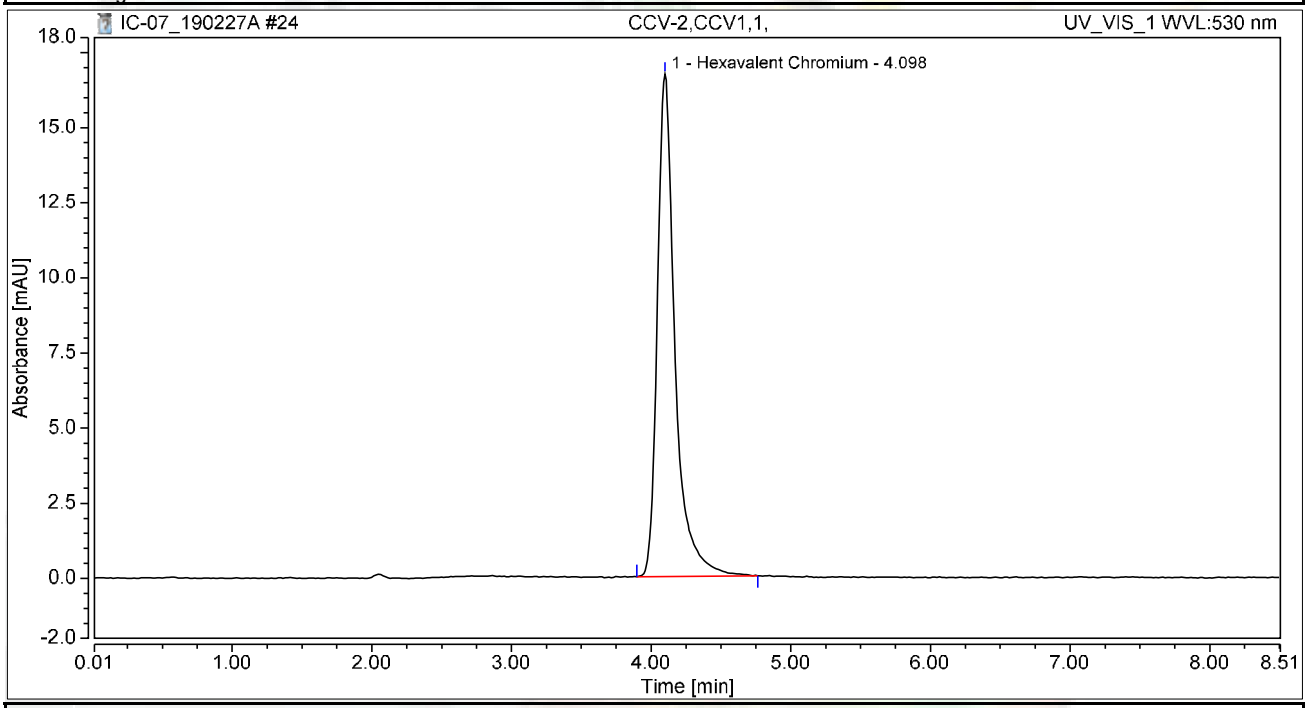
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.056 | 0.164 | 1.256 | 100.00 | 100.00 | 0.6624 |
| **Total:** | | | **0.164** | **1.256** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-2,CCV1,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 11:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

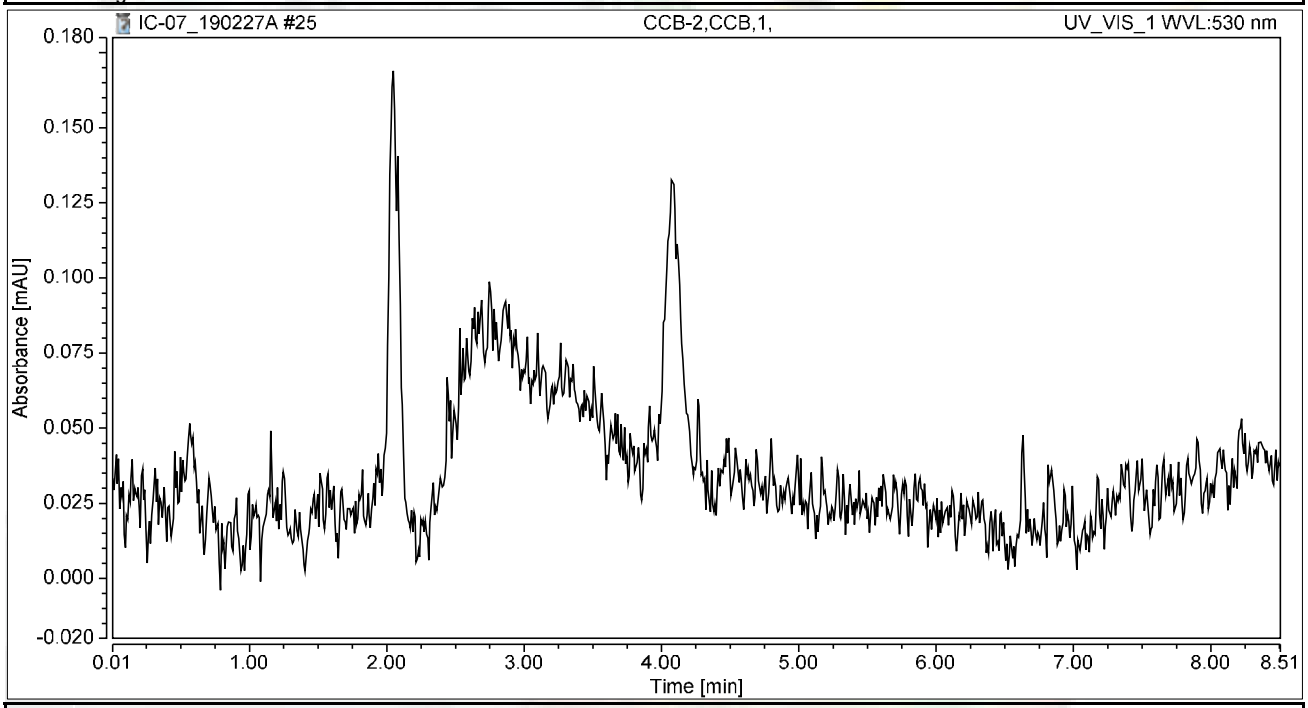
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.455 | 16.729 | 100.00 | 100.00 | 9.9069 |
| **Total:** | | | **2.455** | **16.729** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-2,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 11:20** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

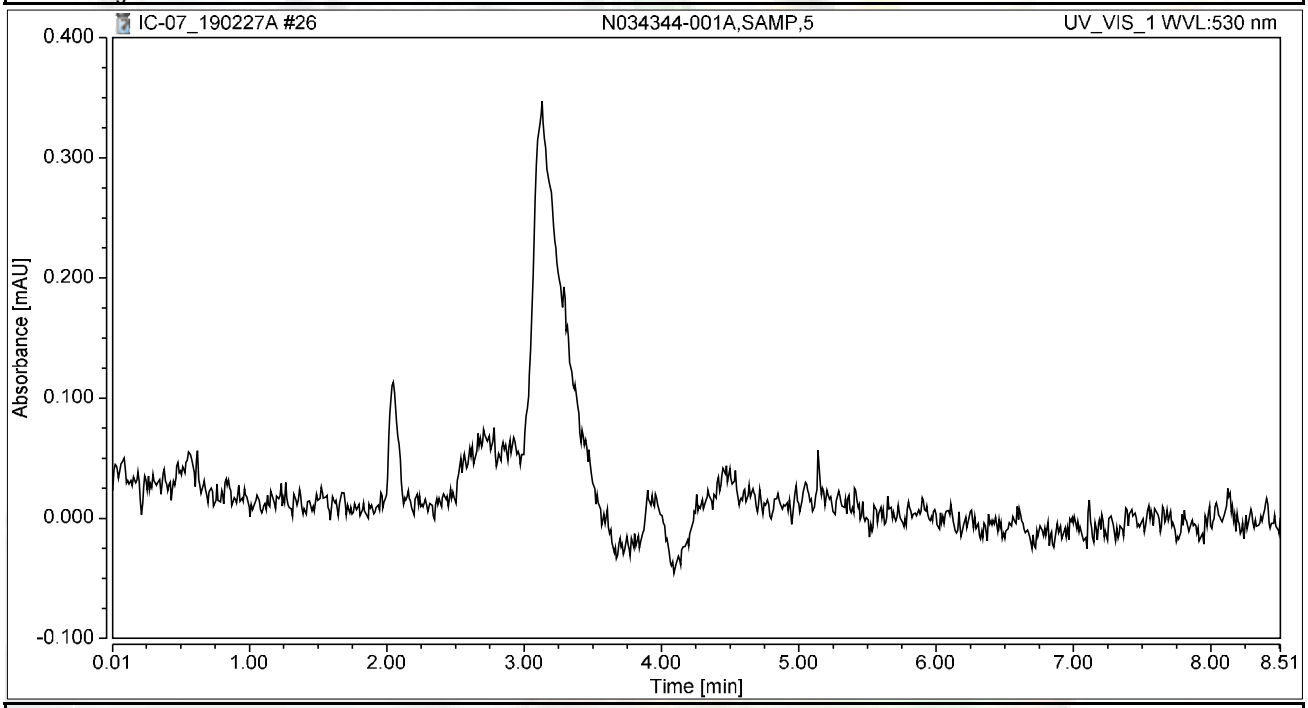
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034344-001A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 11:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

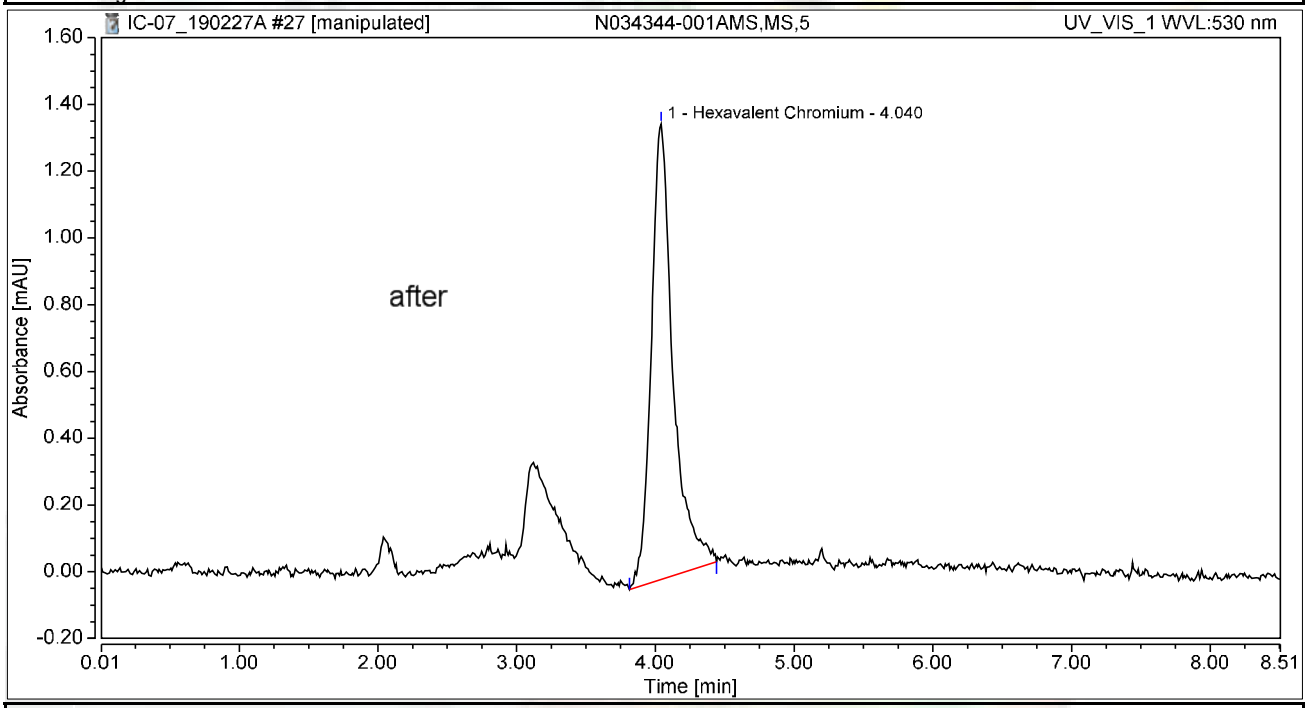
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034344-001AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 11:39** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.040 | 0.249 | 1.365 | 100.00 | 100.00 | 1.0050 |
| **Total:** | | | **0.249** | **1.365** | **100.00** | **100.00** | |

Reviewed by:
Nancy 3/2/2019

My first report/Integration

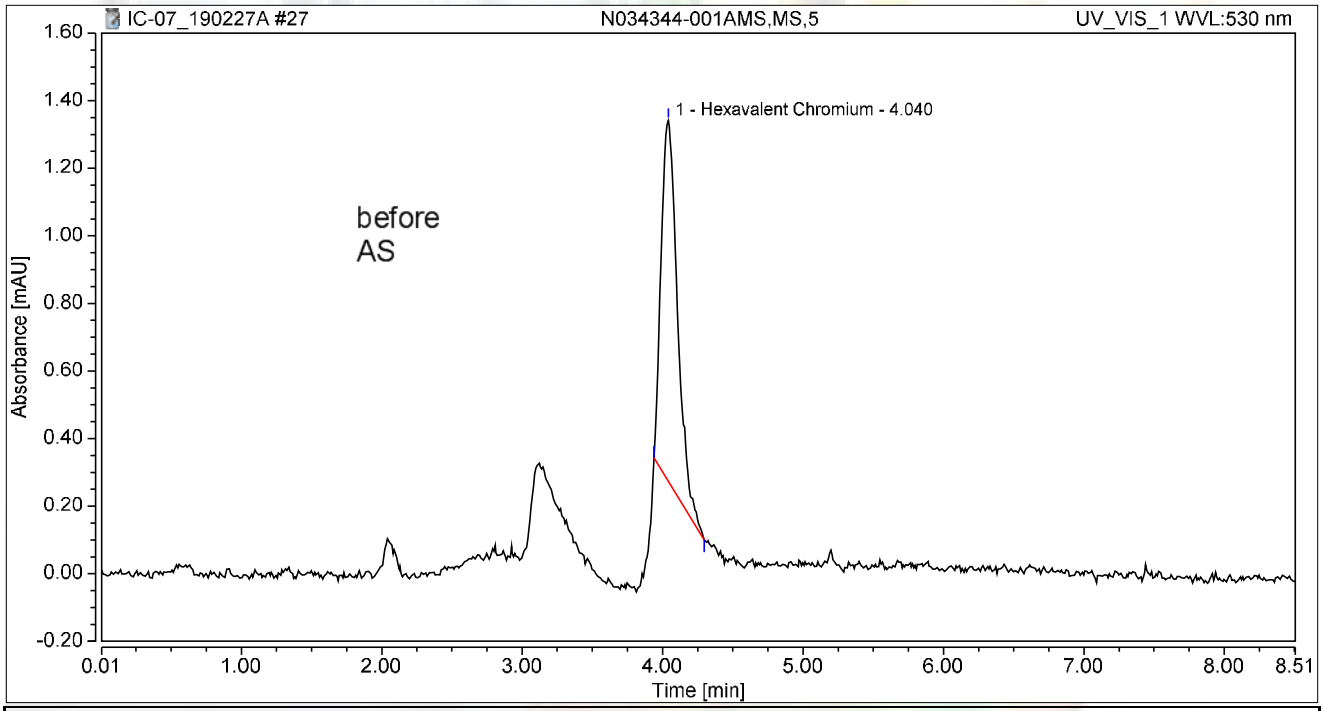
Chromeleon (c) Dionex
Version 7.1.1.1127

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034344-001AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 11:39** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

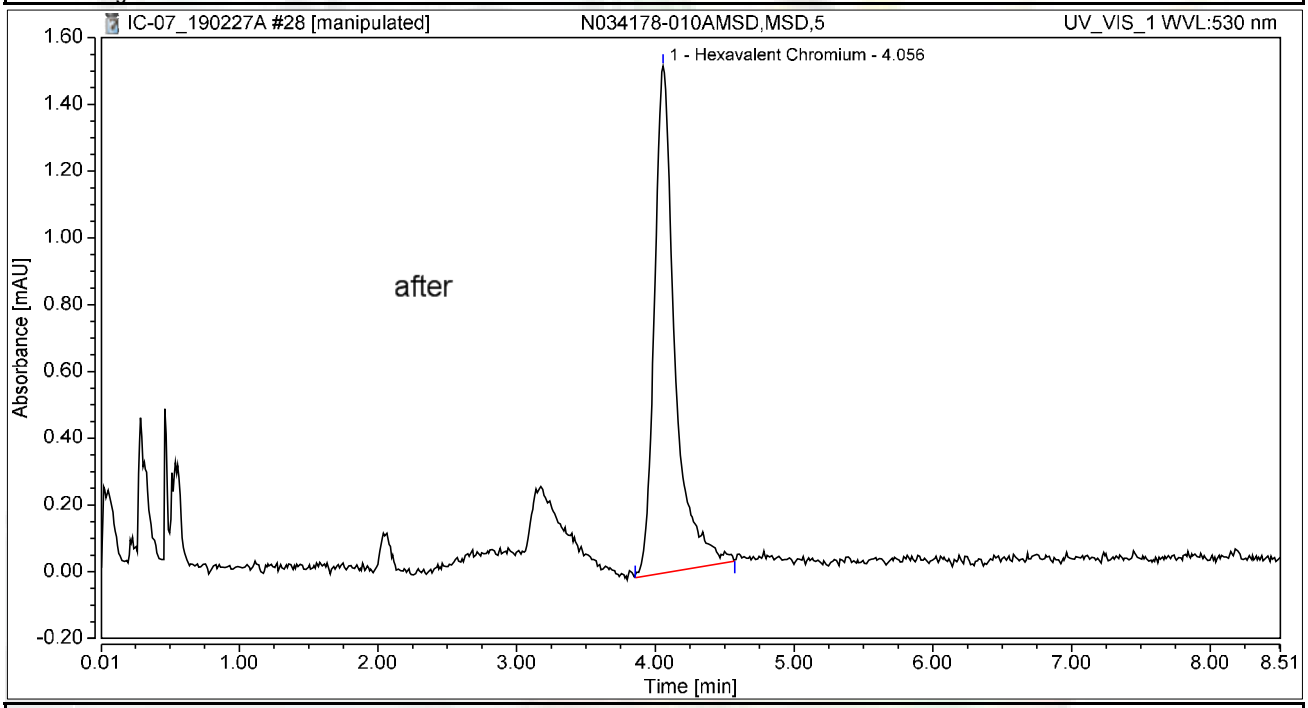
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.040 | 0.144 | 1.066 | 100.00 | 100.00 | 0.5806 |
| **Total:** | | | **0.144** | **1.066** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-010AMSD,MSD,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 11:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.056 | 0.260 | 1.518 | 100.00 | 100.00 | 1.0509 |
| **Total:** | | | **0.260** | **1.518** | **100.00** | **100.00** | |

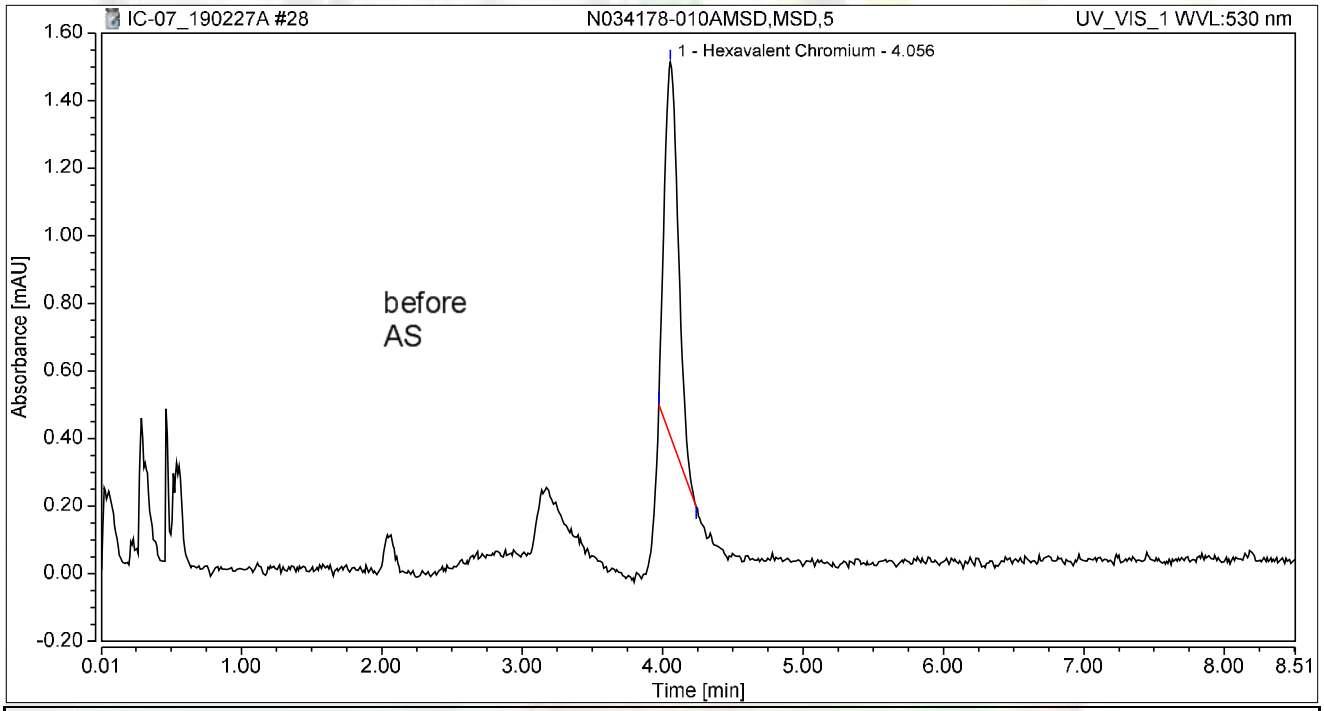
Reviewed by:
Nancy 3/2/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-010AMSD,MSD,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 11:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

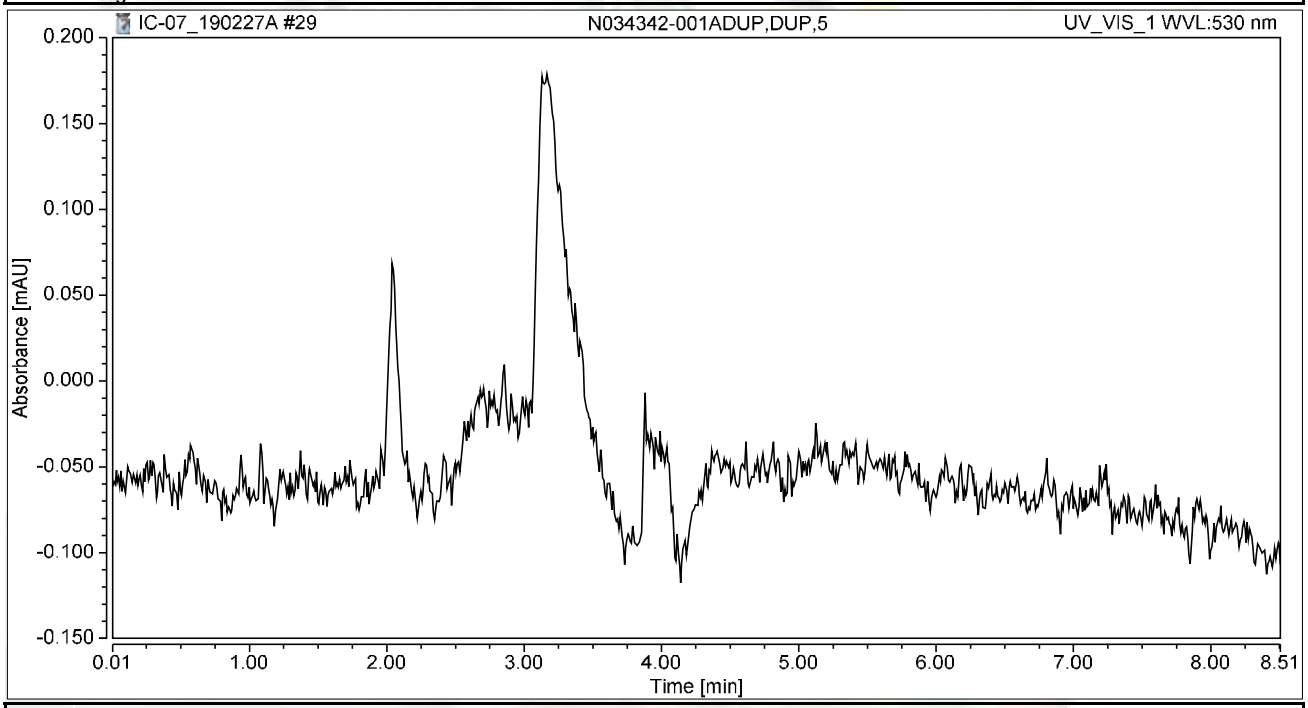
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.056 | 0.129 | 1.108 | 100.00 | 100.00 | 0.5189 |
| **Total:** | | | **0.129** | **1.108** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034342-001ADUP,DUP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **20** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 11:58** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

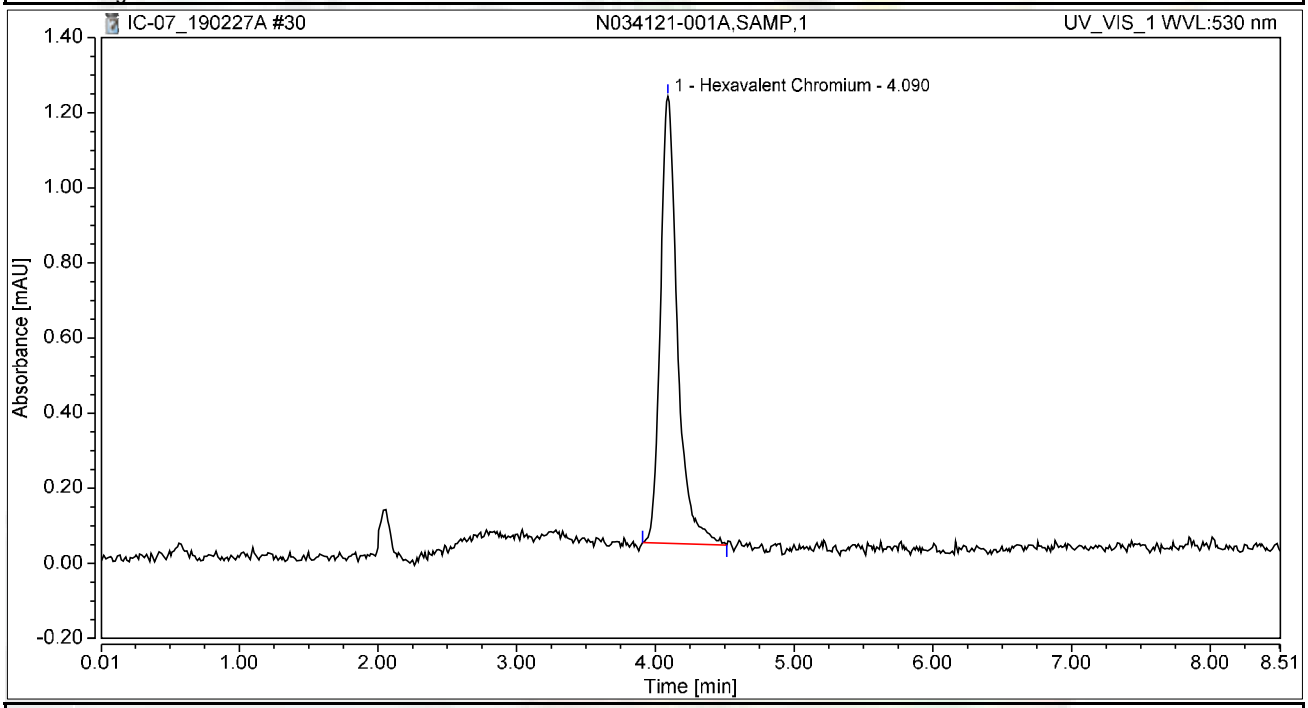
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 12:08** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

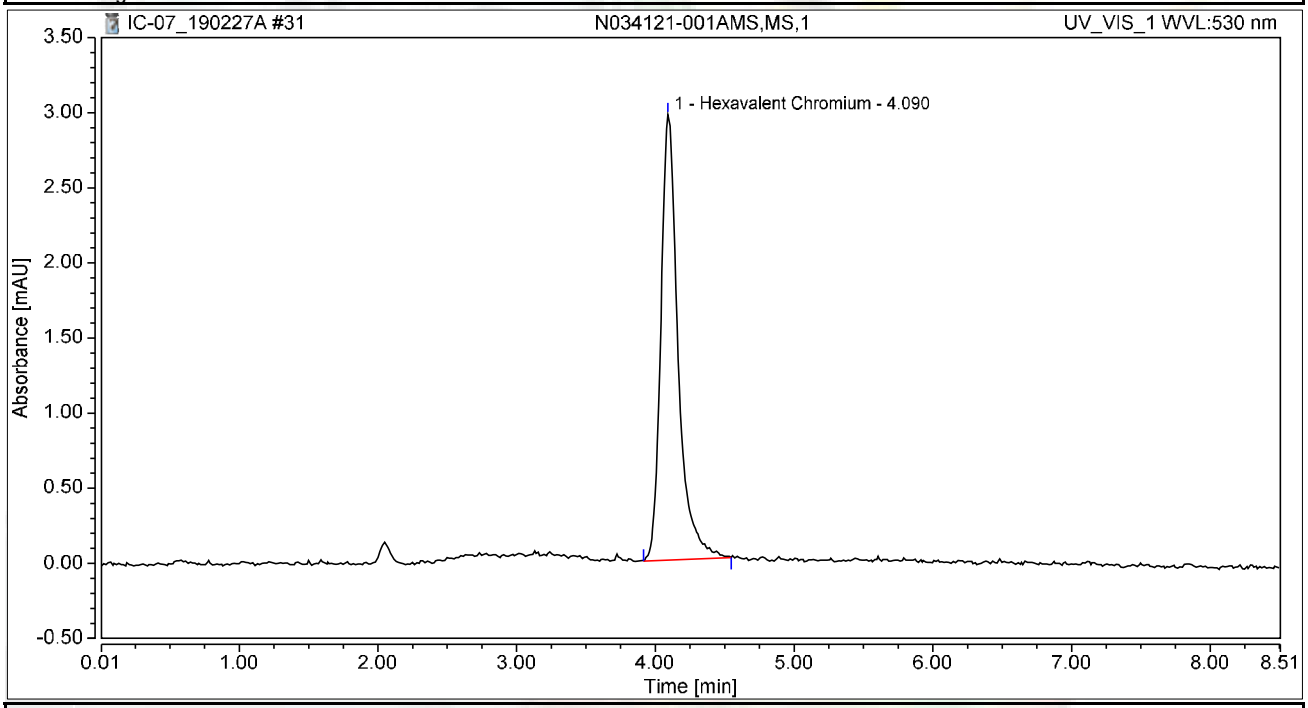
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.170 | 1.190 | 100.00 | 100.00 | 0.6848 |
| **Total:** | | | **0.170** | **1.190** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 12:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

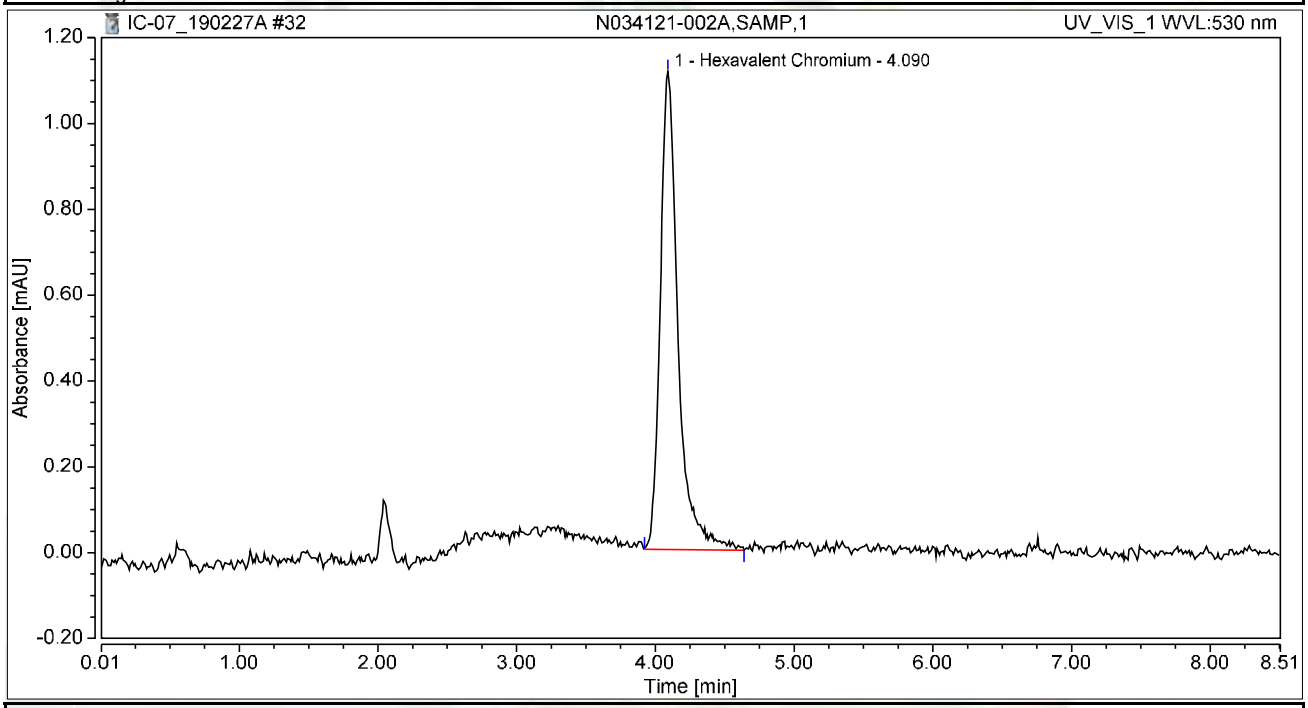
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.428 | 2.965 | 100.00 | 100.00 | 1.7266 |
| **Total:** | | | **0.428** | **2.965** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **23** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 12:27** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

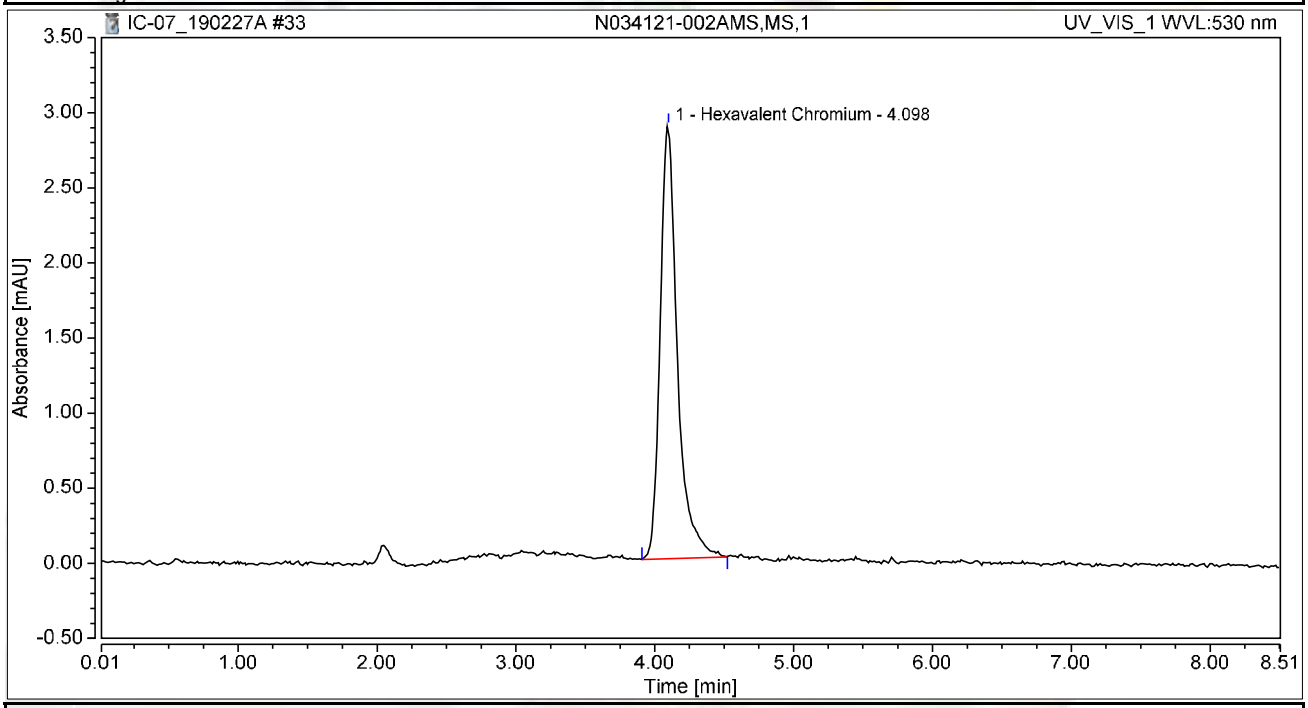
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.165 | 1.113 | 100.00 | 100.00 | 0.6663 |
| **Total:** | | | **0.165** | **1.113** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034121-002AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **24** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 12:36** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

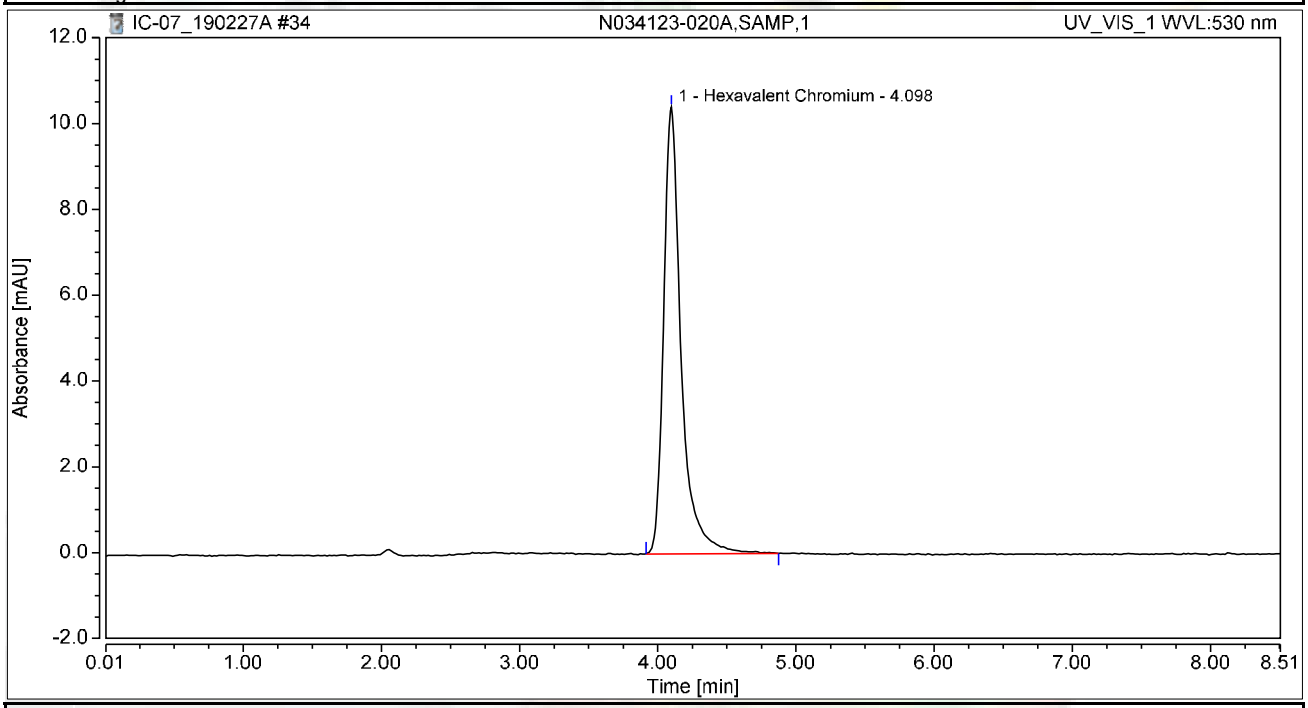
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.416 | 2.883 | 100.00 | 100.00 | 1.6769 |
| **Total:** | | | **0.416** | **2.883** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034123-020A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 12:46** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

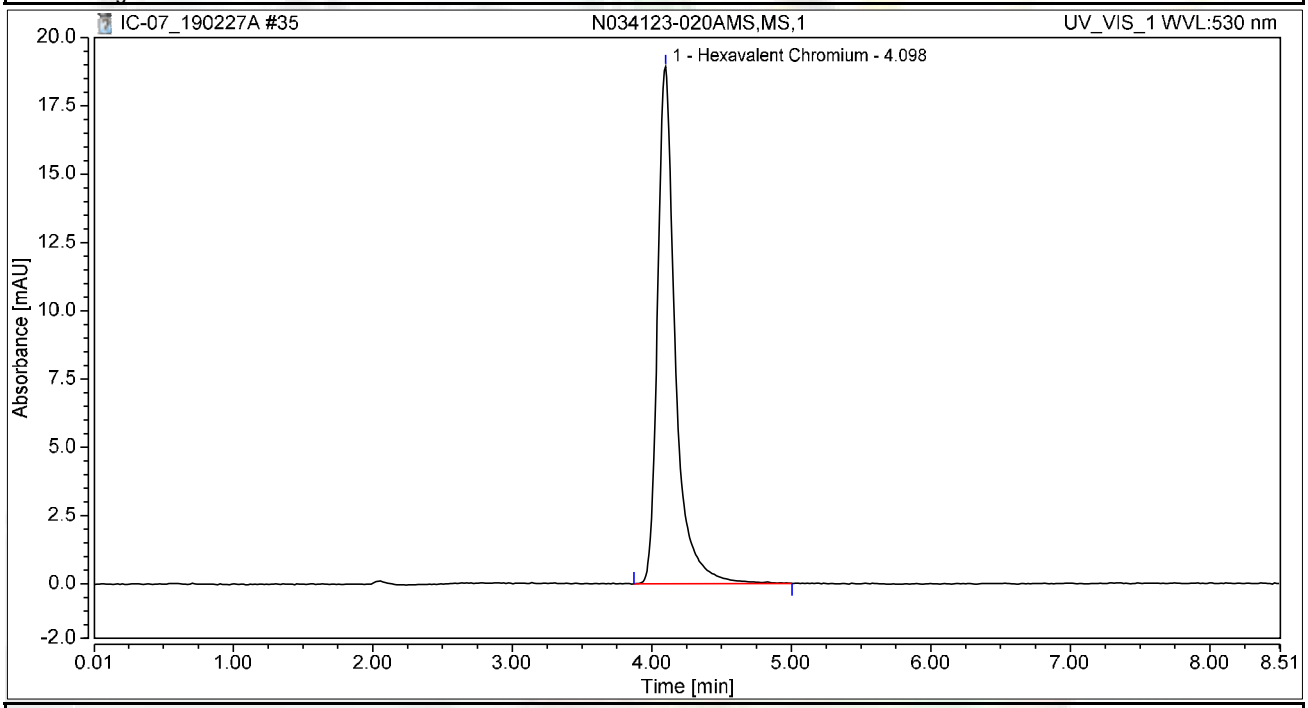
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.528 | 10.409 | 100.00 | 100.00 | 6.1665 |
| **Total:** | | | **1.528** | **10.409** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034123-020AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **26** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 12:55** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

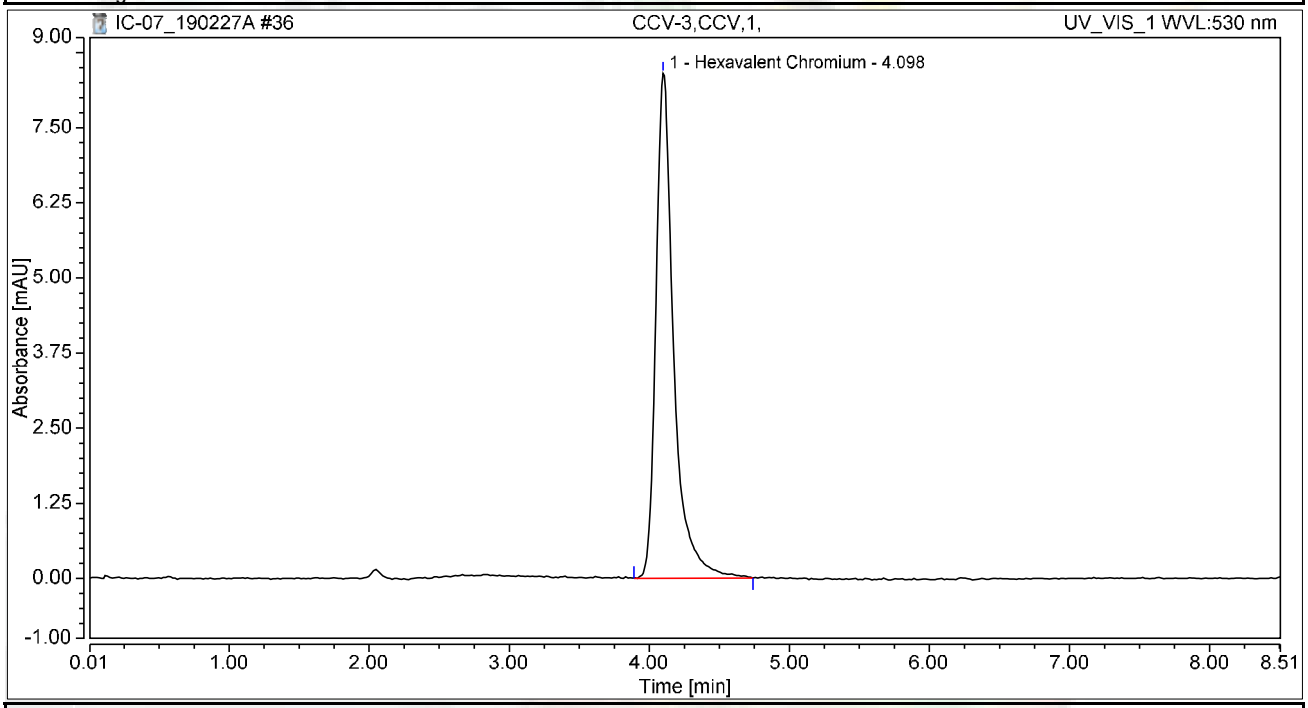
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.800 | 18.934 | 100.00 | 100.00 | 11.3008 |
| **Total:** | | | **2.800** | **18.934** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-3,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 13:04** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

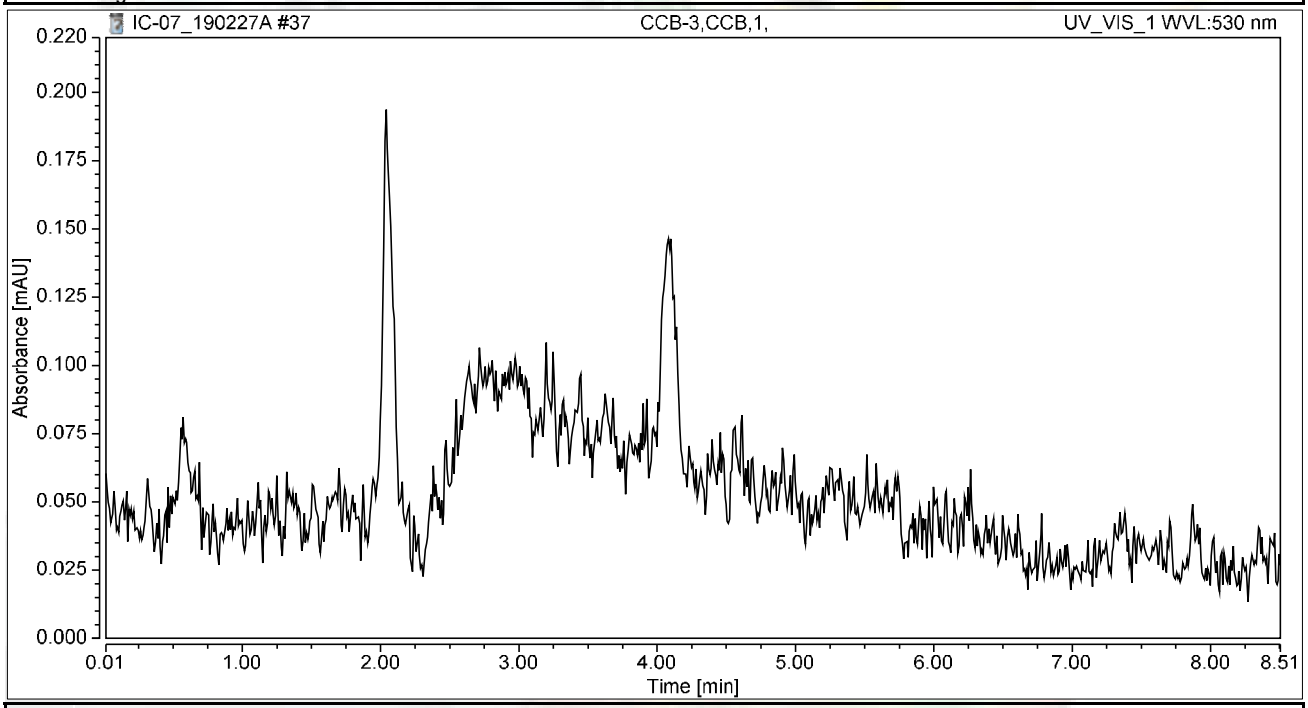
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.235 | 8.394 | 100.00 | 100.00 | 4.9843 |
| **Total:** | | | **1.235** | **8.394** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-3,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **28** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 13:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

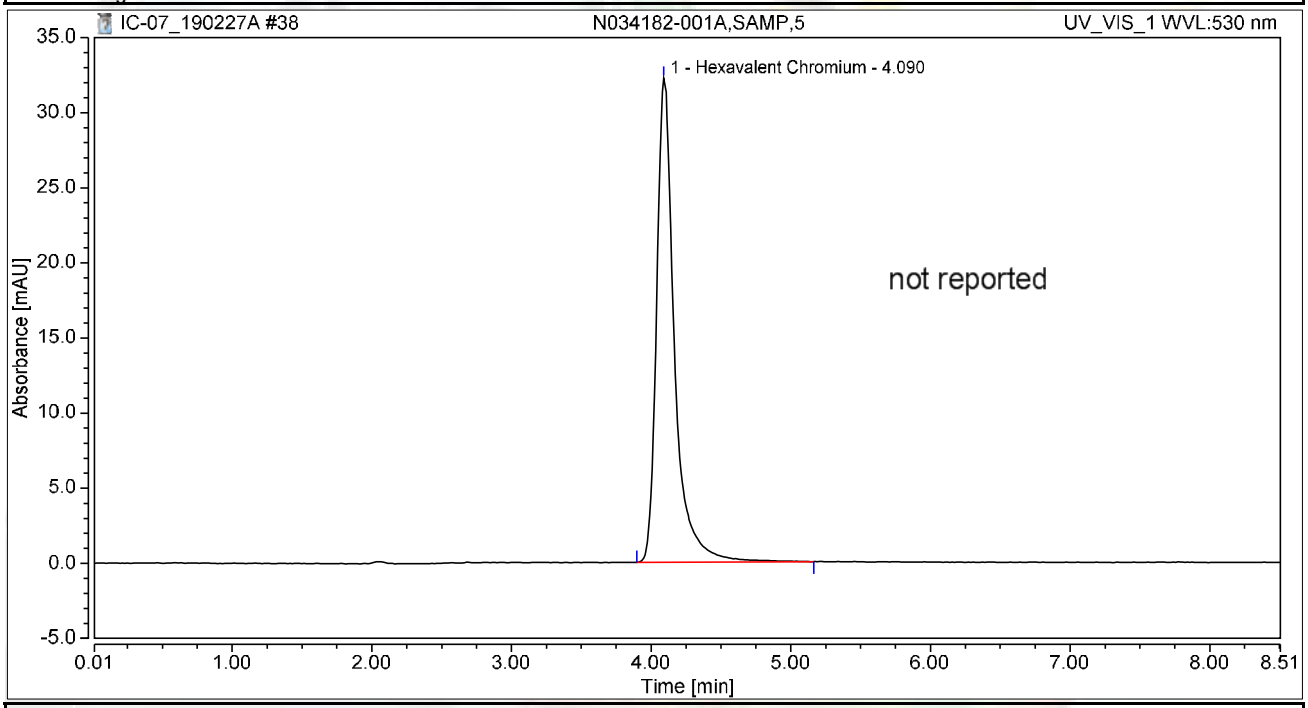
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034182-001A,SAMP,5** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **29** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 13:23** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

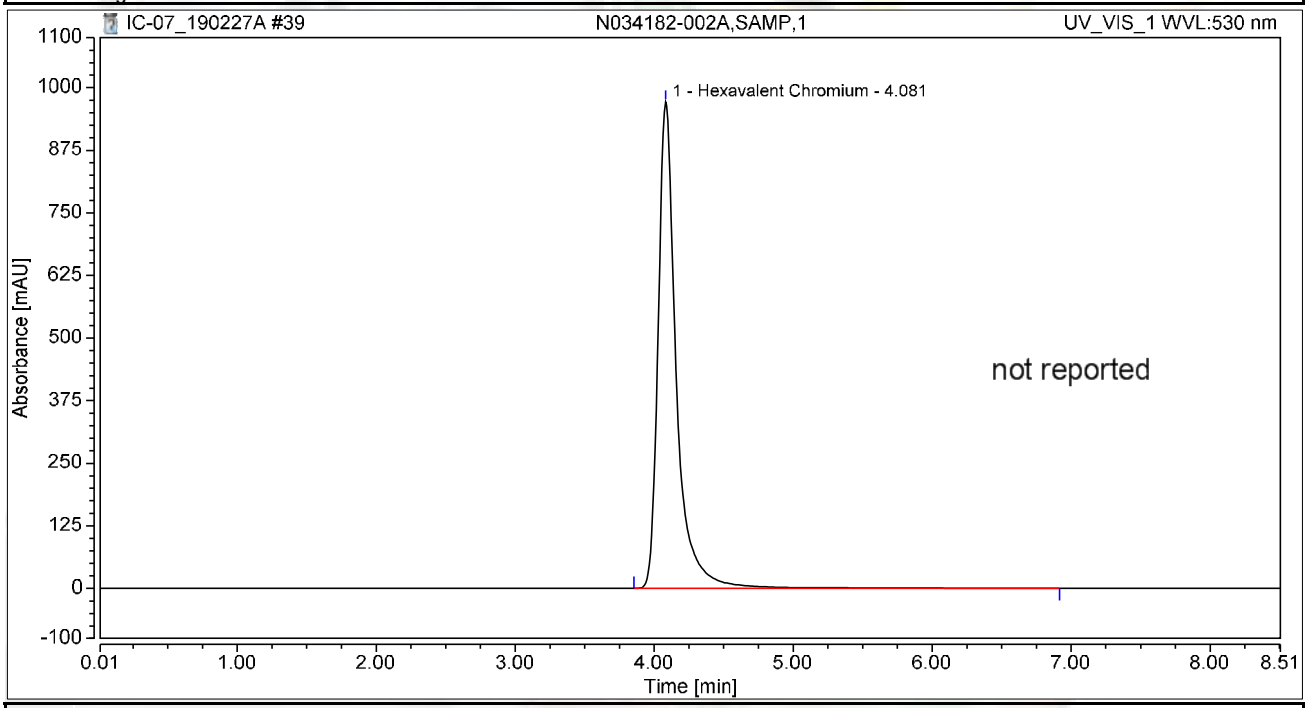
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 4.784 | 32.211 | 100.00 | 100.00 | 19.3033 |
| **Total:** | | | **4.784** | **32.211** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034182-002A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **30** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 13:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

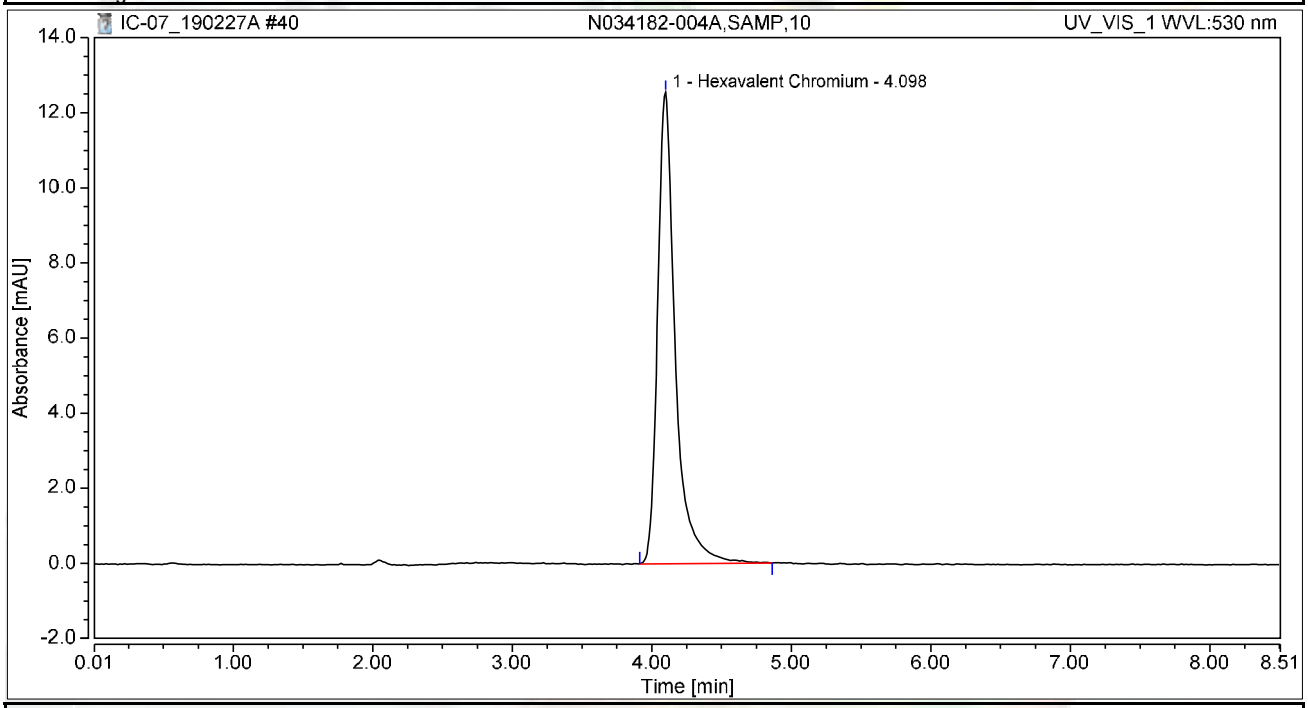
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 147.897 | 971.222 | 100.00 | 100.00 | 596.8079 |
| **Total:** | | | **147.897** | **971.222** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034182-004A,SAMP,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **31** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 13:42** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

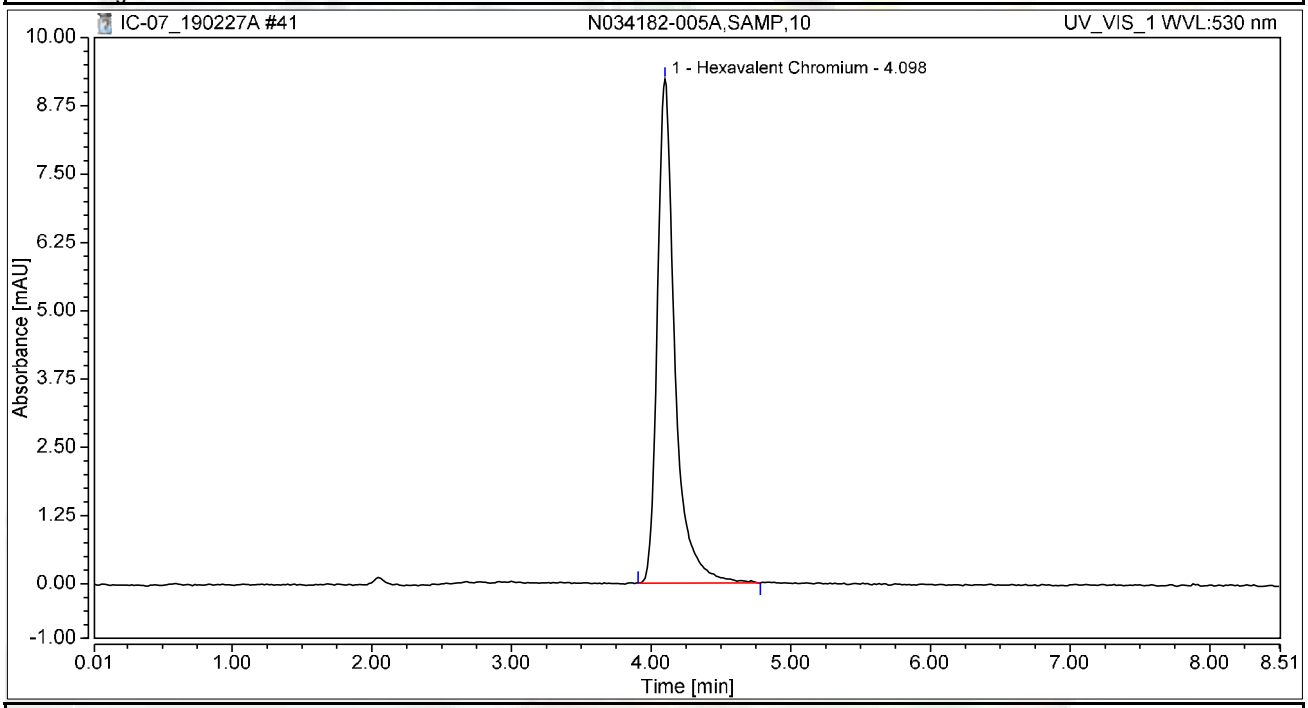
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.843 | 12.551 | 100.00 | 100.00 | 7.4381 |
| **Total:** | | | **1.843** | **12.551** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034182-005A,SAMP,10** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **32** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 13:52** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

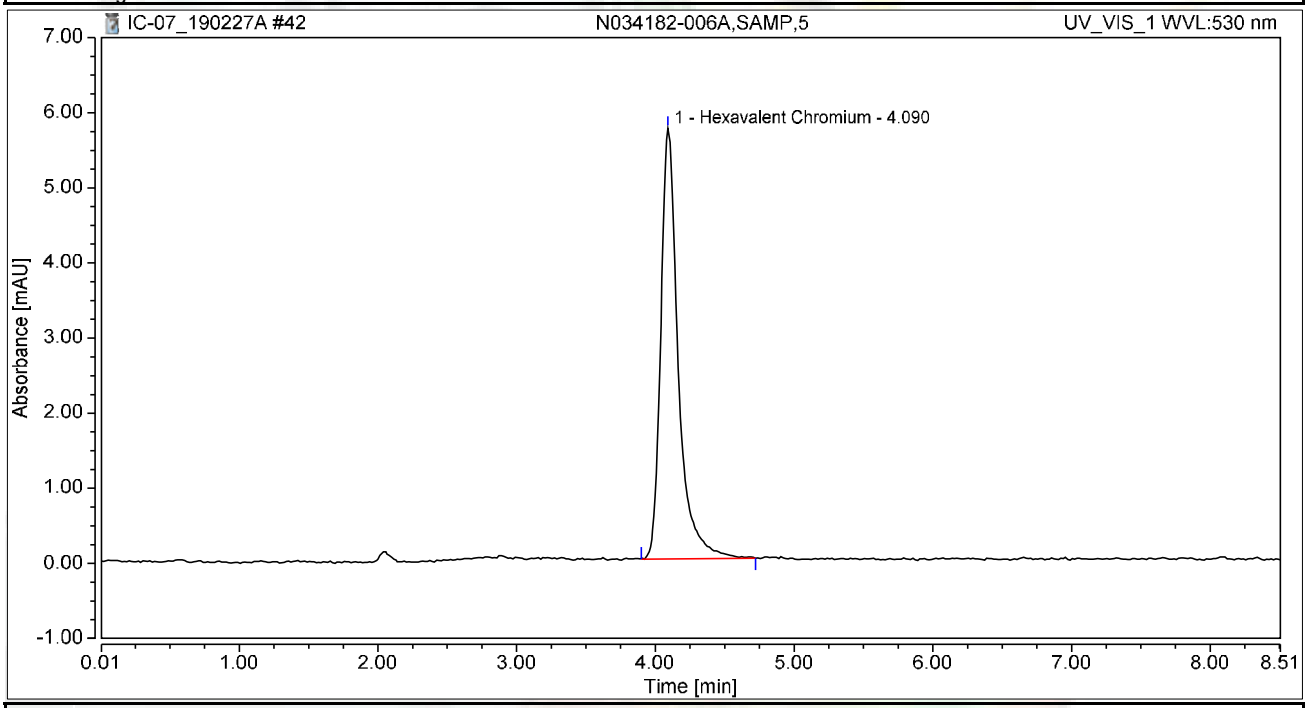
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.346 | 9.226 | 100.00 | 100.00 | 5.4333 |
| **Total:** | | | **1.346** | **9.226** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034182-006A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **33** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 14:01** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

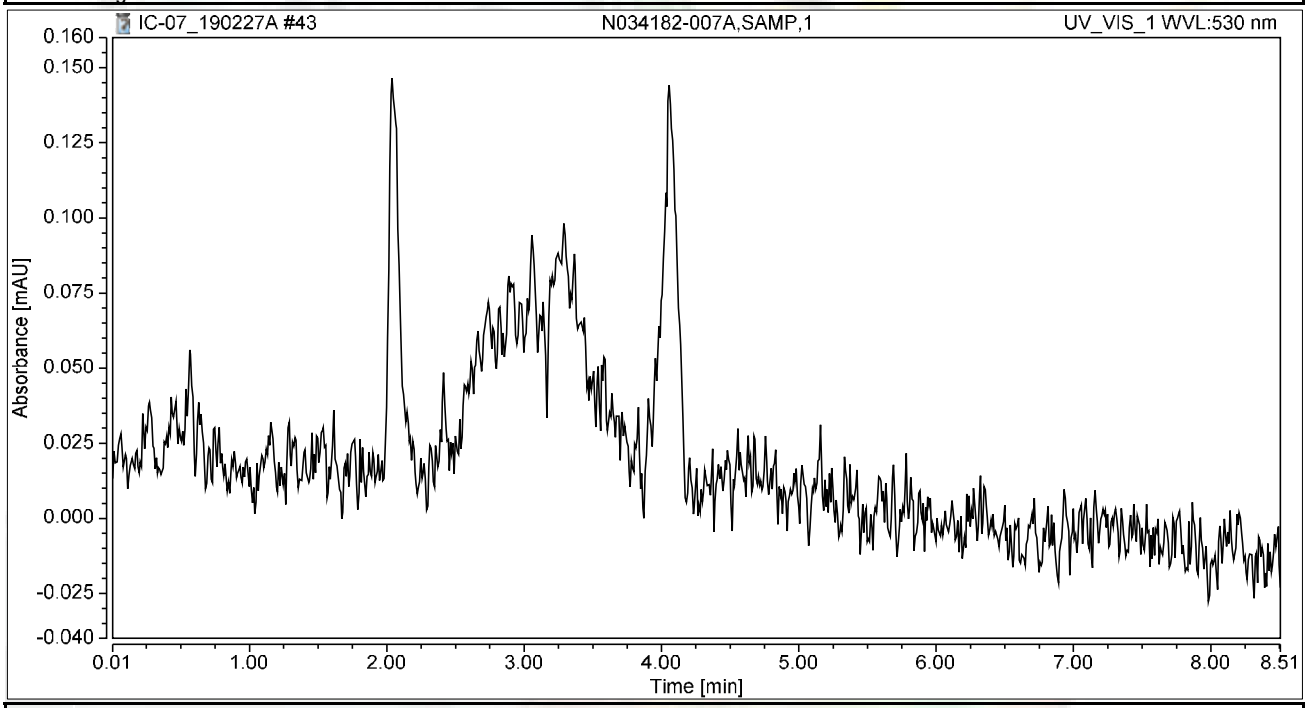
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.838 | 5.732 | 100.00 | 100.00 | 3.3820 |
| **Total:** | | | **0.838** | **5.732** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034182-007A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **34** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 14:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

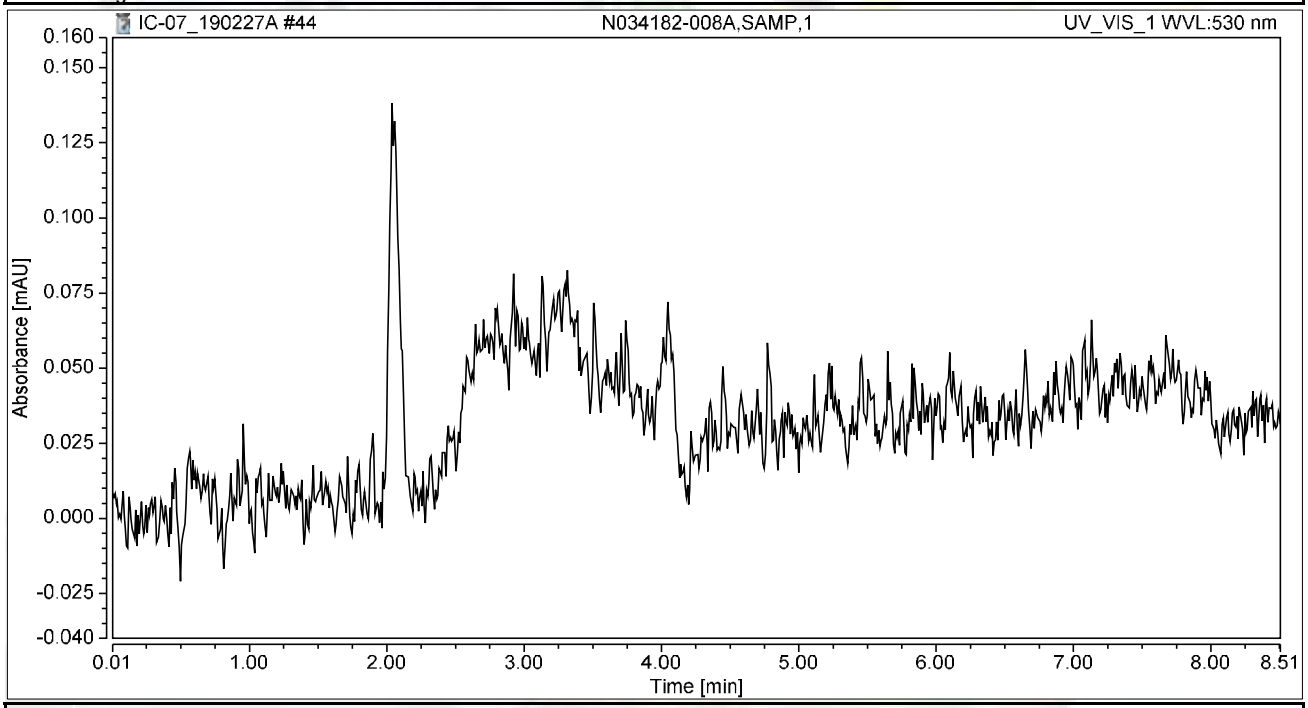
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034182-008A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **35** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 14:20** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

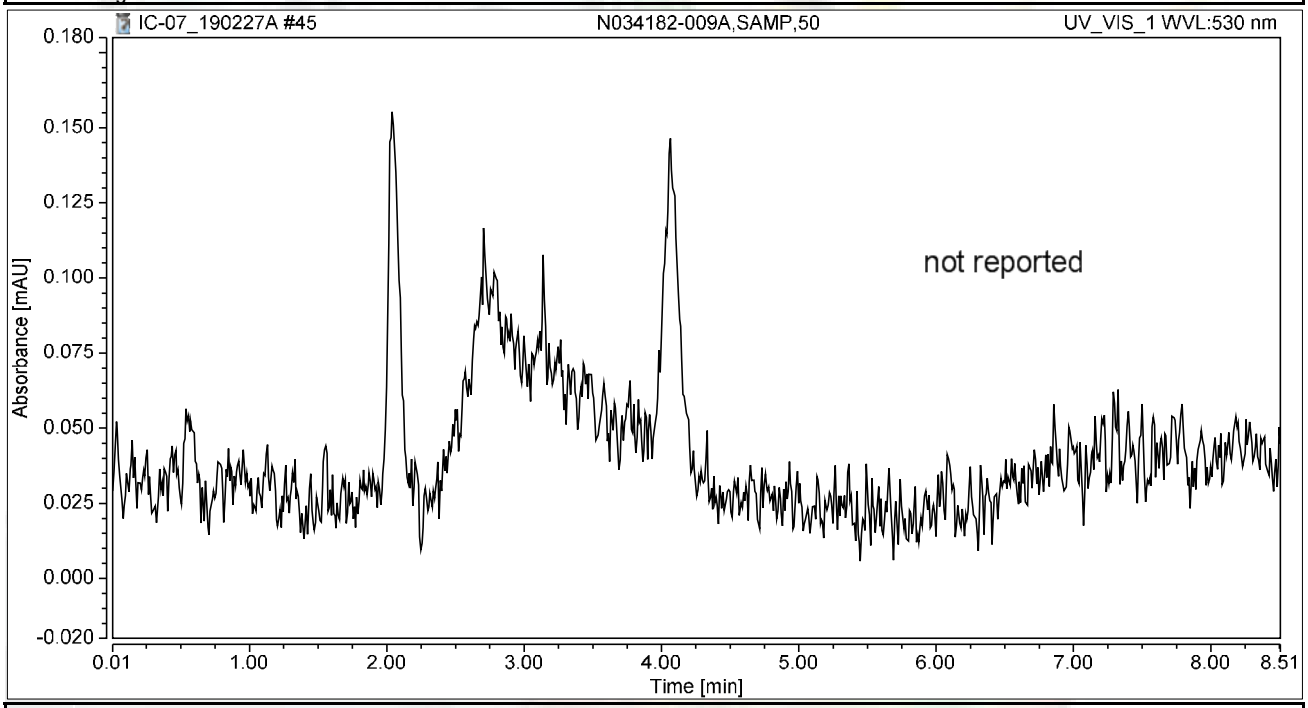
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034182-009A,SAMP,50** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **36** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 14:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

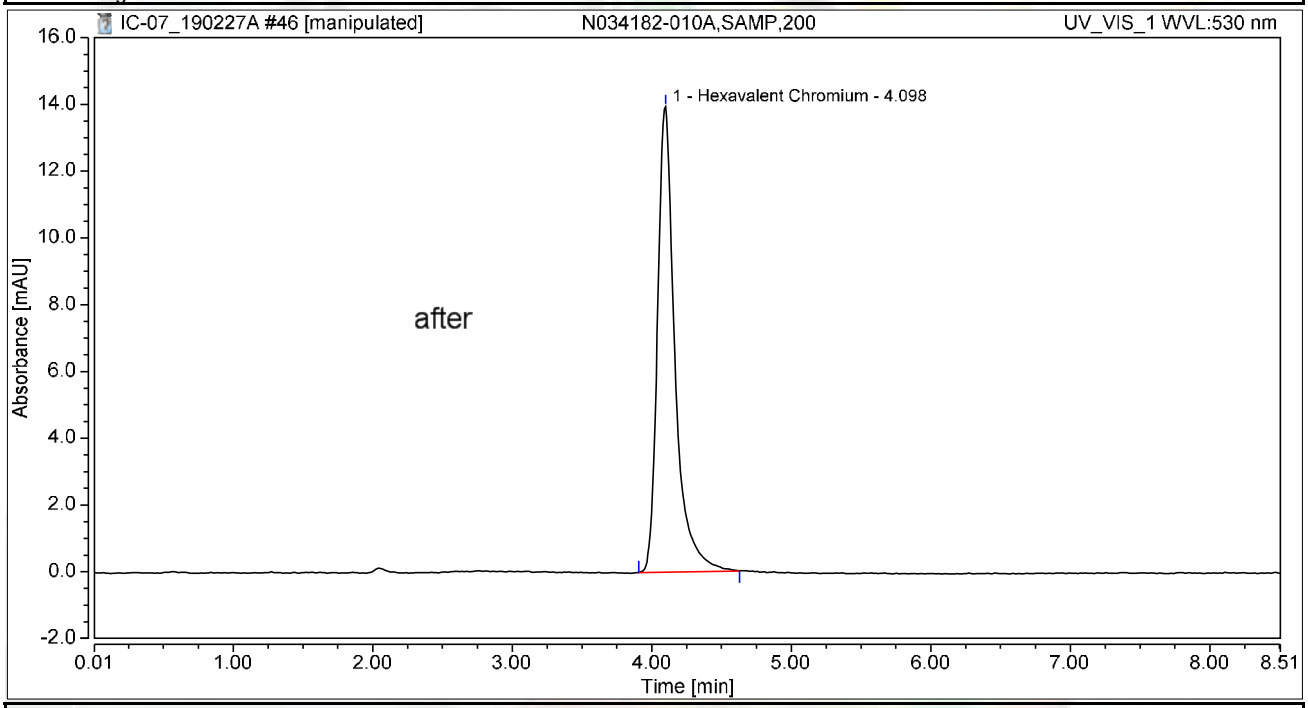
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034182-010A,SAMP,200** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **37** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 14:39** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

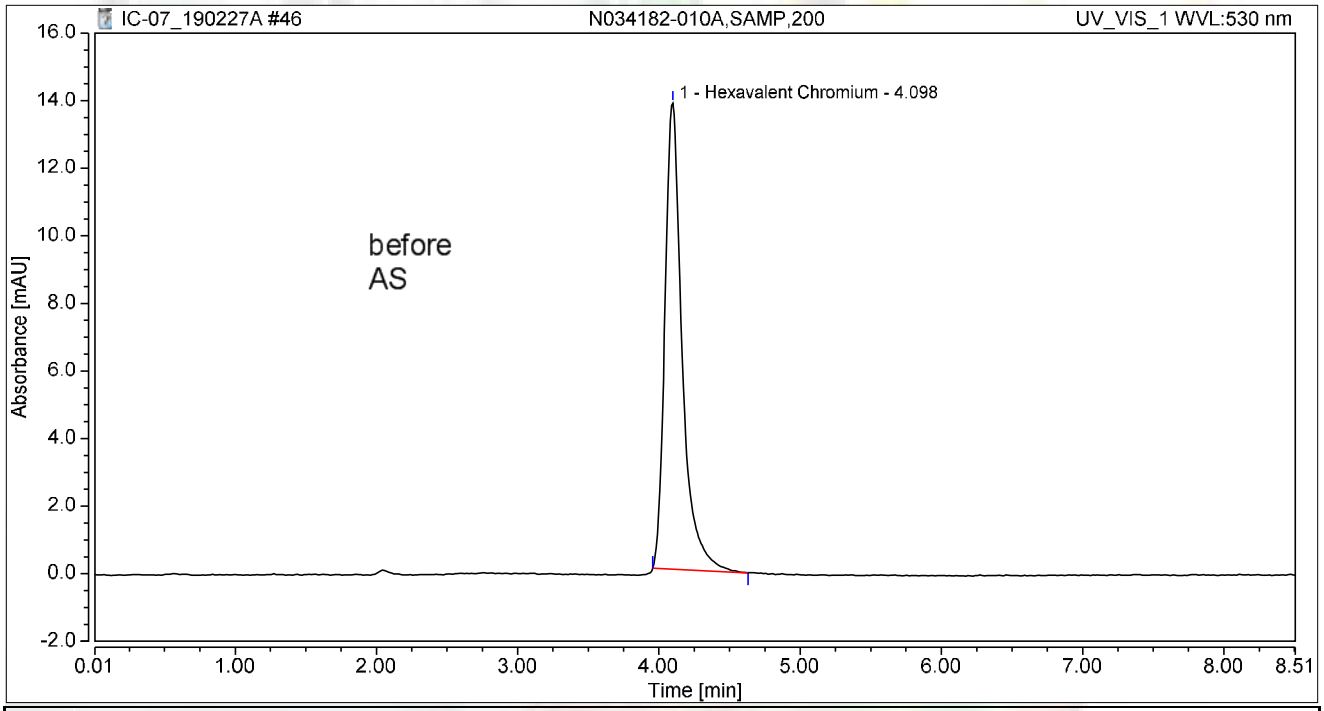
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.019 | 13.943 | 100.00 | 100.00 | 8.1490 |
| **Total:** | | | **2.019** | **13.943** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034182-010A,SAMP,200** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **37** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 14:39** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

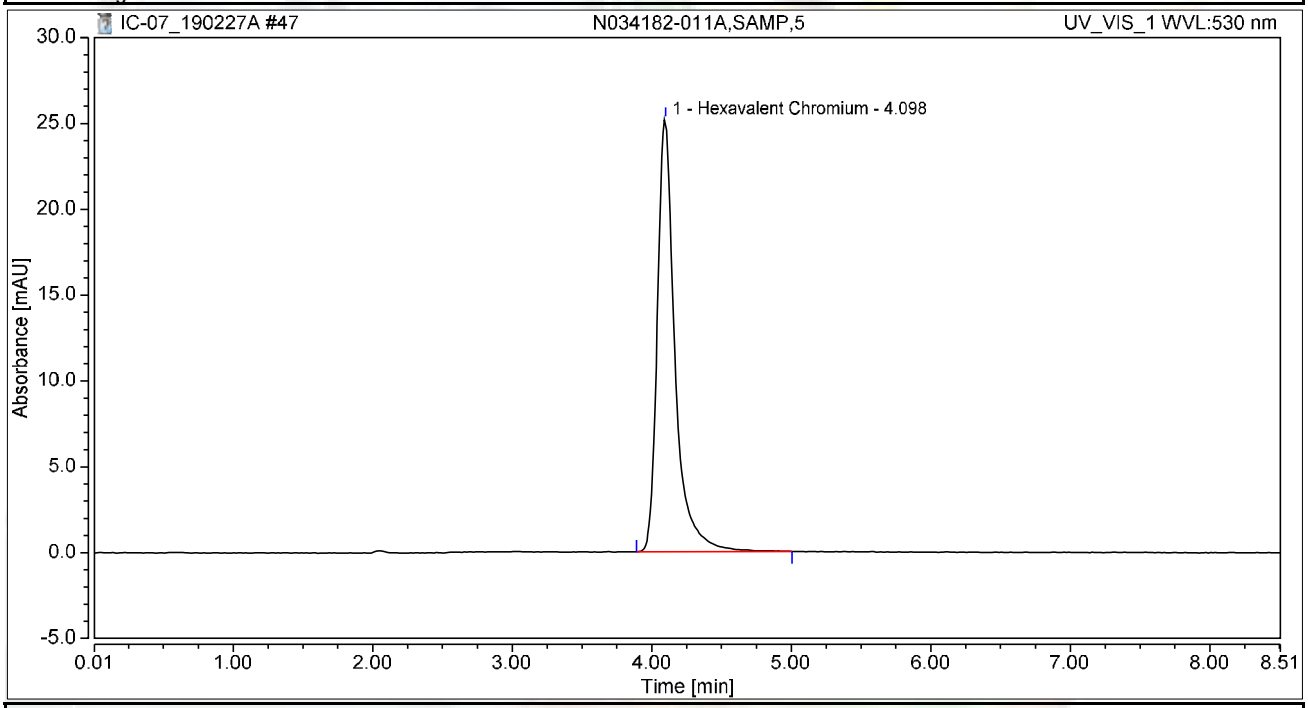
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.952 | 13.793 | 100.00 | 100.00 | 7.8783 |
| **Total:** | | | **1.952** | **13.793** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034182-011A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **38** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 14:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

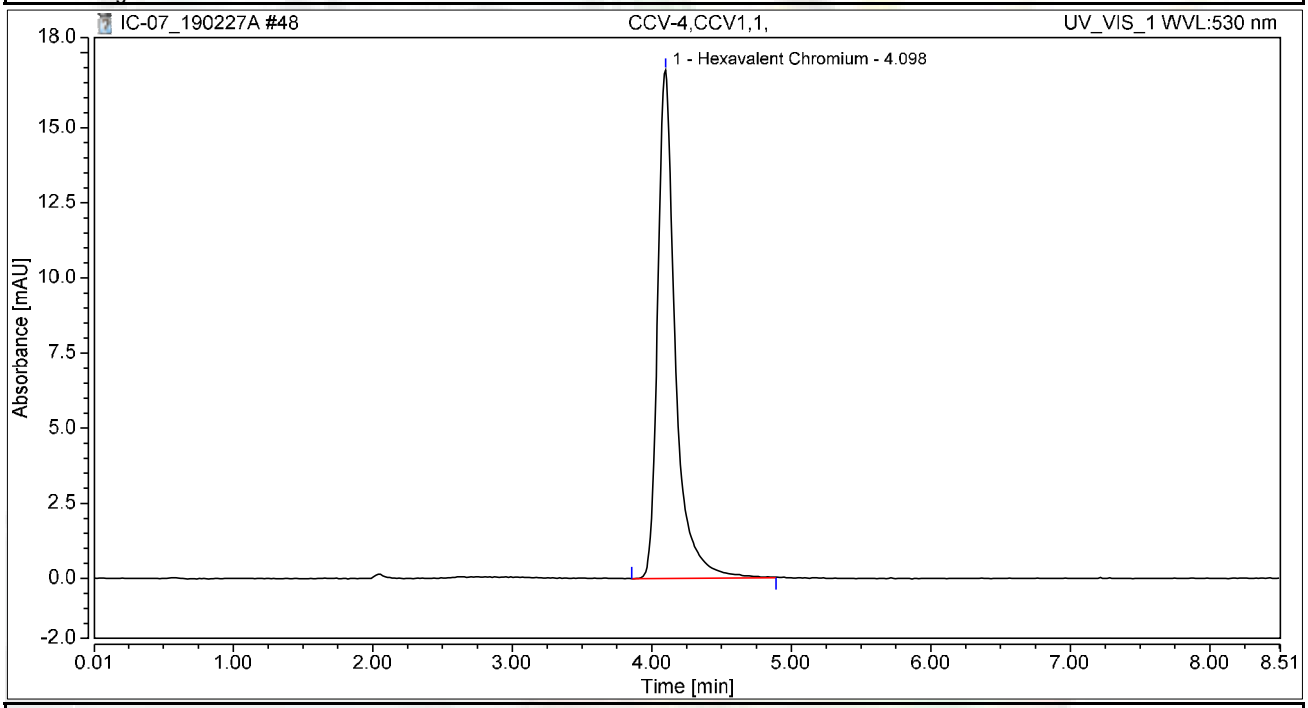
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 3.707 | 25.199 | 100.00 | 100.00 | 14.9568 |
| **Total:** | | | **3.707** | **25.199** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-4,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **39** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 14:58** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

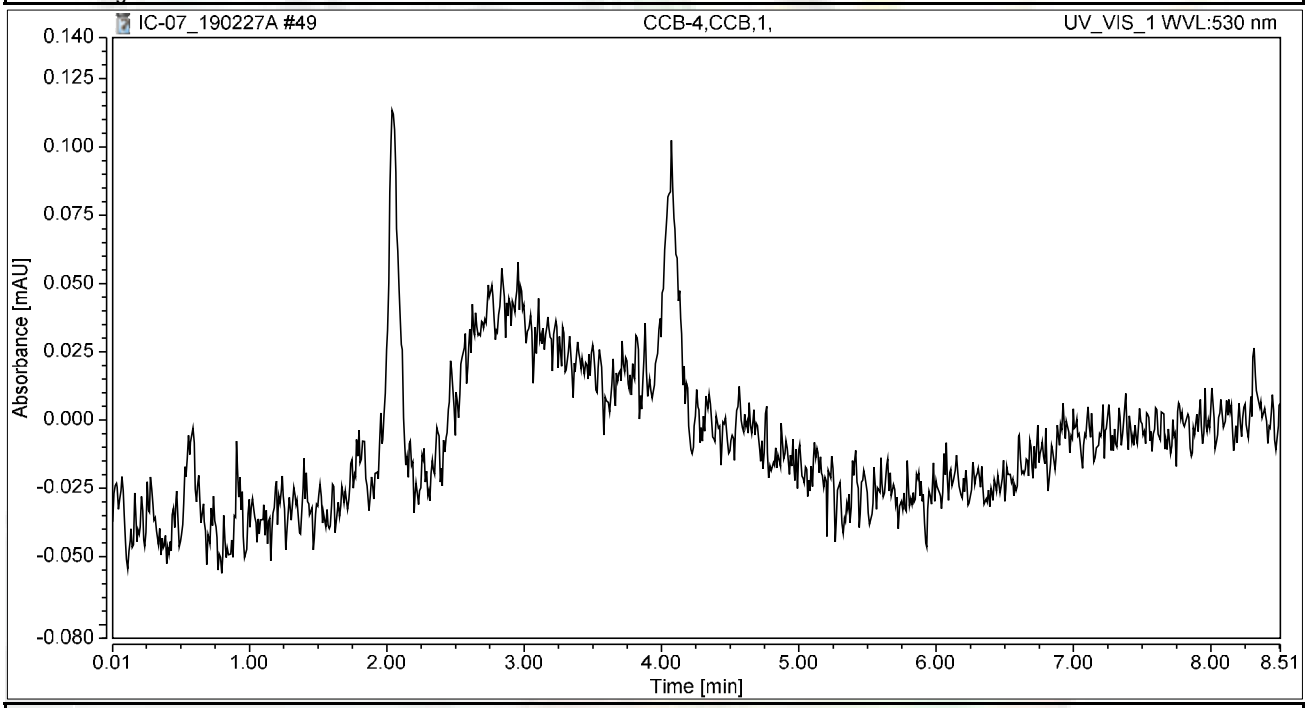
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.486 | 16.920 | 100.00 | 100.00 | 10.0324 |
| **Total:** | | | **2.486** | **16.920** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-4,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **40** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 15:07** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

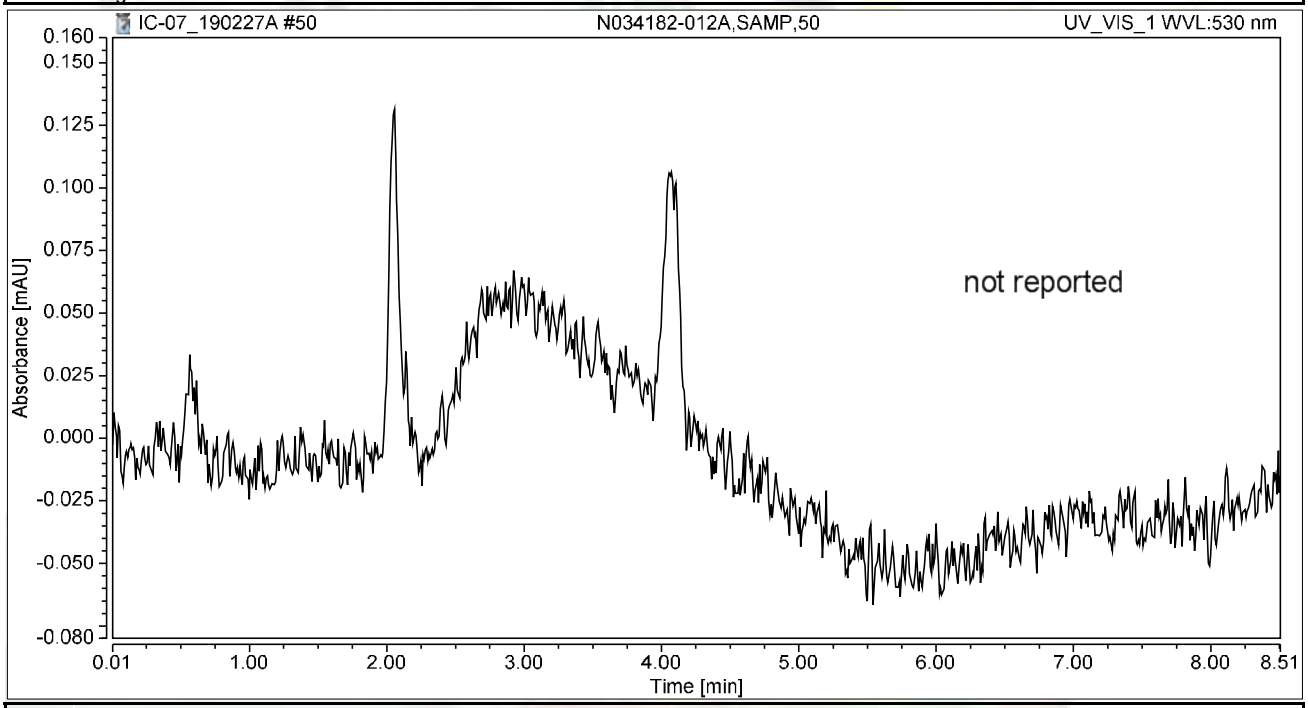
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034182-012A,SAMP,50** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **41** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 15:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

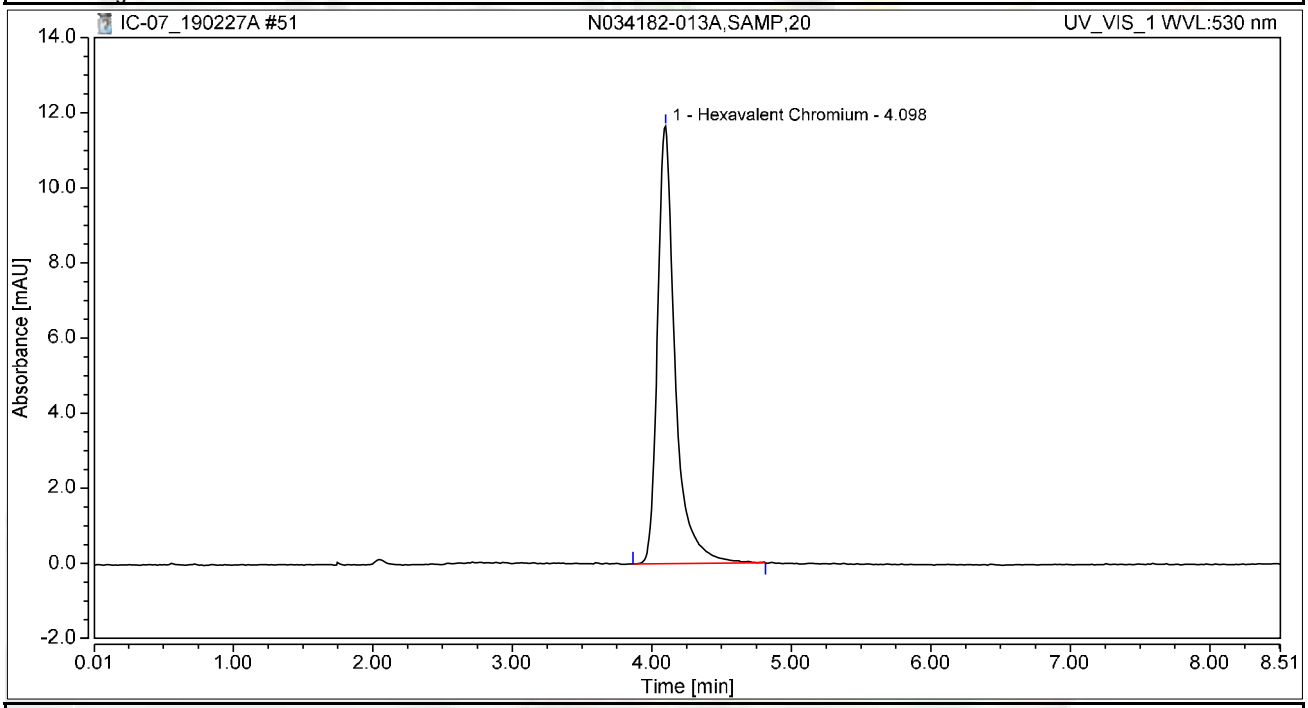
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034182-013A,SAMP,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **42** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 15:26** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

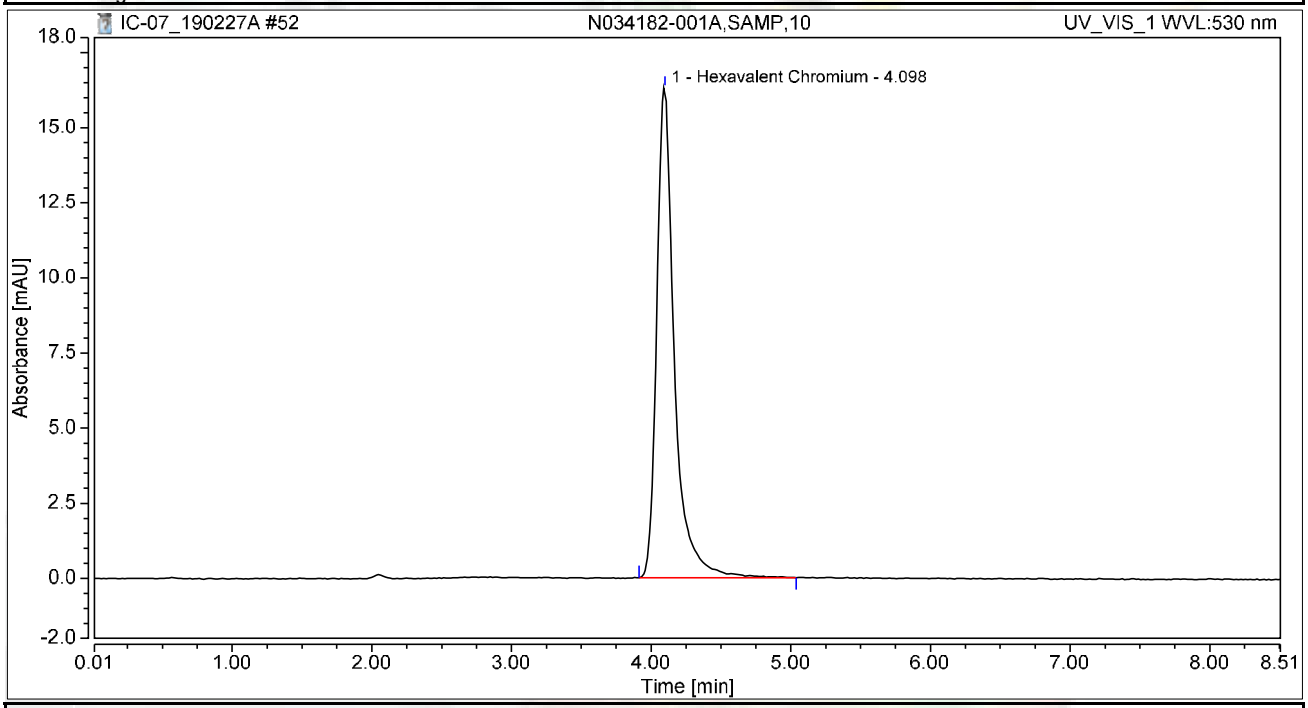
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.700 | 11.651 | 100.00 | 100.00 | 6.8615 |
| **Total:** | | | **1.700** | **11.651** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034182-001A,SAMP,10** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **43** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 15:36** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

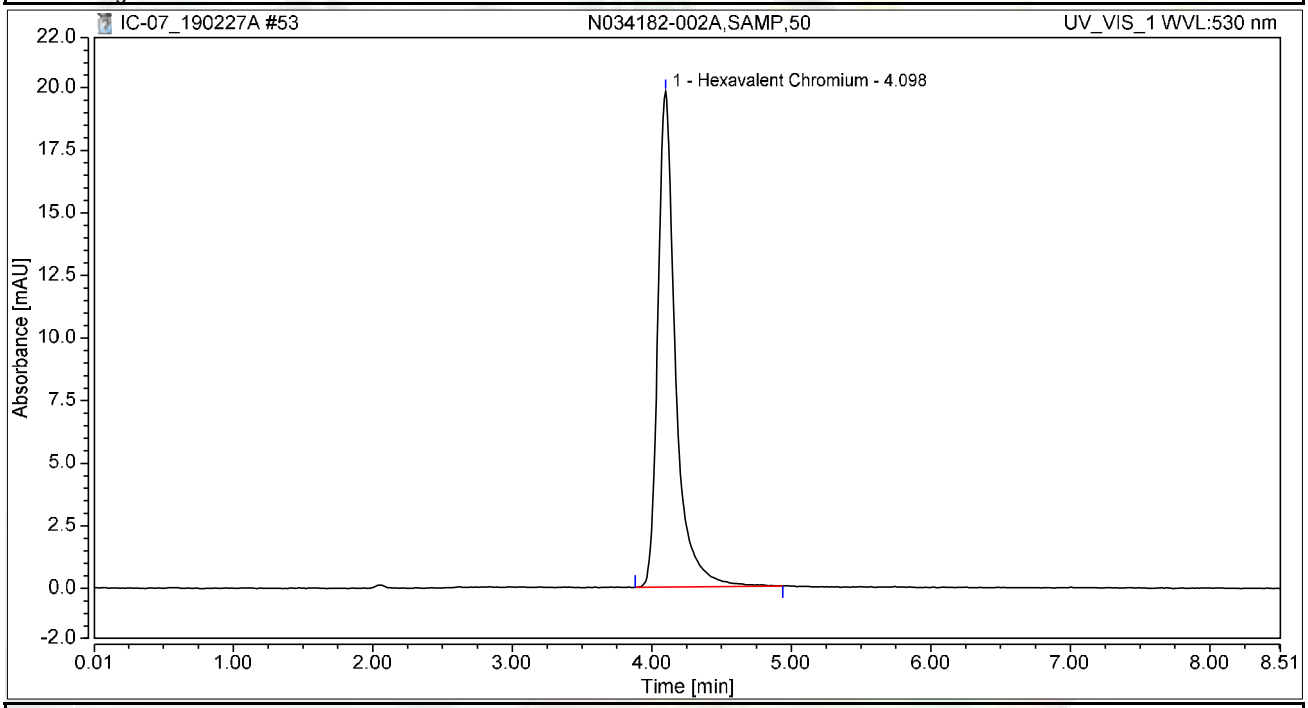
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.397 | 16.296 | 100.00 | 100.00 | 9.6714 |
| **Total:** | | | **2.397** | **16.296** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034182-002A,SAMP,50** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **44** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 15:45** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

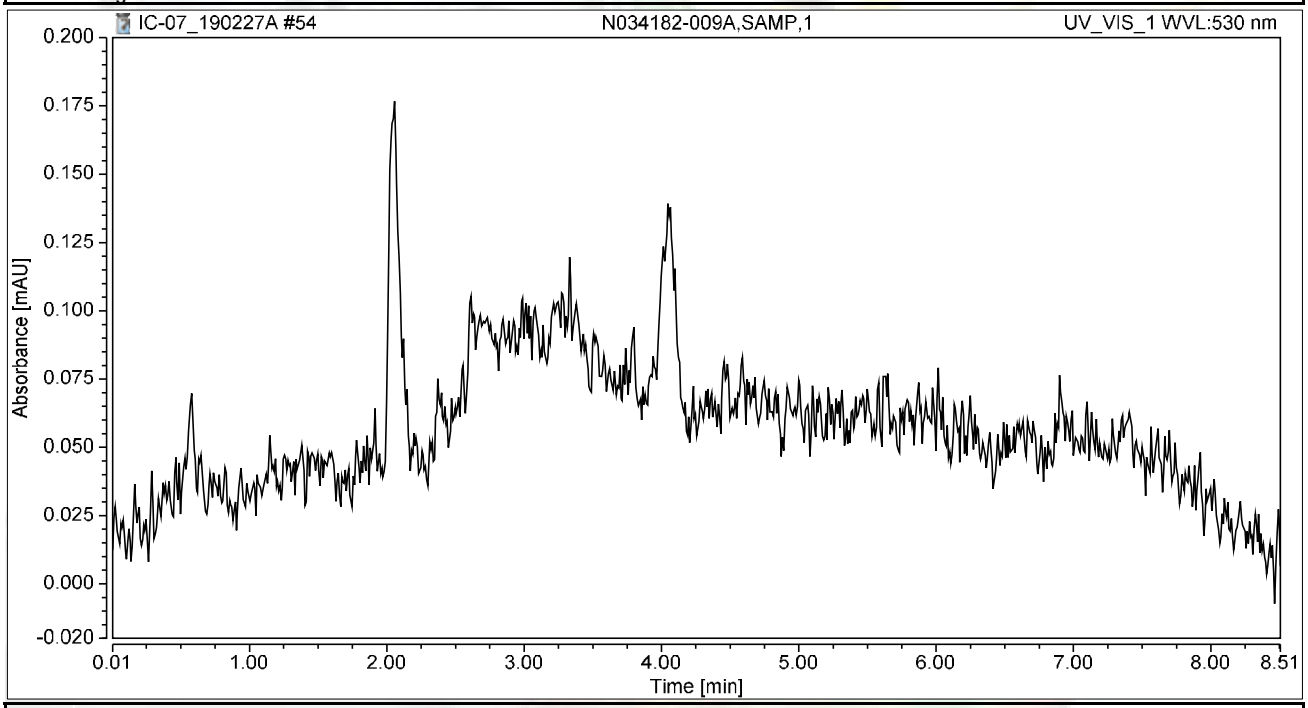
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.902 | 19.785 | 100.00 | 100.00 | 11.7087 |
| **Total:** | | | **2.902** | **19.785** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034182-009A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **45** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 15:55** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

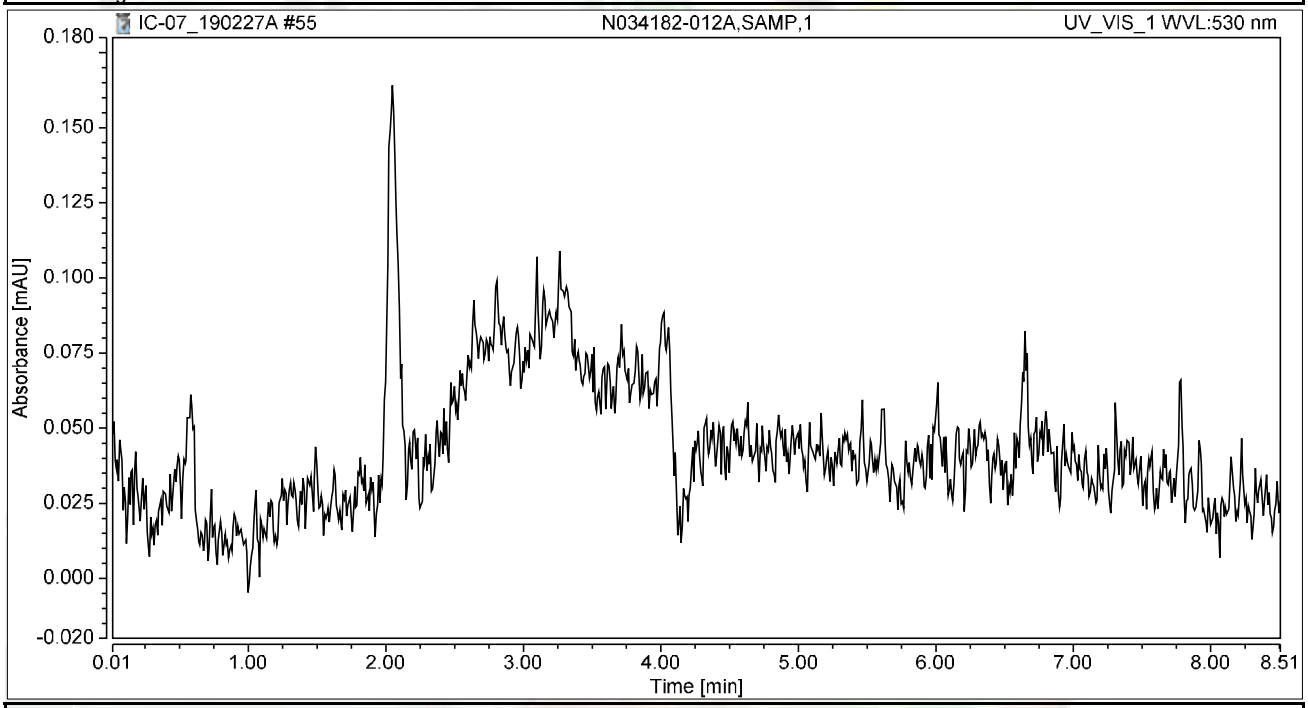
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034182-012A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **46** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 16:04** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

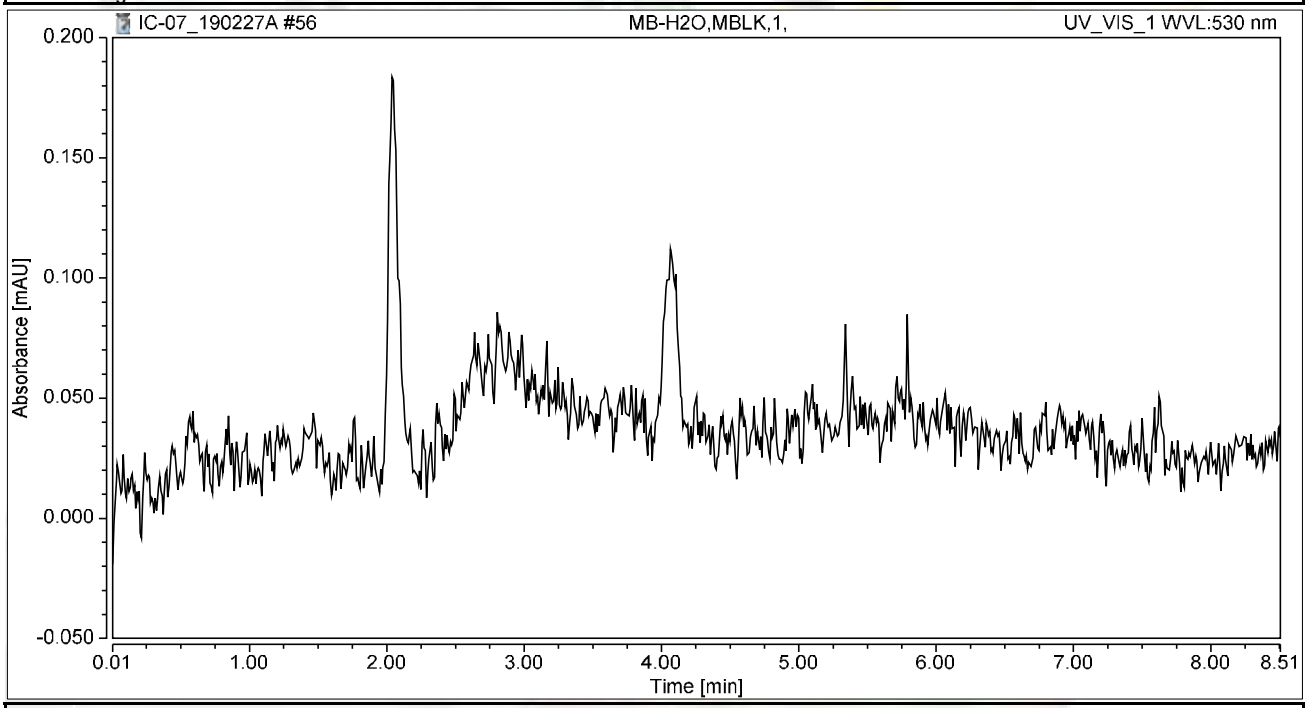
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **MB-H2O,MBLK,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **47** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 16:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

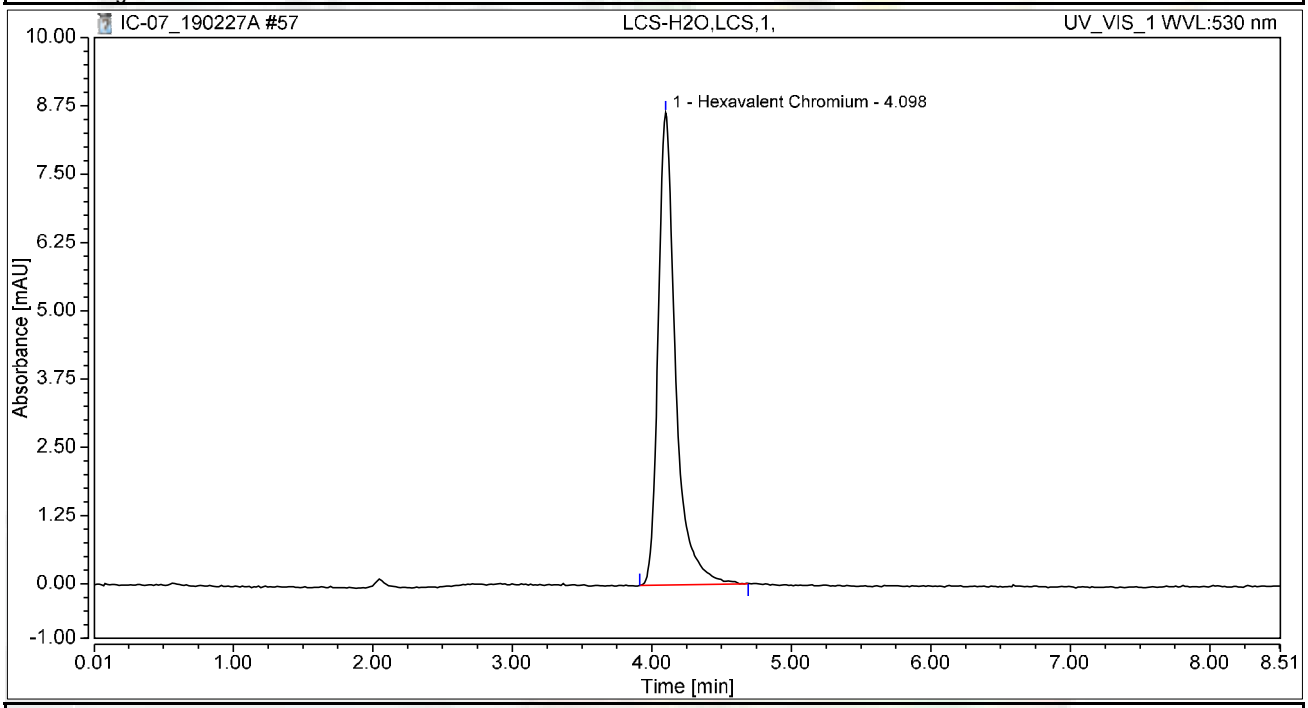
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **LCS-H2O,LCS,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **48** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 16:23** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

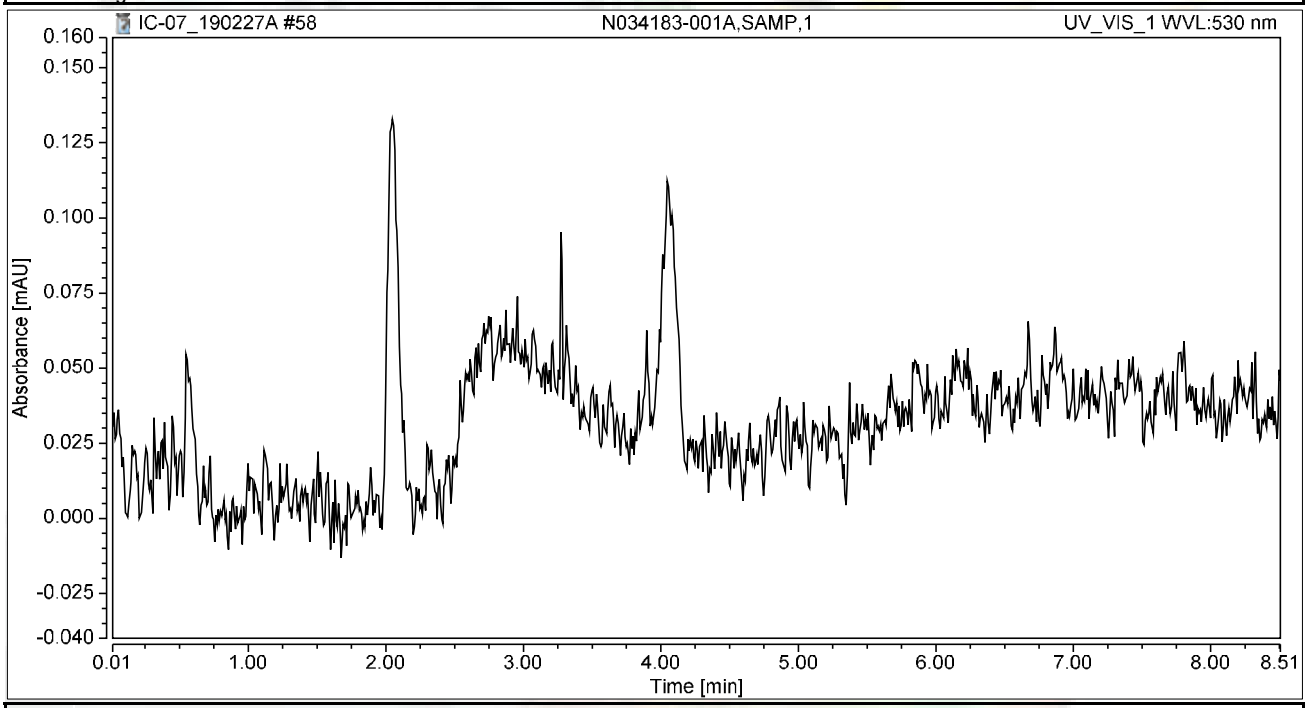
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.251 | 8.644 | 100.00 | 100.00 | 5.0485 |
| **Total:** | | | **1.251** | **8.644** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-001A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **49** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 16:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

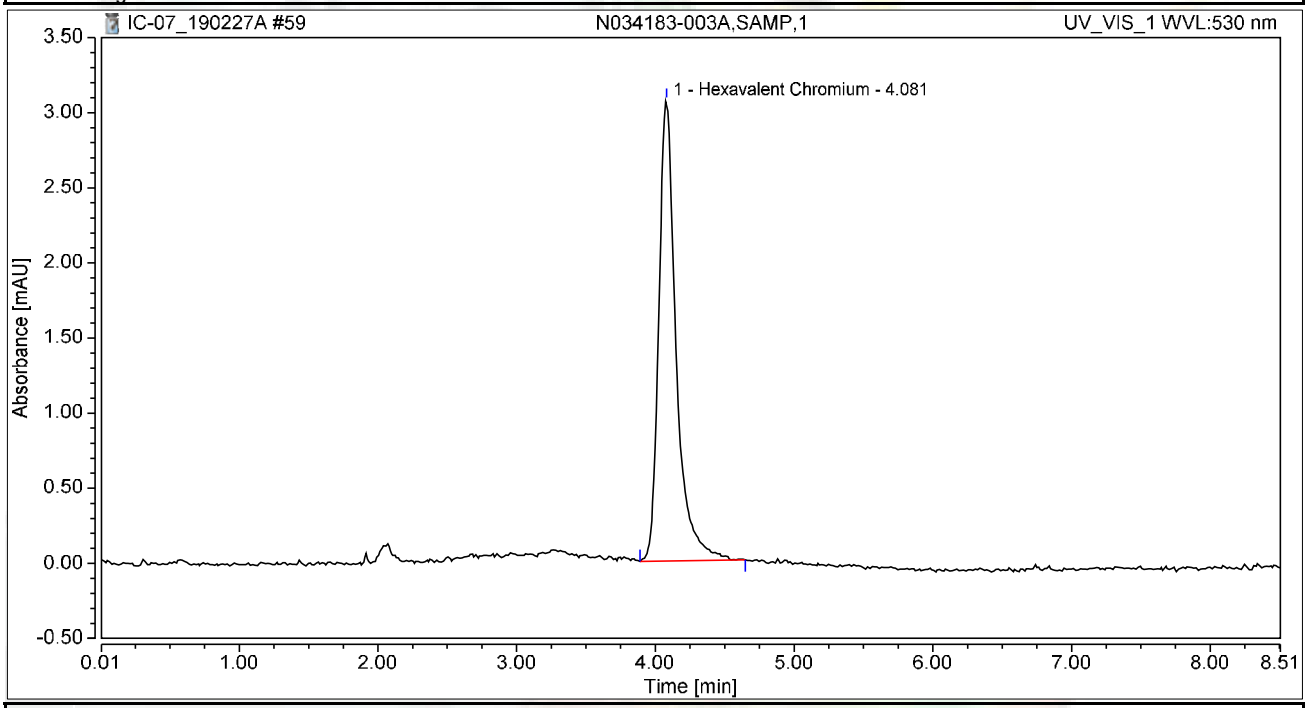
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-003A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **50** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 16:42** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

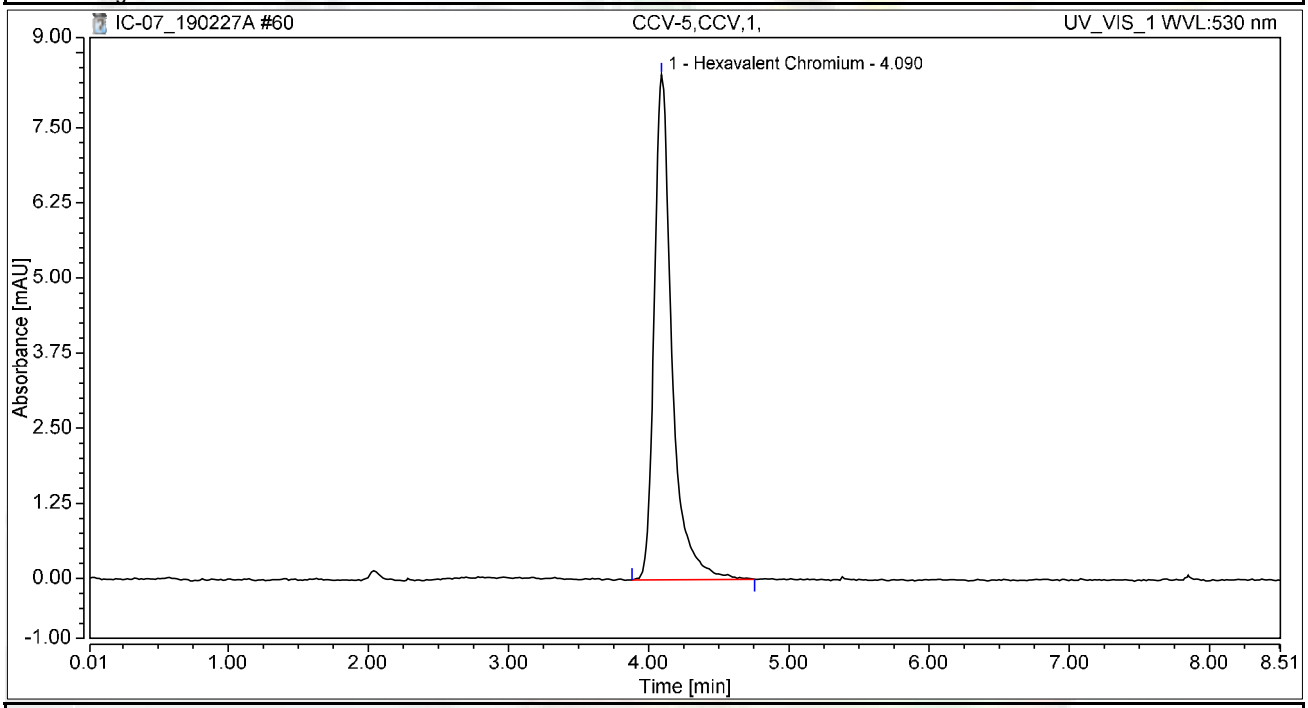
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.445 | 3.066 | 100.00 | 100.00 | 1.7947 |
| **Total:** | | | **0.445** | **3.066** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-5,CCV,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 17:04** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

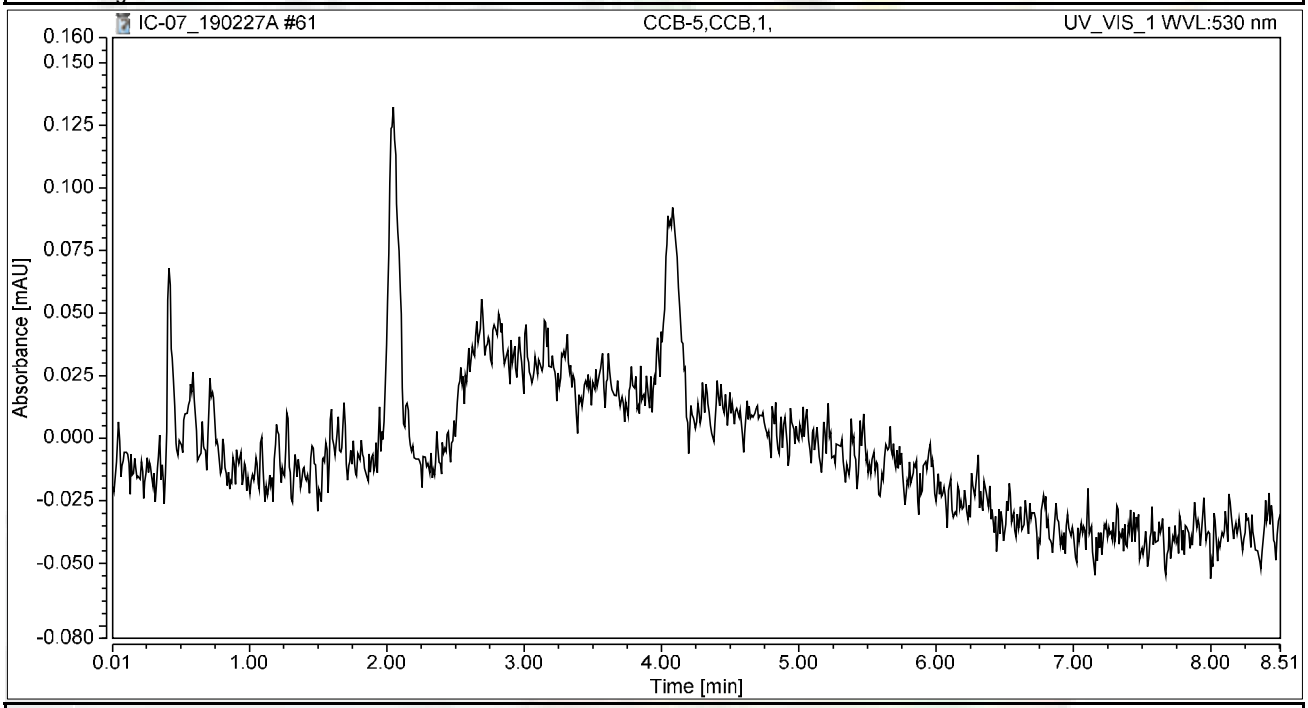
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 1.233 | 8.407 | 100.00 | 100.00 | 4.9766 |
| **Total:** | | | **1.233** | **8.407** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-5,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 17:15** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

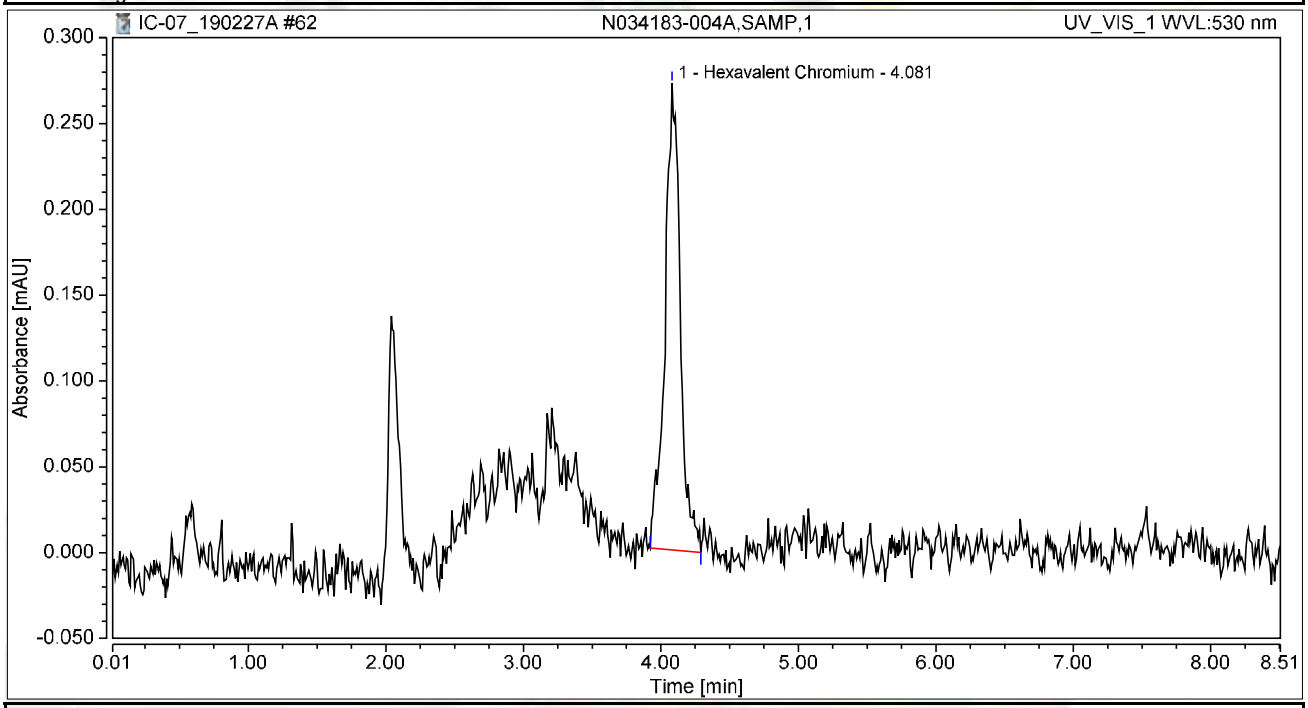
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-004A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 17:24** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

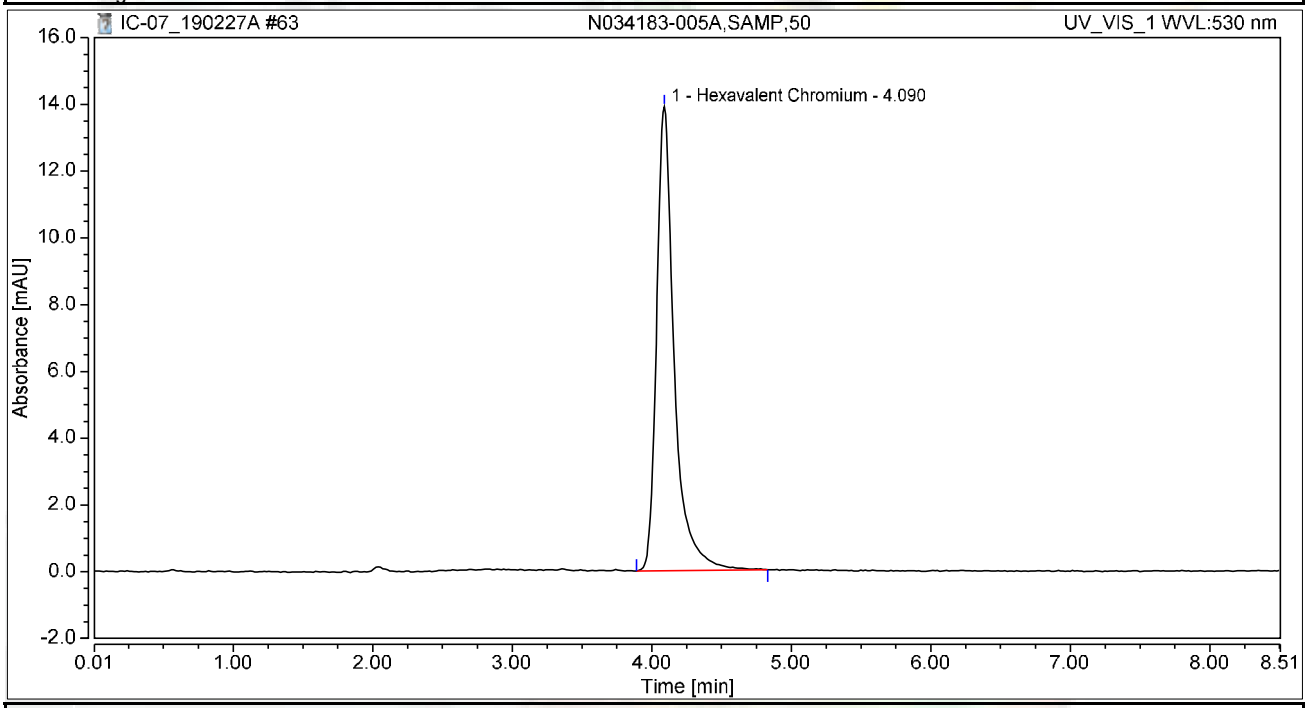
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.035 | 0.272 | 100.00 | 100.00 | 0.1418 |
| **Total:** | | | **0.035** | **0.272** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-005A,SAMP,50** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 17:34** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

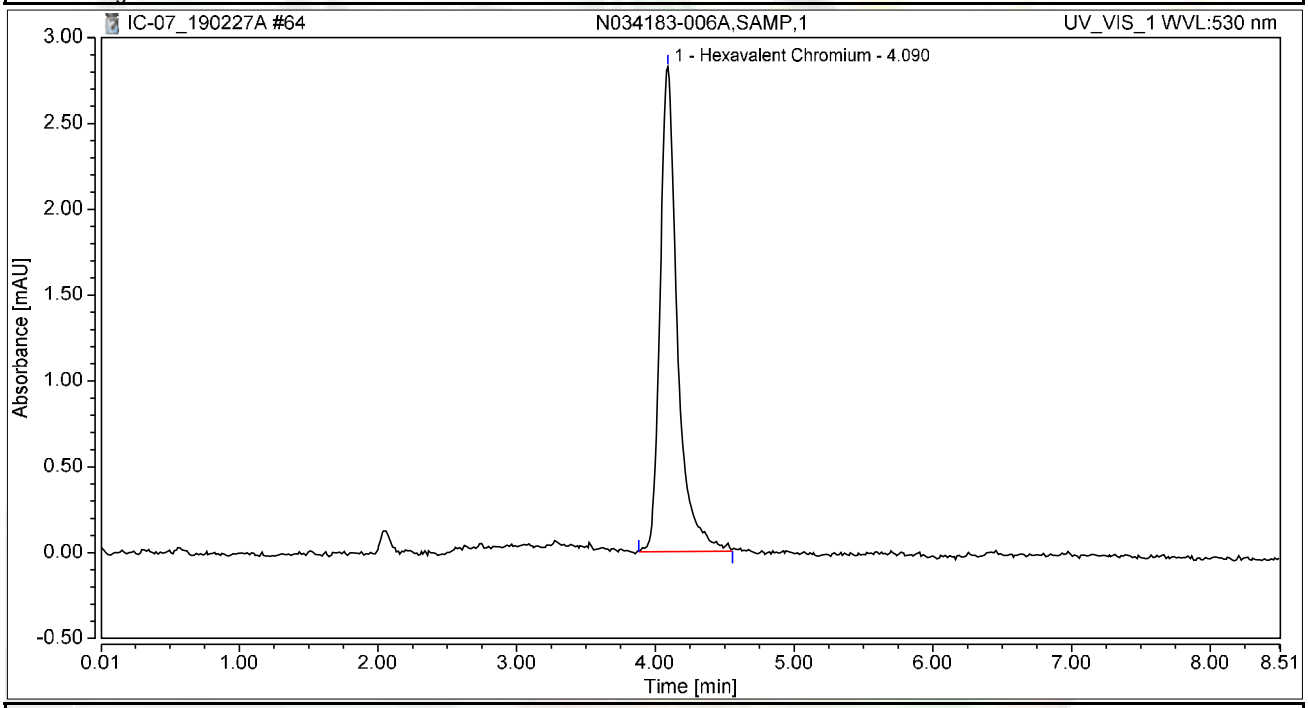
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 2.041 | 13.906 | 100.00 | 100.00 | 8.2356 |
| **Total:** | | | **2.041** | **13.906** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-006A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 17:43** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

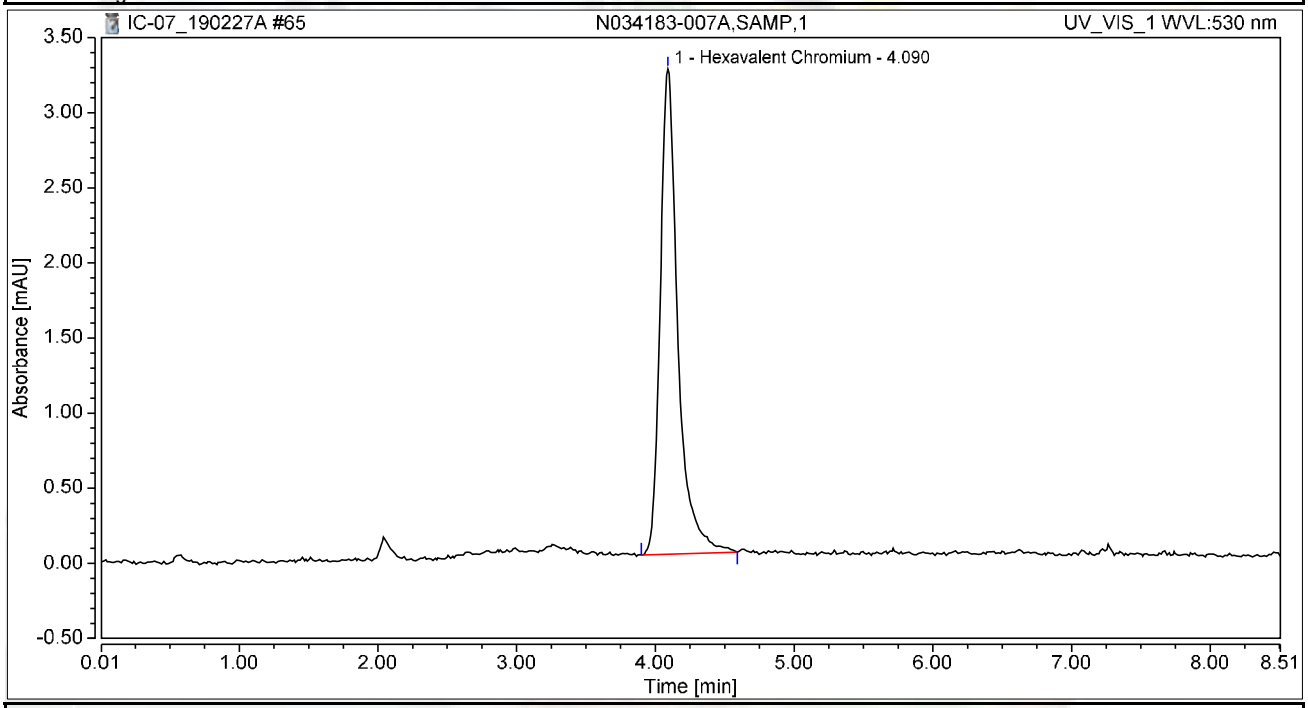
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.409 | 2.826 | 100.00 | 100.00 | 1.6494 |
| **Total:** | | | **0.409** | **2.826** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-007A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 17:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

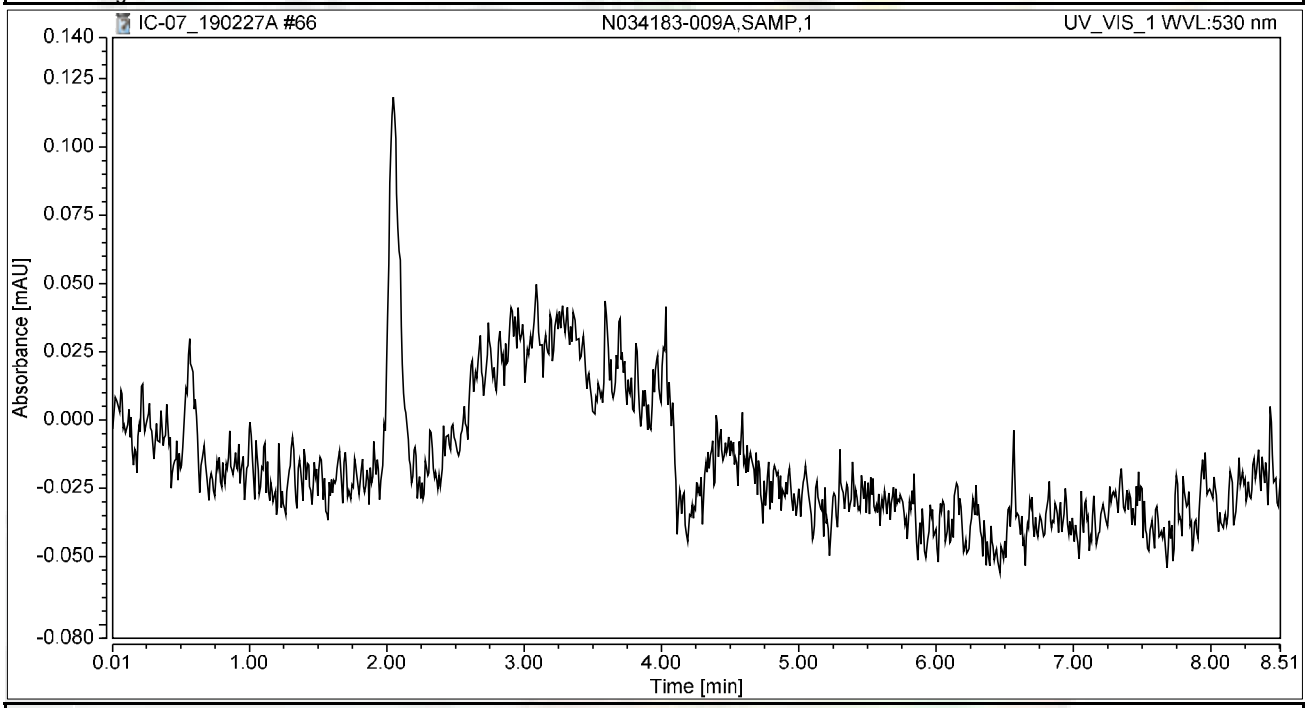
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.477 | 3.232 | 100.00 | 100.00 | 1.9232 |
| **Total:** | | | **0.477** | **3.232** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-009A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 18:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

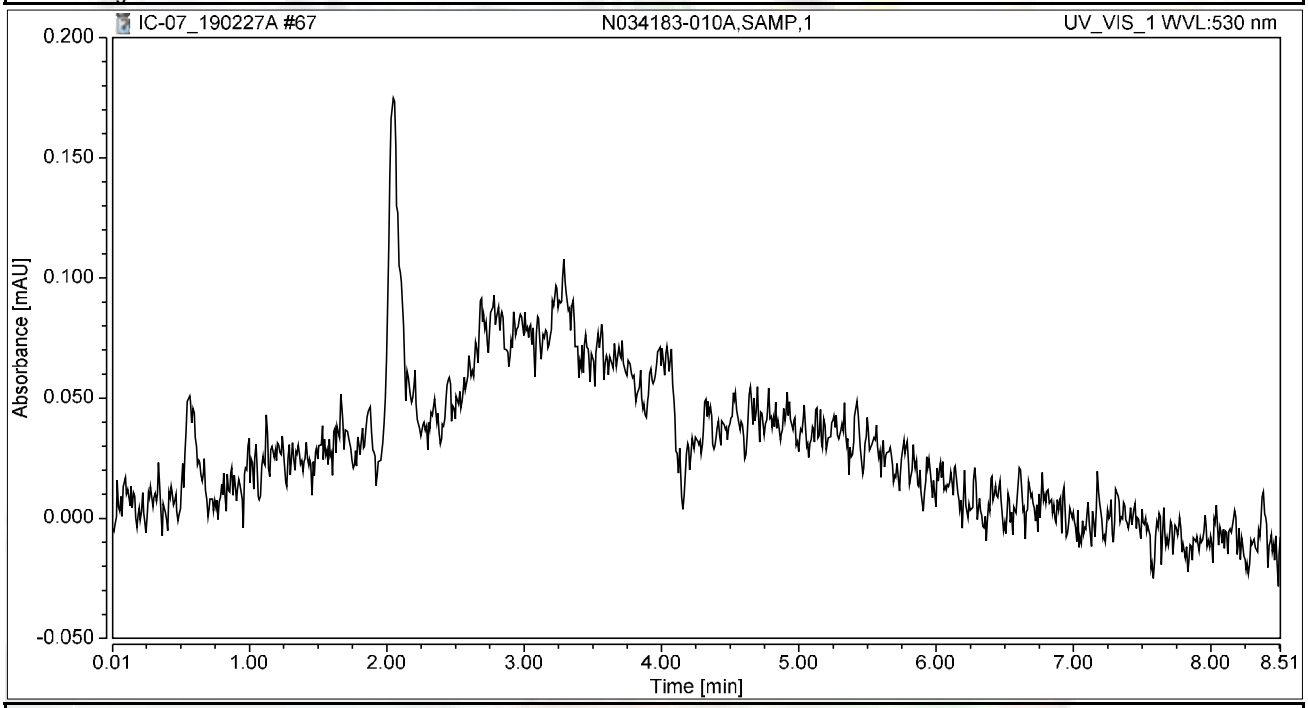
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-010A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 18:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

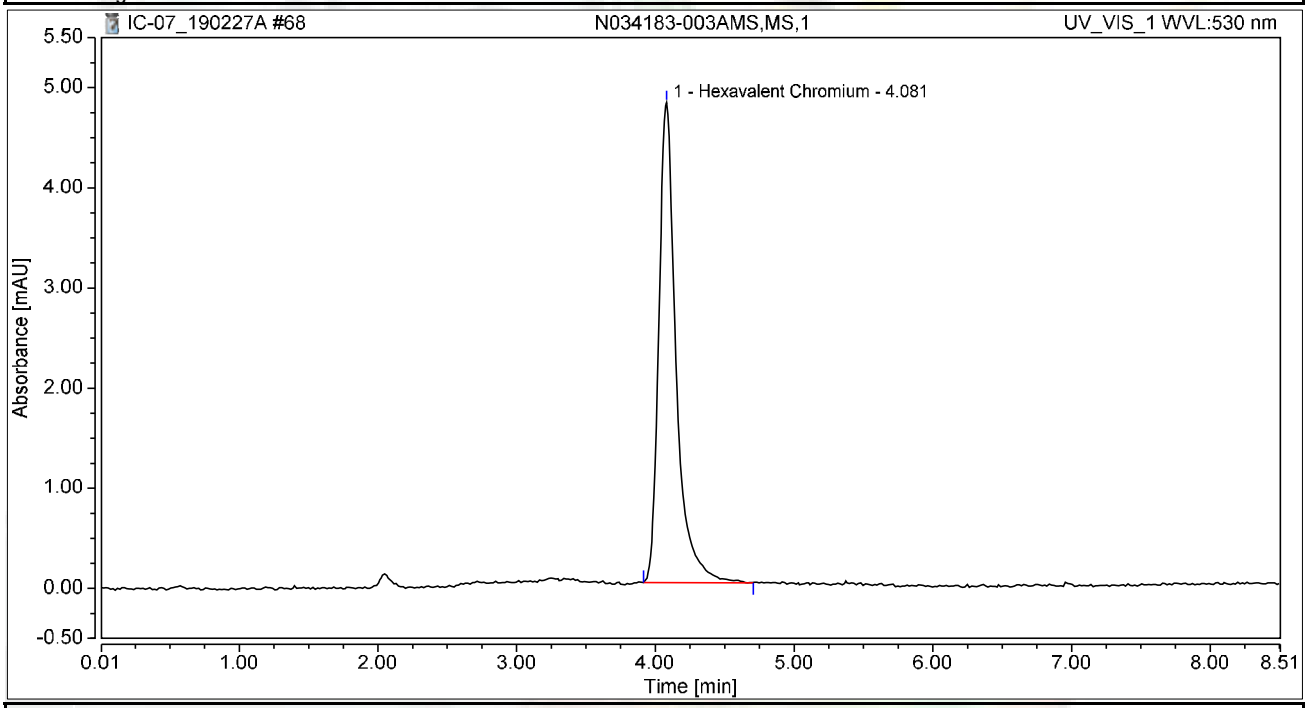
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-003AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 18:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

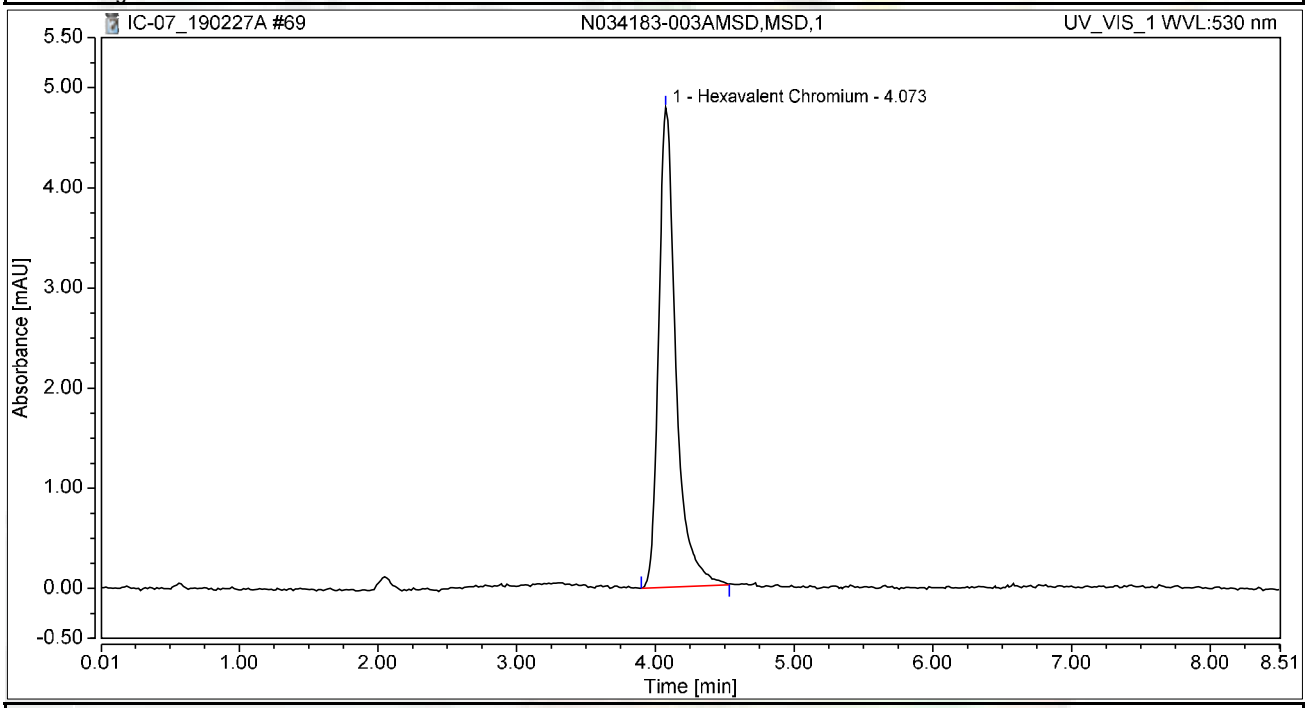
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.691 | 4.792 | 100.00 | 100.00 | 2.7882 |
| **Total:** | | | **0.691** | **4.792** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-003AMSD,MSD,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 18:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

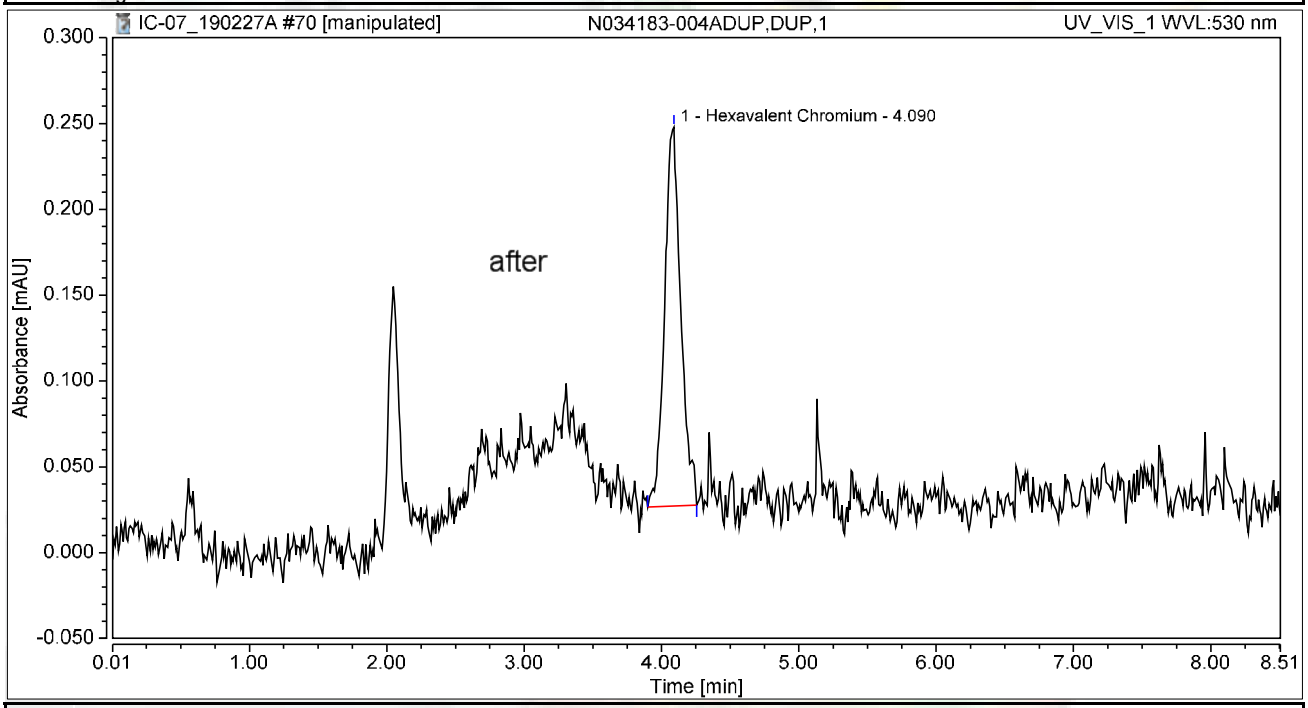
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 0.692 | 4.791 | 100.00 | 100.00 | 2.7917 |
| **Total:** | | | **0.692** | **4.791** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-004ADUP,DUP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 18:40** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.030 | 0.221 | 100.00 | 100.00 | 0.1218 |
| **Total:** | | | **0.030** | **0.221** | **100.00** | **100.00** | |

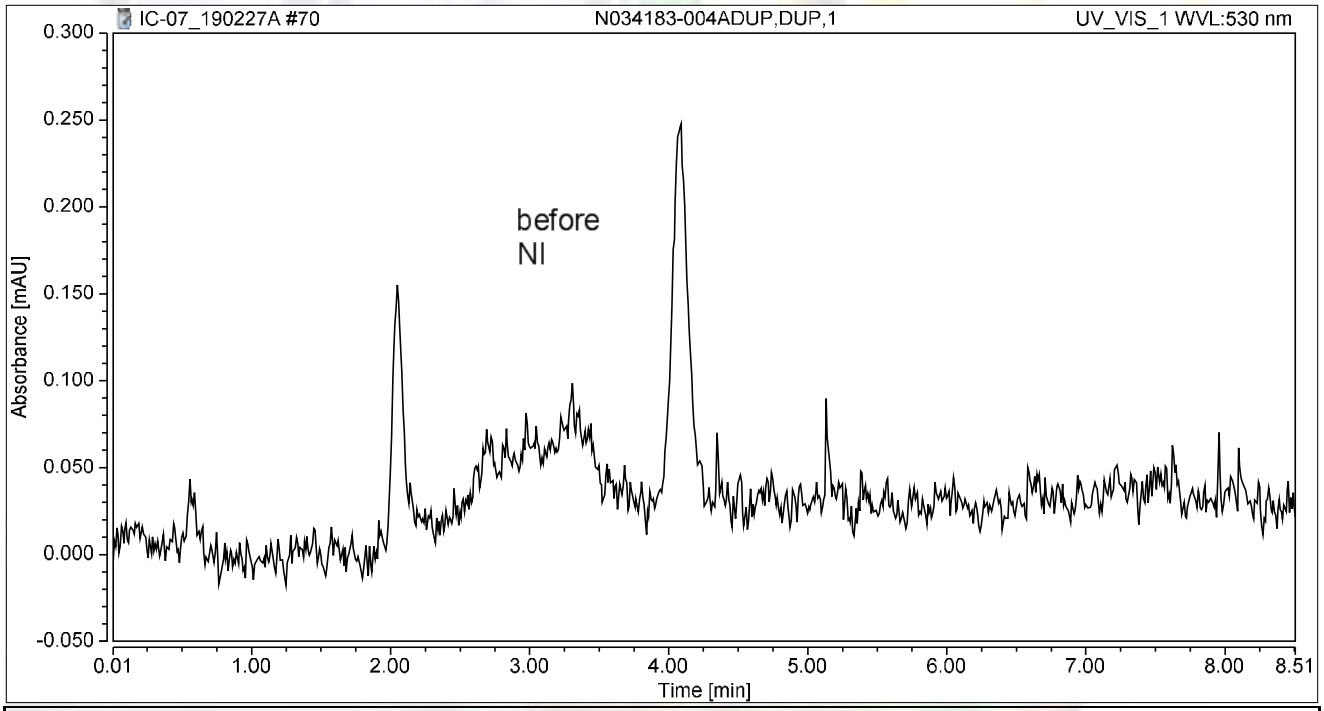
Reviewed by:
Nancy 3/2/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-004ADUP,DUP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 18:40** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

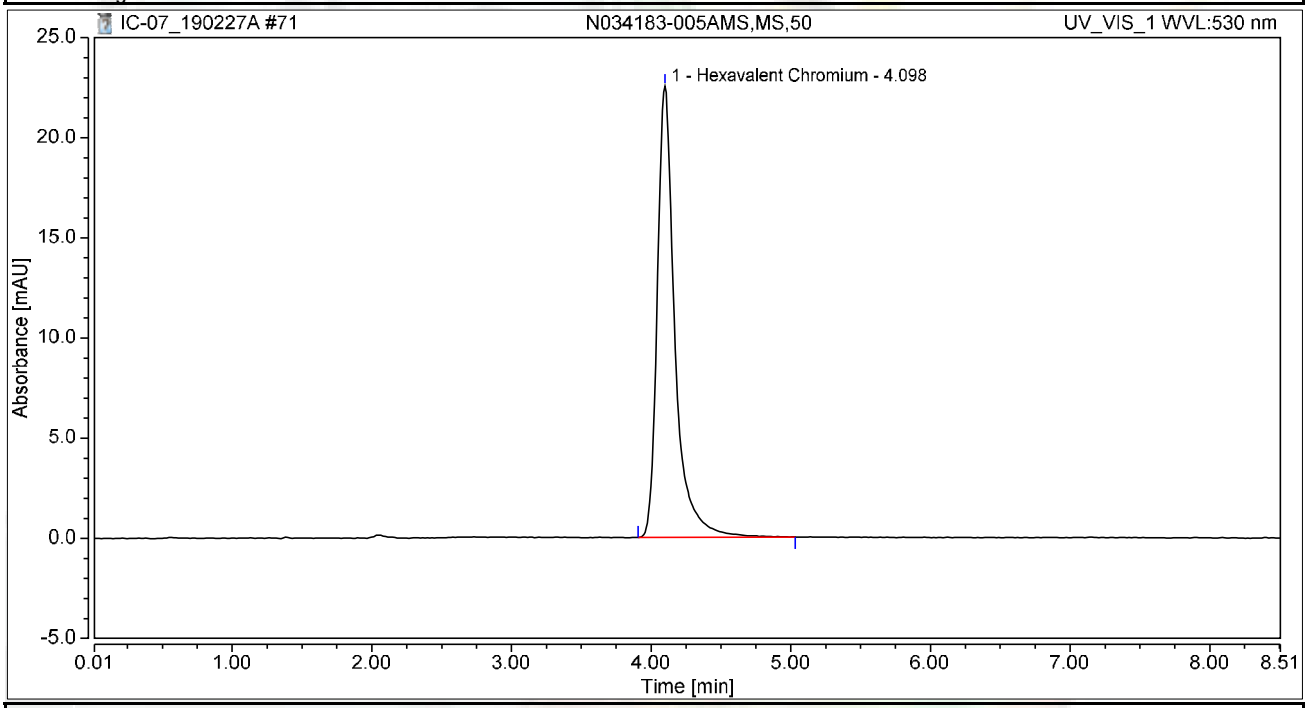
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-005AMS,MS,50** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 18:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

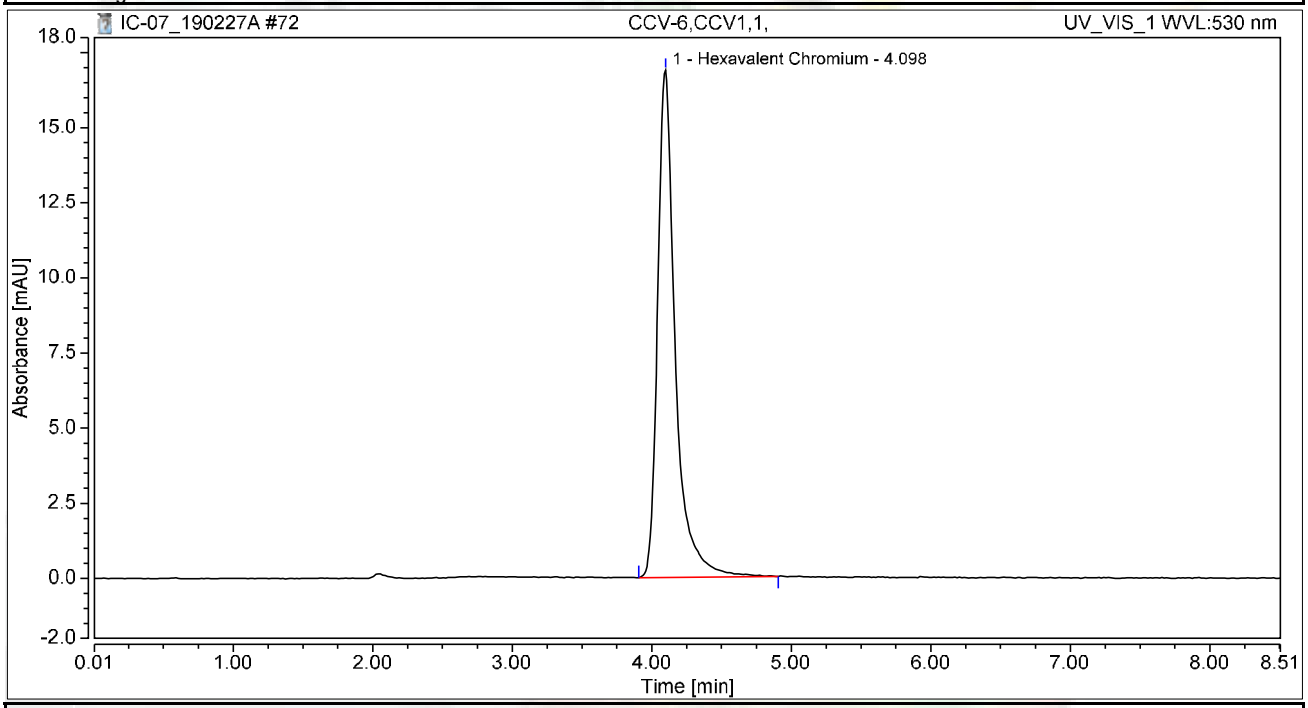
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 3.313 | 22.537 | 100.00 | 100.00 | 13.3693 |
| **Total:** | | | **3.313** | **22.537** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-6,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 18:59** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

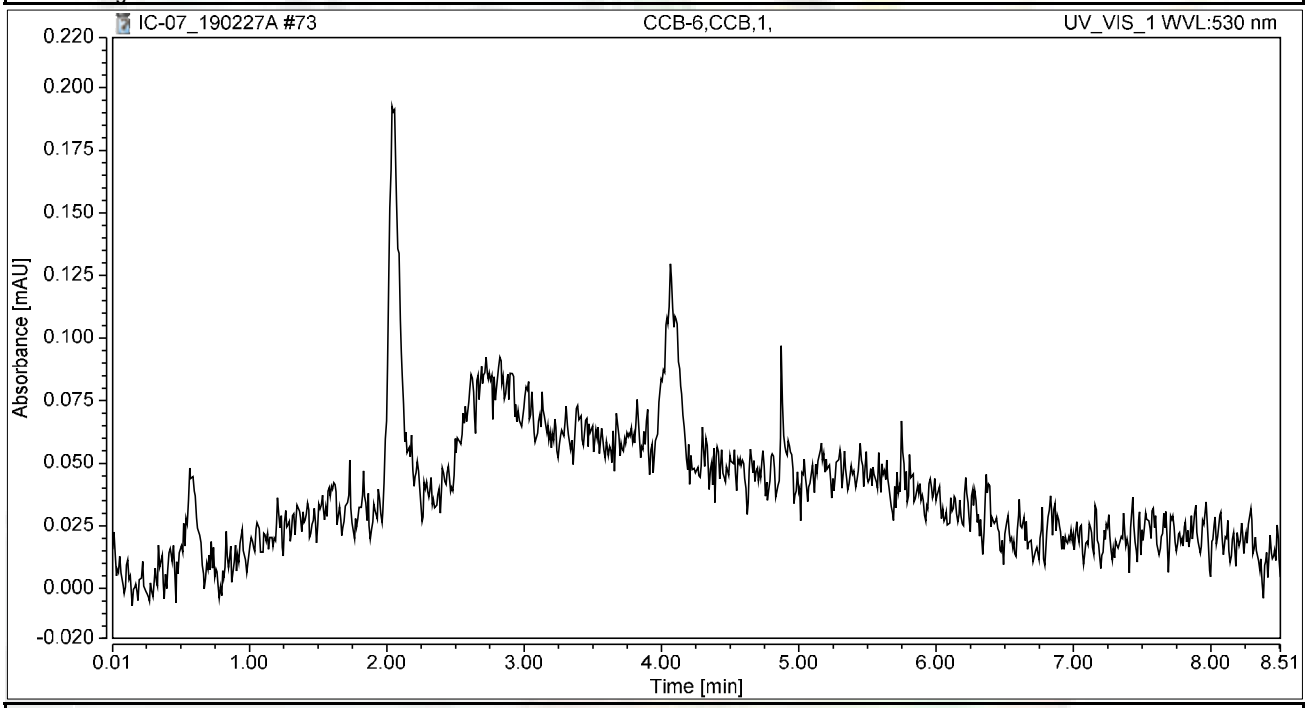
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.473 | 16.883 | 100.00 | 100.00 | 9.9792 |
| **Total:** | | | **2.473** | **16.883** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-6,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 19:08** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

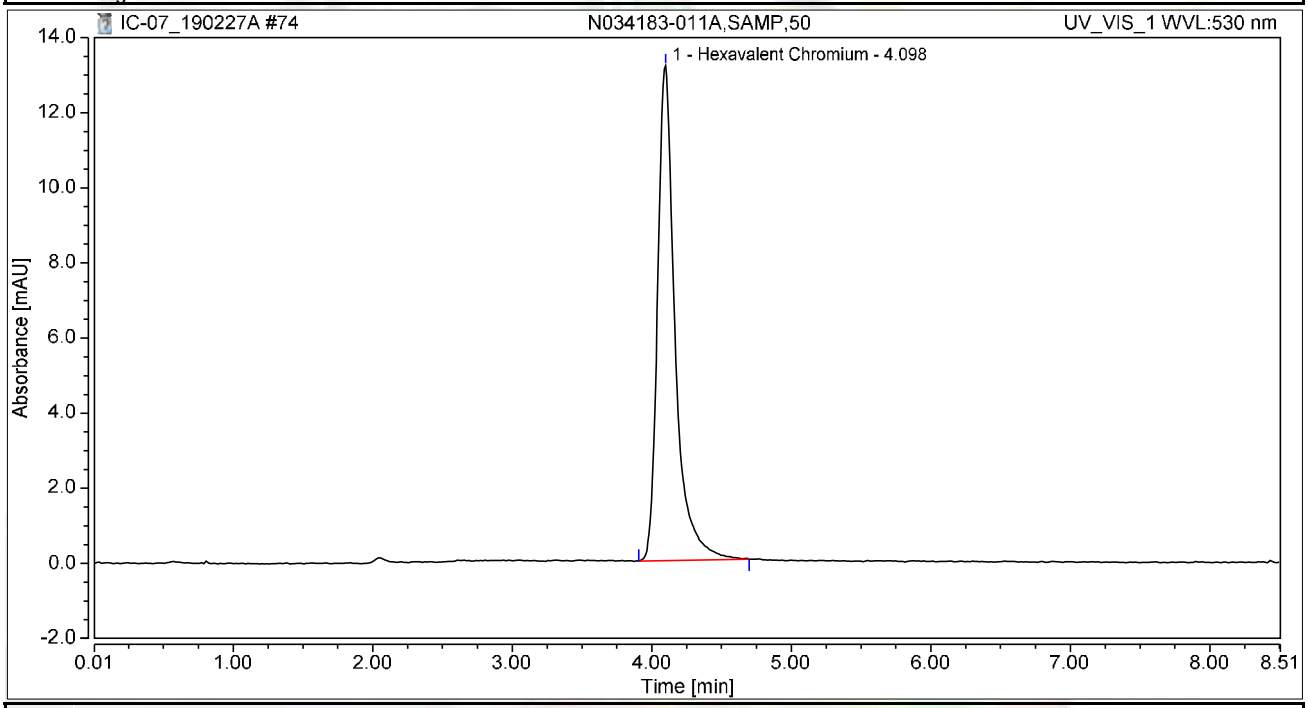
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-011A,SAMP,50** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 19:18** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

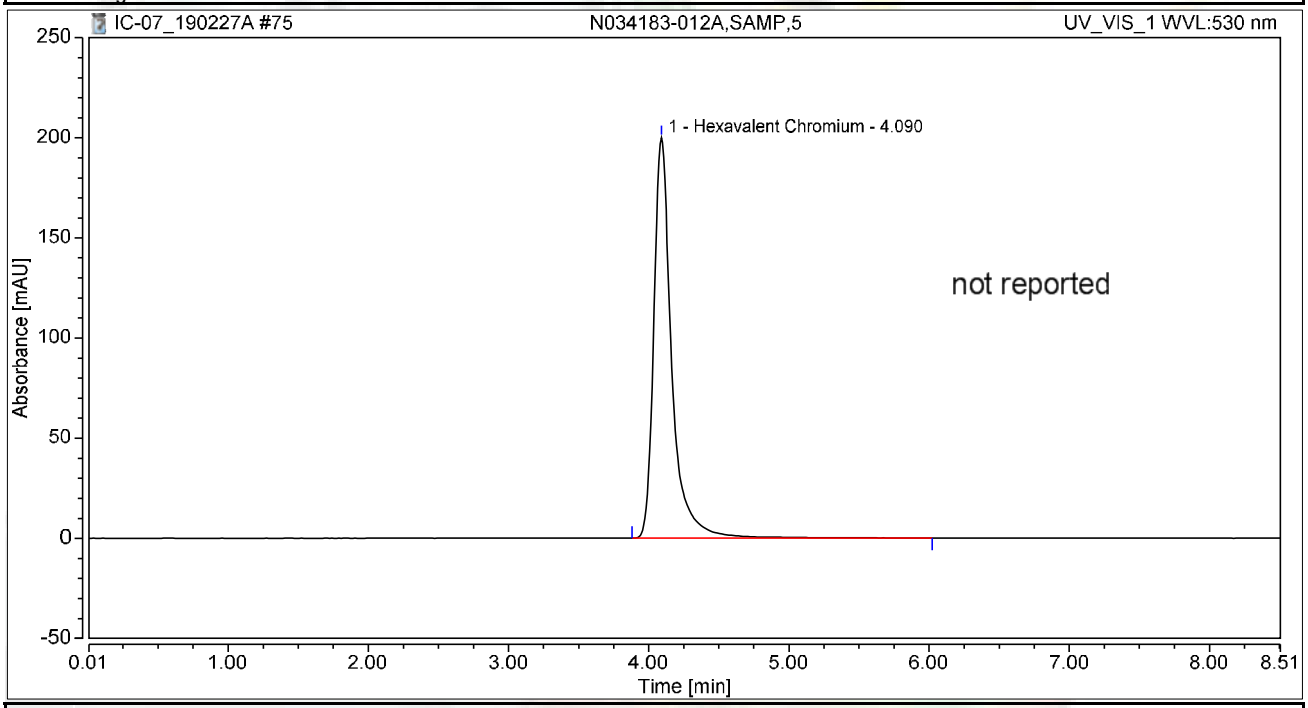
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.911 | 13.179 | 100.00 | 100.00 | 7.7114 |
| **Total:** | | | **1.911** | **13.179** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-012A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 19:27** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

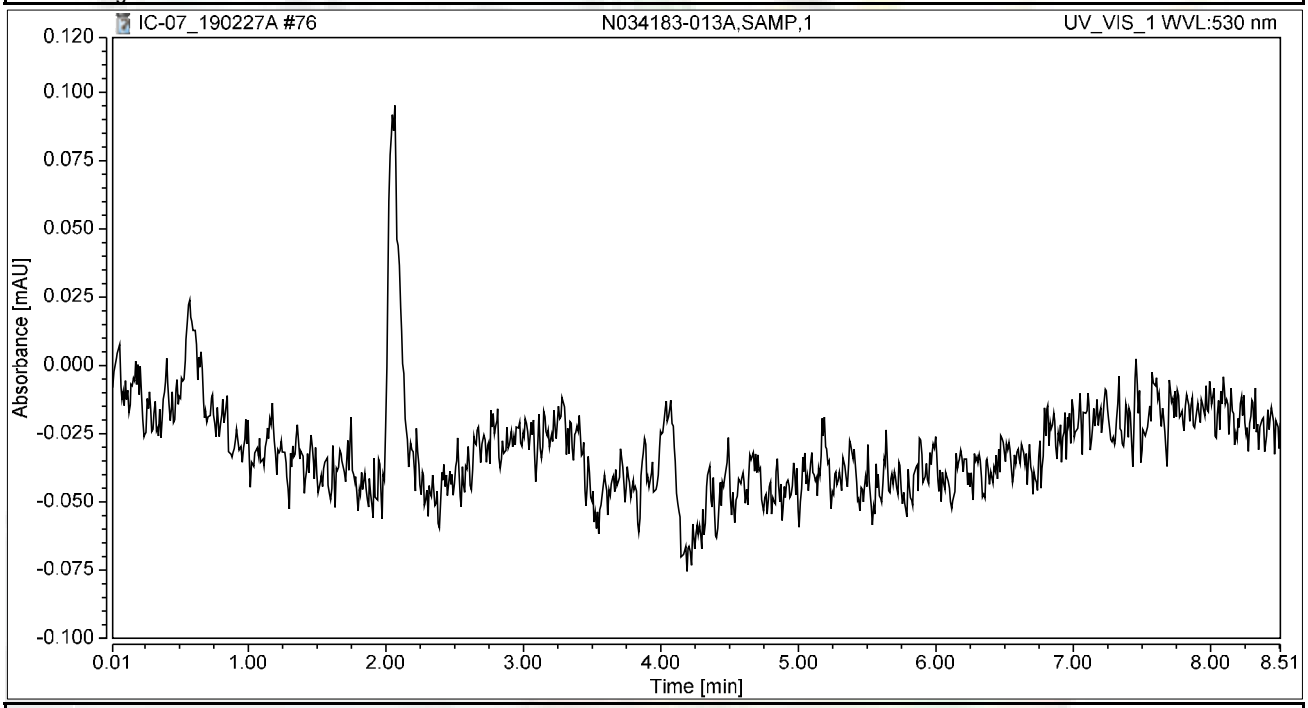
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 29.716 | 200.083 | 100.00 | 100.00 | 119.9130 |
| **Total:** | | | **29.716** | **200.083** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-013A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 19:37** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

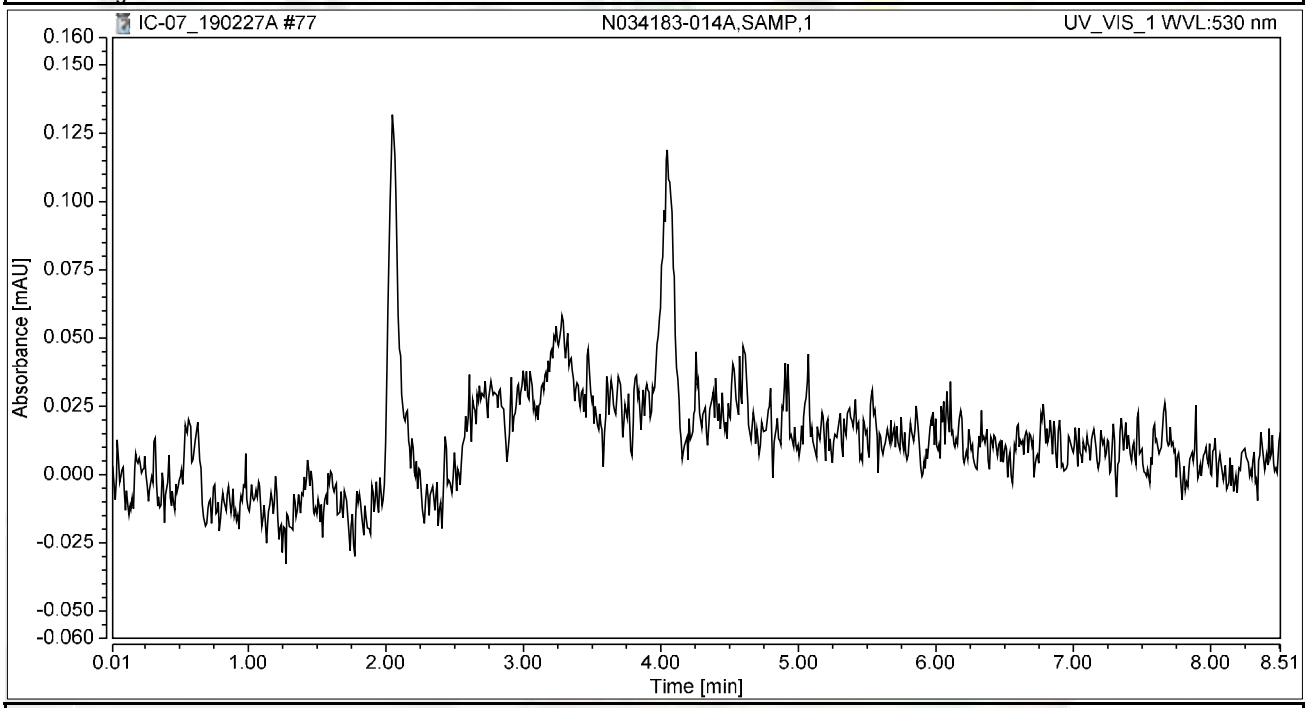
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-014A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 19:46** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

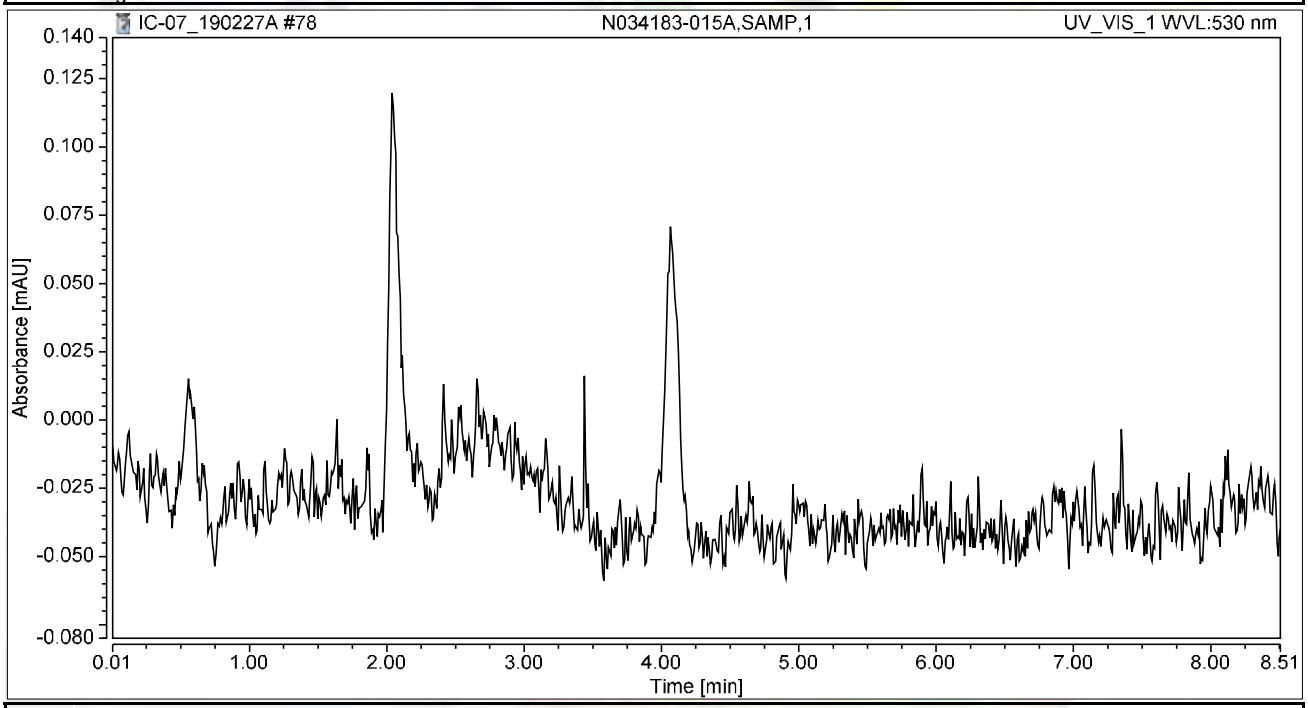
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-015A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 19:56** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

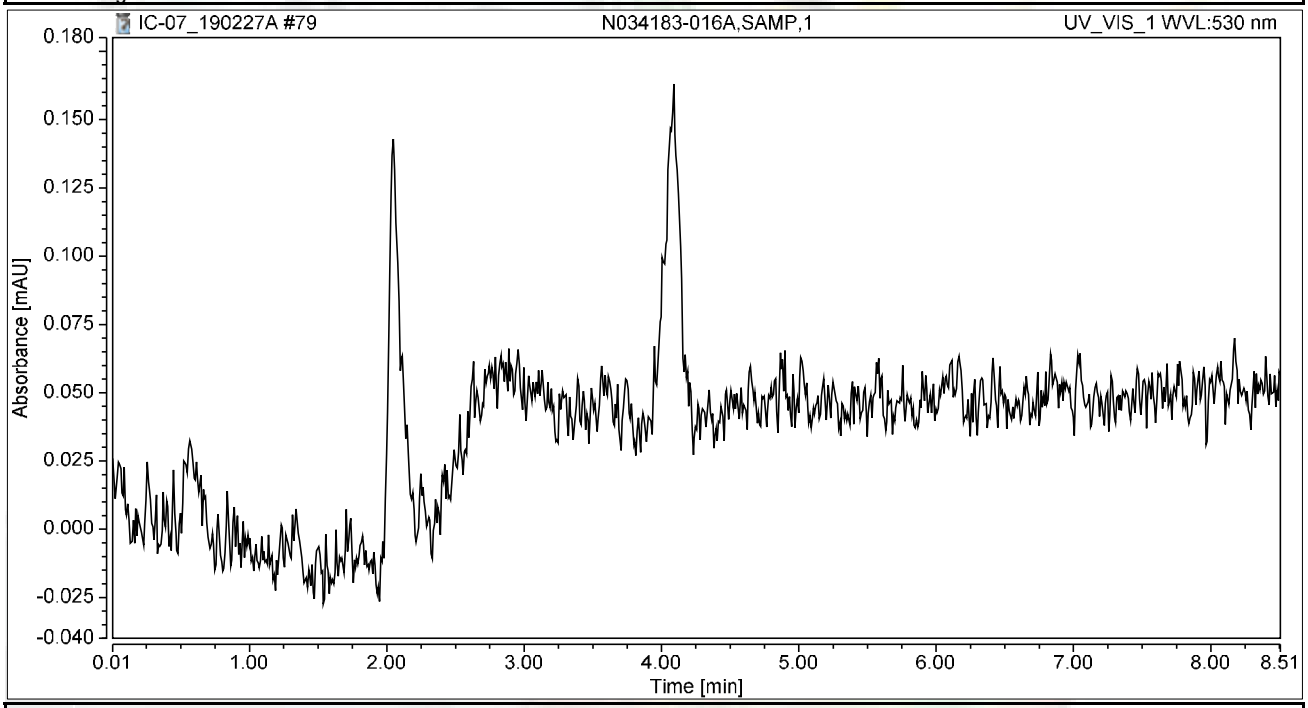
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-016A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **20** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 20:05** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

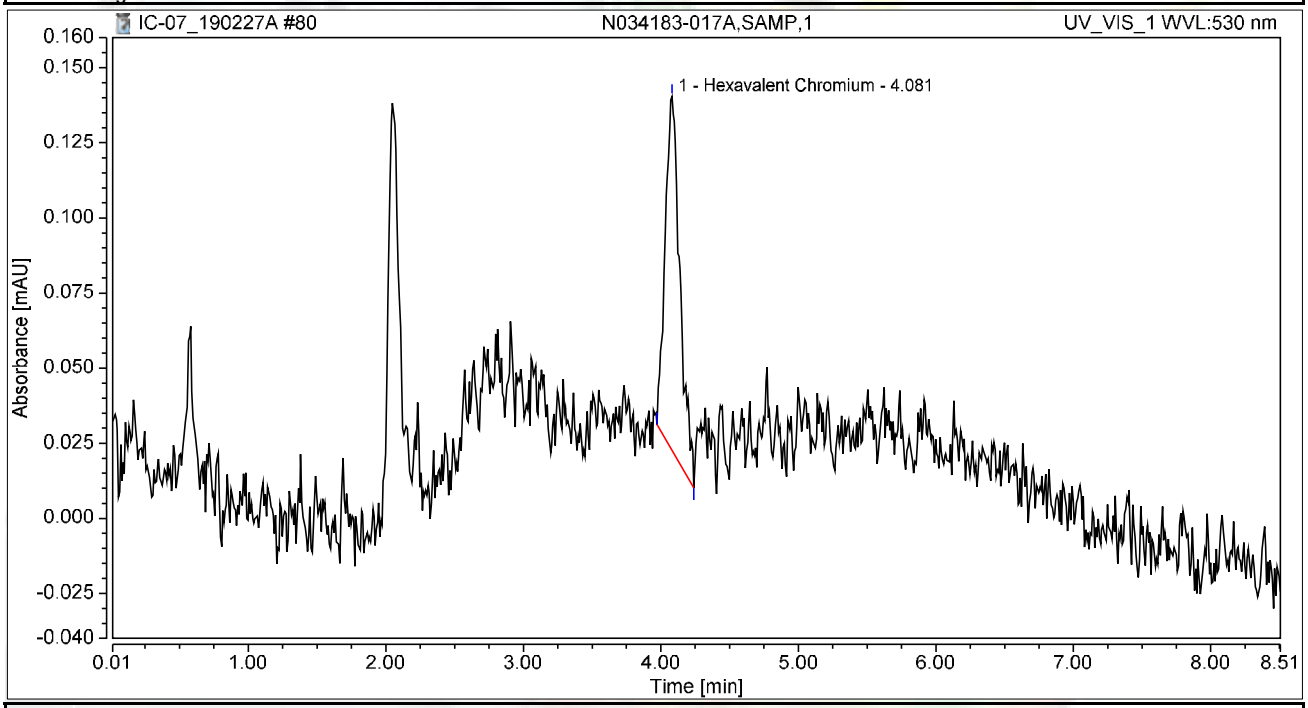
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-017A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 20:15** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

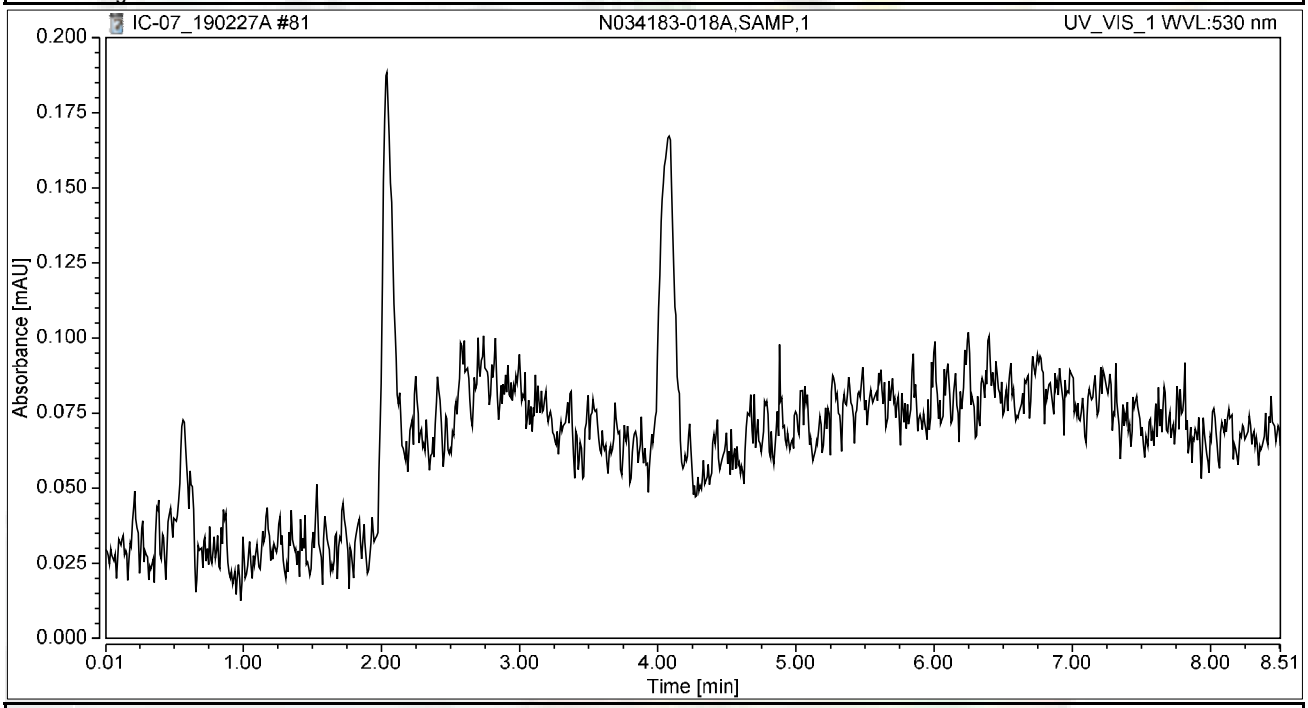
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.015 | 0.118 | 100.00 | 100.00 | 0.0591 |
| **Total:** | | | **0.015** | **0.118** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-018A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 20:24** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

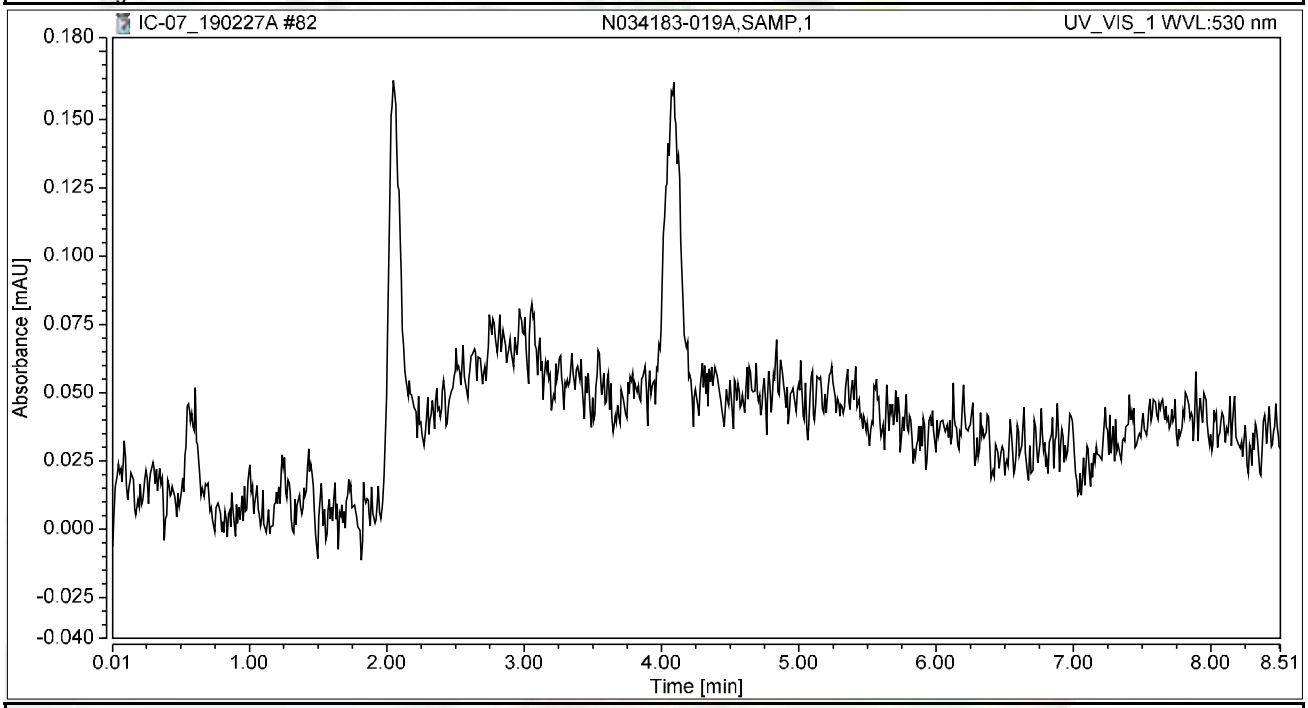
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-019A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **23** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 20:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

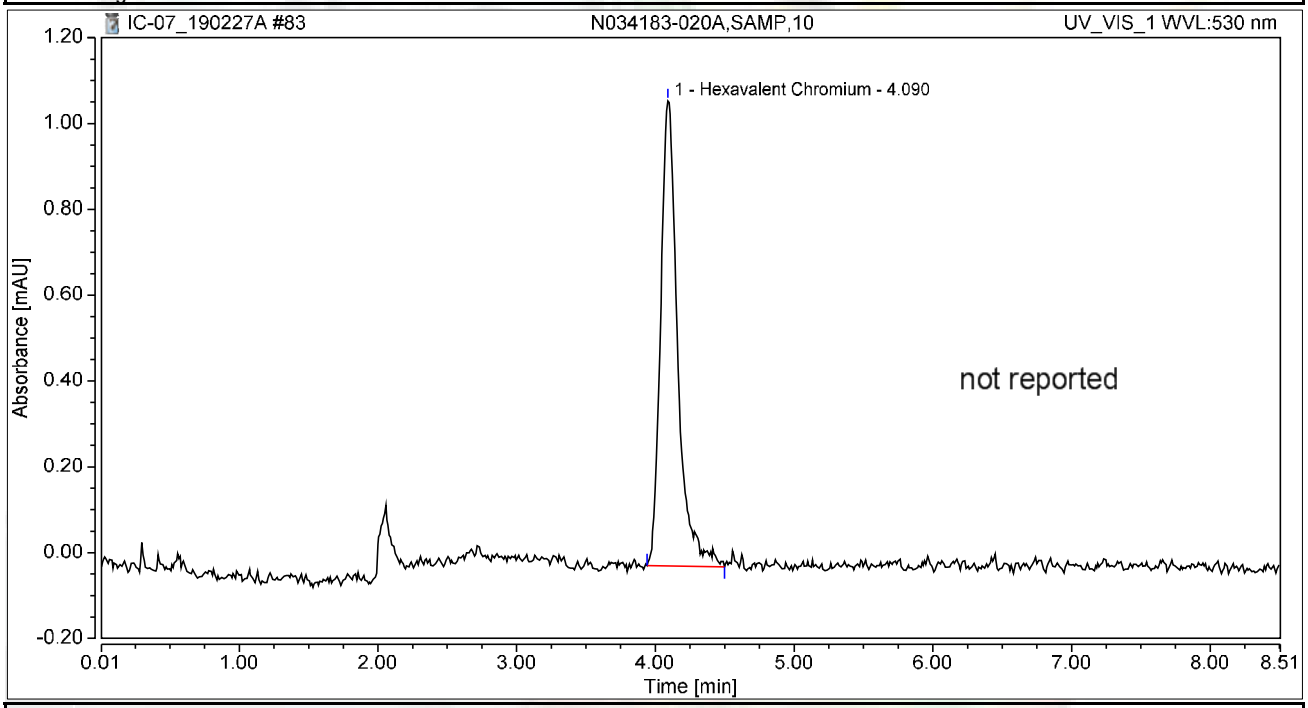
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034183-020A,SAMP,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **24** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 20:43** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

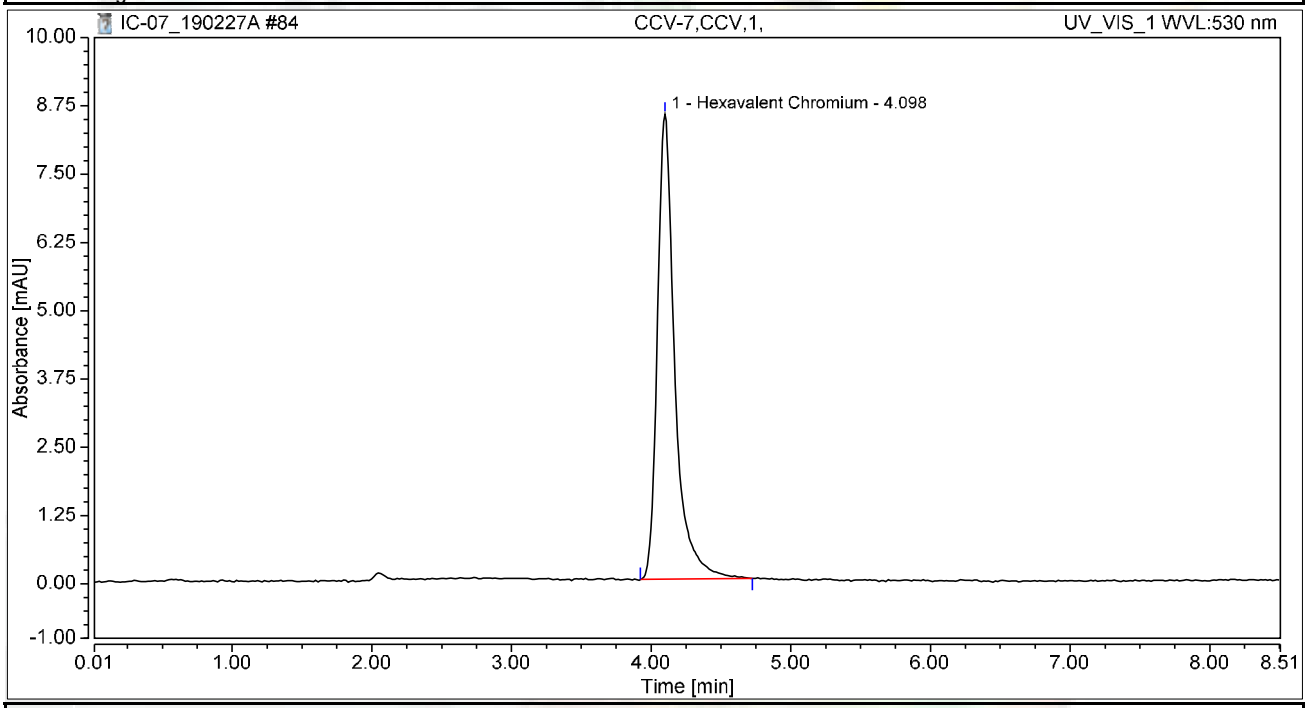
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.155 | 1.084 | 100.00 | 100.00 | 0.6244 |
| **Total:** | | | **0.155** | **1.084** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-7,CCV,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 20:52** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

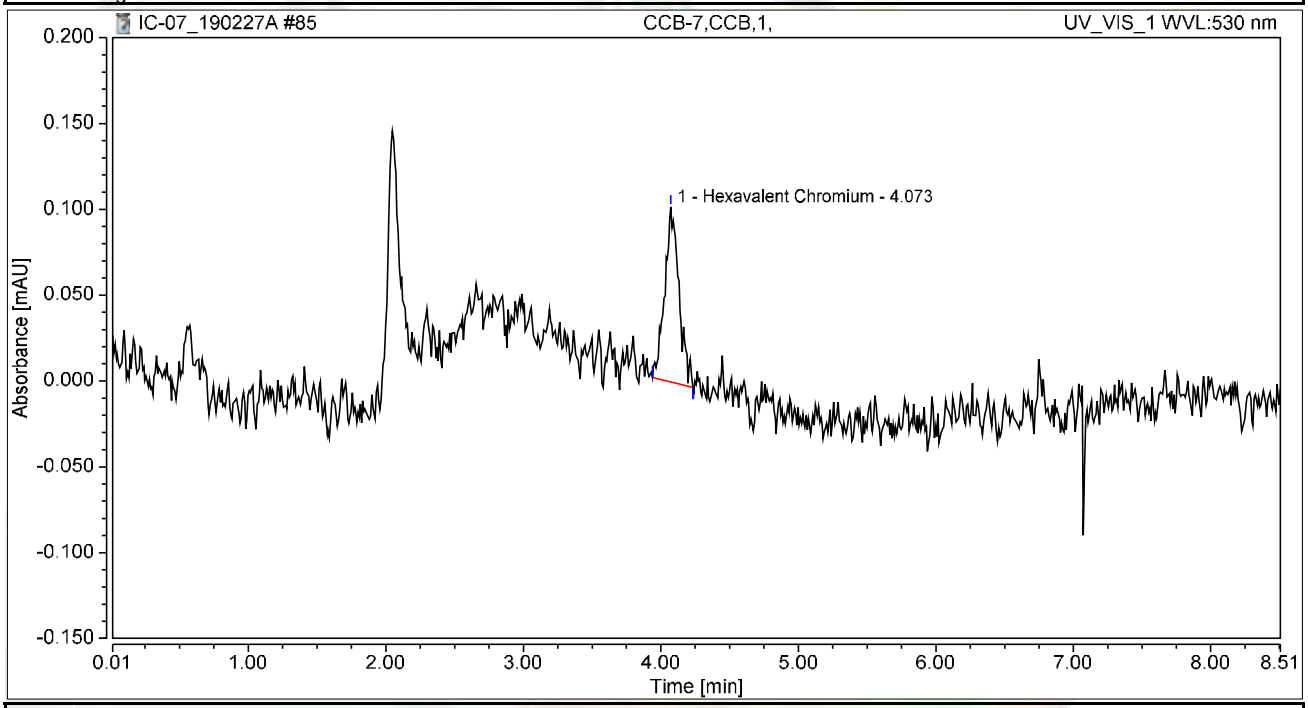
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.234 | 8.514 | 100.00 | 100.00 | 4.9777 |
| **Total:** | | | **1.234** | **8.514** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-7,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **26** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 21:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

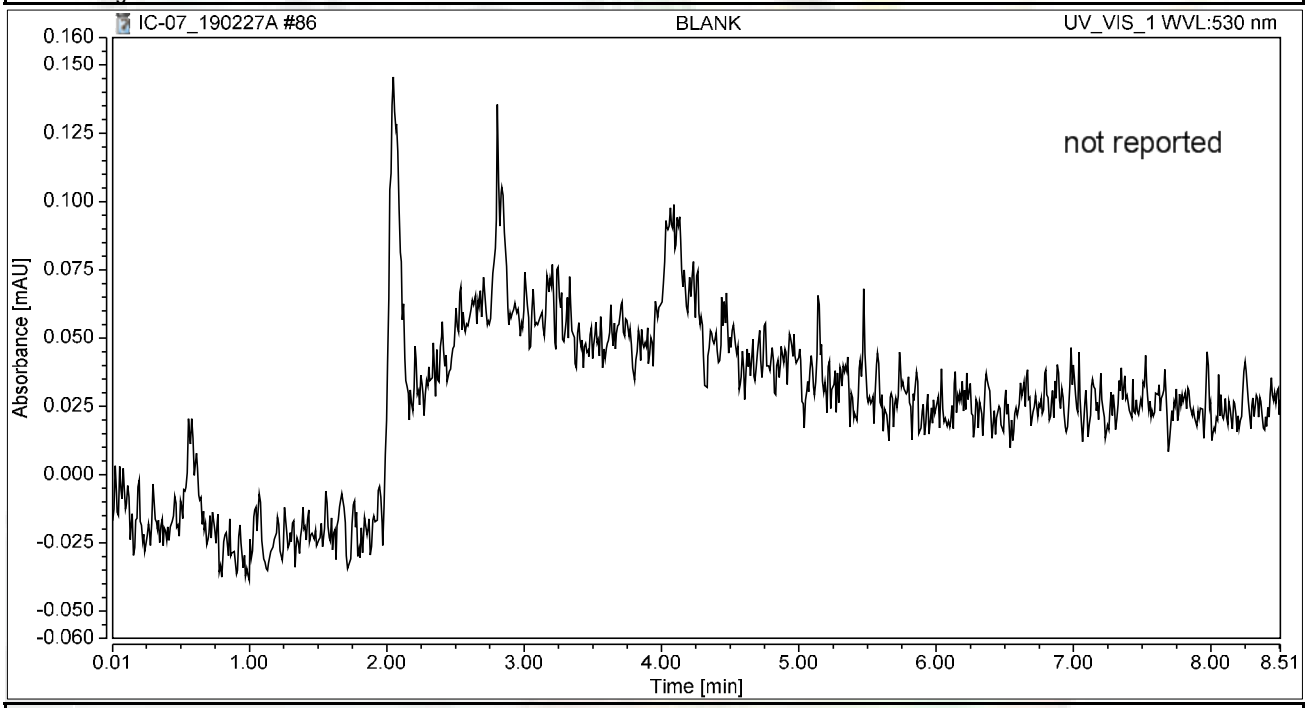
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 0.012 | 0.102 | 100.00 | 100.00 | 0.0496 |
| **Total:** | | | **0.012** | **0.102** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **27/Feb/19 21:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

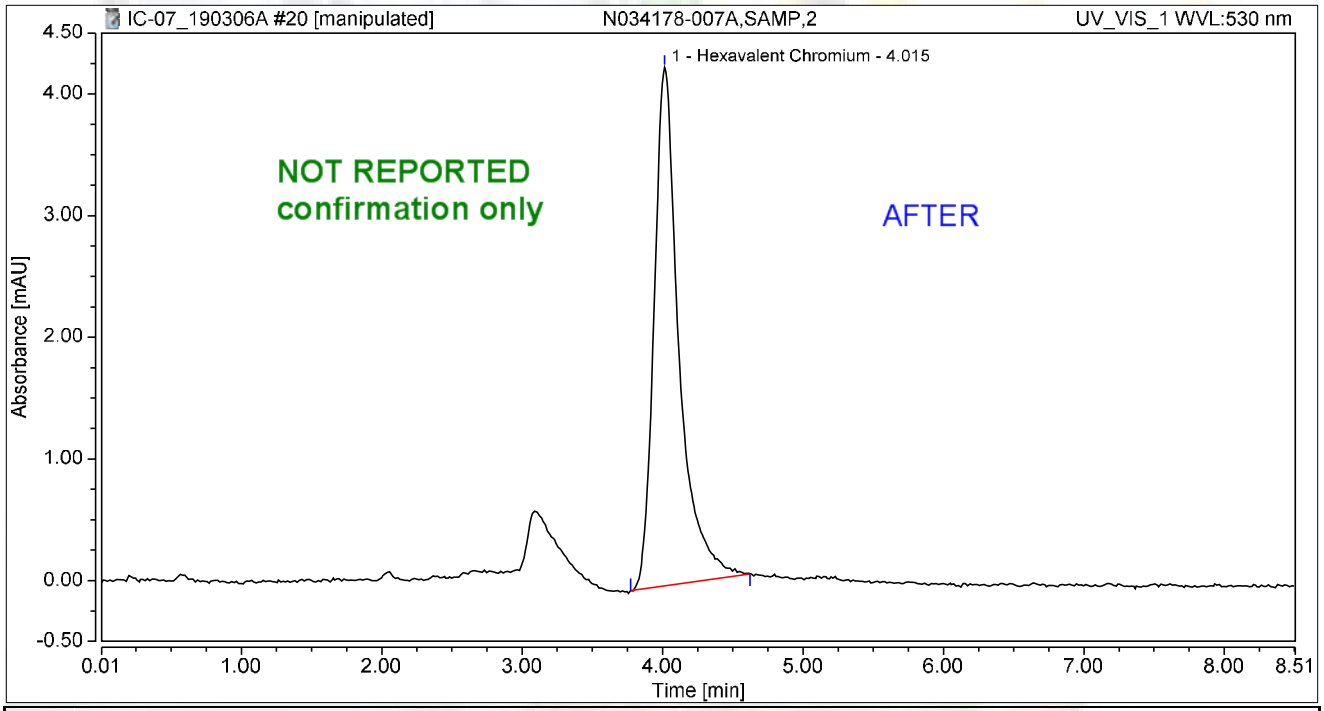
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-007A,SAMP,2** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **06/Mar/19 10:40** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.015 | 0.877 | 4.263 | 100.00 | 100.00 | 3.5392 |
| **Total:** | | | **0.877** | **4.263** | **100.00** | **100.00** | |

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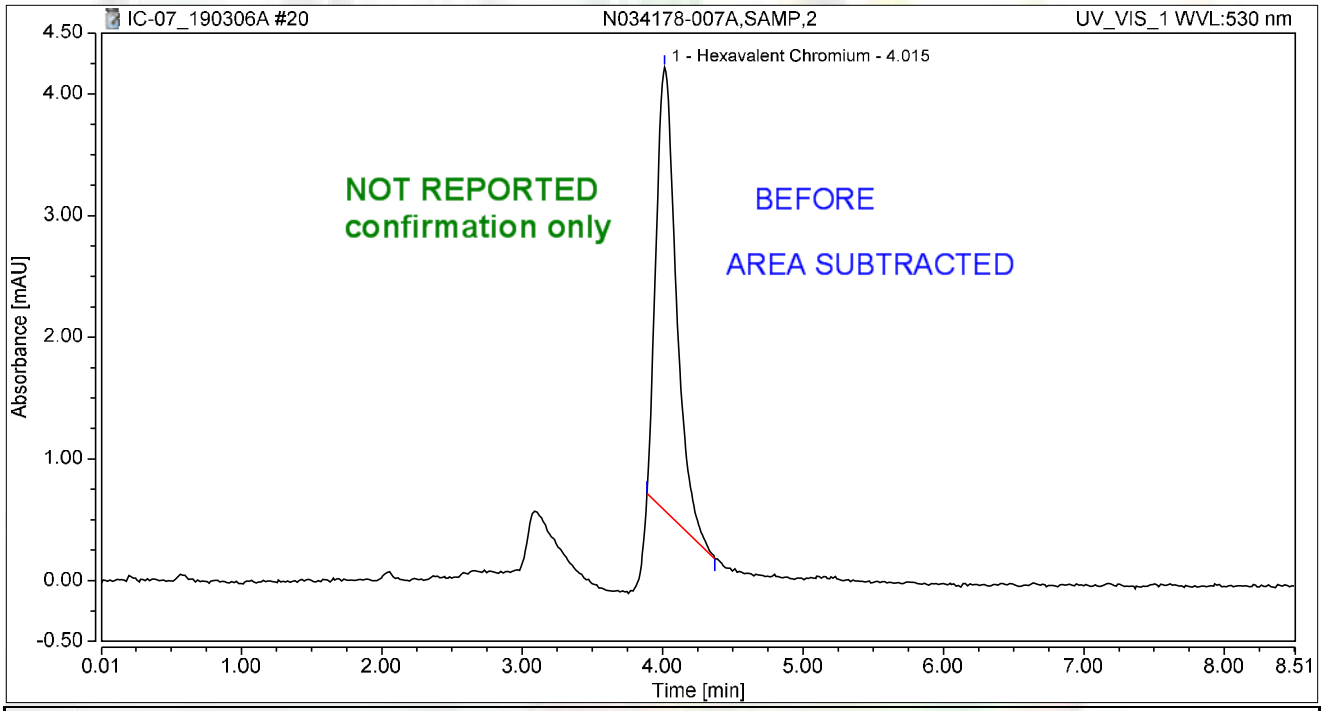
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-007A,SAMP,2** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **06/Mar/19 10:40** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.015 | 0.609 | 3.640 | 100.00 | 100.00 | 2.4557 |
| **Total:** | | | **0.609** | **3.640** | **100.00** | **100.00** | |

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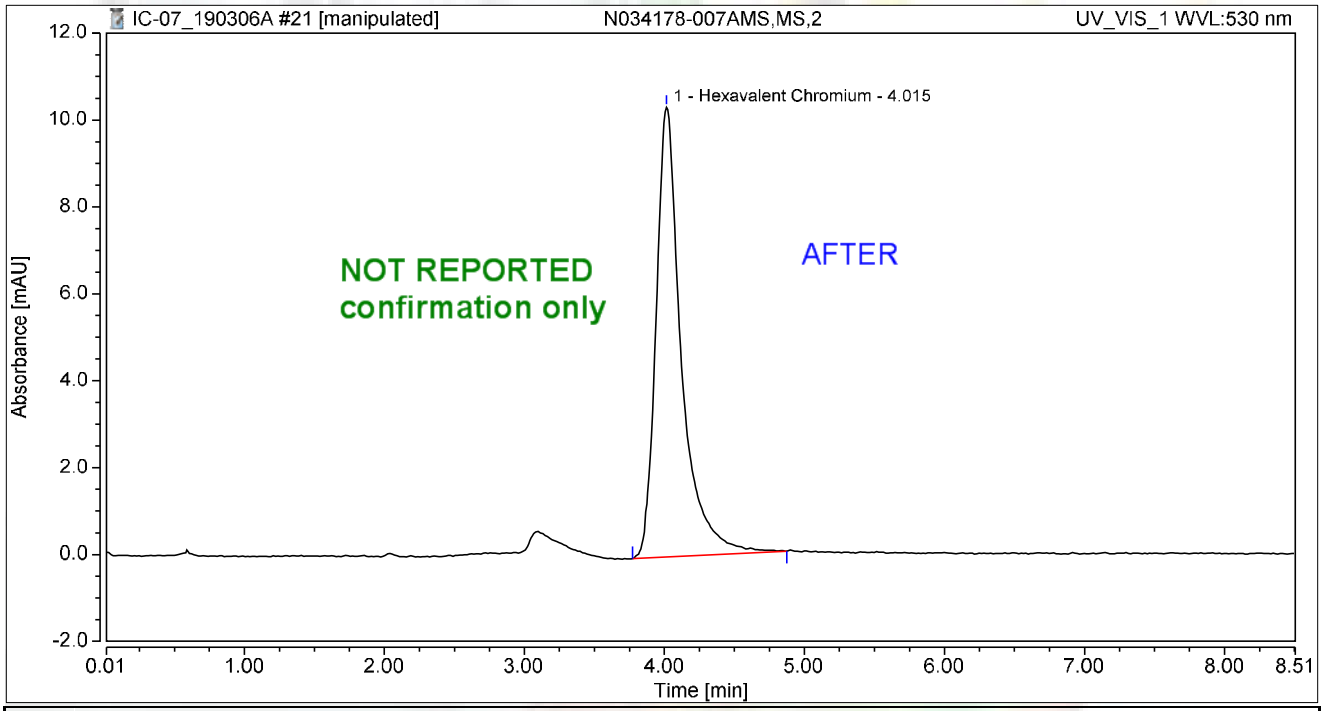
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-007AMS,MS,2** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **06/Mar/19 10:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.015 | 2.167 | 10.352 | 100.00 | 100.00 | 8.7433 |
| **Total:** | | | **2.167** | **10.352** | **100.00** | **100.00** | |

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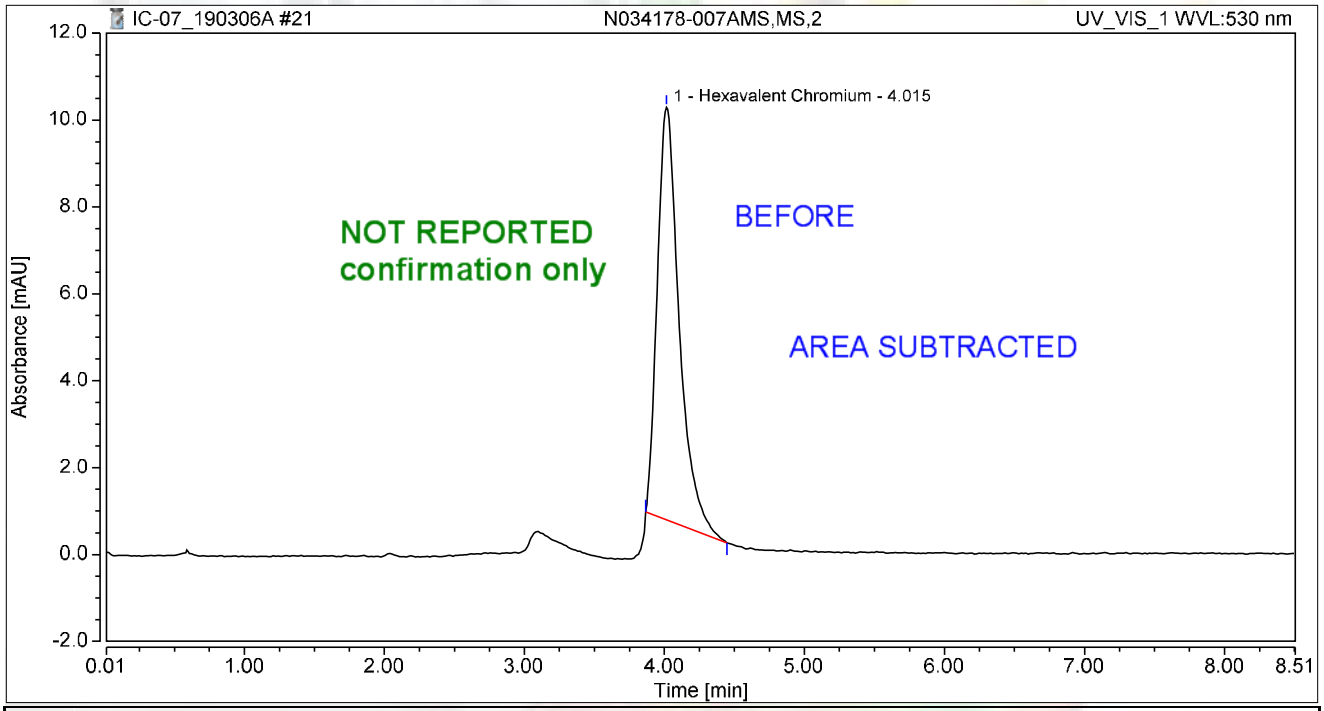
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-007AMS,MS,2** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **06/Mar/19 10:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.015 | 1.722 | 9.497 | 100.00 | 100.00 | 6.9487 |
| **Total:** | | | **1.722** | **9.497** | **100.00** | **100.00** | |

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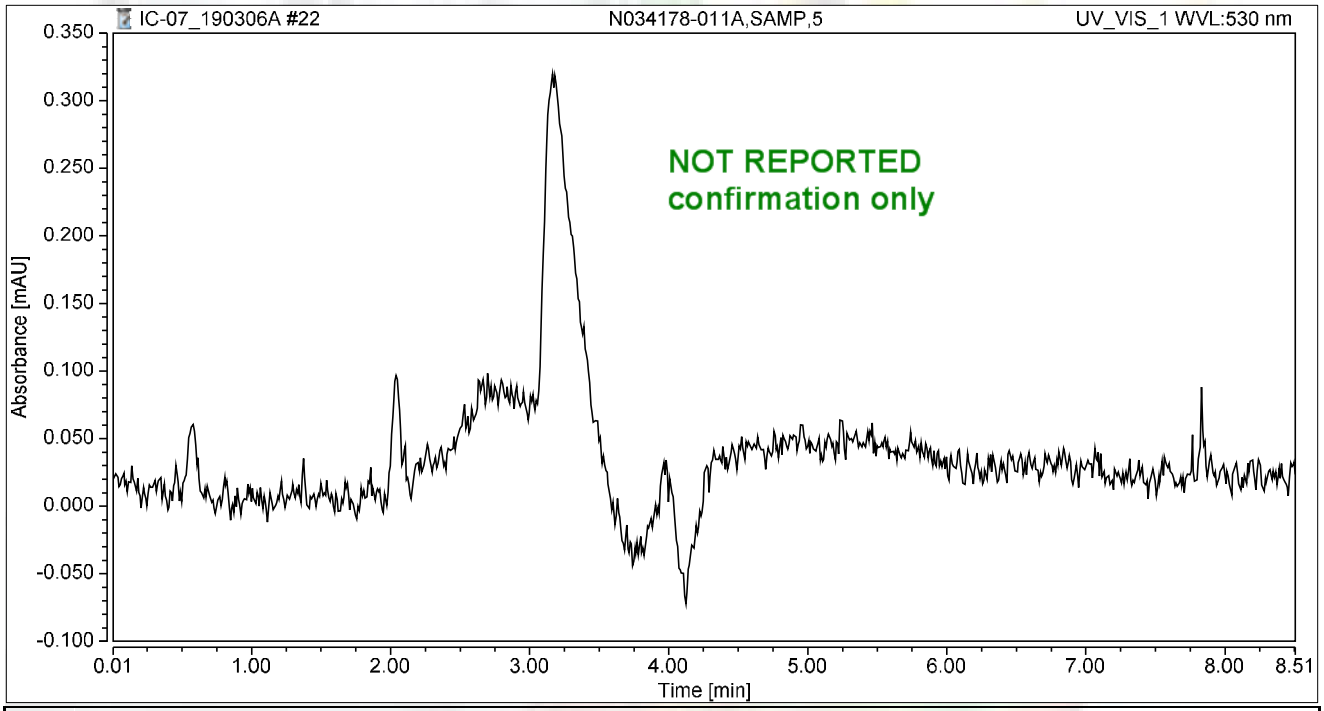
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-011A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **06/Mar/19 10:59** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

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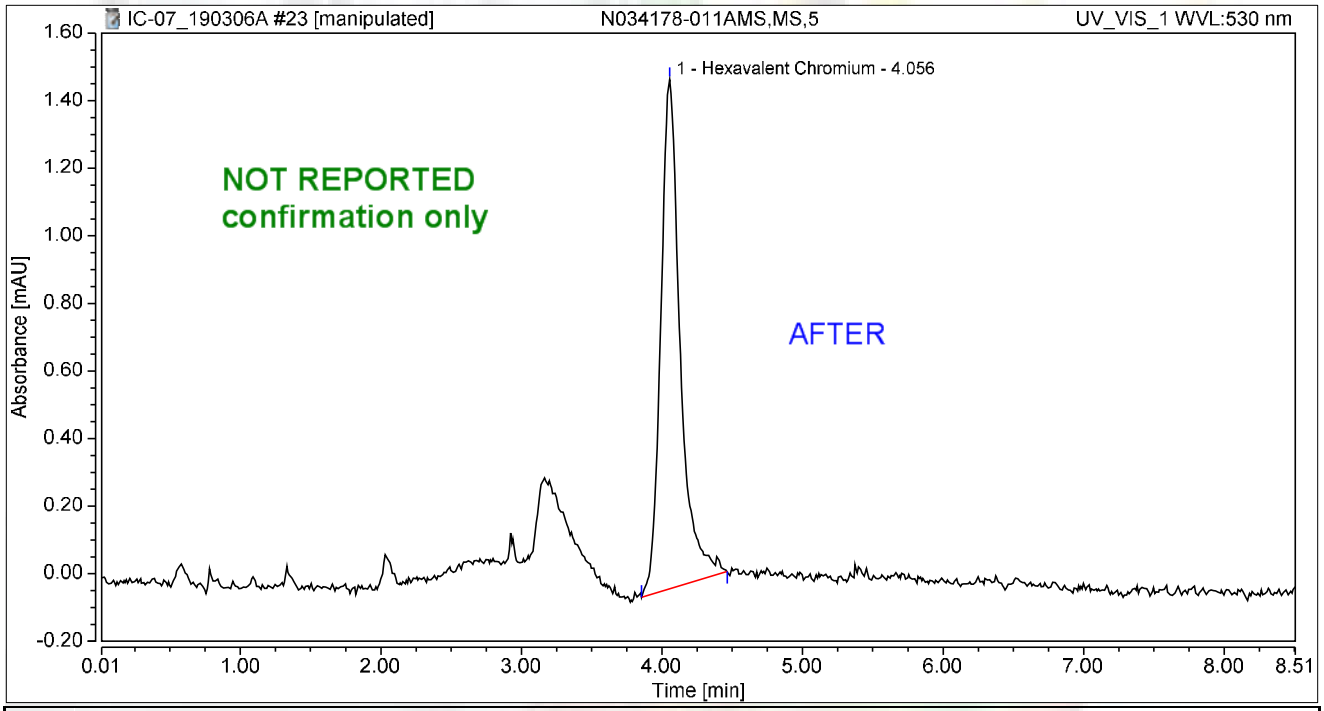
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-011AMS,MS,5** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **06/Mar/19 11:08** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.056 | 0.242 | 1.507 | 100.00 | 100.00 | 0.9771 |
| **Total:** | | | **0.242** | **1.507** | **100.00** | **100.00** | |

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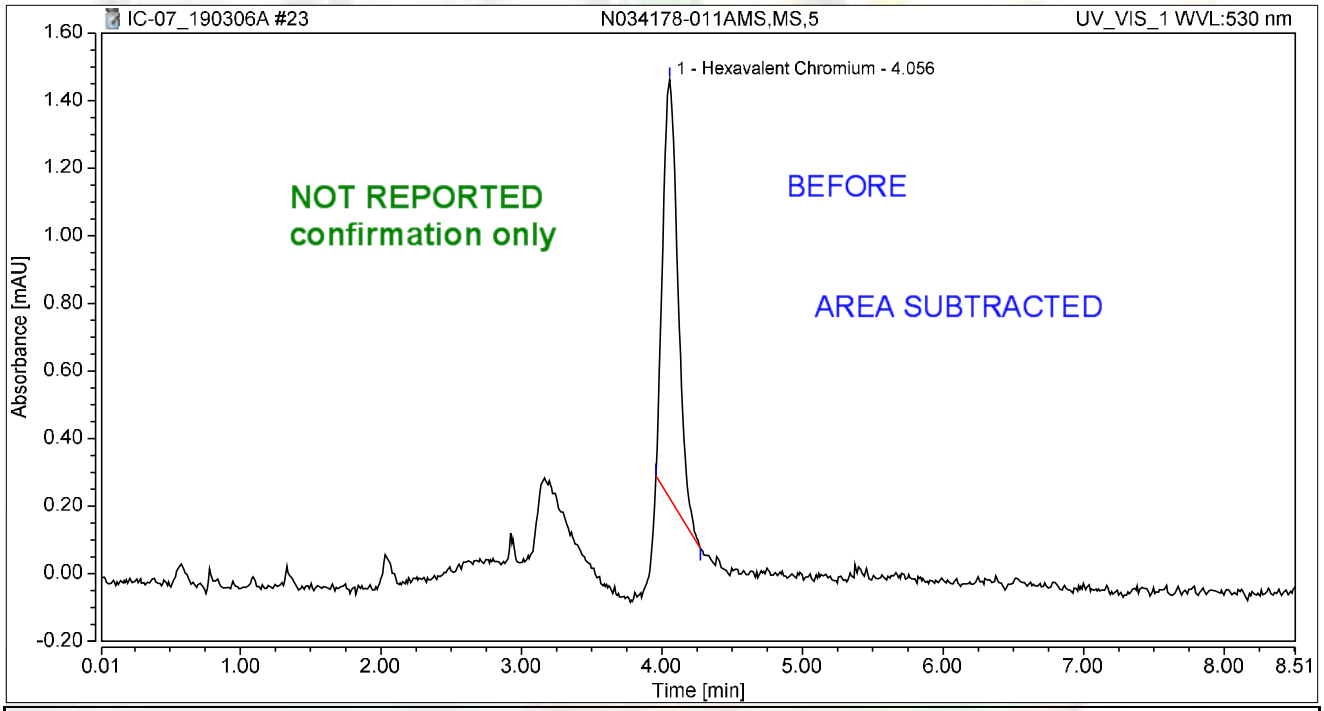
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034178-011AMS,MS,5** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **06/Mar/19 11:08** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.056 | 0.154 | 1.240 | 100.00 | 100.00 | 0.6215 |
| **Total:** | | | **0.154** | **1.240** | **100.00** | **100.00** | |

rba 3/6/2019

# SM 2320B

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R131990 **Analyst:** LSR

**ASSET #:** N034178 **Date Analyzed:** 20-Feb

**Method:** EPA 2320

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | | | |
| 11. LCS compounds within control limits. | X | | | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 2/22/2019

2nd Level Reviewer: 2/28/2019 Date: —

# SAMPLE CALCULATION

Sample ID: **N034178-008C @ pH 7.60**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A) (B)/ (53.00) (C)

Where:

A, grams weighed for $Na_2CO_3$ solution ($Na_2CO_3$ Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

**$Na_2CO_3$ Standardization Solution**, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of $Na_2CO_3$ in distilled water and dilute to 1 liter.

**LCS/MS/MSD Stock** $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65 g/L) (5mL) / (53.00) (11.45 mL)

= **0.02183 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N $H_2SO_4$ * DF * 1000

Where:

$M_{vol.}$ volume titrant used to reach pH 4.5, ml
N, Normality of $H_2SO_4$
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (3.90) (0.02183 N) (1) * 1000

= 85.1370 mg**/L**

Reporting results in two significant figures,

= 85 as CaCO3

Julia Ramit 2/22/2019

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N $H_2SO_4$ * DF * 1000

= (0.00) (0.02183 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N $H_2SO_4$ * DF * 1000

= (3.90 mL) (0.02183) (1) * 1000

= 85.1370 **mg/L** as CaCO3

Where:

$P_{vol.}$ - Volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - Volume titrant used to reach pH 4.5, ml
N - Normality of $H_2SO_4$
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, $CO_3$, $HCO_3$ alkalinities as $CaCO_3$ will be calculated as follows:

| **Result of Titration** | **OH Alkalinity as $CaCO_3$** | **$CO_3$ Alkalinity as $CaCO_3$** | **$HCO_3$ Alkalinity as $CaCO_3$** |
|---|---|---|---|
| P = 0 | 0 | 0 | T |
| P < ½ T | 0 | 2P | T – 2P |
| P = ½ T | 0 | 2P | 0 |
| P > ½ T | 2P – T | 2(T – P) | 0 |
| P = T | T | 0 | 0 |

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

$CO_3$ Alkalinity as $CaCO_3$ = **0**

$HCO_3$ Alkalinity as $CaCO_3$ = 85.1370 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

$CO_3$ Alkalinity as $CaCO_3$ = **0**

$HCO_3$ Alkalinity as $CaCO_3$ = **85 mg/L**

Silica Ramit 2/22/2019

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

| SAMPLE | PH SAMPLE | AMOUNT | V@8.3 | VT TO 4.5 | Sample Type |
|---|---|---|---|---|---|
| MB-1 | 5.44 | 50 | 0.00 | 0.050 | MBLK |
| LCS-1 | 8.82 | 50 | 0.10 | 4.70 | LCS |
| N034177-001C | 7.56 | 50 | 0.00 | 9.80 | SAMP |
| N034177-002C | 7.45 | 50 | 0.00 | 7.50 | SAMP |
| N034178-008C | 7.60 | 50 | 0.00 | 3.90 | SAMP |
| N034178-009C | 7.70 | 50 | 0.00 | 3.90 | SAMP |
| N034234-001B | 7.87 | 50 | 0.00 | 11.00 | SAMP |
| N034236-002A | 7.34 | 50 | 0.00 | 8.00 | SAMP |
| N034178-008CDUP | 7.61 | 50 | 0.00 | 3.90 | DUP |
| N034178-008CMS | 8.02 | 50 | 0.00 | 8.30 | MS |
| N034178-008CMSD | 8.02 | 50 | 0.00 | 8.40 | MSD |

| **Standardization:** | | |
|---|---|---|
| Spike amt: | **5** | ml |
| Titrant used: | **11.450** | ml |
| | | |
| N H2SO4 | **0.02183** | Normal |
| | | |
| **Date Analyzed:** | **2/20/19** | |
| **Time:** | **5:30 PM** | |
| **Analyzed By:** | **LSR** | |
| | | |
| | | |
| Sodium Carbonate: | **CINV-161205A** | |
| Sodium Bicarbonate: | **CINV-180510A** | |
| Sulfuric Acid: | **R190115C** | |

Julia Ramit 2/22/2019

| Date Analyzed: | 2/20/19 | | Reagents: | | | | | Standardization: | | | | | P = 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time Started: | 5:30 PM | | | Sodium Carbonate: | | CINV-161205A | | | Spike amt: | 5 | mL | | P < 1/2 T |
| Analyzed By: | LSR | | | Hydrochloric Acid: | | 0 | | | Titrant used: | 11.45 | mL | | P = 1/2 T |
| | | | | Sulfuric Acid: | | R190115C | | | | | | | P > 1/2 T |
| | | | | | | | | | N H2SO4 | 0.02183 | N | | P = T |

| Sample ID | Sample Vol/Wt. | Sample pH | Std. Code | Spike Amount | Spike Conc. | Normality, Titrant | Vol. Used to pH 8.3, ml. | Vol. Used pH 8.3 to 4.5, ml. | Total Vol. Used, ml. | DF (50ml/Vsamp.) | P Alkalinity | T Alkalinity | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-1 | 50 | 5.44 | | | | 0.02183 | 0.00 | 0.05 | 0.05 | 1 | 0.00 | 1.09 | |
| LCS-1 | 50 | 8.82 | | | | 0.02183 | 0.10 | 4.60 | 4.70 | 1 | 2.18 | 102.62 | |
| N034177-001C | 50 | 7.56 | | | | 0.02183 | 0.00 | 9.80 | 9.80 | 1 | 0.00 | 213.97 | |
| N034177-002C | 50 | 7.45 | | | | 0.02183 | 0.00 | 7.50 | 7.50 | 1 | 0.00 | 163.76 | |
| N034178-008C | 50 | 7.6 | | | | 0.02183 | 0.00 | 3.90 | 3.90 | 1 | 0.00 | 85.15 | |
| N034178-009C | 50 | 7.7 | | | | 0.02183 | 0.00 | 3.90 | 3.90 | 1 | 0.00 | 85.15 | |
| N034234-001B | 50 | 7.87 | | | | 0.02183 | 0.00 | 11.00 | 11.00 | 1 | 0.00 | 240.17 | |
| N034236-002A | 50 | 7.34 | | | | 0.02183 | 0.00 | 8.00 | 8.00 | 1 | 0.00 | 174.67 | |
| N034178-008CDU | 50 | 7.61 | | | | 0.02183 | 0.00 | 3.90 | 3.90 | 1 | 0.00 | 85.15 | |
| N034178-008CMS | 50 | 8.02 | | | | 0.02183 | 0.00 | 8.30 | 8.30 | 1 | 0.00 | 181.22 | |
| N034178-008CMS | 50 | 8.02 | | | | 0.02183 | 0.00 | 8.40 | 8.40 | 1 | 0.00 | 183.41 | |

Silvia Ramit 2/22/2019

## Speciated, Alkalinity as CaCO3

**SM 2320B**

| | |
|---|---|
| **Date Analyzed:** | 2/20/19 |
| **Time:** | 5:30 PM |
| **Analyzed By:** | LSR |

| SAMPLE ID | OH | CO3 | HCO3 | TOTAL | CHECK | COMMENT | REMARKS |
|---|---|---|---|---|---|---|---|
| MB-1 | 0.00 | 0.00 | 1.09 | 1.09 | 1.09 | | P = 0 |
| LCS-1 | 0.00 | 4.37 | 98.25 | 102.62 | 102.62 | | P < 1/2 T |
| N034177-001C | 0.00 | 0.00 | 213.97 | 213.97 | 213.97 | | P = 0 |
| N034177-002C | 0.00 | 0.00 | 163.76 | 163.76 | 163.76 | | P = 0 |
| N034178-008C | 0.00 | 0.00 | 85.15 | 85.15 | 85.15 | | P = 0 |
| N034178-009C | 0.00 | 0.00 | 85.15 | 85.15 | 85.15 | | P = 0 |
| N034234-001B | 0.00 | 0.00 | 240.17 | 240.17 | 240.17 | | P = 0 |
| N034236-002A | 0.00 | 0.00 | 174.67 | 174.67 | 174.67 | | P = 0 |
| N034178-008CDUP | 0.00 | 0.00 | 85.15 | 85.15 | 85.15 | | P = 0 |
| N034178-008CMS | 0.00 | 0.00 | 181.22 | 181.22 | 181.22 | | P = 0 |
| N034178-008CMSD | 0.00 | 0.00 | 183.41 | 183.41 | 183.41 | | P = 0 |

Julia Ramit 2/22/2019

# Alkalinity Preparation and Runlog

**Matrix:** $H_2O$

Date Extracted: 2/20/19
Time Extracted: 2/20/19
Extracted By: LSR

Date Analyzed: 2/20/19
Time Analyzed: 1730
Analyzed By: LSR

Reagent Lot # / Reagent ID
Sodium Carbonate: CMV 161205A
Hydrochloric Acid: -
Sulfuric Acid: R190115C
Sodium Bicarbonate: CMV 180510A

pH meter Calibration:
SLOPE: 96.2%
~~CMV~~ pH 7 - 6.97 CMV190107A
4 - 4.03 B
10 - 10.02 CMV190111G

| | Sample ID. | Sample Wt./Vol. | Sample pH | Std Code | Spike Amt Added | Spike Conc. | Norm. Titrant | Vol. At pH = 8.3 | Vol. At pH = 4.5 | Dilution (F/I) | Calculations | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | STANDARDIZATION | | | | | | | | | | | |
| | #1 | 50mL | 10.97 | TWST190214A | 5mL | 0.05N | - | - | 11.50 | 50/50 | N $H_2SO_4$ = (2.65g/L)(5mL) | =0.02173913 |
| | #2 | | 10.92 | | | | - | - | 11.40 | | (53)(V titrant) | -0.021929824 |
| 1) | MBLK | 50mL | 5.44 | - | - | - | ~~0.02183~~ | 0 | 0.05 | 50/50 | | Ave. 0.021834477 |
| 2) | LCS | | 8.82 | INST190214B | 1mL | 0.05N | 0.02183 | 0.10 | 4.70 | | | |
| 3) | N034177-1C | | 7.56 | | | | | 0 | 9.80 | | | |
| 4) | 2C | | 7.45 | | | | | 0 | 7.50 | | | |
| 5) | N034178-8C | | 7.60 | | | | | 0 | 3.90 | | | |
| 6) | 9C | | 7.70 | | | | | 0 | 3.90 | | | |
| 7) | N034234-1B | | 7.87 | | | | | 0 | 11.0 | | | |
| 8) | N034236-2A | | 7.34 | | | | | 0 | 8.0 | | | |
| 9) | N034178-8C DUP | | 7.61 | | | | | 0 | 3.90 | | | |
| 10) | 8C MS | | 8.02 | INST190214B | 1mL | 0.05N | | 0 | 8.30 | | | |
| 11) | 8C MSD | | 8.02 | | | | | | 8.40 | | | |
| 12) | | | | | | | | | | | | |
| 13) | | | | | | | | | | | | |
| 14) | | | | | | | | | | | | |
| 15) | | | | | | | | | | | | |
| 16) | | | | | | | | | | | | |
| 17) | | | | | | | | | | | | |
| 18) | | | | | | | | | | | | |
| 19) | | | | | | | | | | | | |
| 20) | | | | | | | | | | | | |
| | MS | | | | | | | | | | | |
| | MSD | | | | | | | | | | | |
| | LCS | | | | | | | | | | | |

$$P = \frac{(V\ pH\ 8.3)(N\ H_2SO_4)(50{,}000)}{V_{sx}}$$

$$T = \frac{(V\ pH\ 4.5)(N\ H_2SO_4)(50{,}000)}{V_{sx}}$$

Julia Ramit 2/22/2019

# EPA 300.0

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R131955
**ASSET #:** N034177 / N034178 / N034107 N034183

**Instrument ID:** IC-08
**Analyst:** HSG
**Date Analyzed:** 2/18/2019

**Method:**

[X] EPA 300.0
[ ] EPA 7199
[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | X | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | X | | |
| 3. ICV within ± 10% of expected value. | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | X | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | X | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | X | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | | | X | | | X |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | X | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | | | X | | | X |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | X | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | | | X | | | X |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | X |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | | | X | | | X |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | X |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | X |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | | | X | | | X |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | X |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | X | | |
| 21. Are all samples analyzed within hold time? | X | | | X | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | X |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | X | | |
| 24. LCS compounds are within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | X | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | X |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | X |
| 29. All manual integrations initialed, date and reasons included. | X | | | X | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | X | | |
| 31. All samples and QC raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | X | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 34 Is the QC summary report present and complete? | X | | | X | | |

Comments:

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: HSG Date: 03/06/2019

2nd Level Reviewer: 3/6/2019 Date: —

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R131992
**ASSET #:** N034107 / N034178 / N034183 / N034177

**Instrument ID:** IC-08
**Analyst:** HSG
**Date Analyzed:** 2/20/2019

**Method:**

[X] EPA 300.0
[ ] EPA 7199
[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | X | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | X | | |
| 3. ICV within ± 10% of expected value. | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | X | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | X | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | X | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | | | X | | | X |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | | X | | | X | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | | | X | | | X |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | X | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | | | X | | | X |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | X |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | | | X | | | X |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | X |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | X |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | | | X | | | X |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | X |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | X | | |
| 21. Are all samples analyzed within hold time? | X | | | X | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | X |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | | X | | | X | |
| 24. LCS compounds are within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | X | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | X |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | X |
| 29. All manual integrations initialed, date and reasons included. | X | | | X | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | X | | |
| 31. All samples and QC raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | X | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 34 Is the QC summary report present and complete? | X | | | X | | |

Comments:

Detection of Sulfate in MB and CCB-5 are >1/2 PQL criteria.However, N034107, N034178, N034183, N034177 samples affected are >5X the CCB detection. Thus, samples are reported.

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: HSG  Date: 03/06/2019

2nd Level Reviewer: 3/6/2019  Date: —

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R132103 4
**ASSET #:** N034122 / N034179 / N034178

**Instrument ID:** IC-08
**Analyst:** HSG
**Date Analyzed:** 2/25/2019

**Method:**

[X] EPA 300.0
[ ] EPA 7199
[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | X | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | X | | |
| 3. ICV within ± 10% of expected value. | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | X | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | X | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | X | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | | | X | | | X |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | X | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | | | X | | | X |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | X | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | | | X | | | X |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | X |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | | | X | | | X |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | X |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | X |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | | | X | | | X |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | X |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | X | | |
| 21. Are all samples analyzed within hold time? | X | | | X | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | X |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | X | | |
| 24. LCS compounds are within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | X | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | X |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | X |
| 29. All manual integrations initialed, date and reasons included. | X | | | X | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | X | | |
| 31. All samples and QC raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | X | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 34 Is the QC summary report present and complete? | X | | | X | | |

Comments:

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer HSG Date: 03/06/2019

2nd Level Reviewer 3/6/2019 Date: —

# SAMPLE CALCULATION

# Sample Calculation

**METHOD:** EPA 300
**TEST NAME:** INORGANIC ANIONS BY IC
**MATRIX:** GROUNDWATER

FORMULA:

Calculate the Sulfate concentration, in mg/L, in the orignal sample as follows:

Sulfate, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N034178-008C** concentration in mg/L is calculated as follows:

Sulfate, mg/L = 5.255 * 50

= 262.75

Reporting result in two significant values,

**Sulfate, mg/L = 260**

NS 03/06/2019

# ANALYSIS RUN LOG

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 79
Created: 2/15/2019 9:47:09 AM by IC-05
Last Update: 2/16/2019 9:41:29 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 1 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 2 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 3 | Std - 0 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 4 | Std - 1 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 5 | Std - 2 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 6 | Std - 3 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 7 | Std - 4 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 8 | Std - 5 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 9 | BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 10 | ICV,ICV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 11 | ICB,ICB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 12 | ICB,ICB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 13 | MB-H2O,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 14 | LCS-H2O,LCS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 15 | N034182-002C,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 16 | N034182-003A,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 17 | N034182-004C,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 18 | N034182-007C,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 19 | N034182-011C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 20 | N034182-012C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 21 | N034182-004C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 22 | N034182-012C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 23 | CCV-1,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 24 | CCB-1,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 25 | N034183-001C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 26 | N034183-0013C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 27 | N034183-0013CMS,MS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 28 | N034183-0014C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 29 | N034183-0014CDUP,DUP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 30 | N034182-011CMS,MS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 31 | N034182-011CMSD,MSD,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 32 | N034183-012C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 33 | N034183-012CMS,MS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 34 | N034183-002A,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 35 | CCV-2,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 36 | CCB-2,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 37 | N034183-008C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 38 | N034183-009C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 39 | N034183-010C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 40 | BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 41 | MB-H2O,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 79
Created: 2/15/2019 9:47:09 AM by IC-05
Last Update: 2/16/2019 9:41:29 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 1 | BLANK,BLANK | 2/15/2019 9:48:20 AM | BLANK |
| 2 | BLANK,BLANK | 2/15/2019 10:03:08 AM | BLANK |
| 3 | Std - 0 | 2/15/2019 10:22:51 AM | BLANK |
| 4 | Std - 1 | 2/15/2019 10:37:39 AM | STD-LOW |
| 5 | Std - 2 | 2/15/2019 10:52:27 AM | STD |
| 6 | Std - 3 | 2/15/2019 11:07:14 AM | STD |
| 7 | Std - 4 | 2/15/2019 11:22:02 AM | STD |
| 8 | Std - 5 | 2/15/2019 11:36:50 AM | STD-HIGH |
| 9 | BLANK | 2/15/2019 11:51:38 AM | BLANK |
| 10 | ICV,ICV,1 | 2/15/2019 12:20:20 PM | ICV |
| 11 | ICB,ICB,1 | 2/15/2019 12:35:08 PM | ICB |
| 12 | ICB,ICB,1 | 2/15/2019 12:55:56 PM | ICB |
| 13 | MB-H2O,MBLK,1 | 2/15/2019 1:20:05 PM | METHOD BLANK |
| 14 | LCS-H2O,LCS,1 | 2/15/2019 1:34:53 PM | LCS |
| 15 | N034182-002C,SAMP,2 | 2/15/2019 1:52:21 PM | SAMP,10mL |
| 16 | N034182-003A,SAMP,5 | 2/15/2019 2:07:09 PM | SAMP,10mL |
| 17 | N034182-004C,SAMP,2 | 2/15/2019 2:21:57 PM | SAMP,10mL |
| 18 | N034182-007C,SAMP,2 | 2/15/2019 2:36:45 PM | SAMP,10mL |
| 19 | N034182-011C,SAMP,1 | 2/15/2019 2:51:32 PM | SAMP,10mL |
| 20 | N034182-012C,SAMP,1 | 2/15/2019 3:06:20 PM | SAMP,10mL |
| 21 | N034182-004C,SAMP,5 | 2/15/2019 3:21:08 PM | SAMP,10mL |
| 22 | N034182-012C,SAMP,5 | 2/15/2019 3:35:56 PM | SAMP,10mL |
| 23 | CCV-1,CCV,1 | 2/15/2019 3:50:44 PM | CCV |
| 24 | CCB-1,CCB,1 | 2/15/2019 4:05:32 PM | CCB |
| 25 | N034183-001C,SAMP,1 | 2/15/2019 4:29:25 PM | SAMP,10mL |
| 26 | N034183-0013C,SAMP,1 | 2/15/2019 4:44:13 PM | SAMP,10mL |
| 27 | N034183-0013CMS,MS,1 | 2/15/2019 4:59:00 PM | SAMP,10mL |
| 28 | N034183-0014C,SAMP,1 | 2/15/2019 5:13:48 PM | SAMP,10mL |
| 29 | N034183-0014CDUP,DUP,1 | 2/15/2019 5:28:36 PM | SAMP,10mL |
| 30 | N034182-011CMS,MS,1 | 2/15/2019 5:43:24 PM | SAMP,10mL |
| 31 | N034182-011CMSD,MSD,1 | 2/15/2019 5:58:11 PM | SAMP,10mL |
| 32 | N034183-012C,SAMP,1 | 2/15/2019 6:12:59 PM | SAMP,10mL |
| 33 | N034183-012CMS,MS,1 | 2/15/2019 6:27:47 PM | SAMP,10mL |
| 34 | N034183-002A,SAMP,1 | 2/15/2019 6:46:04 PM | SAMP,10mL |
| 35 | CCV-2,CCV,1 | 2/15/2019 7:00:53 PM | CCV |
| 36 | CCB-2,CCB,1 | 2/15/2019 7:15:40 PM | CCB |
| 37 | N034183-008C,SAMP,1 | 2/15/2019 7:30:28 PM | SAMP,10mL |
| 38 | N034183-009C,SAMP,1 | 2/15/2019 7:45:16 PM | SAMP,10mL |
| 39 | N034183-010C,SAMP,1 | 2/15/2019 8:00:04 PM | SAMP,10mL |
| 40 | BLANK | 2/15/2019 8:14:52 PM | BLANK |
| 41 | MB-H2O,MBLK,1 | 2/15/2019 8:29:40 PM | METHOD BLANK |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 79
Created: 2/15/2019 9:47:09 AM by IC-05
Last Update: 2/16/2019 9:41:29 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 42 | LCS-H2O,LCS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 43 | N034179-003B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 44 | N034179-003BDUP,DUP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 45 | N034183-007C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 46 | N034183-007CMS,MS,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 47 | CCV-3,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 48 | CCB-3,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 49 | N034182-013C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 50 | N034182-013CMS,MS,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 51 | N034182-013CMSD,MSD,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 52 | N034179-001B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 53 | N034179-002B,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 54 | N034179-004B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 55 | N034179-005B,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 56 | N034179-006B,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 57 | N034183-003C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 58 | N034183-0020C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 59 | CCV-4,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 60 | CCB-4,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 61 | N034183-004C,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 62 | N034183-005C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 63 | N034183-006C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 64 | N034183-011C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 65 | N034182-001C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 66 | N034182-005,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 67 | N034182-006C,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 68 | N034182-009C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 69 | N034182-010C,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 70 | N034179-005B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 71 | CCV-5,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 72 | CCB-5,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 73 | N034182-008C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 74 | N034182-008C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 75 | N034182-006C,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 76 | N034183-011C,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 77 | N034183-004C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 78 | CCV-6,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 79 | CCB-6,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 79
Created: 2/15/2019 9:47:09 AM by IC-05
Last Update: 2/16/2019 9:41:29 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 42 | LCS-H2O,LCS,1 | 2/15/2019 8:44:27 PM | LCS |
| 43 | N034179-003B,SAMP,1 | 2/15/2019 8:59:15 PM | SAMP,10mL |
| 44 | N034179-003BDUP,DUP,1 | 2/15/2019 9:14:03 PM | SAMP,10mL |
| 45 | N034183-007C,SAMP,5 | 2/15/2019 9:28:51 PM | SAMP,10mL |
| 46 | N034183-007CMS,MS,5 | 2/15/2019 9:43:39 PM | SAMP,10mL |
| 47 | CCV-3,CCV,1 | 2/15/2019 9:58:27 PM | CCV |
| 48 | CCB-3,CCB,1 | 2/15/2019 10:13:15 PM | CCB |
| 49 | N034182-013C,SAMP,5 | 2/15/2019 10:28:03 PM | SAMP,10mL |
| 50 | N034182-013CMS,MS,5 | 2/15/2019 10:42:50 PM | SAMP,10mL |
| 51 | N034182-013CMSD,MSD,5 | 2/15/2019 10:57:38 PM | SAMP,10mL |
| 52 | N034179-001B,SAMP,1 | 2/15/2019 11:12:26 PM | SAMP,10mL |
| 53 | N034179-002B,SAMP,5 | 2/15/2019 11:27:14 PM | SAMP,10mL |
| 54 | N034179-004B,SAMP,1 | 2/15/2019 11:42:02 PM | SAMP,10mL |
| 55 | N034179-005B,SAMP,2 | 2/15/2019 11:56:51 PM | SAMP,10mL |
| 56 | N034179-006B,SAMP,5 | 2/16/2019 12:11:39 AM | SAMP,10mL |
| 57 | N034183-003C,SAMP,10 | 2/16/2019 12:26:26 AM | SAMP,10mL |
| 58 | N034183-0020C,SAMP,10 | 2/16/2019 12:41:14 AM | SAMP,10mL |
| 59 | CCV-4,CCV,1 | 2/16/2019 12:56:02 AM | CCV |
| 60 | CCB-4,CCB,1 | 2/16/2019 1:10:50 AM | CCB |
| 61 | N034183-004C,SAMP,2 | | SAMP,10mL |
| 62 | N034183-005C,SAMP,5 | | SAMP,10mL |
| 63 | N034183-006C,SAMP,10 | | SAMP,10mL |
| 64 | N034183-011C,SAMP,5 | | SAMP,10mL |
| 65 | N034182-001C,SAMP,10 | | SAMP,10mL |
| 66 | N034182-005,SAMP,10 | | SAMP,10mL |
| 67 | N034182-006C,SAMP,20 | | SAMP,10mL |
| 68 | N034182-009C,SAMP,1 | | SAMP,10mL |
| 69 | N034182-010C,SAMP,2 | | SAMP,10mL |
| 70 | N034179-005B,SAMP,1 | | SAMP,10mL |
| 71 | CCV-5,CCV,1 | | CCV |
| 72 | CCB-5,CCB,1 | | CCB |
| 73 | N034182-008C,SAMP,1 | | SAMP,10mL |
| 74 | N034182-008C,SAMP,5 | | SAMP,10mL |
| 75 | N034182-006C,SAMP,20 | | SAMP,10mL |
| 76 | N034183-011C,SAMP,2 | | SAMP,10mL |
| 77 | N034183-004C,SAMP,1 | | SAMP,10mL |
| 78 | CCV-6,CCV,1 | | CCV |
| 79 | CCB-6,CCB,1 | | CCB |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 43
Created: 2/18/2019 10:04:04 AM by IC-05
Last Update: 2/18/2019 5:45:02 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 1 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 2 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 3 | Std - 0 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 4 | Std - 1 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 5 | Std - 2 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 6 | Std - 3 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 7 | Std - 4 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 8 | Std - 5 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 9 | BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 10 | CCV-1,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 11 | CCB-1,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 12 | MB-H2O,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 13 | LCS-H2O,LCS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 14 | N034097-001F,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 15 | N034097-002F,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 16 | N034097-003F,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 17 | N034177-001C,SAMP,200 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 18 | N034177-002C,SAMP,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 19 | N034178-008C,SAMP,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 20 | N034178-009C,SAMP,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 21 | N034178-008CDUP,DUP,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 22 | CCV-2,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 23 | CCB-2,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 24 | N034177-001CMS,MS,200 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 25 | N034177-001CMSD,MSD,200 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 26 | N034107-002C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 27 | N034107-003C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 28 | N034107-004C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 29 | N034177-001C,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 30 | N034177-002C,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 31 | N034178-008C,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 32 | N034178-009C,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 33 | N034183-001C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 34 | CCV-3,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 35 | CCB-3,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 36 | N034183-010C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 37 | N034107-002CMS,MS,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 38 | N034107-002CMSD,MSD,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 39 | N034177-002CDUP,DUP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 40 | N034107-003C,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 41 | N034107-004C,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 43
Created: 2/18/2019 10:04:04 AM by IC-05
Last Update: 2/18/2019 5:45:02 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 1 | BLANK,BLANK | 2/15/2019 9:48:20 AM | BLANK |
| 2 | BLANK,BLANK | 2/15/2019 10:03:08 AM | BLANK |
| 3 | Std - 0 | 2/15/2019 10:22:51 AM | BLANK |
| 4 | Std - 1 | 2/15/2019 10:37:39 AM | STD-LOW |
| 5 | Std - 2 | 2/15/2019 10:52:27 AM | STD |
| 6 | Std - 3 | 2/15/2019 11:07:14 AM | STD |
| 7 | Std - 4 | 2/15/2019 11:22:02 AM | STD |
| 8 | Std - 5 | 2/15/2019 11:36:50 AM | STD-HIGH |
| 9 | BLANK | 2/18/2019 10:32:31 AM | BLANK |
| 10 | CCV-1,CCV,1 | 2/18/2019 10:47:19 AM | CCV |
| 11 | CCB-1,CCB,1 | 2/18/2019 11:02:07 AM | CCB |
| 12 | MB-H2O,MBLK,1 | 2/18/2019 11:16:54 AM | METHOD BLANK |
| 13 | LCS-H2O,LCS,1 | 2/18/2019 11:31:42 AM | LCS |
| 14 | N034097-001F,SAMP,5 | 2/18/2019 11:53:01 AM | SAMP,2>10mL |
| 15 | N034097-002F,SAMP,5 | 2/18/2019 12:07:49 PM | SAMP,2>10mL |
| 16 | N034097-003F,SAMP,5 | 2/18/2019 12:22:37 PM | SAMP,2>10mL |
| 17 | N034177-001C,SAMP,200 | 2/18/2019 12:37:25 PM | SAMP,0.05>10mL |
| 18 | N034177-002C,SAMP,500 | 2/18/2019 12:52:12 PM | SAMP,0.02>10mL |
| 19 | N034178-008C,SAMP,500 | 2/18/2019 1:07:00 PM | SAMP,0.02>10mL |
| 20 | N034178-009C,SAMP,500 | 2/18/2019 1:21:49 PM | SAMP,0.02>10mL |
| 21 | N034178-008CDUP,DUP,500 | 2/18/2019 1:37:11 PM | SAMP,0.02>10mL |
| 22 | CCV-2,CCV,1 | 2/18/2019 1:51:59 PM | CCV |
| 23 | CCB-2,CCB,1 | 2/18/2019 2:06:46 PM | CCB |
| 24 | N034177-001CMS,MS,200 | 2/18/2019 2:35:27 PM | BLANK |
| 25 | N034177-001CMSD,MSD,200 | 2/18/2019 2:50:15 PM | BLANK |
| 26 | N034107-002C,SAMP,10 | 2/18/2019 3:05:02 PM | BLANK |
| 27 | N034107-003C,SAMP,10 | 2/18/2019 3:19:50 PM | BLANK |
| 28 | N034107-004C,SAMP,10 | 2/18/2019 3:34:38 PM | BLANK |
| 29 | N034177-001C,SAMP,50 | 2/18/2019 3:49:26 PM | BLANK |
| 30 | N034177-002C,SAMP,50 | 2/18/2019 4:04:14 PM | BLANK |
| 31 | N034178-008C,SAMP,50 | 2/18/2019 4:19:01 PM | BLANK |
| 32 | N034178-009C,SAMP,50 | 2/18/2019 4:33:49 PM | BLANK |
| 33 | N034183-001C,SAMP,5 | 2/18/2019 4:48:37 PM | BLANK |
| 34 | CCV-3,CCV,1 | 2/18/2019 5:03:25 PM | BLANK |
| 35 | CCB-3,CCB,1 | 2/18/2019 5:18:13 PM | BLANK |
| 36 | N034183-010C,SAMP,5 | 2/18/2019 5:45:05 PM | BLANK |
| 37 | N034107-002CMS,MS,10 | 2/18/2019 5:59:53 PM | BLANK |
| 38 | N034107-002CMSD,MSD,10 | 2/18/2019 6:14:41 PM | BLANK |
| 39 | N034177-002CDUP,DUP,50 | 2/18/2019 6:29:29 PM | BLANK |
| 40 | N034107-003C,SAMP,20 | 2/18/2019 6:44:17 PM | BLANK |
| 41 | N034107-004C,SAMP,20 | 2/18/2019 6:59:04 PM | BLANK |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 43
Created: 2/18/2019 10:04:04 AM by IC-05
Last Update: 2/18/2019 5:45:02 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 42 | CCV-4,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 43 | CCB-4,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |

Chromeleon © Dionex Corporation, Version 6.80 SR10 Build 2818 (166959)

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 43
Created: 2/18/2019 10:04:04 AM by IC-05
Last Update: 2/18/2019 5:45:02 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 42 | CCV-4,CCV,1 | 2/18/2019 7:13:52 PM | BLANK |
| 43 | CCB-4,CCB,1 | 2/18/2019 7:28:40 PM | BLANK |

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
Created: 2/20/2019 8:06:10 AM by IC-05
#Samples: 50
(Modified, not saved)

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 1 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 2 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 3 | Std - 0 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 4 | Std - 1 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 5 | Std - 2 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 6 | Std - 3 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 7 | Std - 4 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 8 | Std - 5 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 9 | BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 10 | CCV-1,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 11 | CCB-1,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 12 | MB-H2O,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 13 | LCS-H2O,LCS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 14 | N034168-001B,SAMP,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 15 | N034234-001B,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 16 | N034236-001A,SAMP,200 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 17 | N034236-002A,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 18 | N034168-001B,SAMP,1000 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 19 | N034234-001BMS,MS,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 20 | N034234-001BMSD,MSD,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 21 | N034168-001BDUP,DUP,1000 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 22 | CCV-2,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 23 | CCB-2,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 24 | N034238-002C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 25 | N034234-001B,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 26 | N034236-001A,SAMP,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 27 | N034236-002A,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 28 | N034234-001BDUP,DUP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 29 | N034238-002C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 30 | N034238-002CMS,MS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 31 | N034238-002CMSD,MSD,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 32 | N034107-002C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 33 | N034107-002CMS,MS,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 34 | CCV-3,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 35 | CCB-3,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 36 | N034107-002CMSD,MSD,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 37 | N034178-008C,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 38 | N034178-008CDUP,DUP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 39 | N034183-001C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 40 | N034183-001CMS,MS,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 41 | N034107-003C,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 50
Created: 2/20/2019 8:06:10 AM by IC-05
(Modified, not saved)

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 1 | BLANK,BLANK | 2/15/2019 9:48:20 AM | BLANK |
| 2 | BLANK,BLANK | 2/15/2019 10:03:08 AM | BLANK |
| 3 | Std - 0 | 2/15/2019 10:22:51 AM | BLANK |
| 4 | Std - 1 | 2/15/2019 10:37:39 AM | STD-LOW |
| 5 | Std - 2 | 2/15/2019 10:52:27 AM | STD |
| 6 | Std - 3 | 2/15/2019 11:07:14 AM | STD |
| 7 | Std - 4 | 2/15/2019 11:22:02 AM | STD |
| 8 | Std - 5 | 2/15/2019 11:36:50 AM | STD-HIGH |
| 9 | BLANK | 2/20/2019 8:06:43 AM | BLANK |
| 10 | CCV-1,CCV,1 | 2/20/2019 8:21:31 AM | CCV |
| 11 | CCB-1,CCB,1 | 2/20/2019 8:36:19 AM | CCB |
| 12 | MB-H2O,MBLK,1 | 2/20/2019 8:51:07 AM | METHOD BLANK |
| 13 | LCS-H2O,LCS,1 | 2/20/2019 9:05:54 AM | LCS |
| 14 | N034168-001F,SAMP,500 | 2/20/2019 9:30:28 AM | SAMP,10mL |
| 15 | N034234-001B,SAMP,5 | 2/20/2019 9:55:21 AM | SAMP,10mL |
| 16 | N034236-001A,SAMP,200 | 2/20/2019 10:10:09 AM | SAMP,10mL |
| 17 | N034236-002A,SAMP,10 | 2/20/2019 10:24:57 AM | SAMP,10mL |
| 18 | N034168-001B,SAMP,1000 | 2/20/2019 10:39:45 AM | SAMP,10mL |
| 19 | N034234-001BMS,MS,5 | 2/20/2019 10:54:33 AM | SAMP,10mL |
| 20 | N034234-001BMSD,MSD,5 | 2/20/2019 11:09:21 AM | SAMP,10mL |
| 21 | N034168-001BDUP,DUP,1000 | 2/20/2019 11:24:09 AM | SAMP,10mL |
| 22 | CCV-2,CCV,1 | 2/20/2019 11:44:22 AM | CCV |
| 23 | CCB-2,CCB,1 | 2/20/2019 11:59:10 AM | CCB |
| 24 | N034238-002C,SAMP,5 | 2/20/2019 12:13:58 PM | SAMP,10mL |
| 25 | N034234-001B,SAMP,20 | 2/20/2019 12:28:46 PM | SAMP,10mL |
| 26 | N034236-001A,SAMP,500 | 2/20/2019 12:43:34 PM | BLANK |
| 27 | N034236-002A,SAMP,50 | 2/20/2019 12:58:22 PM | SAMP,10mL |
| 28 | N034234-001BDUP,DUP,20 | 2/20/2019 1:13:09 PM | SAMP,10mL |
| 29 | N034238-002C,SAMP,1 | 2/20/2019 1:27:57 PM | SAMP,10mL |
| 30 | N034238-002CMS,MS,1 | 2/20/2019 1:42:45 PM | SAMP,10mL |
| 31 | N034238-002CMSD,MSD,1 | 2/20/2019 1:57:33 PM | SAMP,10mL |
| 32 | N034107-002C,SAMP,10 | 2/20/2019 2:12:21 PM | SAMP,10mL |
| 33 | N034107-002CMS,MS,10 | 2/20/2019 2:27:08 PM | SAMP,10mL |
| 34 | CCV-3,CCV,1 | 2/20/2019 2:41:56 PM | CCV |
| 35 | CCB-3,CCB,1 | 2/20/2019 2:56:44 PM | CCB |
| 36 | N034107-002CMSD,MSD,10 | 2/20/2019 3:11:32 PM | SAMP,10mL |
| 37 | N034178-008C,SAMP,50 | 2/20/2019 3:26:20 PM | SAMP,10mL |
| 38 | N034178-008CDUP,DUP,50 | 2/20/2019 3:41:08 PM | SAMP,10mL |
| 39 | N034183-001C,SAMP,5 | 2/20/2019 3:55:56 PM | SAMP,10mL |
| 40 | N034183-001CMS,MS,5 | 2/20/2019 4:10:43 PM | SAMP,10mL |
| 41 | N034107-003C,SAMP,20 | 2/20/2019 4:27:45 PM | SAMP,10mL |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 50
Created: 2/20/2019 8:06:10 AM by IC-05
(Modified, not saved)

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 42 | N034107-004C,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 43 | N034178-009C,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 44 | N034183-010C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 45 | CCV-4,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 46 | CCB-4,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 47 | N034177-001C,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 48 | N034177-002C,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 49 | CCV-5,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 50 | CCB-5,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 50
Created: 2/20/2019 8:06:10 AM by IC-05
(Modified, not saved)

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 42 | N034107-004C,SAMP,20 | 2/20/2019 4:42:32 PM | SAMP,10mL |
| 43 | N034178-009C,SAMP,50 | 2/20/2019 4:57:20 PM | SAMP,10mL |
| 44 | N034183-010C,SAMP,5 | 2/20/2019 5:12:08 PM | SAMP,10mL |
| 45 | CCV-4,CCV,1 | 2/20/2019 5:26:56 PM | CCV |
| 46 | CCB-4,CCB,1 | 2/20/2019 5:41:43 PM | CCB |
| 47 | N034177-001C,SAMP,50 | 2/20/2019 5:56:31 PM | SAMP,10mL |
| 48 | N034177-002C,SAMP,50 | 2/20/2019 6:11:19 PM | SAMP,10mL |
| 49 | CCV-5,CCV,1 | 2/20/2019 6:26:07 PM | CCV |
| 50 | CCB-5,CCB,1 | 2/20/2019 6:40:55 PM | CCB |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 56
Created: 2/25/2019 8:45:59 AM by IC-05
Last Update: 2/25/2019 6:40:54 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 1 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 2 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 3 | Std - 0 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 4 | Std - 1 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 5 | Std - 2 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 6 | Std - 3 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 7 | Std - 4 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 8 | Std - 5 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 9 | BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 10 | CCV-1,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 11 | CCB-1,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 12 | MB-SOIL,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 13 | LCS-SOIL,LCS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 14 | N034238-001B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 15 | N034130-001C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 16 | N034130-002C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 17 | N034238-001BDUP,DUP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 18 | N034238-001BMS,MS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 19 | N034238-001BMSD,MSD,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 20 | CCV-2,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 21 | CCB-2,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 22 | MB-H2O,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 23 | LCS-H2O,LCS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 24 | N034122-001C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 25 | N034122-002C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 26 | N034122-003C,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 27 | N034122-004C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 28 | N034122-005C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 29 | N034122-006C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 30 | N034122-009C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 31 | N034122-005CDUP,DUP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 32 | CCV-3,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 33 | CCB-3,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 34 | N034122-006CMS,MS,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 35 | N034122-006CMSD,MSD,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 36 | N034179-001B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 37 | N034179-002B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 38 | N034179-003B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 39 | N034179-004B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 40 | N034179-005B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 41 | N034179-006B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 56
Created: 2/25/2019 8:45:59 AM by IC-05
Last Update: 2/25/2019 6:40:54 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 1 | BLANK,BLANK | 2/15/2019 9:48:20 AM | BLANK |
| 2 | BLANK,BLANK | 2/15/2019 10:03:08 AM | BLANK |
| 3 | Std - 0 | 2/15/2019 10:22:51 AM | BLANK |
| 4 | Std - 1 | 2/15/2019 10:37:39 AM | STD-LOW |
| 5 | Std - 2 | 2/15/2019 10:52:27 AM | STD |
| 6 | Std - 3 | 2/15/2019 11:07:14 AM | STD |
| 7 | Std - 4 | 2/15/2019 11:22:02 AM | STD |
| 8 | Std - 5 | 2/15/2019 11:36:50 AM | STD-HIGH |
| 9 | BLANK | 2/25/2019 8:46:29 AM | BLANK |
| 10 | CCV-1,CCV,1 | 2/25/2019 9:01:16 AM | CCV |
| 11 | CCB-1,CCB,1 | 2/25/2019 9:16:04 AM | CCB |
| 12 | MB-SOIL,MBLK,1 | 2/25/2019 9:30:52 AM | METHOD BLANK |
| 13 | LCS-SOIL,LCS,1 | 2/25/2019 9:45:40 AM | LCS |
| 14 | N034238-001B,SAMP,1 | 2/25/2019 10:03:33 AM | SAMP,10mL |
| 15 | N034130-001C,SAMP,10 | 2/25/2019 10:18:21 AM | SAMP,1>10mL |
| 16 | N034130-002C,SAMP,5 | 2/25/2019 10:33:09 AM | SAMP,2>10mL |
| 17 | N034238-001BDUP,DUP,1 | 2/25/2019 10:47:57 AM | DUP,10mL |
| 18 | N034238-001BMS,MS,1 | 2/25/2019 11:02:45 AM | MS,10mL |
| 19 | N034238-001BMSD,MSD,1 | 2/25/2019 11:17:33 AM | MSD,10mL |
| 20 | CCV-2,CCV,1 | 2/25/2019 11:32:20 AM | CCV |
| 21 | CCB-2,CCB,1 | 2/25/2019 11:47:08 AM | CCB |
| 22 | MB-H2O,MBLK,1 | 2/25/2019 12:13:49 PM | METHOD BLANK |
| 23 | LCS-H2O,LCS,1 | 2/25/2019 12:28:37 PM | LCS |
| 24 | N034122-001C,SAMP,5 | 2/25/2019 12:43:25 PM | SAMP,2>10mL |
| 25 | N034122-002C,SAMP,5 | 2/25/2019 12:58:12 PM | SAMP,2>10mL |
| 26 | N034122-003C,SAMP,20 | 2/25/2019 1:13:00 PM | SAMP,0.5>10mL |
| 27 | N034122-004C,SAMP,5 | 2/25/2019 1:27:48 PM | SAMP,2>10mL |
| 28 | N034122-005C,SAMP,1 | 2/25/2019 1:42:36 PM | SAMP,10mL |
| 29 | N034122-006C,SAMP,5 | 2/25/2019 1:57:24 PM | SAMP,10mL |
| 30 | N034122-009C,SAMP,1 | 2/25/2019 2:12:12 PM | SAMP,10mL |
| 31 | N034122-005CDUP,DUP,1 | 2/25/2019 2:32:27 PM | SAMP,10mL |
| 32 | CCV-3,CCV,1 | 2/25/2019 2:47:15 PM | CCV |
| 33 | CCB-3,CCB,1 | 2/25/2019 3:02:03 PM | CCB |
| 34 | N034122-006CMS,MS,5 | 2/25/2019 3:21:53 PM | SAMP,10mL |
| 35 | N034122-006CMSD,MSD,5 | 2/25/2019 3:48:30 PM | SAMP,10mL |
| 36 | N034179-001B,SAMP,1 | 2/25/2019 4:03:18 PM | SAMP,10mL |
| 37 | N034179-002B,SAMP,1 | 2/25/2019 4:18:06 PM | SAMP,10mL |
| 38 | N034179-003B,SAMP,1 | 2/25/2019 4:32:54 PM | SAMP,10mL |
| 39 | N034179-004B,SAMP,1 | 2/25/2019 4:47:42 PM | SAMP,10mL |
| 40 | N034179-005B,SAMP,1 | 2/25/2019 5:02:30 PM | SAMP,10mL |
| 41 | N034179-006B,SAMP,1 | 2/25/2019 5:17:17 PM | SAMP,10mL |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 56
Created: 2/25/2019 8:45:59 AM by IC-05
Last Update: 2/25/2019 6:40:54 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 42 | N034179-007B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 43 | N034179-002BMS,MS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 44 | CCV-4,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 45 | CCB-4,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 46 | N034179-008B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 47 | N034179-009B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 48 | N034122-001C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 49 | N034122-002C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 50 | N034178-008C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 51 | N034178-008CDUP,DUP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 52 | N034178-009C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 53 | N034178-009CMS,MS,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 54 | N034178-009CMSD,MSD,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 55 | CCV-5,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 56 | CCB-5,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 56
Created: 2/25/2019 8:45:59 AM by IC-05
Last Update: 2/25/2019 6:40:54 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 42 | N034179-007B,SAMP,1 | 2/25/2019 5:32:05 PM | SAMP,10mL |
| 43 | N034179-002BMS,MS,1 | 2/25/2019 5:46:53 PM | SAMP,10mL |
| 44 | CCV-4,CCV,1 | 2/25/2019 6:01:41 PM | CCV |
| 45 | CCB-4,CCB,1 | 2/25/2019 6:16:29 PM | CCB |
| 46 | N034179-008B,SAMP,1 | 2/25/2019 6:41:01 PM | SAMP,10mL |
| 47 | N034179-009B,SAMP,1 | 2/25/2019 6:55:50 PM | SAMP,10mL |
| 48 | N034122-001C,SAMP,10 | 2/25/2019 7:10:38 PM | SAMP,10mL |
| 49 | N034122-002C,SAMP,10 | 2/25/2019 7:25:26 PM | SAMP,10mL |
| 50 | N034178-008C,SAMP,5 | 2/25/2019 7:40:14 PM | SAMP,10mL |
| 51 | N034178-008CDUP,DUP,5 | 2/25/2019 7:55:01 PM | SAMP,10mL |
| 52 | N034178-009C,SAMP,5 | 2/25/2019 8:09:50 PM | SAMP,10mL |
| 53 | N034178-009CMS,MS,5 | 2/25/2019 8:24:38 PM | SAMP,10mL |
| 54 | N034178-009CMSD,MSD,5 | 2/25/2019 8:39:26 PM | SAMP,10mL |
| 55 | CCV-5,CCV,1 | 2/25/2019 8:54:14 PM | CCV |
| 56 | CCB-5,CCB,1 | 2/25/2019 9:09:02 PM | CCB |

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# INITIAL CALIBRATION DATA SUMMARY

**(EPA 300) - INITIAL CALIBRATION**

Instrument ID: IC-08
Date Calibrated: 2/15/2019

Initial Calibration:

| Chloride | STD0 | STD1 | STD2 | STD3 | STD4 | STD5 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0 | 0.5 | 1 | 2 | 5 | 10 | $R^2$ |
| Area,mAU*min | 0.000 | 0.0733 | 0.1509 | 0.3021 | 0.7794 | 1.6551 | 1.000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock |
|---|---|
| Standard Concentration: | 1000000 PPB |
| Standard ID: | ISST-180914B |

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

**(EPA 300) - INITIAL CALIBRATION**

Instrument ID: IC-08
Date Calibrated: 2/15/2019

Initial Calibration:

| Bromide | STD0 | STD1 | STD2 | STD3 | STD4 | STD5 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0 | 0.05 | 0.25 | 0.5 | 1.25 | 2.5 | $R^2$ |
| Area,mAU*min | 0.000 | 0.0036 | 0.016 | 0.0328 | 0.0826 | 0.1656 | 1.000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock |
|---|---|
| Standard Concentration: | 1000000 PPB |
| Standard ID: | ISST-180914D |

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

**(EPA 300) - INITIAL CALIBRATION**

Instrument ID: IC-08
Date Calibrated: 2/15/2019

Initial Calibration:

| Sulfate | STD0 | STD1 | STD2 | STD3 | STD4 | STD5 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0 | 0.5 | 2 | 4 | 10 | 20 | $R^2$ |
| Area,mAU*min | 0 | 0.0587 | 0.2301 | 0.4631 | 1.1693 | 2.4665 | 1.000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock |
|---|---|
| Standard Concentration: | 1000000 PPB |
| Standard ID: | ISST-180914G |

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_BRPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **300_W_BRP** | Units: **mg/L** | Prep Date: | RunNo: **132104** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132104** | TestNo: **EPA 300.0** | | Analysis Date: **2/15/2019** | SeqNo: **3301415** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 1.150 | 0.50 | 1.250 | 0 | 92.0 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **300_W_BRP** | Units: **mg/L** | Prep Date: | RunNo: **132104** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132104** | TestNo: **EPA 300.0** | | Analysis Date: **2/25/2019** | SeqNo: **3301417** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 1.265 | 0.50 | 1.250 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **300_W_BRP** | Units: **mg/L** | Prep Date: | RunNo: **132104** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132104** | TestNo: **EPA 300.0** | | Analysis Date: **2/25/2019** | SeqNo: **3301421** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 1.268 | 0.50 | 1.250 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV-4** | SampType: **CCV** | TestCode: **300_W_BRP** | Units: **mg/L** | Prep Date: | RunNo: **132104** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132104** | TestNo: **EPA 300.0** | | Analysis Date: **2/25/2019** | SeqNo: **3301423** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 1.238 | 0.50 | 1.250 | 0 | 99.0 | 90 | 110 | | | | |

| Sample ID **CCV-5** | SampType: **CCV** | TestCode: **300_W_BRP** | Units: **mg/L** | Prep Date: | RunNo: **132104** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132104** | TestNo: **EPA 300.0** | | Analysis Date: **2/25/2019** | SeqNo: **3301430** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 1.231 | 0.50 | 1.250 | 0 | 98.5 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **131955** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R131955** | TestNo: **EPA 300.0** | | Analysis Date: **2/15/2019** | SeqNo: **3294333** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 2.019 | 0.50 | 2.000 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **131955** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131955** | TestNo: **EPA 300.0** | | Analysis Date: **2/18/2019** | SeqNo: **3294335** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.959 | 0.50 | 2.000 | 0 | 97.9 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **131955** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131955** | TestNo: **EPA 300.0** | | Analysis Date: **2/18/2019** | SeqNo: **3294347** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.964 | 0.50 | 2.000 | 0 | 98.2 | 90 | 110 | | | | |

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **131955** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131955** | TestNo: **EPA 300.0** | | Analysis Date: **2/18/2019** | SeqNo: **3294351** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.963 | 0.50 | 2.000 | 0 | 98.2 | 90 | 110 | | | | |

| Sample ID **CCV-4** | SampType: **CCV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **131955** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131955** | TestNo: **EPA 300.0** | | Analysis Date: **2/18/2019** | SeqNo: **3294353** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.955 | 0.50 | 2.000 | 0 | 97.7 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

Sample ID **ICV** SampType: **ICV** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **131992**
Client ID: **ICV** Batch ID: **R131992** TestNo: **EPA 300.0** Analysis Date: **2/15/2019** SeqNo: **3296101**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.899 | 0.50 | 4.000 | 0 | 97.5 | 90 | 110 | | | | |

Sample ID **CCV-1** SampType: **CCV** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **131992**
Client ID: **CCV** Batch ID: **R131992** TestNo: **EPA 300.0** Analysis Date: **2/20/2019** SeqNo: **3296103**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.948 | 0.50 | 4.000 | 0 | 98.7 | 90 | 110 | | | | |

Sample ID **CCV-2** SampType: **CCV** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **131992**
Client ID: **CCV** Batch ID: **R131992** TestNo: **EPA 300.0** Analysis Date: **2/20/2019** SeqNo: **3296107**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.892 | 0.50 | 4.000 | 0 | 97.3 | 90 | 110 | | | | |

Sample ID **CCV-3** SampType: **CCV** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **131992**
Client ID: **CCV** Batch ID: **R131992** TestNo: **EPA 300.0** Analysis Date: **2/20/2019** SeqNo: **3296115**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.947 | 0.50 | 4.000 | 0 | 98.7 | 90 | 110 | | | | |

Sample ID **CCV-4** SampType: **CCV** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **131992**
Client ID: **CCV** Batch ID: **R131992** TestNo: **EPA 300.0** Analysis Date: **2/20/2019** SeqNo: **3296126**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.906 | 0.50 | 4.000 | 0 | 97.7 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID **CCV-5** | SampType: **CCV** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **131992** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R131992** | TestNo: **EPA 300.0** | | Analysis Date: **2/20/2019** | SeqNo: **3296130** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.908 | 0.50 | 4.000 | 0 | 97.7 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_BRPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **300_W_BRP** | Units: **mg/L** | Prep Date: | RunNo: **132104** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132104** | TestNo: **EPA 300.0** | | Analysis Date: **2/15/2019** | SeqNo: **3301416** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **300_W_BRP** | Units: **mg/L** | Prep Date: | RunNo: **132104** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132104** | TestNo: **EPA 300.0** | | Analysis Date: **2/25/2019** | SeqNo: **3301418** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **300_W_BRP** | Units: **mg/L** | Prep Date: | RunNo: **132104** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132104** | TestNo: **EPA 300.0** | | Analysis Date: **2/25/2019** | SeqNo: **3301422** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **300_W_BRP** | Units: **mg/L** | Prep Date: | RunNo: **132104** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132104** | TestNo: **EPA 300.0** | | Analysis Date: **2/25/2019** | SeqNo: **3301424** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB-5** | SampType: **CCB** | TestCode: **300_W_BRP** | Units: **mg/L** | Prep Date: | RunNo: **132104** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132104** | TestNo: **EPA 300.0** | | Analysis Date: **2/25/2019** | SeqNo: **3301431** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **131955** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131955** | TestNo: **EPA 300.0** | | Analysis Date: **2/15/2019** | SeqNo: **3294334** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **131955** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131955** | TestNo: **EPA 300.0** | | Analysis Date: **2/18/2019** | SeqNo: **3294336** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.171 | 0.50 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **131955** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131955** | TestNo: **EPA 300.0** | | Analysis Date: **2/18/2019** | SeqNo: **3294348** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.154 | 0.50 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **131955** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131955** | TestNo: **EPA 300.0** | | Analysis Date: **2/18/2019** | SeqNo: **3294352** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.154 | 0.50 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **131955** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131955** | TestNo: **EPA 300.0** | | Analysis Date: **2/18/2019** | SeqNo: **3294354** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.153 | 0.50 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **131992** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R131992** | TestNo: **EPA 300.0** | | Analysis Date: **2/15/2019** | SeqNo: **3296102** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **131992** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131992** | TestNo: **EPA 300.0** | | Analysis Date: **2/20/2019** | SeqNo: **3296104** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.230 | 0.50 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **131992** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131992** | TestNo: **EPA 300.0** | | Analysis Date: **2/20/2019** | SeqNo: **3296108** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.237 | 0.50 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **131992** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131992** | TestNo: **EPA 300.0** | | Analysis Date: **2/20/2019** | SeqNo: **3296116** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.235 | 0.50 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **131992** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131992** | TestNo: **EPA 300.0** | | Analysis Date: **2/20/2019** | SeqNo: **3296127** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.226 | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID **CCB-5** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **131992** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R131992** | TestNo: **EPA 300.0** | | Analysis Date: **2/20/2019** | SeqNo: **3296131** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.251 | 0.50 | | | | | | | | | |

Detection of Sulfate in CCB-5 is > 1/2 RL. However, N034178 samples are closed by CCV4/CCB4 and >5x the CCB detection.

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

NS 03/03/2019

# RETENTION TIME SUMMARY

## RETENTION TIME (RT) SUMMARY

**Instrument ID:** IC-08

**Analytical Sequence**

Date Analyzed: 2/18/2019

| Sample Name | | Retention Time | | Evaluation |
|---|---|---|---|---|
| ICV | Chloride | 4.100 | | |
| CCV-1 | Chloride | 4.244 | | |
| CCV-2 | Chloride | 4.240 | | |
| CCV-3 | Chloride | 4.243 | | |
| CCV-4 | Chloride | 4.244 | | |
| | **Average** | 4.243 | | |
| | **Applied RT Window** | 4.043 - | 4.443 | |
| MB-R131955_CL | Chloride | 4.240 | | PASS |
| LCS-R131955_CL | Chloride | 4.240 | | PASS |
| N034178-008C | Chloride | 4.237 | | PASS |
| N034178-009C | Chloride | 4.240 | | PASS |
| N034178-008CDUP | Chloride | 4.240 | | PASS |
| N034177-001CMS | Chloride | 4.240 | | PASS |
| N034177-001CMSD | Chloride | 4.240 | | PASS |

## RETENTION TIME (RT) SUMMARY

**Instrument ID:** IC-08

**Analytical Sequence**

Date Analyzed: 2/20/2019

| Sample Name | | Retention Time | | Evaluation |
|---|---|---|---|---|
| ICV | Sulfate | 8.790 | | |
| CCV-1 | Sulfate | 10.057 | | |
| CCV-2 | Sulfate | 10.054 | | |
| CCV-3 | Sulfate | 10.050 | | |
| CCV-4 | Sulfate | 10.047 | | |
| CCV-5 | Sulfate | 10.043 | | |
| | **Average** | 10.050 | | |
| | **Applied RT Window** | 9.850 - | 10.250 | |
| MB-R131992_SO4 | Sulfate | 10.187 | | PASS |
| LCS-R131992_SO4 | Sulfate | 10.054 | | PASS |
| N034107-002CMS | Sulfate | 10.057 | | PASS |
| N034107-002CMSD | Sulfate | 10.057 | | PASS |
| N034178-008C | Sulfate | 10.050 | | PASS |
| N034178-008CDUP | Sulfate | 10.050 | | PASS |
| N034183-001CMS | Sulfate | 10.077 | | PASS |
| N034178-009C | Sulfate | 10.047 | | PASS |

## RETENTION TIME (RT) SUMMARY

**Instrument ID:** IC-08

**Analytical Sequence**

Date Analyzed: 2/25/2019

| Sample Name | | Retention Time | Evaluation |
|---|---|---|---|
| ICV | Bromide | 5.530 | |
| CCV-2 | Bromide | 5.767 | |
| CCV-3 | Bromide | 5.770 | |
| CCV-4 | Bromide | 5.770 | |
| CCV-5 | Bromide | 5.760 | |
| | **Average** | 5.767 | |
| | **Applied RT Window** | 5.567 - 5.967 | |
| MB-R132103_BR | Bromide | N.A. | N.A. |
| LCS-R132103_BR | Bromide | 5.767 | PASS |
| N034178-008C | Bromide | 5.764 | PASS |
| N034178-008CDUP | Bromide | 5.764 | PASS |
| N034178-009C | Bromide | 5.754 | PASS |
| N034178-009CMS | Bromide | 5.760 | PASS |
| N034178-009CMSD | Bromide | 5.760 | PASS |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **INORGANIC IONS by Ion Chromatography**
Method Number: EPA 300.0
Analysis Date(s): 5/23/2017 ; 5/24/2017; 5/25/2017
Analyst/Technician: Ria Abes

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

**Acceptance Criteria:** MDL < spike < 10XMDL

| Datafile | 170523A D36 | 170523A D37 | 170523A D38 | 170524A D17 | 170524A D18 | 170525A D45 | 170525A D46 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte** | **#1** | **#2** | **#3** | **#4** | **#5** | **#6** | **#7** | **Spike Conc., mg/L** | **SD** | **MDL** | **LOD** | **PQL** |
| Fluoride | 0.020 | 0.022 | 0.021 | 0.020 | 0.023 | 0.026 | 0.024 | 0.020 | 0.0021 | **0.0065** | 0.020 | 0.10 |
| Chloride | 0.133 | 0.136 | 0.136 | 0.133 | 0.141 | 0.133 | 0.136 | 0.025 | 0.0029 | **0.0091** | 0.020 | 0.50 |
| Nitrite | 0.030 | 0.028 | 0.027 | 0.028 | 0.028 | 0.027 | 0.027 | 0.020 | 0.0010 | **0.0030** | 0.010 | 0.05 |
| Bromide | 0.037 | 0.042 | 0.043 | 0.038 | 0.040 | 0.032 | 0.025 | 0.040 | 0.0062 | **0.0196** | 0.040 | 0.20 |
| Nitrate | 0.035 | 0.034 | 0.033 | 0.033 | 0.033 | 0.031 | 0.030 | 0.020 | 0.0016 | **0.0050** | 0.010 | 0.05 |
| Phosphate | 0.047 | 0.051 | 0.049 | 0.046 | 0.052 | 0.047 | 0.059 | 0.040 | 0.0043 | **0.0135** | 0.030 | 0.10 |
| Sulfate | 0.213 | 0.199 | 0.208 | 0.216 | 0.199 | 0.201 | 0.198 | 0.050 | 0.0073 | **0.0229** | 0.050 | 0.50 |

# MDL/LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Inorganic Ions by Ion Chromatography (Low Level)**
Method Number: EPA Method 300.0
Analysis Date(s): 3/29-30/2018
Analyst: Ria B. Abes

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

| Compound | MDL | LOD Spike Conc., mg/L | LOD Actual Conc., mg/L | PQL Spike Conc., mg/L | PQL Actual Conc., mg/L | %Recovery |
|---|---|---|---|---|---|---|
| Fluoride | **0.0065** | 0.020 | 0.0252 | 0.10 | 0.087 | **87** |
| Chloride | **0.0091** | 0.020 | 0.1193 | 0.50 | 0.5757 | **115** |
| Nitrite | **0.0030** | 0.010 | 0.0237 | 0.05 | 0.0638 | **128** |
| Bromide | **0.0196** | 0.040 | 0.0405 | 0.20 | 0.1993 | **100** |
| Nitrate | **0.0050** | 0.010 | 0.0191 | 0.05 | 0.0561 | **112** |
| Phosphate | **0.0135** | 0.030 | 0.0415 | 0.10 | 0.1216 | **122** |
| Sulfate | **0.0229** | 0.050 | 0.3682 | 0.50 | 0.6549 | **131** |

# SM 4500-NO3F

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R132206 **Analyst:** QBM

**ASSET #:** N034178 **Date Analyzed:** 2/28/2019

**Method:** 4500_N03

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | X | | | X | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 3. ICV within ± 15% of expected value. | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | X | | | X | | |
| 5. CCV within ± 15% of expected value. | X | | | X | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | X | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< PQL) | X | | | X | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | X | | | X | | |
| 9. Are all samples analyzed within hold time. | X | | | X | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 11. LCS compounds within control limits. | X | | | X | | |
| 12. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | X |
| 14. Runlog complete and included in package. | X | | | X | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | X |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | X |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | X | | |
| 18. Are analytical results correct? | X | | | X | | |
| 19. Is the QC summary report present and complete? | X | | | X | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer QBM Date:

2nd Level Reviewer 3/5/2019 Date:

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R132259 **Analyst:** QBM

**ASSET #:** N034178 **Date Analyzed:** 3/4/2019

**Method:** 4500_N03

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | X | | | X | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 3. ICV within ± 15% of expected value. | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | X | | | X | | |
| 5. CCV within ± 15% of expected value. | X | | | X | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | X | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< PQL) | X | | | X | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | X | | | X | | |
| 9. Are all samples analyzed within hold time. | X | | | X | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 11. LCS compounds within control limits. | X | | | X | | |
| 12. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | X |
| 14. Runlog complete and included in package. | X | | | X | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | X |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | X |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | X | | |
| 18. Are analytical results correct? | X | | | X | | |
| 19. Is the QC summary report present and complete? | X | | | X | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer QBM Date: –

2nd Level Reviewer 3/5/2019 Date:

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 4500N03F
**TEST NAME:** Nitrate/Nitrite-N by Automated Cadmium Reduction
**MATRIX:** Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

**Nitrate/Nitrite-N, mg/L= A * DF**

where:

A = mg/L, instrument calculated concentration
DF = dilution factor BGLE

For: **N034178-003D**

The concentration in mg/L is calculated as follows:

**Nitrate/Nitrite-N** = 0.1763 * 1
= 0.1763 mg/L

Reporting result in two significant figures,

**Nitrate/Nitrite-N = 0.18 mg/L**

# INITIAL CALIBRATION DATA SUMMARY

## EPA 353.2 NO3 as N (NO3CD) - Endpoint

### General setup

| | |
|---|---|
| **Measuring unit** | **ppm** |
| **Number of decimals** | 4 |
| **Stabilization time (sec)** | 26 |
| **Measurement time (sec)** | 3 |
| **Sample volume (µl)** | 450 |
| **Filter** | 546 |
| **Reagent prime** | No |
| **CD Reduction** | Yes |

### Limits and dilution

| | |
|---|---|
| **Low level** | **-0.2** |
| **High level** | 4 |
| **Max linearity** | 4 |
| **Blank min** | 0 |
| **Blank max** | 0.049 |
| **Postdilution factor %** | 10 |
| **Factor Calculations** | No |

### Washes

| | |
|---|---|
| **Number of final washes** | 6 |
| **Wash every** | R1, R2 |

### O.D.Corrections

| | |
|---|---|
| **Carry Over** | **No** |
| **Carry Over value** | 0.0000 |
| **Blank** | No |
| **Gain** | No |

### Reagents

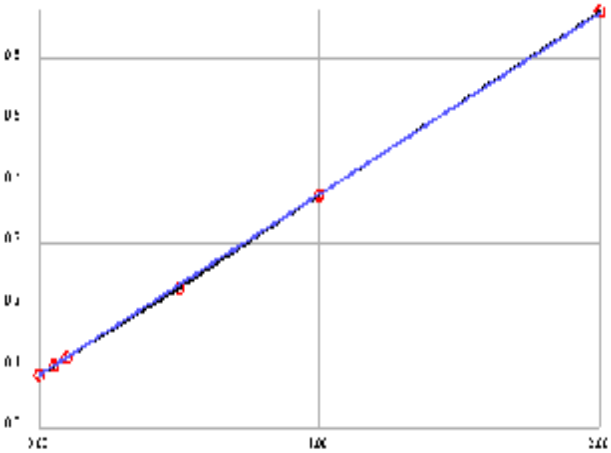
| N. | Volume (µl) | Incubation time (sec) |
|---|---|---|
| **1** | 200 | 102 |
| **2** | 300 | 663 |
| **3** | 0 | 0 |

### QC

| N. | Value | Tolerance |
|---|---|---|
| **1** | 1 | 0.1 |

### Calibration

| | |
|---|---|
| **Curve type** | Linear (Calibrants) |
| **Curve forced to zero** | No |
| **Blank inclusion** | No |



| | |
|---|---|
| **Formula** | y = 0.2949x + 0.085 |
| **Correlation** | .999913 |

| Calibrant | Energy | Set | Conc |
|---|---|---|---|
| **1** | 0.0872 | 0.0000 | 0.0074 |
| **2** | 0.1015 | 0.0500 | 0.0559 |
| **3** | 0.1154 | 0.1000 | 0.1030 |
| **4** | 0.2266 | 0.5000 | 0.4801 |
| **5** | 0.3793 | 1.0000 | 0.9979 |
| **6** | 0.6765 | 2.0000 | 2.0057 |

**Notes:**

## EPA 353.2 NO3 as N (NO3CD) - Endpoint

### General setup

| | |
|---|---|
| **Measuring unit** | **ppm** |
| **Number of decimals** | 4 |
| **Stabilization time (sec)** | 26 |
| **Measurement time (sec)** | 3 |
| **Sample volume (µl)** | 450 |
| **Filter** | 546 |
| **Reagent prime** | No |
| **CD Reduction** | Yes |

### Limits and dilution

| | |
|---|---|
| **Low level** | **-0.2** |
| **High level** | 4 |
| **Max linearity** | 4 |
| **Blank min** | 0 |
| **Blank max** | 0.049 |
| **Postdilution factor %** | 10 |
| **Factor Calculations** | No |

### Washes

| | |
|---|---|
| **Number of final washes** | 6 |
| **Wash every** | R1, R2 |

### O.D.Corrections

| | |
|---|---|
| **Carry Over** | **No** |
| **Carry Over value** | 0.0000 |
| **Blank** | No |
| **Gain** | No |

### Reagents

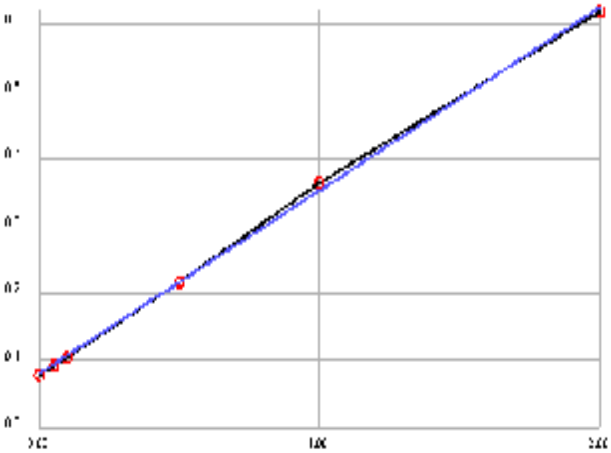
| N. | Volume (µl) | Incubation time (sec) |
|---|---|---|
| **1** | 200 | 102 |
| **2** | 300 | 663 |
| **3** | 0 | 0 |

### QC

| N. | Value | Tolerance |
|---|---|---|
| **1** | 1 | 0.1 |

## Calibration

| | |
|---|---|
| **Curve type** | Linear (Calibrants) |
| **Curve forced to zero** | No |
| **Blank inclusion** | No |



| | |
|---|---|
| **Formula** | y = 0.2721x + 0.0804 |
| **Correlation** | .999565 |

| Calibrant | Energy | Set | Conc |
|---|---|---|---|
| **1** | 0.0787 | 0.0000 | -0.0064 |
| **2** | 0.0911 | 0.0500 | 0.0392 |
| **3** | 0.1056 | 0.1000 | 0.0925 |
| **4** | 0.2172 | 0.5000 | 0.5027 |
| **5** | 0.3645 | 1.0000 | 1.0440 |
| **6** | 0.6186 | 2.0000 | 1.9780 |

**Notes:**

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132206** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132206** | TestNo: **SM4500-NO3** | | Analysis Date: **2/28/2019** | SeqNo: **3305191** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.533 | 0.050 | 0.5000 | 0 | 107 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132206** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132206** | TestNo: **SM4500-NO3** | | Analysis Date: **2/28/2019** | SeqNo: **3305202** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.500 | 0.050 | 0.5000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132206** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132206** | TestNo: **SM4500-NO3** | | Analysis Date: **2/28/2019** | SeqNo: **3305213** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.472 | 0.050 | 0.5000 | 0 | 94.4 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132259** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132259** | TestNo: **SM4500-NO3** | | Analysis Date: **3/4/2019** | SeqNo: **3307395** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.487 | 0.050 | 0.5000 | 0 | 97.4 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132259** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132259** | TestNo: **SM4500-NO3** | | Analysis Date: **3/4/2019** | SeqNo: **3307404** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.485 | 0.050 | 0.5000 | 0 | 96.9 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132206** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132206** | TestNo: **SM4500-NO3** | | Analysis Date: **2/28/2019** | SeqNo: **3305192** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.032 | 0.050 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132206** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132206** | TestNo: **SM4500-NO3** | | Analysis Date: **2/28/2019** | SeqNo: **3305203** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132206** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132206** | TestNo: **SM4500-NO3** | | Analysis Date: **2/28/2019** | SeqNo: **3305214** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

ICB is > 1/2 RL however samples reported are non-detect and >5x the ICB detection.

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

3/5/2019

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132259** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132259** | TestNo: **SM4500-NO3** | | Analysis Date: **3/4/2019** | SeqNo: **3307396** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132259** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132259** | TestNo: **SM4500-NO3** | | Analysis Date: **3/4/2019** | SeqNo: **3307405** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

**Advanced Technology Laboratories, Inc.**

**3151 W. Post Rd.**
**Las Vegas, NV. 89118**
**702-307-2659**
**702-307-2691**
**www.atl-labs.com**

**Time start: 02-28-2019 15:48**
**Time end: 02-28-2019 18:08**

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 1 | <BLANK> | 17:37:03 | 0.0111 | | 0.0883 |
| 2 | <BLANK> | 17:37:58 | 0.0091 | | 0.0877 |
| 3 | <BLANK> | 17:38:58 | 0.0023 | | 0.0857 |
| 4 | <CAL1> | 17:39:53 | 0.0074 | [0] | 0.0872 |
| 5 | <CAL2> | 17:40:49 | 0.0559 | [0.05] | 0.1015 |
| 6 | <CAL3> | 17:41:49 | 0.1030 | [0.1] | 0.1154 |
| 7 | <CAL4> | 17:42:45 | 0.4801 | [0.5] | 0.2266 |
| 8 | <CAL5> | 17:43:46 | 0.9979 | [1] | 0.3793 |
| 9 | <CAL6> | 17:44:41 | 2.0057 | [2] | 0.6765 |
| 10 | ,BLANK,BLANK,1, NOT REPORTED | 17:45:36 | 0.0840 | | 0.1098 |
| 11 | ,ICV,ICV,1, | 17:46:37 | 0.5330 | | 0.2422 |
| 12 | ,ICB,ICB,1, | 17:47:33 | 0.0318 | | 0.0944 |
| 13 | ,MB-H2O,MBLK,1, | 17:48:27 | 0.0477 | | 0.0991 |
| 14 | ,LCS-H2O,LCS,1, | 17:49:28 | 0.5096 | | 0.2353 |
| 15 | ,N034178-003D,SAMP,1, NOT REPORTED | 17:50:24 | 0.1868 | | 0.1401 |
| 16 | ,N034178-004D,SAMP,1, NOT REPORTED | 17:51:19 | 0.2153 | | 0.1485 |
| 17 | ,N034178-005D,SAMP,1, | 17:52:19 | 0.2715 | | 0.1651 |
| 18 | ,N034178-005DDUP,DUP,1, | 17:53:03 | 0.2817 | | 0.1681 |
| 19 | ,N034178-006D,SAMP,1, | 17:53:53 | 0.7663 | | 0.3110 |
| 20 | ,N034178-006DMS,MS,1, | 17:54:35 | 1.2692 | | 0.4593 |
| 21 | ,N034178-006DMSD,MSD,1, | 17:55:24 | 1.2590 | | 0.4563 |
| 22 | ,BLANK, NOT REPORTED | 17:56:06 | 0.1963 | | 0.1429 |
| 23 | ,CCV-1,CCV,1, | 17:56:50 | 0.4998 | | 0.2324 |
| 24 | ,CCB-1,CCB,1, | 17:57:38 | 0.0264 | | 0.0928 |
| 25 | ,N034178-011D,SAMP,1, | 17:58:21 | 0.0165 | | 0.0899 |
| 26 | ,N034178-010D,SAMP,1, | 17:59:10 | 0.2777 | | 0.1669 |

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 27 | ,N034178-007D,SAMP,1, | 17:59:52 | 0.6127 | | 0.2657 |
| 28 | ,N034258-001C,SAMP,1, | 18:00:36 | 0.2573 | | 0.1609 |
| 29 | ,N034259-001C,SAMP,1, | 18:01:24 | 0.2309 | | 0.1531 |
| 30 | ,N034260-001C,SAMP,1, NOT REPORTED | 18:02:07 | 0.1112 | | 0.1178 |
| 31 | ,N034261-001C,SAMP,1, | 18:02:49 | 0.2376 | | 0.1551 |
| 32 | ,N034262-001C,SAMP,1, | 18:03:32 | 0.2448 | | 0.1572 |
| 33 | ,N034263-001C,SAMP,1, | 18:04:20 | 0.2363 | | 0.1547 |
| 34 | ,BLANK, NOT REPORTED | 18:05:04 | -0.0048 | | 0.0836 |
| 35 | ,CCV-2,CCV,1, | 18:05:47 | 0.4720 | | 0.2242 |
| 36 | ,CCB-2,CCB,1, | 18:06:35 | 0.0104 | | 0.0881 |

**Advanced Technology Laboratories, Inc.**

**3151 W. Post Rd.**
**Las Vegas, NV. 89118**
**702-307-2659**
**702-307-2691**
**www.atl-labs.com**

**Time start: 03-04-2019 14:27**
**Time end: 03-04-2019 15:58**

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 1 | <BLANK> | 15:40:39 | -0.0163 | | 0.0760 |
| 2 | <BLANK> | 15:41:34 | -0.0145 | | 0.0765 |
| 3 | <BLANK> | 15:42:36 | -0.0064 | | 0.0787 |
| 4 | <CAL1> | 15:43:17 | -0.0064 | [0] | 0.0787 |
| 5 | <CAL2> | 15:44:01 | 0.0392 | [0.05] | 0.0911 |
| 6 | <CAL3> | 15:44:49 | 0.0925 | [0.1] | 0.1056 |
| 7 | <CAL4> | 15:45:32 | 0.5027 | [0.5] | 0.2172 |
| 8 | <CAL5> | 15:46:20 | 1.0440 | [1] | 0.3645 |
| 9 | <CAL6> | 15:47:03 | 1.9780 | [2] | 0.6186 |
| 10 | ,BLANK,BLANK,1, NOT REPORTED | 15:47:53 | 0.0528 | | 0.0948 |
| 11 | ,ICV,ICV,1, | 15:48:34 | 0.4869 | | 0.2129 |
| 12 | ,ICB,ICB,1, | 15:49:18 | 0.0047 | | 0.0817 |
| 13 | ,MB-H2O,MBLK,1, | 15:50:06 | -0.0108 | | 0.0775 |
| 14 | ,LCS-H2O,LCS,1, | 15:50:49 | 0.5357 | | 0.2262 |
| 15 | ,N034178-003D,SAMP,1, | 15:51:31 | 0.1763 | | 0.1284 |
| 16 | ,N034178-003DDUP,DUP,1, | 15:52:20 | 0.1660 | | 0.1256 |
| 17 | ,N034178-004D,SAMP,1, | 15:53:02 | 0.1840 | | 0.1305 |
| 18 | ,N034178-004DMS,MS,1, | 15:53:46 | 0.7107 | | 0.2738 |
| 19 | ,N034178-004DMSD,MSD,1, | 15:54:35 | 0.7394 | | 0.2816 |
| 20 | ,BLANK, NOT REPORTED | 15:55:17 | 0.0113 | | 0.0835 |
| 21 | ,CCV-1,CCV,1, | 15:56:00 | 0.4847 | | 0.2123 |
| 22 | ,CCB-1,CCB,1, | 15:56:48 | 0.0054 | | 0.0819 |

**Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog**

## Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 2/28/2019
Time Analyzed: 3:48 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190221D
Color reagent: R190221E
2% Copper Sulfate: R190221C
Ammonium Hydroxide: CINV-190124B

| Sample ID. | Sample Wt./Vol. | Sample pH | Std Code | Spike Amt Added (mL) | Spike Conc.(PPM) | Final Volume (mL) | Dilution (F/I) | Reading & Calculations (mg/L) | Comments |
|---|---|---|---|---|---|---|---|---|---|
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| | | | | | | | | | |
| N034178-003D | | 8.60 | | | | | | | |
| N034178-004D | | 8.3 | | | | | | | |
| N034178-005D | | 7.54 | | | | | | | |
| N034178-006D | | 8.00 | | | | | | | |
| N034178-007D | | 8.25 | | | | | | | |
| N034178-010D | | 7.66 | | | | | | | |
| N034178-011D | | 7.41 | | | | | | | |
| N034258-001C | | 7.70 | | | | | | | |
| N034259-001C | | 7.26 | | | | | | | |
| N034260-001C | | 8.01 | | | | | | | |
| N034261-001C | | 7.35 | | | | | | | |
| N034262-001C | | 7.12 | | | | | | | |
| N034263-001C | | 7.78 | | | | | | | |
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Advanced Technology Laboratories, Inc.
Book # 1

**Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog**

## Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 3/4/2019
Time Analyzed: 2:27 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190221D
Color reagent: R190221E
2% Copper Sulfate: R190221C
Ammonium Hydroxide: CINV-190124B

| Sample ID. | Sample Wt./Vol. | Sample pH | Std Code | Spike Amt Added (mL) | Spike Conc.(PPM) | Final Volume (mL) | Dilution (F/I) | Reading & Calculations (mg/L) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
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| | | | | | | | | | |
| N034178-003D | | 8.52 | | | | | | | |
| N034178-004D | | 8.35 | | | | | | | |
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Advanced Technology Laboratories, Inc.
Book # 1

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

| Analyte | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Ave | SD | $t_{(n-1)}$ value | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.0573 | 0.0562 | 0.0500 | 0.0730 | 0.0698 | 0.0637 | 0.0564 | 0.0609 | 0.0082 | 3.143 | 0.0259 | 0.05 |
| **Method Blank** | | | | | | | | | | | | |
| Nitrate/Nitrite as N | 0.0160 | 0.0067 | 0.0064 | 0.0204 | 0.0173 | 0.0036 | 0.0083 | 0.0112 | 0.0065 | 3.143 | 0.0317 | 0.05 |

**MDL:** **0.0317** **mg/L**

# EPA 6020
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72522
**ASSET #:** N034178
**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 2/28/2019

**Method:**

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | X | | | X | |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | X | | | X | | |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | X | | | X | | |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | X | | | X | | |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

% Rec of As in N034160-001A PS/MS/MSD failed, low bias. However, LCS passed criteria.
% Rec of Mo in N034160-001A PS failed, high bias. However, LCS passed criteria.
Dilution test for Mo failed.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: —

2nd Level Reviewer 3/5/2019 Date: —

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72522
**ASSET #:** N034178
**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 3/2/2019

**Method:**

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | X |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | X |
| 24. LCS compounds within control limits. | X | | | X | | X |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | X |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

As run for sample reference N034160-001

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: —

2nd Level Reviewer 3/5/2019 Date: —

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA 6020
**TEST NAME:** Heavy Metals by ICP-MS
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Molybdenum concentration, in ug/L , in the original sample as follows:

Molybdenum , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N034178-003B** , the concentration in ug/L is calculated as follows:

Molybdenum , ug/L = 62.4869 * 1 *(25/25)

Molybdenum , ug/L = 62.4869

Reporting results in two significant figures,

**Molybdenum, ug/L = 62**

# % RSD SUMMARY

**PERCENT RSD SUMMARY: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 52 Cr [2] | | | | 55 Mn [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.094 | 8.41 | 15 | PASS | 0.13 | 15.76 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.51 | 5.35 | 15 | PASS | 0.55 | 10.12 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 5.12 | 1.93 | 15 | PASS | 5.16 | 1.76 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.29 | 2.5 | 15 | PASS | 10.44 | 2.11 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.57 | 0.39 | 15 | PASS | 20.44 | 0.58 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.7 | 0.8 | 15 | PASS | 40.48 | 0.93 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 101.5 | 0.53 | 15 | PASS | 100.98 | 0.26 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.037 | 0.45 | 15 | PASS | 199.35 | 0.36 | 15 | PASS |
| ICV | ICV | 1 | 10.43 | 0.7 | 15 | PASS | 104.71 | 1.64 | 15 | PASS |
| ICB | ICB | 1 | 0.078 | 32.88 | 15 | <PQL | 0.0068 | 58.27 | 15 | <PQL |
| LLICV | CCV1 | 1 | 1 | 2.066 | 20 | PASS | 0.5 | 5.73 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 22.24 | 0.63 | 15 | PASS | 19.58 | 0.8 | 15 | PASS |
| LLICV | CCV1 | 1 | 1.00073 | 1.87 | 20 | PASS | 0.51 | 5.96 | 20 | PASS |
| CCV1 | CCV | 1 | 20.27 | 0.95 | 15 | PASS | 20.67 | 1.64 | 15 | PASS |
| CCB1 | CCB | 1 | 0.011 | 52.53 | 15 | <PQL | 0.0081 | 16.98 | 15 | <PQL |
| CCV2 | CCV | 1 | 21.52 | 1.16 | 15 | PASS | 20.64 | 1.48 | 15 | PASS |
| CCB2 | CCB | 1 | 0.021 | 11.75 | 15 | PASS | 0.0045 | 201.79 | 15 | <PQL |
| CCV3 | CCV | 1 | 20.59 | 1.033 | 15 | PASS | 19.9 | 2.054 | 15 | PASS |
| CCB3 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 22.28 | 1.61 | 15 | PASS | 20.74 | 0.56 | 15 | PASS |
| CCV4 | CCV | 1 | 19.62 | 0.7 | 15 | PASS | 19.75 | 1.12 | 15 | PASS |
| CCB4 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.0017 | 310.41 | 15 | <PQL |
| MB-72522 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | 0.027 | 40.092 | 15 | <PQL |
| LCS-72522 | LCS | 1 | 10.14 | 0.71 | 15 | PASS | 104.25 | 0.64 | 15 | PASS |
| N034160-001A | SAMP | 1 | 0.7 | 0.066 | 15 | PASS | 363.18 | 1.18 | 15 | PASS |
| CCV5 | CCV | 1 | 20.16 | 1.12 | 15 | PASS | 19.79 | 0.61 | 15 | PASS |
| CCB5 | CCB | 1 | 0.045 | 11.2 | 15 | PASS | 0.036 | 45.34 | 15 | <PQL |
| N034129-013D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 1.91 | 1.88 | 15 | PASS |
| N034160-001A | SAMP | 5 | 0.11 | 8.29 | 15 | PASS | 74.96 | 0.18 | 15 | PASS |
| N034160-001A-PS | PS | 1 | 10.59 | 1.099 | 15 | PASS | 460.72 | 1.06 | 15 | PASS |
| N034160-001A-MS | MS | 1 | 10.53 | 0.93 | 15 | PASS | 449.42 | 0.78 | 15 | PASS |
| N034160-001A-MSD | MSD | 1 | 10.67 | 2.071 | 15 | PASS | 452.97 | 1.11 | 15 | PASS |
| N034160-001A | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 15.49 | 1.33 | 15 | PASS |
| N034160-001A-PS | PS | 5 | 2.16 | 0.26 | 15 | PASS | 96.65 | 0.86 | 15 | PASS |
| N034160-001A-MS | MS | 5 | 2.17 | 1.41 | 15 | PASS | 94.89 | 1.083 | 15 | PASS |
| N034160-001A-MSD | MSD | 5 | 2.24 | 2.25 | 15 | PASS | 96.032 | 1.3 | 15 | PASS |
| N034162-001A | SAMP | 1 | 958.43 | 1.25 | 15 | PASS | 136 | 0.61 | 15 | PASS |
| CCV6 | CCV | 1 | 20.2 | 1.31 | 15 | PASS | 19.7 | 1.94 | 15 | PASS |

**PERCENT RSD SUMMARY: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 52 Cr [2] | | | | 55 Mn [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| CCB6 | CCB | 1 | 0.055 | 26.55 | 15 | <PQL | 0.027 | 30.65 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 21.46 | 1.42 | 15 | PASS | 20.42 | 0.61 | 15 | PASS |
| N034162-001A | SAMP | 10 | 103.35 | 0.97 | 15 | PASS | 14.65 | 1.62 | 15 | PASS |
| N034162-003B | SAMP | 1 | 1134.28 | 0.83 | 15 | PASS | 131.21 | 0.74 | 15 | PASS |
| N034162-003B | SAMP | 10 | 119.42 | 0.35 | 15 | PASS | 13.87 | 0.42 | 15 | PASS |
| N034164-001A | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 4557.41 | 0.73 | 15 | PASS |
| N034181-001B | SAMP | 1 | 21.07 | 0.63 | 15 | PASS | 38.83 | 0.43 | 15 | PASS |
| N034191-001B | SAMP | 1 | 52.6 | 0.9 | 15 | PASS | 80.8 | 0.89 | 15 | PASS |
| N034195-001A | SAMP | 5 | 141.016 | 0.65 | 15 | PASS | 118.42 | 0.1 | 15 | PASS |
| N034178-003B | SAMP | 1 | 17.25 | 0.4 | 15 | PASS | 20.99 | 1.094 | 15 | PASS |
| N034178-004B | SAMP | 1 | 28.95 | 0.53 | 15 | PASS | 21.43 | 2.33 | 15 | PASS |
| N034178-005B | SAMP | 1 | 106.44 | 0.41 | 15 | PASS | 13.44 | 0.92 | 15 | PASS |
| CCV7 | CCV | 1 | 20.14 | 0.82 | 15 | PASS | 19.86 | 1.48 | 15 | PASS |
| CCB7 | CCB | 1 | 0.062 | 10.82 | 15 | PASS | 0.029 | 38.11 | 15 | <PQL |
| N034178-006B | SAMP | 1 | 1.3 | 1.77 | 15 | PASS | 21.53 | 0.94 | 15 | PASS |
| N034178-007B | SAMP | 1 | 9.45 | 0.5 | 15 | PASS | 294.37 | 0.54 | 15 | PASS |
| N034178-007B | SAMP | 5 | 2.042 | 3.029 | 15 | PASS | 63.6 | 0.63 | 15 | PASS |
| N034178-008B | SAMP | 1 | 141.9 | 1.33 | 15 | PASS | 4.58 | 1.93 | 15 | PASS |
| N034178-009B | SAMP | 1 | 129.051 | 0.89 | 15 | PASS | 11.092 | 2.048 | 15 | PASS |
| N034178-010B | SAMP | 1 | 0.92 | 3.91 | 15 | PASS | 137.11 | 1.53 | 15 | PASS |
| N034178-011B | SAMP | 1 | 1.67 | 2.84 | 15 | PASS | 108.68 | 0.56 | 15 | PASS |
| N034196-002B | SAMP | 1 | 16.77 | 1.22 | 15 | PASS | 12.89 | 1.23 | 15 | PASS |
| N034196-002B | SAMP | 5 | 3.47 | 3.28 | 15 | PASS | 2.71 | 0.57 | 15 | PASS |
| N034196-003B | SAMP | 1 | 17.77 | 0.071 | 15 | PASS | 24.004 | 1.5 | 15 | PASS |
| CCV8 | CCV | 1 | 20.28 | 1.22 | 15 | PASS | 20.11 | 1.15 | 15 | PASS |
| CCB8 | CCB | 1 | 0.078 | 26.93 | 15 | <PQL | 0.037 | 6.14 | 15 | PASS |
| N034196-003B | SAMP | 5 | 3.58 | 1.76 | 15 | PASS | 4.94 | 3.98 | 15 | PASS |
| N034196-004B | SAMP | 1 | 19.9 | 0.6 | 15 | PASS | 25.006 | 1.051 | 15 | PASS |
| N034196-004B | SAMP | 5 | 4.079 | 2.047 | 15 | PASS | 5.27 | 1.45 | 15 | PASS |
| CCV9 | CCV | 1 | 19.82 | 0.55 | 15 | PASS | 19.87 | 1.23 | 15 | PASS |
| CCB9 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.029 | 43.92 | 15 | <PQL |
| ICSA4 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 21.45 | 0.3 | 15 | PASS | 21.19 | 1.13 | 15 | PASS |
| CCV10 | CCV | 1 | 19.73 | 0.35 | 15 | PASS | 20.4 | 0.95 | 15 | PASS |
| CCB10 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.18 | 8.39 | 15 | PASS |
| CCV11 | CCV | 1 | 19.73 | 0.91 | 15 | PASS | 20.39 | 1.43 | 15 | PASS |
| CCB11 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.054 | 39.023 | 15 | <PQL |
| N034178-003B | SAMP | 1 | 17.5 | 0.44 | 15 | PASS | 21.27 | 1.26 | 15 | PASS |
| N034178-005B | SAMP | 1 | 105.43 | 0.33 | 15 | PASS | 13.3 | 1.61 | 15 | PASS |
| CCV12 | CCV | 1 | 20.12 | 1.081 | 15 | PASS | 19.93 | 2.27 | 15 | PASS |

**PERCENT RSD SUMMARY: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 52 Cr [2] | | | | 55 Mn [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| CCB12 | CCB | 1 | 0.003 | 226.84 | 15 | <PQL | 0.048 | 25.85 | 15 | <PQL |
| N034178-006B | SAMP | 1 | 1.37 | 6.61 | 15 | PASS | 21.43 | 1.51 | 15 | PASS |
| N034178-008B | SAMP | 1 | 140.66 | 1.3 | 15 | PASS | 4.8 | 1.63 | 15 | PASS |
| N034178-010B | SAMP | 1 | 0.92 | 6.51 | 15 | PASS | 136.14 | 0.8 | 15 | PASS |
| N034196-003B | SAMP | 1 | 17.45 | 0.53 | 15 | PASS | 23.67 | 1.61 | 15 | PASS |
| N034196-004B | SAMP | 1 | 19.77 | 0.75 | 15 | PASS | 24.72 | 1.34 | 15 | PASS |
| N034178-006B | SAMP | 1 | 1.36 | 0.98 | 15 | PASS | 21.43 | 0.69 | 15 | PASS |
| N034196-003B | SAMP | 1 | 17.62 | 0.39 | 15 | PASS | 23.65 | 0.34 | 15 | PASS |
| N034196-004B | SAMP | 1 | 19.74 | 1.53 | 15 | PASS | 24.82 | 1.45 | 15 | PASS |
| N034196-004B | SAMP | 1 | 20.041 | 0.53 | 15 | PASS | 24.88 | 0.25 | 15 | PASS |
| CCV13 | CCV | 1 | 19.97 | 0.84 | 15 | PASS | 20.071 | 0.48 | 15 | PASS |
| CCB13 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.045 | 13.7 | 15 | PASS |
| ICSA5 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB5 | ICSAB | 1 | 21.56 | 0.35 | 15 | PASS | 21.45 | 1.34 | 15 | PASS |

**PERCENT RSD SUMMARY: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 75 As [2] | | | | 78 Se [1] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.088 | 30.84 | 15 | <PQL | 0.072 | 89.46 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.46 | 7.91 | 15 | PASS | 0.49 | 27.75 | 15 | <PQL |
| Std3-5/50 ppb | ICAL | 1 | 4.98 | 2.9 | 15 | PASS | 4.9 | 11.32 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.33 | 1.062 | 15 | PASS | 9.97 | 2.67 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.82 | 1.6 | 15 | PASS | 20 | 2.44 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 41.65 | 1.36 | 15 | PASS | 39.62 | 3.98 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.46 | 0.36 | 15 | PASS | 100.16 | 2.34 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.34 | 0.28 | 15 | PASS | 196.24 | 0.32 | 15 | PASS |
| ICV | ICV | 1 | 9.98 | 1.79 | 15 | PASS | 9.24 | 3.84 | 15 | PASS |
| ICB | ICB | 1 | 0.0066 | 302.67 | 15 | <PQL | 0.009 | 524.27 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.093 | 19.17 | 20 | PASS | 0.61 | 24.71 | 20 | NR! |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.0044 | 944.12 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 22.17 | 0.66 | 15 | PASS | 21.46 | 4.1 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.11 | 16.77 | 20 | PASS | 0.45 | 30.38 | 20 | <PQL |
| CCV1 | CCV | 1 | 20.36 | 0.98 | 15 | PASS | 19.34 | 7.96 | 15 | PASS |
| CCB1 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.06 | 145.43 | 15 | <PQL |
| CCV2 | CCV | 1 | 20.095 | 1.93 | 15 | PASS | 20.79 | 4.49 | 15 | PASS |
| CCB2 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.016 | 130.48 | 15 | <PQL |
| CCV3 | CCV | 1 | 20.085 | 0.94 | 15 | PASS | 19.43 | 3.4 | 15 | PASS |
| CCB3 | CCB | 1 | 0.019 | 65.78 | 15 | <PQL | 0.054 | 107.5 | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.023 | 206.45 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 22.0012 | 3.57 | 15 | PASS | 20.83 | 4.54 | 15 | PASS |
| CCV4 | CCV | 1 | 19.51 | 0.54 | 15 | PASS | 19.63 | 2.035 | 15 | PASS |
| CCB4 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| MB-72522 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LCS-72522 | LCS | 1 | 9.98 | 2.5 | 15 | PASS | 9.65 | 4.63 | 15 | PASS |
| N034160-001A | SAMP | 1 | 0.15 | 31.38 | 15 | NR! | 4.53 | 6.3 | 15 | PASS |
| CCV5 | CCV | 1 | 18.7 | 1.29 | 15 | PASS | 19.41 | 2.13 | 15 | PASS |
| CCB5 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034129-013D | SAMP | 1 | 2.32 | 2.66 | 15 | PASS | 1.84 | 13.38 | 15 | PASS |
| N034160-001A | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.91 | 8.89 | 15 | PASS |
| N034160-001A-PS | PS | 1 | 10.55 | 1.083 | 15 | PASS | 14.86 | 2.069 | 15 | PASS |
| N034160-001A-MS | MS | 1 | 10.51 | 2.13 | 15 | PASS | 14.26 | 2.66 | 15 | PASS |
| N034160-001A-MSD | MSD | 1 | 10.38 | 1.05 | 15 | PASS | 14.021 | 4.43 | 15 | PASS |
| N034160-001A | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 0.25 | 11.24 | 15 | PASS |
| N034160-001A-PS | PS | 5 | 1.97 | 8.16 | 15 | PASS | 2.89 | 16.68 | 15 | NR! |
| N034160-001A-MS | MS | 5 | 2.17 | 0.77 | 15 | PASS | 2.74 | 6.83 | 15 | PASS |
| N034160-001A-MSD | MSD | 5 | 2.068 | 1.44 | 15 | PASS | 2.7 | 14.71 | 15 | PASS |
| N034162-001A | SAMP | 1 | 2.11 | 6.42 | 15 | PASS | 31.5 | 1.71 | 15 | PASS |
| CCV6 | CCV | 1 | 18.74 | 0.81 | 15 | PASS | 18.74 | 0.28 | 15 | PASS |

**PERCENT RSD SUMMARY: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 75 As [2] | | | | 78 Se [1] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| CCB6 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | 0 | 15 | PASS |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 22.54 | 2.78 | 15 | PASS | 20.67 | 0.59 | 15 | PASS |
| N034162-001A | SAMP | 10 | 0.2 | 14.78 | 15 | PASS | 2.88 | 16.043 | 15 | NR! |
| N034162-003B | SAMP | 1 | 2.27 | 2.53 | 15 | PASS | 30.98 | 1.52 | 15 | PASS |
| N034162-003B | SAMP | 10 | 0.2 | 9.77 | 15 | PASS | 3.18 | 13.2 | 15 | PASS |
| N034164-001A | SAMP | 1 | 0.57 | 8.27 | 15 | PASS | 0.35 | 61.027 | 15 | <PQL |
| N034181-001B | SAMP | 1 | 1.11 | 5.36 | 15 | PASS | 0.089 | 90.6 | 15 | <PQL |
| N034191-001B | SAMP | 1 | 5.21 | 1.37 | 15 | PASS | 0.13 | 48.79 | 15 | <PQL |
| N034195-001A | SAMP | 5 | 0.21 | 16.69 | 15 | NR! | 5.46 | 13.12 | 15 | PASS |
| N034178-003B | SAMP | 1 | 6.6 | 0.29 | 15 | PASS | 2.78 | 22.083 | 15 | NR! |
| N034178-004B | SAMP | 1 | 7.28 | 4.23 | 15 | PASS | 2.9 | 8.33 | 15 | PASS |
| N034178-005B | SAMP | 1 | 7.28 | 3.052 | 15 | PASS | 2.88 | 15.96 | 15 | NR! |
| CCV7 | CCV | 1 | 19.32 | 0.54 | 15 | PASS | 19.48 | 4.16 | 15 | PASS |
| CCB7 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034178-006B | SAMP | 1 | 1.59 | 3.53 | 15 | PASS | 0.87 | 15.33 | 15 | NR! |
| N034178-007B | SAMP | 1 | 1.74 | 1.74 | 15 | PASS | 1.83 | 9.83 | 15 | PASS |
| N034178-007B | SAMP | 5 | 0.33 | 4.9 | 15 | PASS | 0.39 | 31.44 | 15 | <PQL |
| N034178-008B | SAMP | 1 | 1.78 | 4.43 | 15 | PASS | 2.26 | 27.47 | 15 | NR! |
| N034178-009B | SAMP | 1 | 1.69 | 4.71 | 15 | PASS | 2.22 | 11.99 | 15 | PASS |
| N034178-010B | SAMP | 1 | 12.68 | 0.24 | 15 | PASS | 1.078 | 19.084 | 15 | NR! |
| N034178-011B | SAMP | 1 | 1.42 | 11.15 | 15 | PASS | 0.15 | 74.48 | 15 | <PQL |
| N034196-002B | SAMP | 1 | 6.048 | 2.21 | 15 | PASS | 0.096 | 22.14 | 15 | <PQL |
| N034196-002B | SAMP | 5 | 1.14 | 10.45 | 15 | PASS | 0.0069 | 980.91 | 15 | <PQL |
| N034196-003B | SAMP | 1 | 2.12 | 4.089 | 15 | PASS | 0.57 | 26.81 | 15 | NR! |
| CCV8 | CCV | 1 | 19.62 | 2.51 | 15 | PASS | 19.67 | 1.86 | 15 | PASS |
| CCB8 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034196-003B | SAMP | 5 | 0.41 | 13.57 | 15 | PASS | 0.12 | 95.23 | 15 | <PQL |
| N034196-004B | SAMP | 1 | 2.11 | 1.61 | 15 | PASS | 0.69 | 17.43 | 15 | NR! |
| N034196-004B | SAMP | 5 | 0.36 | 7.73 | 15 | PASS | 0.041 | 88 | 15 | <PQL |
| CCV9 | CCV | 1 | 19.32 | 1.75 | 15 | PASS | 19.23 | 0.68 | 15 | PASS |
| CCB9 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.019 | 459.36 | 15 | <PQL |
| ICSA4 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.025 | 208.36 | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 21.95 | 1.75 | 15 | PASS | 21.58 | 2.85 | 15 | PASS |
| CCV10 | CCV | 1 | 19.35 | 1.37 | 15 | PASS | 19.22 | 8.014 | 15 | PASS |
| CCB10 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.051 | 68.29 | 15 | <PQL |
| CCV11 | CCV | 1 | 19.44 | 2.81 | 15 | PASS | 19.42 | 1.79 | 15 | PASS |
| CCB11 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.09 | 58.74 | 15 | <PQL |
| N034178-003B | SAMP | 1 | 6.98 | 3.96 | 15 | PASS | 2.17 | 13.58 | 15 | PASS |
| N034178-005B | SAMP | 1 | 7.38 | 1.74 | 15 | PASS | 2.12 | 13.088 | 15 | PASS |
| CCV12 | CCV | 1 | 19.62 | 0.34 | 15 | PASS | 18.65 | 4.43 | 15 | PASS |

**PERCENT RSD SUMMARY: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 75 As [2] | | | | 78 Se [1] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| CCB12 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.027 | 287.98 | 15 | <PQL |
| N034178-006B | SAMP | 1 | 1.55 | 3.89 | 15 | PASS | 0.93 | 46.083 | 15 | NR! |
| N034178-008B | SAMP | 1 | 1.78 | 1.67 | 15 | PASS | 2.45 | 11.69 | 15 | PASS |
| N034178-010B | SAMP | 1 | 12.98 | 1.65 | 15 | PASS | 1.14 | 10.52 | 15 | PASS |
| N034196-003B | SAMP | 1 | 2.12 | 3.14 | 15 | PASS | 0.79 | 32.4 | 15 | NR! |
| N034196-004B | SAMP | 1 | 2.13 | 3.51 | 15 | PASS | 0.57 | 23.097 | 15 | NR! |
| N034178-006B | SAMP | 1 | 1.52 | 6.18 | 15 | PASS | 0.83 | 12.68 | 15 | PASS |
| N034196-003B | SAMP | 1 | 2.22 | 2.69 | 15 | PASS | 0.69 | 6.071 | 15 | PASS |
| N034196-004B | SAMP | 1 | 2.17 | 5.52 | 15 | PASS | 0.73 | 25.15 | 15 | NR! |
| N034196-004B | SAMP | 1 | 2.068 | 4.35 | 15 | PASS | 0.63 | 14.83 | 15 | PASS |
| CCV13 | CCV | 1 | 19.17 | 2.26 | 15 | PASS | 20.042 | 3.66 | 15 | PASS |
| CCB13 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.018 | 95.95 | 15 | <PQL |
| ICSA5 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.06 | 66.88 | 15 | <PQL |
| ICSAB5 | ICSAB | 1 | 21.6 | 1.2 | 15 | PASS | 20.28 | 1.75 | 15 | PASS |

**PERCENT RSD SUMMARY: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.066 | 34.75 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.39 | 5.47 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 4.28 | 1.63 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 9.13 | 1.4 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.018 | 1.8 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 38.98 | 0.5 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.73 | 1.26 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 205.32 | 0.23 | 15 | PASS |
| ICV | ICV | 1 | 9.23 | 2.38 | 15 | PASS |
| ICB | ICB | 1 | 0.16 | 7.73 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.47 | 5.68 | 20 | PASS |
| ICSA1 | ICSA | 1 | 0.11 | 45.075 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 22.049 | 0.5 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.77 | 5.3 | 20 | PASS |
| CCV1 | CCV | 1 | 18.48 | 0.41 | 15 | PASS |
| CCB1 | CCB | 1 | 0.17 | 27.92 | 15 | <PQL |
| CCV2 | CCV | 1 | 19.061 | 1.17 | 15 | PASS |
| CCB2 | CCB | 1 | 0.042 | 19.77 | 15 | <PQL |
| CCV3 | CCV | 1 | 18.68 | 1.22 | 15 | PASS |
| CCB3 | CCB | 1 | 0.25 | 20.25 | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0.087 | 14.84 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | 22.37 | 1.17 | 15 | PASS |
| CCV4 | CCV | 1 | 18.1 | 1.059 | 15 | PASS |
| CCB4 | CCB | 1 | <0.000 | N/A | 15 | <PQL |
| MB-72522 | MBLK | 1 | 0.082 | 31.72 | 15 | <PQL |
| LCS-72522 | LCS | 1 | 9.33 | 1.24 | 15 | PASS |
| N034160-001A | SAMP | 1 | 32.38 | 0.43 | 15 | PASS |
| CCV5 | CCV | 1 | 19.0075 | 1.06 | 15 | PASS |
| CCB5 | CCB | 1 | 0.00063 | 5493.51 | 15 | <PQL |
| N034129-013D | SAMP | 1 | 5.32 | 1.019 | 15 | PASS |
| N034160-001A | SAMP | 5 | 5.75 | 2.16 | 15 | PASS |
| N034160-001A-PS | PS | 1 | 44.46 | 0.54 | 15 | PASS |
| N034160-001A-MS | MS | 1 | 44.19 | 0.39 | 15 | PASS |
| N034160-001A-MSD | MSD | 1 | 44.45 | 0.36 | 15 | PASS |
| N034160-001A | SAMP | 25 | 1.56 | 0.41 | 15 | PASS |
| N034160-001A-PS | PS | 5 | 8.25 | 1.49 | 15 | PASS |
| N034160-001A-MS | MS | 5 | 8.19 | 1.3 | 15 | PASS |
| N034160-001A-MSD | MSD | 5 | 8.13 | 0.89 | 15 | PASS |
| N034162-001A | SAMP | 1 | 36.54 | 0.56 | 15 | PASS |
| CCV6 | CCV | 1 | 18.99 | 1.14 | 15 | PASS |

**PERCENT RSD SUMMARY: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| CCB6 | CCB | 1 | 0.022 | 30.3 | 15 | <PQL |
| ICSA3 | ICSA | 1 | 0.12 | 38.93 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 22.22 | 0.59 | 15 | PASS |
| N034162-001A | SAMP | 10 | 3.5 | 1.32 | 15 | PASS |
| N034162-003B | SAMP | 1 | 35.061 | 0.93 | 15 | PASS |
| N034162-003B | SAMP | 10 | 3.39 | 3.0027 | 15 | PASS |
| N034164-001A | SAMP | 1 | 327.22 | 0.33 | 15 | PASS |
| N034181-001B | SAMP | 1 | 4.35 | 3.1 | 15 | PASS |
| N034191-001B | SAMP | 1 | 8.047 | 0.46 | 15 | PASS |
| N034195-001A | SAMP | 5 | 7.85 | 0.52 | 15 | PASS |
| N034178-003B | SAMP | 1 | 62.49 | 0.029 | 15 | PASS |
| N034178-004B | SAMP | 1 | 63.02 | 1.068 | 15 | PASS |
| N034178-005B | SAMP | 1 | 57.44 | 0.38 | 15 | PASS |
| CCV7 | CCV | 1 | 19.45 | 0.76 | 15 | PASS |
| CCB7 | CCB | 1 | 0.07 | 40.77 | 15 | <PQL |
| N034178-006B | SAMP | 1 | 17.87 | 1.85 | 15 | PASS |
| N034178-007B | SAMP | 1 | 25.82 | 1.45 | 15 | PASS |
| N034178-007B | SAMP | 5 | 5.36 | 3.24 | 15 | PASS |
| N034178-008B | SAMP | 1 | 10.62 | 1.38 | 15 | PASS |
| N034178-009B | SAMP | 1 | 10.6 | 0.57 | 15 | PASS |
| N034178-010B | SAMP | 1 | 68.75 | 1.14 | 15 | PASS |
| N034178-011B | SAMP | 1 | 62.22 | 1.048 | 15 | PASS |
| N034196-002B | SAMP | 1 | 102.51 | 0.92 | 15 | PASS |
| N034196-002B | SAMP | 5 | 19.87 | 1.055 | 15 | PASS |
| N034196-003B | SAMP | 1 | 206.46 | 0.3 | 15 | PASS |
| CCV8 | CCV | 1 | 20.015 | 0.6 | 15 | PASS |
| CCB8 | CCB | 1 | 0.1 | 31.77 | 15 | <PQL |
| N034196-003B | SAMP | 5 | 37.78 | 1.15 | 15 | PASS |
| N034196-004B | SAMP | 1 | 211.54 | 0.66 | 15 | PASS |
| N034196-004B | SAMP | 5 | 40.82 | 0.37 | 15 | PASS |
| CCV9 | CCV | 1 | 19 | 0.51 | 15 | PASS |
| CCB9 | CCB | 1 | 0.1 | 31.081 | 15 | <PQL |
| ICSA4 | ICSA | 1 | 0.17 | 23.05 | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 22.5 | 0.25 | 15 | PASS |
| CCV10 | CCV | 1 | 18.47 | 1.87 | 15 | PASS |
| CCB10 | CCB | 1 | 0.27 | 13.32 | 15 | PASS |
| CCV11 | CCV | 1 | 18.27 | 0.22 | 15 | PASS |
| CCB11 | CCB | 1 | 0.23 | 16.77 | 15 | <PQL |
| N034178-003B | SAMP | 1 | 62.3 | 0.66 | 15 | PASS |
| N034178-005B | SAMP | 1 | 58.18 | 0.96 | 15 | PASS |
| CCV12 | CCV | 1 | 19.55 | 2.9 | 15 | PASS |

**PERCENT RSD SUMMARY: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| CCB12 | CCB | 1 | 0.35 | 18.72 | 15 | <PQL |
| N034178-006B | SAMP | 1 | 18.089 | 1.14 | 15 | PASS |
| N034178-008B | SAMP | 1 | 10.76 | 0.93 | 15 | PASS |
| N034178-010B | SAMP | 1 | 68.84 | 0.48 | 15 | PASS |
| N034196-003B | SAMP | 1 | 205.76 | 0.82 | 15 | PASS |
| N034196-004B | SAMP | 1 | 211.58 | 0.8 | 15 | PASS |
| N034178-006B | SAMP | 1 | 19.096 | 0.94 | 15 | PASS |
| N034196-003B | SAMP | 1 | 206.15 | 0.53 | 15 | PASS |
| N034196-004B | SAMP | 1 | 212.42 | 0.76 | 15 | PASS |
| N034196-004B | SAMP | 1 | 211.37 | 0.38 | 15 | PASS |
| CCV13 | CCV | 1 | 19.43 | 1.18 | 15 | PASS |
| CCB13 | CCB | 1 | 0.42 | 5.29 | 15 | PASS |
| ICSA5 | ICSA | 1 | 0.23 | 35.58 | 15 | <PQL |
| ICSAB5 | ICSAB | 1 | 23.022 | 0.46 | 15 | PASS |

**PERCENT RSD SUMMARY: 190302A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 75 As [2] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.082 | 30.96 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.49 | 7.33 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 4.89 | 5.16 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.023 | 2.18 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.52 | 1.87 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.66 | 1.46 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 97.78 | 1.35 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 200.93 | 0.82 | 15 | PASS |
| ICV | ICV | 1 | 10.29 | 1.28 | 15 | PASS |
| ICB | ICB | 1 | 0.029 | 9.7 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.095 | 26.68 | 20 | <PQL |
| ICSA1 | ICSA | 1 | 0.025 | 176.31 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 22.13 | 1.094 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.17 | 23.068 | 20 | NR! |
| N034160-001A | SAMP | 1 | 0.25 | 12.0077 | 15 | PASS |
| CCV1 | CCV | 1 | 20.8 | 2.66 | 15 | PASS |
| CCB1 | CCB | 1 | 0.041 | 26.45 | 15 | <PQL |
| CCV2 | CCV | 1 | 20.43 | 1.65 | 15 | PASS |
| CCB2 | CCB | 1 | 0.002 | 413.48 | 15 | <PQL |
| CCV3 | CCV | 1 | 19.75 | 2.55 | 15 | PASS |
| CCB3 | CCB | 1 | 0.038 | 57.5 | 15 | <PQL |
| CCV4 | CCV | 1 | 20.4 | 1.16 | 15 | PASS |
| CCB4 | CCB | 1 | 0.022 | 112.12 | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0.031 | 76.11 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 22.15 | 1.13 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190228A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0228001.D | RINSE | RINSE | 1 | 02/28/19 1:33 PM |
| A0228002.D | Cal Blank | IBLK | 1 | 02/28/19 1:38 PM |
| A0228003.D | Std1-0.1/1 ppb | ICAL | 1 | 02/28/19 1:44 PM |
| A0228004.D | Std2-0.5/5 ppb | ICAL | 1 | 02/28/19 1:50 PM |
| A0228005.D | Std3-5/50 ppb | ICAL | 1 | 02/28/19 1:56 PM |
| A0228006.D | Std4-10/100 ppb | ICAL | 1 | 02/28/19 2:02 PM |
| A0228007.D | Std5-20/200 ppb | ICAL | 1 | 02/28/19 2:08 PM |
| A0228008.D | Std6-40/400 ppb | ICAL | 1 | 02/28/19 2:14 PM |
| A0228009.D | Std7-100/1000 ppb | ICAL | 1 | 02/28/19 2:20 PM |
| A0228010.D | Std8-200/2000 ppb | ICAL | 1 | 02/28/19 2:26 PM |
| A0228011.D | ICV | ICV | 1 | 02/28/19 2:34 PM |
| A0228012.D | ICB | ICB | 1 | 02/28/19 2:40 PM |
| A0228013.D | LLICV | CCV1 | 1 | 02/28/19 2:46 PM |
| A0228014.D | ICSA1 | ICSA | 1 | 02/28/19 2:52 PM |
| A0228015.D | ICSAB1 | ICSAB | 1 | 02/28/19 3:00 PM |
| A0228016.D | LLICV | CCV1 | 1 | 02/28/19 3:06 PM |
| A0228017.D | N034123-013B | SAMP | 1 | 02/28/19 3:12 PM |
| A0228018.D | MB-72618 | MBLK | 1 | 02/28/19 3:17 PM |
| A0228019.D | LCS-72618 | LCS | 1 | 02/28/19 3:23 PM |
| A0228020.D | N034197-002A | SAMP | 1 | 02/28/19 3:29 PM |
| A0228021.D | N034197-002A | SAMP | 5 | 02/28/19 3:35 PM |
| A0228022.D | N034197-002A-PS | PS | 1 | 02/28/19 3:41 PM |
| A0228023.D | N034197-002A-MS | MS | 1 | 02/28/19 3:47 PM |
| A0228024.D | N034197-002A-MSD | MSD | 1 | 02/28/19 3:53 PM |
| A0228025.D | N034238-002A | SAMP | 1 | 02/28/19 3:59 PM |
| A0228026.D | N034108-001A | SAMP | 25 | 02/28/19 4:05 PM |
| A0228027.D | CCV1 | CCV | 1 | 02/28/19 4:10 PM |
| A0228028.D | CCB1 | CCB | 1 | 02/28/19 4:16 PM |
| A0228029.D | N034108-001A | SAMP | 5 | 02/28/19 4:22 PM |
| A0228030.D | MB-72499 | MBLK | 1 | 02/28/19 4:28 PM |
| A0228031.D | LCS-72499 | LCS | 1 | 02/28/19 4:34 PM |
| A0228032.D | N034128-001A | SAMP | 1 | 02/28/19 4:40 PM |
| A0228033.D | N034128-001A | SAMP | 5 | 02/28/19 4:46 PM |
| A0228034.D | N034128-001A-PS | PS | 1 | 02/28/19 4:52 PM |
| A0228035.D | N034128-001A-MS | MS | 1 | 02/28/19 4:58 PM |
| A0228036.D | N034128-001A-MSD | MSD | 1 | 02/28/19 5:03 PM |
| A0228037.D | N034197-002A-PS | PS | 1 | 02/28/19 5:08 PM |
| A0228038.D | N034197-002A-MS | MS | 1 | 02/28/19 5:14 PM |
| A0228039.D | CCV2 | CCV | 1 | 02/28/19 5:20 PM |
| A0228040.D | CCB2 | CCB | 1 | 02/28/19 5:27 PM |
| A0228041.D | N034197-002A-MSD | MSD | 1 | 02/28/19 5:32 PM |
| A0228042.D | N034238-002A | SAMP | 1 | 02/28/19 5:39 PM |

**INJECTION LOG: 190228A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0228043.D | N034128-001A | SAMP | 1 | 02/28/19 5:45 PM |
| A0228044.D | N034129-002D | SAMP | 1 | 02/28/19 5:52 PM |
| A0228045.D | N034129-003D | SAMP | 1 | 02/28/19 5:58 PM |
| A0228046.D | N034129-004D | SAMP | 1 | 02/28/19 6:05 PM |
| A0228047.D | N034129-005D | SAMP | 1 | 02/28/19 6:11 PM |
| A0228048.D | N034129-006D | SAMP | 1 | 02/28/19 6:17 PM |
| A0228049.D | N034129-007D | SAMP | 1 | 02/28/19 6:23 PM |
| A0228050.D | N034129-008D | SAMP | 1 | 02/28/19 6:29 PM |
| A0228051.D | CCV3 | CCV | 1 | 02/28/19 6:37 PM |
| A0228052.D | CCB3 | CCB | 1 | 02/28/19 6:41 PM |
| A0228053.D | ICSA2 | ICSA | 1 | 02/28/19 6:47 PM |
| A0228054.D | ICSAB2 | ICSAB | 1 | 02/28/19 6:54 PM |
| A0228055.D | N034129-002D | SAMP | 1 | 02/28/19 7:00 PM |
| A0228056.D | N034129-007D | SAMP | 1 | 02/28/19 7:06 PM |
| A0228057.D | N034129-009D | SAMP | 1 | 02/28/19 7:12 PM |
| A0228058.D | N034129-007D | SAMP | 1 | 02/28/19 7:18 PM |
| A0228059.D | N034129-010D | SAMP | 1 | 02/28/19 7:24 PM |
| A0228060.D | N034129-011D | SAMP | 1 | 02/28/19 7:30 PM |
| A0228061.D | N034129-012D | SAMP | 1 | 02/28/19 7:36 PM |
| A0228062.D | N034129-013D | SAMP | 1 | 02/28/19 7:42 PM |
| A0228063.D | N034129-014D | SAMP | 1 | 02/28/19 7:48 PM |
| A0228064.D | N034128-001A | SAMP | 10 | 02/28/19 7:54 PM |
| A0228065.D | CCV4 | CCV | 1 | 02/28/19 7:59 PM |
| A0228066.D | CCB4 | CCB | 1 | 02/28/19 8:07 PM |
| A0228067.D | N034129-013D | SAMP | 1 | 02/28/19 8:12 PM |
| A0228068.D | N034129-014D | SAMP | 1 | 02/28/19 8:18 PM |
| A0228069.D | N034129-013D | SAMP | 1 | 02/28/19 8:25 PM |
| A0228070.D | N034128-001A | SAMP | 50 | 02/28/19 8:31 PM |
| A0228071.D | N034128-001A-PS | PS | 10 | 02/28/19 8:37 PM |
| A0228072.D | N034128-001A-MS | MS | 10 | 02/28/19 8:43 PM |
| A0228073.D | N034128-001A-MSD | MSD | 10 | 02/28/19 8:49 PM |
| A0228074.D | MB-72522 | MBLK | 1 | 02/28/19 8:54 PM |
| A0228075.D | LCS-72522 | LCS | 1 | 02/28/19 9:01 PM |
| A0228076.D | N034160-001A | SAMP | 1 | 02/28/19 9:08 PM |
| A0228077.D | CCV5 | CCV | 1 | 02/28/19 9:16 PM |
| A0228078.D | CCB5 | CCB | 1 | 02/28/19 9:22 PM |
| A0228079.D | N034129-013D | SAMP | 1 | 02/28/19 9:27 PM |
| A0228080.D | N034160-001A | SAMP | 5 | 02/28/19 9:32 PM |
| A0228081.D | N034160-001A-PS | PS | 1 | 02/28/19 9:38 PM |
| A0228082.D | N034160-001A-MS | MS | 1 | 02/28/19 9:44 PM |
| A0228083.D | N034160-001A-MSD | MSD | 1 | 02/28/19 9:50 PM |
| A0228084.D | N034160-001A | SAMP | 25 | 02/28/19 9:56 PM |

**INJECTION LOG: 190228A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0228085.D | N034160-001A-PS | PS | 5 | 02/28/19 10:02 PM |
| A0228086.D | N034160-001A-MS | MS | 5 | 02/28/19 10:08 PM |
| A0228087.D | N034160-001A-MSD | MSD | 5 | 02/28/19 10:14 PM |
| A0228088.D | N034162-001A | SAMP | 1 | 02/28/19 10:20 PM |
| A0228089.D | CCV6 | CCV | 1 | 02/28/19 10:26 PM |
| A0228090.D | CCB6 | CCB | 1 | 02/28/19 10:32 PM |
| A0228091.D | ICSA3 | ICSA | 1 | 02/28/19 10:38 PM |
| A0228092.D | ICSAB3 | ICSAB | 1 | 02/28/19 10:44 PM |
| A0228093.D | N034162-001A | SAMP | 10 | 02/28/19 10:50 PM |
| A0228094.D | N034162-003B | SAMP | 1 | 02/28/19 10:56 PM |
| A0228095.D | N034162-003B | SAMP | 10 | 02/28/19 11:02 PM |
| A0228096.D | N034164-001A | SAMP | 1 | 02/28/19 11:08 PM |
| A0228097.D | N034181-001B | SAMP | 1 | 02/28/19 11:14 PM |
| A0228098.D | N034191-001B | SAMP | 1 | 02/28/19 11:19 PM |
| A0228099.D | N034195-001A | SAMP | 5 | 02/28/19 11:25 PM |
| A0228100.D | N034178-003B | SAMP | 1 | 02/28/19 11:31 PM |
| A0228101.D | N034178-004B | SAMP | 1 | 02/28/19 11:37 PM |
| A0228102.D | N034178-005B | SAMP | 1 | 02/28/19 11:43 PM |
| A0228103.D | CCV7 | CCV | 1 | 02/28/19 11:49 PM |
| A0228104.D | CCB7 | CCB | 1 | 02/28/19 11:55 PM |
| A0228105.D | N034178-006B | SAMP | 1 | 03/01/19 12:01 AM |
| A0228106.D | N034178-007B | SAMP | 1 | 03/01/19 12:07 AM |
| A0228107.D | N034178-007B | SAMP | 5 | 03/01/19 12:13 AM |
| A0228108.D | N034178-008B | SAMP | 1 | 03/01/19 12:19 AM |
| A0228109.D | N034178-009B | SAMP | 1 | 03/01/19 12:25 AM |
| A0228110.D | N034178-010B | SAMP | 1 | 03/01/19 12:31 AM |
| A0228111.D | N034178-011B | SAMP | 1 | 03/01/19 12:37 AM |
| A0228112.D | N034196-002B | SAMP | 1 | 03/01/19 12:43 AM |
| A0228113.D | N034196-002B | SAMP | 5 | 03/01/19 12:49 AM |
| A0228114.D | N034196-003B | SAMP | 1 | 03/01/19 12:55 AM |
| A0228115.D | CCV8 | CCV | 1 | 03/01/19 1:01 AM |
| A0228116.D | CCB8 | CCB | 1 | 03/01/19 1:08 AM |
| A0228117.D | N034196-003B | SAMP | 5 | 03/01/19 1:12 AM |
| A0228118.D | N034196-004B | SAMP | 1 | 03/01/19 1:18 AM |
| A0228119.D | N034196-004B | SAMP | 5 | 03/01/19 1:24 AM |
| A0228120.D | MB-72540 | MBLK | 1 | 03/01/19 1:31 AM |
| A0228121.D | LCS-72540 | LCS | 1 | 03/01/19 1:36 AM |
| A0228122.D | N034182-001B | SAMP | 1 | 03/01/19 1:42 AM |
| A0228123.D | N034182-001B | SAMP | 5 | 03/01/19 1:48 AM |
| A0228124.D | N034182-001B-PS | PS | 1 | 03/01/19 1:54 AM |
| A0228125.D | N034182-001B-MS | MS | 1 | 03/01/19 2:00 AM |
| A0228126.D | N034182-001B-MSD | MSD | 1 | 03/01/19 2:06 AM |

**INJECTION LOG: 190228A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0228127.D | CCV9 | CCV | 1 | 03/01/19 2:12 AM |
| A0228128.D | CCB9 | CCB | 1 | 03/01/19 2:19 AM |
| A0228129.D | ICSA4 | ICSA | 1 | 03/01/19 2:24 AM |
| A0228130.D | ICSAB4 | ICSAB | 1 | 03/01/19 2:29 AM |
| A0228131.D | N034182-002B | SAMP | 1 | 03/01/19 2:35 AM |
| A0228132.D | N034182-002B | SAMP | 5 | 03/01/19 2:41 AM |
| A0228133.D | N034182-004B | SAMP | 1 | 03/01/19 2:47 AM |
| A0228134.D | N034182-005B | SAMP | 1 | 03/01/19 2:53 AM |
| A0228135.D | N034182-006B | SAMP | 1 | 03/01/19 2:59 AM |
| A0228136.D | N034182-007B | SAMP | 1 | 03/01/19 3:05 AM |
| A0228137.D | N034182-007B | SAMP | 10 | 03/01/19 3:11 AM |
| A0228138.D | N034182-008B | SAMP | 1 | 03/01/19 3:17 AM |
| A0228139.D | N034182-009B | SAMP | 1 | 03/01/19 3:23 AM |
| A0228140.D | N034182-009B | SAMP | 5 | 03/01/19 3:29 AM |
| A0228141.D | CCV10 | CCV | 1 | 03/01/19 3:35 AM |
| A0228142.D | CCB10 | CCB | 1 | 03/01/19 3:41 AM |
| A0228143.D | N034182-010B | SAMP | 1 | 03/01/19 3:47 AM |
| A0228144.D | N034182-010B | SAMP | 25 | 03/01/19 3:52 AM |
| A0228145.D | N034182-011B | SAMP | 1 | 03/01/19 3:58 AM |
| A0228146.D | N034182-012B | SAMP | 1 | 03/01/19 4:04 AM |
| A0228147.D | N034182-012B | SAMP | 50 | 03/01/19 4:10 AM |
| A0228148.D | N034182-013B | SAMP | 1 | 03/01/19 4:16 AM |
| A0228149.D | N034190-001B | SAMP | 1 | 03/01/19 4:22 AM |
| A0228150.D | N034190-002B | SAMP | 1 | 03/01/19 4:28 AM |
| A0228151.D | N034190-003B | SAMP | 1 | 03/01/19 4:34 AM |
| A0228152.D | N034190-003B | SAMP | 5 | 03/01/19 4:40 AM |
| A0228153.D | CCV11 | CCV | 1 | 03/01/19 4:46 AM |
| A0228154.D | CCB11 | CCB | 1 | 03/01/19 4:52 AM |
| A0228155.D | N034190-004B | SAMP | 1 | 03/01/19 4:58 AM |
| A0228156.D | N034190-004B | SAMP | 5 | 03/01/19 5:04 AM |
| A0228157.D | N034190-005B | SAMP | 1 | 03/01/19 5:10 AM |
| A0228158.D | N034190-005B | SAMP | 10 | 03/01/19 5:16 AM |
| A0228159.D | N034190-006B | SAMP | 1 | 03/01/19 5:22 AM |
| A0228160.D | N034190-006B | SAMP | 5 | 03/01/19 5:28 AM |
| A0228161.D | N034190-007B | SAMP | 1 | 03/01/19 5:34 AM |
| A0228162.D | N034190-008B | SAMP | 1 | 03/01/19 5:40 AM |
| A0228163.D | N034178-003B | SAMP | 1 | 03/01/19 5:46 AM |
| A0228164.D | N034178-005B | SAMP | 1 | 03/01/19 5:52 AM |
| A0228165.D | CCV12 | CCV | 1 | 03/01/19 5:58 AM |
| A0228166.D | CCB12 | CCB | 1 | 03/01/19 6:04 AM |
| A0228167.D | N034178-006B | SAMP | 1 | 03/01/19 6:10 AM |
| A0228168.D | N034178-008B | SAMP | 1 | 03/01/19 6:16 AM |

**INJECTION LOG: 190228A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0228169.D | N034178-010B | SAMP | 1 | 03/01/19 6:22 AM |
| A0228170.D | N034196-003B | SAMP | 1 | 03/01/19 6:28 AM |
| A0228171.D | N034196-004B | SAMP | 1 | 03/01/19 6:34 AM |
| A0228172.D | N034178-006B | SAMP | 1 | 03/01/19 6:40 AM |
| A0228173.D | N034196-003B | SAMP | 1 | 03/01/19 6:46 AM |
| A0228174.D | N034196-004B | SAMP | 1 | 03/01/19 6:52 AM |
| A0228175.D | N034196-004B | SAMP | 1 | 03/01/19 6:58 AM |
| A0228176.D | N034182-008B | SAMP | 25 | 03/01/19 7:04 AM |
| A0228177.D | CCV13 | CCV | 1 | 03/01/19 7:10 AM |
| A0228178.D | CCB13 | CCB | 1 | 03/01/19 7:16 AM |
| A0228179.D | ICSA5 | ICSA | 1 | 03/01/19 7:22 AM |
| A0228180.D | ICSAB5 | ICSAB | 1 | 03/01/19 7:28 AM |

**INJECTION LOG: 190302A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0302001.D | RINSE | RINSE | 1 | 03/02/19 7:57 AM |
| A0302002.D | Cal Blank | IBLK | 1 | 03/02/19 8:03 AM |
| A0302003.D | Std1-0.1/1 ppb | ICAL | 1 | 03/02/19 8:09 AM |
| A0302004.D | Std2-0.5/5 ppb | ICAL | 1 | 03/02/19 8:15 AM |
| A0302005.D | Std3-5/50 ppb | ICAL | 1 | 03/02/19 8:21 AM |
| A0302006.D | Std4-10/100 ppb | ICAL | 1 | 03/02/19 8:27 AM |
| A0302007.D | Std5-20/200 ppb | ICAL | 1 | 03/02/19 8:33 AM |
| A0302008.D | Std6-40/400 ppb | ICAL | 1 | 03/02/19 8:39 AM |
| A0302009.D | Std7-100/1000 ppb | ICAL | 1 | 03/02/19 8:45 AM |
| A0302010.D | Std8-200/2000 ppb | ICAL | 1 | 03/02/19 8:51 AM |
| A0302011.D | ICV | ICV | 1 | 03/02/19 8:57 AM |
| A0302012.D | ICB | ICB | 1 | 03/02/19 9:03 AM |
| A0302013.D | LLICV | CCV1 | 1 | 03/02/19 9:09 AM |
| A0302014.D | ICSA1 | ICSA | 1 | 03/02/19 9:15 AM |
| A0302015.D | ICSAB1 | ICSAB | 1 | 03/02/19 9:21 AM |
| A0302016.D | LLICV | CCV1 | 1 | 03/02/19 9:26 AM |
| A0302017.D | MB-72540 | MBLK | 1 | 03/02/19 9:32 AM |
| A0302018.D | N034160-001A | SAMP | 1 | 03/02/19 9:38 AM |
| A0302019.D | MB-72542 | MBLK | 1 | 03/02/19 9:44 AM |
| A0302020.D | LCS-72542 | LCS | 1 | 03/02/19 9:50 AM |
| A0302021.D | N034208-001A | SAMP | 1 | 03/02/19 9:56 AM |
| A0302022.D | N034208-003A | SAMP | 1 | 03/02/19 10:03 AM |
| A0302023.D | N034210-001A | SAMP | 1 | 03/02/19 10:09 AM |
| A0302024.D | N034183-001B | SAMP | 1 | 03/02/19 10:14 AM |
| A0302025.D | N034183-001B | SAMP | 5 | 03/02/19 10:20 AM |
| A0302026.D | N034183-001B-PS | PS | 1 | 03/02/19 10:26 AM |
| A0302027.D | CCV1 | CCV | 1 | 03/02/19 10:33 AM |
| A0302028.D | CCB1 | CCB | 1 | 03/02/19 10:39 AM |
| A0302029.D | N034183-001B-MS | MS | 1 | 03/02/19 10:44 AM |
| A0302030.D | N034183-001B-MSD | MSD | 1 | 03/02/19 10:50 AM |
| A0302031.D | N034183-001B | SAMP | 50 | 03/02/19 10:56 AM |
| A0302032.D | N034183-001B | SAMP | 250 | 03/02/19 11:02 AM |
| A0302033.D | N034183-001B-PS | PS | 50 | 03/02/19 11:08 AM |
| A0302034.D | N034183-001B-MS | MS | 50 | 03/02/19 11:14 AM |
| A0302035.D | N034183-001B-MSD | MSD | 50 | 03/02/19 11:20 AM |
| A0302036.D | N034183-003B | SAMP | 1 | 03/02/19 11:26 AM |
| A0302037.D | N034183-004B | SAMP | 1 | 03/02/19 11:31 AM |
| A0302038.D | N034183-005B | SAMP | 1 | 03/02/19 11:37 AM |
| A0302039.D | CCV2 | CCV | 1 | 03/02/19 11:43 AM |
| A0302040.D | CCB2 | CCB | 1 | 03/02/19 11:50 AM |
| A0302041.D | N034183-005B | SAMP | 5 | 03/02/19 11:55 AM |
| A0302042.D | N034183-006B | SAMP | 1 | 03/02/19 12:01 PM |

**INJECTION LOG: 190302A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0302043.D | N034183-007B | SAMP | 1 | 03/02/19 12:07 PM |
| A0302044.D | N034183-009B | SAMP | 1 | 03/02/19 12:13 PM |
| A0302045.D | N034183-009B | SAMP | 50 | 03/02/19 12:19 PM |
| A0302046.D | N034183-010B | SAMP | 1 | 03/02/19 12:25 PM |
| A0302047.D | N034183-010B | SAMP | 50 | 03/02/19 12:31 PM |
| A0302048.D | N034183-011B | SAMP | 1 | 03/02/19 12:37 PM |
| A0302049.D | N034183-011B | SAMP | 5 | 03/02/19 12:43 PM |
| A0302050.D | N034183-012B | SAMP | 1 | 03/02/19 12:49 PM |
| A0302051.D | CCV3 | CCV | 1 | 03/02/19 12:55 PM |
| A0302052.D | CCB3 | CCB | 1 | 03/02/19 1:02 PM |
| A0302053.D | N034183-012B | SAMP | 5 | 03/02/19 1:07 PM |
| A0302054.D | N034183-013B | SAMP | 1 | 03/02/19 1:12 PM |
| A0302055.D | N034183-013B | SAMP | 50 | 03/02/19 1:18 PM |
| A0302056.D | N034183-014B | SAMP | 1 | 03/02/19 1:24 PM |
| A0302057.D | N034183-014B | SAMP | 50 | 03/02/19 1:30 PM |
| A0302058.D | N034183-020B | SAMP | 1 | 03/02/19 1:36 PM |
| A0302059.D | CCV4 | CCV | 1 | 03/02/19 1:42 PM |
| A0302060.D | CCB4 | CCB | 1 | 03/02/19 1:48 PM |
| A0302061.D | ICSA2 | ICSA | 1 | 03/02/19 1:54 PM |
| A0302062.D | ICSAB2 | ICSAB | 1 | 03/02/19 2:00 PM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/18/2019 7:00:00**
Prep End Date: **2/18/2019 11:30:00**

Reviewed/ Date: 3/5/2019

Initials/ Date: 3/5/2019

Prep Batch **72522** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units **mL / mL**

Temp. (°C): **94.6**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72522 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-72522 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034160-001A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034160-001A-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034160-001A-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034162-001A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034162-003B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034164-001A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034178-003B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034178-004B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034178-005B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034178-006B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034178-007B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034178-008B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10549 | NITRIC ACID |
| 10553 | HYDROCHLORIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **2/18/2019 7:00:00**
Prep End Date: **2/18/2019 11:30:00**

Reviewed/ Date: 3/5/2019
Initials/ Date: 3/5/2019

Prep Batch **72522** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units: **mL / mL**

Temp. (°C): **94.6**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| N034178-009B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034178-010B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034178-011B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034181-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034191-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034195-001A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034196-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034196-003B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034196-004B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10549 | NITRIC ACID |
| 10553 | HYDROCHLORIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

# INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 28 Feb 2019 10:51:16 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | | Actual | Required | Flag |
|---|---|---|---|---|
| 9 | Be | 128404.00 | 0.00 | |
| 24 | Mg | 250654.00 | 0.00 | |
| 25 | Mg | 32559.40 | 0.00 | |
| 26 | Mg | 38379.50 | 0.00 | |
| 59 | Co | 258493.00 | 0.00 | |
| 115 | In | 365584.00 | 0.00 | |
| 206 | Pb | 138314.00 | 0.00 | |
| 207 | Pb | 121247.00 | 0.00 | |
| 208 | Pb | 298012.00 | 0.00 | |

RSD (%)

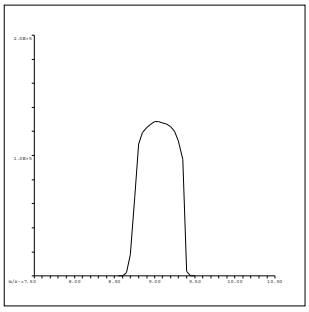
| Element | | Actual | Required | Flag |
|---|---|---|---|---|
| 9 | Be | 2.75 | 5.00 | |
| 24 | Mg | 1.71 | 5.00 | |
| 25 | Mg | 1.66 | 5.00 | |
| 26 | Mg | 1.47 | 5.00 | |
| 59 | Co | 1.31 | 5.00 | |
| 115 | In | 0.58 | 5.00 | |
| 206 | Pb | 1.33 | 5.00 | |
| 207 | Pb | 1.88 | 5.00 | |
| 208 | Pb | 0.75 | 5.00 | |

Ion Ratio

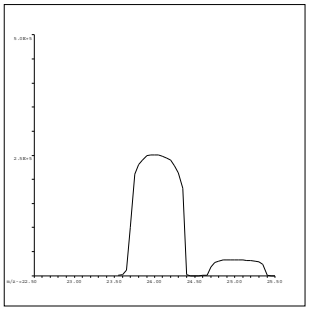
| Element | | Actual | Required | Flag |
|---|---|---|---|---|
| 9 | Be | | | |
| 24 | Mg | | | |
| 25 | Mg | | | |
| 26 | Mg | | | |
| 59 | Co | | | |
| 115 | In | | | |
| 206 | Pb | | | |
| 207 | Pb | | | |
| 208 | Pb | | | |

Maximum Bkg. Count(CPS)

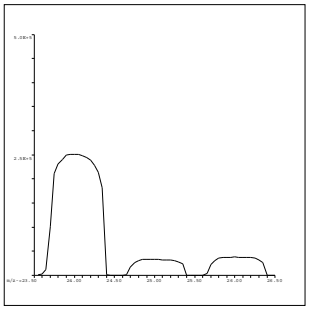
| Element | Actual | Required | Flag |
|---|---|---|---|



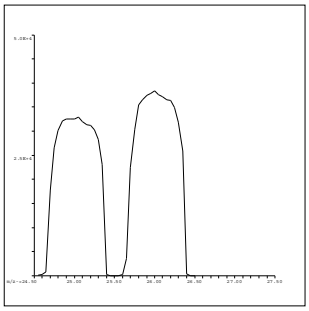
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



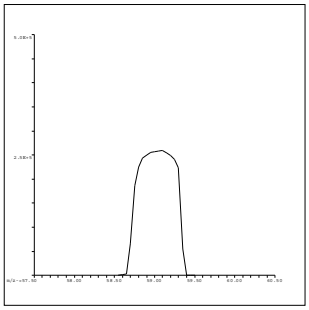
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



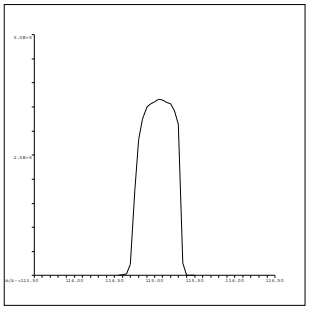
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



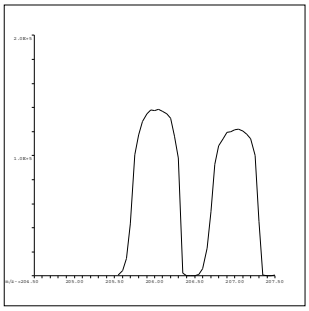
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



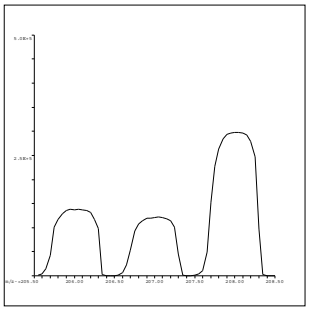
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



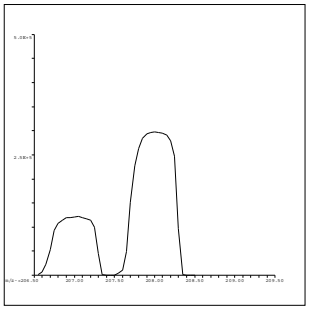
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 2 Mar 2019 07:02:02 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 110722.00 | 0.00 | |
| 24 Mg | 327992.00 | 0.00 | |
| 25 Mg | 42600.50 | 0.00 | |
| 26 Mg | 47837.40 | 0.00 | |
| 59 Co | 295688.00 | 0.00 | |
| 115 In | 488111.00 | 0.00 | |
| 206 Pb | 170229.00 | 0.00 | |
| 207 Pb | 149141.00 | 0.00 | |
| 208 Pb | 368387.00 | 0.00 | |

RSD (%)

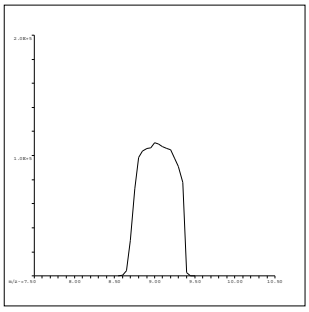
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 1.17 | 5.00 | |
| 24 Mg | 0.71 | 5.00 | |
| 25 Mg | 1.17 | 5.00 | |
| 26 Mg | 1.03 | 5.00 | |
| 59 Co | 0.64 | 5.00 | |
| 115 In | 1.01 | 5.00 | |
| 206 Pb | 0.76 | 5.00 | |
| 207 Pb | 0.78 | 5.00 | |
| 208 Pb | 0.89 | 5.00 | |

Ion Ratio

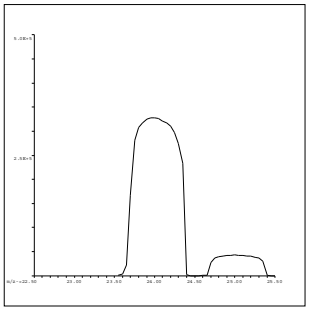
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | | | |
| 24 Mg | | | |
| 25 Mg | | | |
| 26 Mg | | | |
| 59 Co | | | |
| 115 In | | | |
| 206 Pb | | | |
| 207 Pb | | | |
| 208 Pb | | | |

Maximum Bkg. Count(CPS)

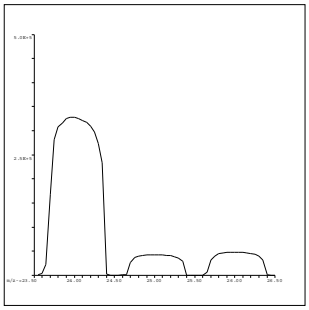
| Element | Actual | Required | Flag |
|---|---|---|---|



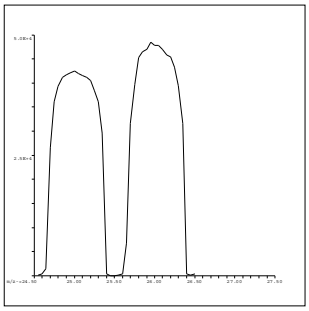
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



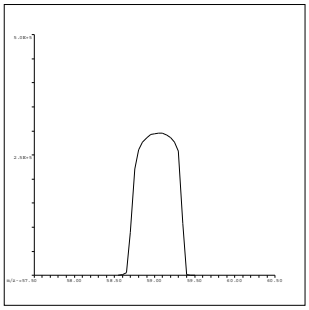
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



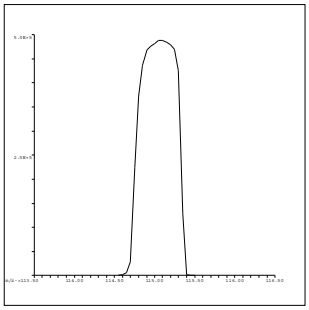
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



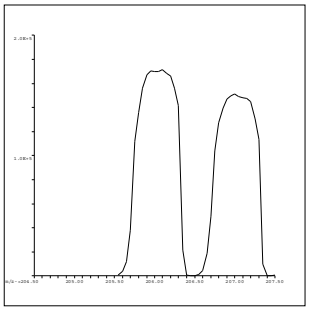
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



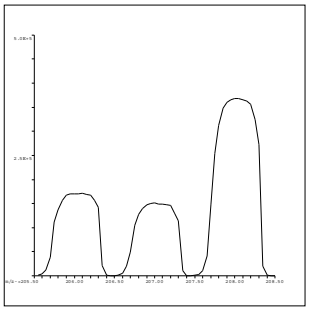
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



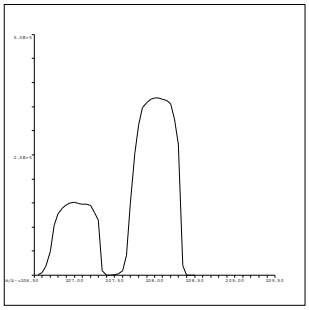
115 In
Mass Calib.
Actual: 115.10
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.05
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.05
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:

QC Tune Result:Pass

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190228A**

**Instrument ID: ICPMS-02**

| Analyte | Data File | A0228002.D | A0228003.D | A0228004.D | A0228005.D | A0228006.D | A0228007.D | A0228008.D | A0228009.D | A0228010.D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 02/28/2019 01:38 PM | 02/28/2019 01:44 PM | 02/28/2019 01:50 PM | 02/28/2019 01:56 PM | 02/28/2019 02:02 PM | 02/28/2019 02:08 PM | 02/28/2019 02:14 PM | 02/28/2019 02:20 PM | 02/28/2019 02:26 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std1-0.1/1 ppb | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.1/1 ug/L | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 45 Sc ( ISTD ) [ 2 ] | CPS | 57600.9 | | 58267.8 | 58460.7 | 58369.7 | 58498.5 | 58318.1 | 57529.8 | 57108.5 | |
| 55 Mn [ 2 ] | CPS | 38.9 | | 1156.4 | 10631.4 | 21425.7 | 42004.4 | 82888.4 | 203925.3 | 399597.4 | 1.0000 |
| 52 Cr [ 2 ] | CPS | 496.6 | | 2615.8 | 21790.1 | 43148.3 | 86021.8 | 169140.5 | 415394.1 | 808168 | 1.0000 |
| 72 Ge ( ISTD ) [ 1 ] | CPS | 31005.6 | | 32002.1 | 31943.1 | 31414.2 | 31541.2 | 31811.6 | 31231.6 | 31552.3 | |
| 78 Se [ 1 ] | CPS | 3.3 | | 55.6 | 525.6 | 1047.9 | 2108 | 4207.4 | 10439.2 | 20660.4 | 1.0000 |
| 72 Ge ( ISTD ) [ 2 ] | CPS | 31373.1 | 32061 | 32027.6 | 32231.4 | 32243.6 | 31969.9 | 31574.5 | 31807.3 | 31768.3 | |
| 75 As [ 2 ] | CPS | 44 | 81.3 | 233.8 | 2121 | 4356.2 | 8662.3 | 17063.6 | 41404.1 | 82018.1 | 1.0000 |
| 103 Rh ( ISTD ) [ 2 ] | CPS | 944944.1 | | 951170.3 | 947943.6 | 948700.1 | 942146.6 | 942533.6 | 934043.6 | 910903.3 | |
| 95 Mo [ 2 ] | CPS | 297.8 | | 1089 | 8953.9 | 18761.6 | 38489 | 78597.8 | 200836.8 | 398920.6 | 0.9999 |

| Standard Code |
|---|
| ICAL: 2MSST-180608B |
| ICAL: 2MSST-180205B |
| ICAL: 2MWST-181001C |
| IS Mix: 2MWST-181126B |

Calibration Acceptance Criteria: > 0.995 Correlation

**INITIAL CALIBRATION SUMMARY: 190302A**

**Instrument ID: ICPMS-02**

| Analyte | Data File | A0302002.D | A0302003.D | A0302004.D | A0302005.D | A0302006.D | A0302007.D | A0302008.D | A0302009.D | A0302010.D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 03/02/2019 08:03 AM | 03/02/2019 08:09 AM | 03/02/2019 08:15 AM | 03/02/2019 08:21 AM | 03/02/2019 08:27 AM | 03/02/2019 08:33 AM | 03/02/2019 08:39 AM | 03/02/2019 08:45 AM | 03/02/2019 08:51 AM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std1-0.1/1 ppb | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.1/1 ug/L | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 72 Ge ( ISTD ) [ 2 ] | CPS | 36258.7 | 38489.5 | 33223.4 | 33416.1 | 33360.5 | 32189.2 | 32705.7 | 32480.9 | 31237.3 | |
| 75 As [ 2 ] | CPS | 23.1 | 64 | 226.2 | 2069.9 | 4209.9 | 8292.4 | 16676.6 | 39794.9 | 78627.5 | 0.9999 |

| Standard Code |
|---|
| ICAL: 2MSST-180608B |
| ICAL: 2MSST-180205B |
| ICAL: 2MWST-181001C |
| IS Mix: 2MWST-181126B |

Calibration Acceptance Criteria: > 0.995 Correlation

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305642** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.980 | 0.10 | 10.00 | 0 | 99.8 | 90 | 110 | | | | |
| Manganese | 104.708 | 0.50 | 100.0 | 0 | 105 | 90 | 110 | | | | |
| Molybdenum | 9.226 | 0.50 | 10.00 | 0 | 92.3 | 90 | 110 | | | | |
| Selenium | 9.241 | 0.50 | 10.00 | 0 | 92.4 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305644** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.093 | 0.10 | 0.1000 | 0 | 93.2 | 80 | 120 | | | | |
| Manganese | 0.503 | 0.50 | 0.5000 | 0 | 101 | 80 | 120 | | | | |
| Molybdenum | 0.471 | 0.50 | 0.5000 | 0 | 94.1 | 80 | 120 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305647** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 0.450 | 0.50 | 0.5000 | 0 | 90.1 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305658** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.356 | 0.10 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Manganese | 20.671 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |
| Molybdenum | 18.483 | 0.50 | 20.00 | 0 | 92.4 | 90 | 110 | | | | |
| Selenium | 19.338 | 0.50 | 20.00 | 0 | 96.7 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305670** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.095 | 0.10 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Manganese | 20.638 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |
| Molybdenum | 19.061 | 0.50 | 20.00 | 0 | 95.3 | 90 | 110 | | | | |
| Selenium | 20.790 | 0.50 | 20.00 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305682** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.085 | 0.10 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Manganese | 19.901 | 0.50 | 20.00 | 0 | 99.5 | 90 | 110 | | | | |
| Molybdenum | 18.685 | 0.50 | 20.00 | 0 | 93.4 | 90 | 110 | | | | |
| Selenium | 19.427 | 0.50 | 20.00 | 0 | 97.1 | 90 | 110 | | | | |

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305992** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.506 | 0.10 | 20.00 | 0 | 97.5 | 90 | 110 | | | | |
| Manganese | 19.754 | 0.50 | 20.00 | 0 | 98.8 | 90 | 110 | | | | |
| Molybdenum | 18.101 | 0.50 | 20.00 | 0 | 90.5 | 90 | 110 | | | | |
| Selenium | 19.632 | 0.50 | 20.00 | 0 | 98.2 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306004** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 18.703 | 0.10 | 20.00 | 0 | 93.5 | 90 | 110 | | | | |
| Manganese | 19.793 | 0.50 | 20.00 | 0 | 99.0 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306004** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 19.008 | 0.50 | 20.00 | 0 | 95.0 | 90 | 110 | | | | |
| Selenium | 19.412 | 0.50 | 20.00 | 0 | 97.1 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306016** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 18.739 | 0.10 | 20.00 | 0 | 93.7 | 90 | 110 | | | | |
| Manganese | 19.696 | 0.50 | 20.00 | 0 | 98.5 | 90 | 110 | | | | |
| Molybdenum | 18.989 | 0.50 | 20.00 | 0 | 94.9 | 90 | 110 | | | | |
| Selenium | 18.736 | 0.50 | 20.00 | 0 | 93.7 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306030** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.319 | 0.10 | 20.00 | 0 | 96.6 | 90 | 110 | | | | |
| Manganese | 19.861 | 0.50 | 20.00 | 0 | 99.3 | 90 | 110 | | | | |
| Molybdenum | 19.450 | 0.50 | 20.00 | 0 | 97.2 | 90 | 110 | | | | |
| Selenium | 19.484 | 0.50 | 20.00 | 0 | 97.4 | 90 | 110 | | | | |

| Sample ID **CCV8** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306042** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.615 | 0.10 | 20.00 | 0 | 98.1 | 90 | 110 | | | | |
| Manganese | 20.112 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Molybdenum | 20.015 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Selenium | 19.667 | 0.50 | 20.00 | 0 | 98.3 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV9** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306054** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.319 | 0.10 | 20.00 | 0 | 96.6 | 90 | 110 | | | | |
| Manganese | 19.870 | 0.50 | 20.00 | 0 | 99.4 | 90 | 110 | | | | |
| Molybdenum | 18.999 | 0.50 | 20.00 | 0 | 95.0 | 90 | 110 | | | | |
| Selenium | 19.232 | 0.50 | 20.00 | 0 | 96.2 | 90 | 110 | | | | |

| Sample ID **CCV10** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306068** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.351 | 0.10 | 20.00 | 0 | 96.8 | 90 | 110 | | | | |
| Manganese | 20.404 | 0.50 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Molybdenum | 18.469 | 0.50 | 20.00 | 0 | 92.3 | 90 | 110 | | | | |
| Selenium | 19.222 | 0.50 | 20.00 | 0 | 96.1 | 90 | 110 | | | | |

| Sample ID **CCV11** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306080** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.444 | 0.10 | 20.00 | 0 | 97.2 | 90 | 110 | | | | |
| Manganese | 20.393 | 0.50 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Molybdenum | 18.272 | 0.50 | 20.00 | 0 | 91.4 | 90 | 110 | | | | |
| Selenium | 19.420 | 0.50 | 20.00 | 0 | 97.1 | 90 | 110 | | | | |

| Sample ID **CCV12** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306092** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.622 | 0.10 | 20.00 | 0 | 98.1 | 90 | 110 | | | | |
| Manganese | 19.931 | 0.50 | 20.00 | 0 | 99.7 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV12** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306092** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 19.547 | 0.50 | 20.00 | 0 | 97.7 | 90 | 110 | | | | |
| Selenium | 18.649 | 0.50 | 20.00 | 0 | 93.2 | 90 | 110 | | | | |

| Sample ID **CCV13** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306104** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.167 | 0.10 | 20.00 | 0 | 95.8 | 90 | 110 | | | | |
| Manganese | 20.071 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Molybdenum | 19.433 | 0.50 | 20.00 | 0 | 97.2 | 90 | 110 | | | | |
| Selenium | 20.042 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132246** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132246** | TestNo: **EPA 6020** | | Analysis Date: **3/2/2019** | SeqNo: **3307143** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 10.295 | 0.10 | 10.00 | 0 | 103 | 90 | 110 | | | | |
| Manganese | 104.351 | 0.50 | 100.0 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132246** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132246** | TestNo: **EPA 6020** | | Analysis Date: **3/2/2019** | SeqNo: **3307145** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.095 | 0.10 | 0.1000 | 0 | 95.5 | 80 | 120 | | | | |
| Manganese | 0.443 | 0.50 | 0.5000 | 0 | 88.6 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132246** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132246** | TestNo: **EPA 6020** | | Analysis Date: **3/2/2019** | SeqNo: **3307159** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.800 | 0.10 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Manganese | 21.380 | 0.50 | 20.00 | 0 | 107 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132246** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132246** | TestNo: **EPA 6020** | | Analysis Date: **3/2/2019** | SeqNo: **3307171** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.429 | 0.10 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Manganese | 20.679 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132246** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132246** | TestNo: **EPA 6020** | | Analysis Date: **3/2/2019** | SeqNo: **3307183** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.747 | 0.10 | 20.00 | 0 | 98.7 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132246** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132246** | TestNo: **EPA 6020** | | Analysis Date: **3/2/2019** | SeqNo: **3307183** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 21.352 | 0.50 | 20.00 | 0 | 107 | 90 | 110 | | | | |

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132246** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132246** | TestNo: **EPA 6020** | | Analysis Date: **3/2/2019** | SeqNo: **3307191** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.399 | 0.10 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Manganese | 21.844 | 0.50 | 20.00 | 0 | 109 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306108** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.430 | 1.0 | 10.00 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306110** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 0.996 | 1.0 | 1.000 | 0 | 99.6 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306124** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.266 | 1.0 | 20.00 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306136** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 21.521 | 1.0 | 20.00 | 0 | 108 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306148** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.590 | 1.0 | 20.00 | 0 | 103 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306162** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.625 | 1.0 | 20.00 | 0 | 98.1 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306174** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.157 | 1.0 | 20.00 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306186** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.197 | 1.0 | 20.00 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306200** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.137 | 1.0 | 20.00 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV8** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306212** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.276 | 1.0 | 20.00 | 0 | 101 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCV9** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306224** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.818 | 1.0 | 20.00 | 0 | 99.1 | 90 | 110 | | | | |

| Sample ID **CCV10** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306238** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.728 | 1.0 | 20.00 | 0 | 98.6 | 90 | 110 | | | | |

| Sample ID **CCV11** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306250** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.728 | 1.0 | 20.00 | 0 | 98.6 | 90 | 110 | | | | |

| Sample ID **CCV12** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306262** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.117 | 1.0 | 20.00 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV13** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306274** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.971 | 1.0 | 20.00 | 0 | 99.9 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305643** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305659** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305671** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305683** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305683** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.248 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305993** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306005** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306017** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306017** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306031** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306043** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB9** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306055** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB10** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306069** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.274 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB11** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306081** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.228 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB12** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306093** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.350 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB13** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306105** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB13** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306105** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 0.424 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

Mo in CCB10, CCB12 and CCB13 is >1/2 RL however no samples for this analyte were affected by these QCs.

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

3/5/2019

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132246** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132246** | TestNo: **EPA 6020** | | Analysis Date: **3/2/2019** | SeqNo: **3307144** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132246** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132246** | TestNo: **EPA 6020** | | Analysis Date: **3/2/2019** | SeqNo: **3307160** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132246** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132246** | TestNo: **EPA 6020** | | Analysis Date: **3/2/2019** | SeqNo: **3307172** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132246** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132246** | TestNo: **EPA 6020** | | Analysis Date: **3/2/2019** | SeqNo: **3307184** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132246** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132246** | TestNo: **EPA 6020** | | Analysis Date: **3/2/2019** | SeqNo: **3307192** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132246** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132246** | TestNo: **EPA 6020** | | Analysis Date: **3/2/2019** | SeqNo: **3307192** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306109** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306125** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306137** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306149** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306163** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306175** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306187** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306201** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306213** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB9** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306225** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCB10** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306239** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB11** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306251** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB12** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306263** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB13** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306275** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132217**
Client ID: **ICSA** Batch ID: **R132217** TestNo: **EPA 6020** Analysis Date: **2/28/2019** SeqNo: **3305645**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132217**
Client ID: **ICSAB** Batch ID: **R132217** TestNo: **EPA 6020** Analysis Date: **2/28/2019** SeqNo: **3305646**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 22.170 | 0.10 | 20.00 | 0 | 111 | 80 | 120 | | | | |
| Manganese | 19.576 | 0.50 | 20.00 | 0 | 97.9 | 80 | 120 | | | | |
| Molybdenum | 22.049 | 0.50 | 20.00 | 0 | 110 | 80 | 120 | | | | |
| Selenium | 21.458 | 0.50 | 20.00 | 0 | 107 | 80 | 120 | | | | |

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132217**
Client ID: **ICSA** Batch ID: **R132217** TestNo: **EPA 6020** Analysis Date: **2/28/2019** SeqNo: **3305684**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132217**
Client ID: **ICSAB** Batch ID: **R132217** TestNo: **EPA 6020** Analysis Date: **2/28/2019** SeqNo: **3305685**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 22.001 | 0.10 | 20.00 | 0 | 110 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3305685** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 20.735 | 0.50 | 20.00 | 0 | 104 | 80 | 120 | | | | |
| Molybdenum | 22.370 | 0.50 | 20.00 | 0 | 112 | 80 | 120 | | | | |
| Selenium | 20.832 | 0.50 | 20.00 | 0 | 104 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306018** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306019** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 22.542 | 0.10 | 20.00 | 0 | 113 | 80 | 120 | | | | |
| Manganese | 20.421 | 0.50 | 20.00 | 0 | 102 | 80 | 120 | | | | |
| Molybdenum | 22.220 | 0.50 | 20.00 | 0 | 111 | 80 | 120 | | | | |
| Selenium | 20.675 | 0.50 | 20.00 | 0 | 103 | 80 | 120 | | | | |

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306056** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306056** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB4** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306057** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 21.947 | 0.10 | 20.00 | 0 | 110 | 80 | 120 | | | | |
| Manganese | 21.188 | 0.50 | 20.00 | 0 | 106 | 80 | 120 | | | | |
| Molybdenum | 22.501 | 0.50 | 20.00 | 0 | 113 | 80 | 120 | | | | |
| Selenium | 21.584 | 0.50 | 20.00 | 0 | 108 | 80 | 120 | | | | |

| Sample ID **ICSA5** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306106** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.227 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB5** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132217** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132217** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306107** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 21.605 | 0.10 | 20.00 | 0 | 108 | 80 | 120 | | | | |
| Manganese | 21.452 | 0.50 | 20.00 | 0 | 107 | 80 | 120 | | | | |
| Molybdenum | 23.022 | 0.50 | 20.00 | 0 | 115 | 80 | 120 | | | | |
| Selenium | 20.275 | 0.50 | 20.00 | 0 | 101 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132246** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132246** | TestNo: **EPA 6020** | | Analysis Date: **3/2/2019** | SeqNo: **3307146** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132246** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132246** | TestNo: **EPA 6020** | | Analysis Date: **3/2/2019** | SeqNo: **3307147** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 22.127 | 0.10 | 20.00 | 0 | 111 | 80 | 120 | | | | |
| Manganese | 20.373 | 0.50 | 20.00 | 0 | 102 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132246** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132246** | TestNo: **EPA 6020** | | Analysis Date: **3/2/2019** | SeqNo: **3307193** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132246** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132246** | TestNo: **EPA 6020** | | Analysis Date: **3/2/2019** | SeqNo: **3307194** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 22.151 | 0.10 | 20.00 | 0 | 111 | 80 | 120 | | | | |
| Manganese | 20.557 | 0.50 | 20.00 | 0 | 103 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306111** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306112** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 22.242 | 1.0 | 20.00 | 0 | 111 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306150** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306151** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 22.280 | 1.0 | 20.00 | 0 | 111 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306188** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **2/28/2019** | SeqNo: **3306189** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 21.456 | 1.0 | 20.00 | 0 | 107 | 80 | 120 | | | | |

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306226** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB4** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306227** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 21.452 | 1.0 | 20.00 | 0 | 107 | 80 | 120 | | | | |

| Sample ID **ICSA5** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306276** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB5** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132224** | TestNo: **EPA 6020** | | Analysis Date: **3/1/2019** | SeqNo: **3306277** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 21.561 | 1.0 | 20.00 | 0 | 108 | 80 | 120 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 57600.9 | 57600.9 | 100 | PASS | 70-125 | 31373.1 | 31373.1 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 58069.6 | 57600.9 | 100.81 | PASS | 70-125 | 32061 | 31373.1 | 102.19 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 58267.8 | 57600.9 | 101.16 | PASS | 70-125 | 32027.6 | 31373.1 | 102.09 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 58460.7 | 57600.9 | 101.49 | PASS | 70-125 | 32231.4 | 31373.1 | 102.74 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 58369.7 | 57600.9 | 101.33 | PASS | 70-125 | 32243.6 | 31373.1 | 102.77 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 58498.5 | 57600.9 | 101.56 | PASS | 70-125 | 31969.9 | 31373.1 | 101.9 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 58318.1 | 57600.9 | 101.25 | PASS | 70-125 | 31574.5 | 31373.1 | 100.64 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 57529.8 | 57600.9 | 99.88 | PASS | 70-125 | 31807.3 | 31373.1 | 101.38 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 57108.5 | 57600.9 | 99.15 | PASS | 70-125 | 31768.3 | 31373.1 | 101.26 | PASS | 70-125 |
| ICV | ICV | 1 | 63243.7 | 57600.9 | 109.8 | PASS | 70-125 | 35252.1 | 31373.1 | 112.36 | PASS | 70-125 |
| ICB | ICB | 1 | 60841.5 | 57600.9 | 105.63 | PASS | 70-125 | 34613 | 31373.1 | 110.33 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 60737.9 | 57600.9 | 105.45 | PASS | 70-125 | 34084.1 | 31373.1 | 108.64 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 68200.9 | 57600.9 | 118.4 | PASS | 70-125 | 37798.8 | 31373.1 | 120.48 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 60061.2 | 57600.9 | 104.27 | PASS | 70-125 | 34444.9 | 31373.1 | 109.79 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 65385.5 | 57600.9 | 113.51 | PASS | 70-125 | 37316.6 | 31373.1 | 118.94 | PASS | 70-125 |
| CCV1 | CCV | 1 | 61785 | 57600.9 | 107.26 | PASS | 70-125 | 35228.8 | 31373.1 | 112.29 | PASS | 70-125 |
| CCB1 | CCB | 1 | 61444.8 | 57600.9 | 106.67 | PASS | 70-125 | 35715.3 | 31373.1 | 113.84 | PASS | 70-125 |
| CCV2 | CCV | 1 | 59304.8 | 57600.9 | 102.96 | PASS | 70-125 | 34843.5 | 31373.1 | 111.06 | PASS | 70-125 |
| CCB2 | CCB | 1 | 58196.6 | 57600.9 | 101.03 | PASS | 70-125 | 34006.2 | 31373.1 | 108.39 | PASS | 70-125 |
| CCV3 | CCV | 1 | 58787.4 | 57600.9 | 102.06 | PASS | 70-125 | 35061.9 | 31373.1 | 111.76 | PASS | 70-125 |
| CCB3 | CCB | 1 | 62803.2 | 57600.9 | 109.03 | PASS | 70-125 | 37413.6 | 31373.1 | 119.25 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 67745.8 | 57600.9 | 117.61 | PASS | 70-125 | 39058.4 | 31373.1 | 124.5 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 59250.2 | 57600.9 | 102.86 | PASS | 70-125 | 34955.8 | 31373.1 | 111.42 | PASS | 70-125 |
| CCV4 | CCV | 1 | 62116.1 | 57600.9 | 107.84 | PASS | 70-125 | 36422.4 | 31373.1 | 116.09 | PASS | 70-125 |
| CCB4 | CCB | 1 | 58007.2 | 57600.9 | 100.71 | PASS | 70-125 | 34976 | 31373.1 | 111.48 | PASS | 70-125 |
| MB-72522 | MBLK | 1 | 65638.4 | 57600.9 | 113.95 | PASS | 70-125 | 38498.3 | 31373.1 | 122.71 | PASS | 70-125 |
| LCS-72522 | LCS | 1 | 62660.3 | 57600.9 | 108.78 | PASS | 70-125 | 36910.2 | 31373.1 | 117.65 | PASS | 70-125 |
| N034160-001A | SAMP | 1 | 60655.5 | 57600.9 | 105.3 | PASS | 70-125 | 35556.1 | 31373.1 | 113.33 | PASS | 70-125 |
| CCV5 | CCV | 1 | 44045.7 | 57600.9 | 76.47 | PASS | 70-125 | 27737.6 | 31373.1 | 88.41 | PASS | 70-125 |
| CCB5 | CCB | 1 | 49031.6 | 57600.9 | 85.12 | PASS | 70-125 | 31742.8 | 31373.1 | 101.18 | PASS | 70-125 |
| N034129-013D | SAMP | 1 | 58484.4 | 57600.9 | 101.53 | PASS | 70-125 | 34030.6 | 31373.1 | 108.47 | PASS | 70-125 |
| N034160-001A | SAMP | 5 | 60519.1 | 57600.9 | 105.07 | PASS | 70-125 | 35767.6 | 31373.1 | 114.01 | PASS | 70-125 |
| N034160-001A-PS | PS | 1 | 60350.8 | 57600.9 | 104.77 | PASS | 70-125 | 35386.8 | 31373.1 | 112.79 | PASS | 70-125 |
| N034160-001A-MS | MS | 1 | 62981.5 | 57600.9 | 109.34 | PASS | 70-125 | 36440.3 | 31373.1 | 116.15 | PASS | 70-125 |
| N034160-001A-MSD | MSD | 1 | 63076.7 | 57600.9 | 109.51 | PASS | 70-125 | 36694.4 | 31373.1 | 116.96 | PASS | 70-125 |
| N034160-001A | SAMP | 25 | 66956.9 | 57600.9 | 116.24 | PASS | 70-125 | 39615.5 | 31373.1 | 126.27 | NR! | 70-125 |
| N034160-001A-PS | PS | 5 | 64569.7 | 57600.9 | 112.1 | PASS | 70-125 | 37949.2 | 31373.1 | 120.96 | PASS | 70-125 |
| N034160-001A-MS | MS | 5 | 64928 | 57600.9 | 112.72 | PASS | 70-125 | 37606.3 | 31373.1 | 119.87 | PASS | 70-125 |
| N034160-001A-MSD | MSD | 5 | 62925.9 | 57600.9 | 109.24 | PASS | 70-125 | 37345.6 | 31373.1 | 119.04 | PASS | 70-125 |
| N034162-001A | SAMP | 1 | 63569.5 | 57600.9 | 110.36 | PASS | 70-125 | 36099.5 | 31373.1 | 115.07 | PASS | 70-125 |
| CCV6 | CCV | 1 | 43444 | 57600.9 | 75.42 | PASS | 70-125 | 27922.3 | 31373.1 | 89.001 | PASS | 70-125 |

**INTERNAL STANDARD: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| CCB6 | CCB | 1 | 51524.8 | 57600.9 | 89.45 | PASS | 70-125 | 32657.8 | 31373.1 | 104.1 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 63405.3 | 57600.9 | 110.08 | PASS | 70-125 | 36718.5 | 31373.1 | 117.04 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 65427.9 | 57600.9 | 113.59 | PASS | 70-125 | 37588.5 | 31373.1 | 119.81 | PASS | 70-125 |
| N034162-001A | SAMP | 10 | 66989.3 | 57600.9 | 116.3 | PASS | 70-125 | 39589.8 | 31373.1 | 126.19 | NR! | 70-125 |
| N034162-003B | SAMP | 1 | 63165.9 | 57600.9 | 109.66 | PASS | 70-125 | 36237.6 | 31373.1 | 115.51 | PASS | 70-125 |
| N034162-003B | SAMP | 10 | 68293.6 | 57600.9 | 118.56 | PASS | 70-125 | 40307.2 | 31373.1 | 128.48 | NR! | 70-125 |
| N034164-001A | SAMP | 1 | 62558.9 | 57600.9 | 108.61 | PASS | 70-125 | 34153.2 | 31373.1 | 108.86 | PASS | 70-125 |
| N034181-001B | SAMP | 1 | 61711.3 | 57600.9 | 107.14 | PASS | 70-125 | 36987.1 | 31373.1 | 117.89 | PASS | 70-125 |
| N034191-001B | SAMP | 1 | 60222.7 | 57600.9 | 104.55 | PASS | 70-125 | 36280.1 | 31373.1 | 115.64 | PASS | 70-125 |
| N034195-001A | SAMP | 5 | 63550.5 | 57600.9 | 110.33 | PASS | 70-125 | 36709.8 | 31373.1 | 117.01 | PASS | 70-125 |
| N034178-003B | SAMP | 1 | 61993.5 | 57600.9 | 107.63 | PASS | 70-125 | 34656.4 | 31373.1 | 110.47 | PASS | 70-125 |
| N034178-004B | SAMP | 1 | 59723.3 | 57600.9 | 103.68 | PASS | 70-125 | 33408.4 | 31373.1 | 106.49 | PASS | 70-125 |
| N034178-005B | SAMP | 1 | 60562.8 | 57600.9 | 105.14 | PASS | 70-125 | 33745.6 | 31373.1 | 107.56 | PASS | 70-125 |
| CCV7 | CCV | 1 | 61531.9 | 57600.9 | 106.82 | PASS | 70-125 | 36585.1 | 31373.1 | 116.61 | PASS | 70-125 |
| CCB7 | CCB | 1 | 52775.3 | 57600.9 | 91.62 | PASS | 70-125 | 33225.8 | 31373.1 | 105.91 | PASS | 70-125 |
| N034178-006B | SAMP | 1 | 60657.4 | 57600.9 | 105.31 | PASS | 70-125 | 35473.6 | 31373.1 | 113.07 | PASS | 70-125 |
| N034178-007B | SAMP | 1 | 62005.8 | 57600.9 | 107.65 | PASS | 70-125 | 35394.7 | 31373.1 | 112.82 | PASS | 70-125 |
| N034178-007B | SAMP | 5 | 61347.7 | 57600.9 | 106.5 | PASS | 70-125 | 36423.6 | 31373.1 | 116.1 | PASS | 70-125 |
| N034178-008B | SAMP | 1 | 60631.8 | 57600.9 | 105.26 | PASS | 70-125 | 35063.9 | 31373.1 | 111.76 | PASS | 70-125 |
| N034178-009B | SAMP | 1 | 60205.8 | 57600.9 | 104.52 | PASS | 70-125 | 35135.1 | 31373.1 | 111.99 | PASS | 70-125 |
| N034178-010B | SAMP | 1 | 61145.9 | 57600.9 | 106.15 | PASS | 70-125 | 34935.9 | 31373.1 | 111.36 | PASS | 70-125 |
| N034178-011B | SAMP | 1 | 62552.1 | 57600.9 | 108.6 | PASS | 70-125 | 36008.2 | 31373.1 | 114.77 | PASS | 70-125 |
| N034196-002B | SAMP | 1 | 64439.6 | 57600.9 | 111.87 | PASS | 70-125 | 36778.7 | 31373.1 | 117.23 | PASS | 70-125 |
| N034196-002B | SAMP | 5 | 66858.8 | 57600.9 | 116.07 | PASS | 70-125 | 38998.4 | 31373.1 | 124.31 | PASS | 70-125 |
| N034196-003B | SAMP | 1 | 59791 | 57600.9 | 103.8 | PASS | 70-125 | 33590.9 | 31373.1 | 107.07 | PASS | 70-125 |
| CCV8 | CCV | 1 | 61767.3 | 57600.9 | 107.23 | PASS | 70-125 | 37334.6 | 31373.1 | 119 | PASS | 70-125 |
| CCB8 | CCB | 1 | 55294.5 | 57600.9 | 96 | PASS | 70-125 | 35198.7 | 31373.1 | 112.19 | PASS | 70-125 |
| N034196-003B | SAMP | 5 | 63228.1 | 57600.9 | 109.77 | PASS | 70-125 | 37168.7 | 31373.1 | 118.47 | PASS | 70-125 |
| N034196-004B | SAMP | 1 | 59180 | 57600.9 | 102.74 | PASS | 70-125 | 33676.5 | 31373.1 | 107.34 | PASS | 70-125 |
| N034196-004B | SAMP | 5 | 65099.7 | 57600.9 | 113.02 | PASS | 70-125 | 38083 | 31373.1 | 121.39 | PASS | 70-125 |
| CCV9 | CCV | 1 | 55301.2 | 57600.9 | 96.008 | PASS | 70-125 | 33214.6 | 31373.1 | 105.87 | PASS | 70-125 |
| CCB9 | CCB | 1 | 57857.9 | 57600.9 | 100.45 | PASS | 70-125 | 36435.8 | 31373.1 | 116.14 | PASS | 70-125 |
| ICSA4 | ICSA | 1 | 55072.6 | 57600.9 | 95.61 | PASS | 70-125 | 33714.4 | 31373.1 | 107.46 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 58245.6 | 57600.9 | 101.12 | PASS | 70-125 | 34790.1 | 31373.1 | 110.89 | PASS | 70-125 |
| CCV10 | CCV | 1 | 53031.7 | 57600.9 | 92.067 | PASS | 70-125 | 32969.5 | 31373.1 | 105.09 | PASS | 70-125 |
| CCB10 | CCB | 1 | 54701.4 | 57600.9 | 94.97 | PASS | 70-125 | 33902.6 | 31373.1 | 108.06 | PASS | 70-125 |
| CCV11 | CCV | 1 | 51727.6 | 57600.9 | 89.8 | PASS | 70-125 | 32217 | 31373.1 | 102.69 | PASS | 70-125 |
| CCB11 | CCB | 1 | 53825.2 | 57600.9 | 93.45 | PASS | 70-125 | 34204.3 | 31373.1 | 109.02 | PASS | 70-125 |
| N034178-003B | SAMP | 1 | 51403.4 | 57600.9 | 89.24 | PASS | 70-125 | 29792.4 | 31373.1 | 94.96 | PASS | 70-125 |
| N034178-005B | SAMP | 1 | 56100.6 | 57600.9 | 97.4 | PASS | 70-125 | 32327.2 | 31373.1 | 103.04 | PASS | 70-125 |
| CCV12 | CCV | 1 | 58415.2 | 57600.9 | 101.41 | PASS | 70-125 | 36078.4 | 31373.1 | 115 | PASS | 70-125 |

**INTERNAL STANDARD: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| CCB12 | CCB | 1 | 60458.9 | 57600.9 | 104.96 | PASS | 70-125 | 37344.5 | 31373.1 | 119.03 | PASS | 70-125 |
| N034178-006B | SAMP | 1 | 55906.6 | 57600.9 | 97.059 | PASS | 70-125 | 33657.6 | 31373.1 | 107.28 | PASS | 70-125 |
| N034178-008B | SAMP | 1 | 60724.4 | 57600.9 | 105.42 | PASS | 70-125 | 36525 | 31373.1 | 116.42 | PASS | 70-125 |
| N034178-010B | SAMP | 1 | 59315.1 | 57600.9 | 102.98 | PASS | 70-125 | 34854.5 | 31373.1 | 111.1 | PASS | 70-125 |
| N034196-003B | SAMP | 1 | 58846.7 | 57600.9 | 102.16 | PASS | 70-125 | 33698.8 | 31373.1 | 107.41 | PASS | 70-125 |
| N034196-004B | SAMP | 1 | 59801.1 | 57600.9 | 103.82 | PASS | 70-125 | 34714.3 | 31373.1 | 110.65 | PASS | 70-125 |
| N034178-006B | SAMP | 1 | 59149.8 | 57600.9 | 102.69 | PASS | 70-125 | 35481.4 | 31373.1 | 113.1 | PASS | 70-125 |
| N034196-003B | SAMP | 1 | 57075.1 | 57600.9 | 99.087 | PASS | 70-125 | 33389.3 | 31373.1 | 106.43 | PASS | 70-125 |
| N034196-004B | SAMP | 1 | 57335.7 | 57600.9 | 99.54 | PASS | 70-125 | 33153.2 | 31373.1 | 105.67 | PASS | 70-125 |
| N034196-004B | SAMP | 1 | 56204.3 | 57600.9 | 97.58 | PASS | 70-125 | 32998.6 | 31373.1 | 105.18 | PASS | 70-125 |
| CCV13 | CCV | 1 | 57252.3 | 57600.9 | 99.39 | PASS | 70-125 | 36119.5 | 31373.1 | 115.13 | PASS | 70-125 |
| CCB13 | CCB | 1 | 58446.3 | 57600.9 | 101.47 | PASS | 70-125 | 36831.2 | 31373.1 | 117.4 | PASS | 70-125 |
| ICSA5 | ICSA | 1 | 54417.3 | 57600.9 | 94.47 | PASS | 70-125 | 33309.1 | 31373.1 | 106.17 | PASS | 70-125 |
| ICSAB5 | ICSAB | 1 | 55702.5 | 57600.9 | 96.7 | PASS | 70-125 | 34526.1 | 31373.1 | 110.05 | PASS | 70-125 |

**INTERNAL STANDARD: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 31005.6 | 31005.6 | 100 | PASS | 70-125 | 944944.1 | 944944.1 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 31979.8 | 31005.6 | 103.14 | PASS | 70-125 | 955429.8 | 944944.1 | 101.11 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 32002.1 | 31005.6 | 103.21 | PASS | 70-125 | 951170.3 | 944944.1 | 100.66 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 31943.1 | 31005.6 | 103.02 | PASS | 70-125 | 947943.6 | 944944.1 | 100.32 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 31414.2 | 31005.6 | 101.32 | PASS | 70-125 | 948700.1 | 944944.1 | 100.4 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 31541.2 | 31005.6 | 101.73 | PASS | 70-125 | 942146.6 | 944944.1 | 99.7 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 31811.6 | 31005.6 | 102.6 | PASS | 70-125 | 942533.6 | 944944.1 | 99.74 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 31231.6 | 31005.6 | 100.73 | PASS | 70-125 | 934043.6 | 944944.1 | 98.85 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 31552.3 | 31005.6 | 101.76 | PASS | 70-125 | 910903.3 | 944944.1 | 96.4 | PASS | 70-125 |
| ICV | ICV | 1 | 33049.7 | 31005.6 | 106.59 | PASS | 70-125 | 1036786.3 | 944944.1 | 109.72 | PASS | 70-125 |
| ICB | ICB | 1 | 32291.6 | 31005.6 | 104.15 | PASS | 70-125 | 1009556.5 | 944944.1 | 106.84 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 33616.3 | 31005.6 | 108.42 | PASS | 70-125 | 995677.6 | 944944.1 | 105.37 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 36354.5 | 31005.6 | 117.25 | PASS | 70-125 | 1012150.8 | 944944.1 | 107.11 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 27267.8 | 31005.6 | 87.94 | PASS | 70-125 | 933154.6 | 944944.1 | 98.75 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 37307.7 | 31005.6 | 120.33 | PASS | 70-125 | 1071359.2 | 944944.1 | 113.38 | PASS | 70-125 |
| CCV1 | CCV | 1 | 35236.5 | 31005.6 | 113.65 | PASS | 70-125 | 1003043.3 | 944944.1 | 106.15 | PASS | 70-125 |
| CCB1 | CCB | 1 | 29015.4 | 31005.6 | 93.58 | PASS | 70-125 | 1056191.9 | 944944.1 | 111.77 | PASS | 70-125 |
| CCV2 | CCV | 1 | 28762.6 | 31005.6 | 92.77 | PASS | 70-125 | 1027728.7 | 944944.1 | 108.76 | PASS | 70-125 |
| CCB2 | CCB | 1 | 27528.3 | 31005.6 | 88.78 | PASS | 70-125 | 1019839.9 | 944944.1 | 107.93 | PASS | 70-125 |
| CCV3 | CCV | 1 | 31238.4 | 31005.6 | 100.75 | PASS | 70-125 | 1011071.9 | 944944.1 | 107 | PASS | 70-125 |
| CCB3 | CCB | 1 | 34931.3 | 31005.6 | 112.66 | PASS | 70-125 | 1062788.8 | 944944.1 | 112.47 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 35768.7 | 31005.6 | 115.36 | PASS | 70-125 | 1024755.8 | 944944.1 | 108.45 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 29568.6 | 31005.6 | 95.37 | PASS | 70-125 | 923880 | 944944.1 | 97.77 | PASS | 70-125 |
| CCV4 | CCV | 1 | 35164.1 | 31005.6 | 113.41 | PASS | 70-125 | 1022448 | 944944.1 | 108.2 | PASS | 70-125 |
| CCB4 | CCB | 1 | 31454.4 | 31005.6 | 101.45 | PASS | 70-125 | 1004712.4 | 944944.1 | 106.33 | PASS | 70-125 |
| MB-72522 | MBLK | 1 | 35638.6 | 31005.6 | 114.94 | PASS | 70-125 | 1091934.8 | 944944.1 | 115.56 | PASS | 70-125 |
| LCS-72522 | LCS | 1 | 34361.2 | 31005.6 | 110.82 | PASS | 70-125 | 1050835.2 | 944944.1 | 111.21 | PASS | 70-125 |
| N034160-001A | SAMP | 1 | 32796.9 | 31005.6 | 105.78 | PASS | 70-125 | 930986.4 | 944944.1 | 98.52 | PASS | 70-125 |
| CCV5 | CCV | 1 | 22783.1 | 31005.6 | 73.48 | PASS | 70-125 | 828726.8 | 944944.1 | 87.7 | PASS | 70-125 |
| CCB5 | CCB | 1 | 26082.6 | 31005.6 | 84.12 | PASS | 70-125 | 930761.1 | 944944.1 | 98.5 | PASS | 70-125 |
| N034129-013D | SAMP | 1 | 32450.8 | 31005.6 | 104.66 | PASS | 70-125 | 909885.5 | 944944.1 | 96.29 | PASS | 70-125 |
| N034160-001A | SAMP | 5 | 32985.2 | 31005.6 | 106.38 | PASS | 70-125 | 967852 | 944944.1 | 102.42 | PASS | 70-125 |
| N034160-001A-PS | PS | 1 | 31974.2 | 31005.6 | 103.12 | PASS | 70-125 | 923238.9 | 944944.1 | 97.7 | PASS | 70-125 |
| N034160-001A-MS | MS | 1 | 33422.7 | 31005.6 | 107.8 | PASS | 70-125 | 951826.9 | 944944.1 | 100.73 | PASS | 70-125 |
| N034160-001A-MSD | MSD | 1 | 34522.6 | 31005.6 | 111.34 | PASS | 70-125 | 959006.1 | 944944.1 | 101.49 | PASS | 70-125 |
| N034160-001A | SAMP | 25 | 37135.2 | 31005.6 | 119.77 | PASS | 70-125 | 1087011.1 | 944944.1 | 115.03 | PASS | 70-125 |
| N034160-001A-PS | PS | 5 | 35463.8 | 31005.6 | 114.38 | PASS | 70-125 | 1022144.6 | 944944.1 | 108.17 | PASS | 70-125 |
| N034160-001A-MS | MS | 5 | 34610.8 | 31005.6 | 111.63 | PASS | 70-125 | 1022840.7 | 944944.1 | 108.24 | PASS | 70-125 |
| N034160-001A-MSD | MSD | 5 | 34803.3 | 31005.6 | 112.25 | PASS | 70-125 | 1015937.5 | 944944.1 | 107.51 | PASS | 70-125 |
| N034162-001A | SAMP | 1 | 29715.5 | 31005.6 | 95.84 | PASS | 70-125 | 912148.3 | 944944.1 | 96.53 | PASS | 70-125 |
| CCV6 | CCV | 1 | 22788.8 | 31005.6 | 73.5 | PASS | 70-125 | 820627.6 | 944944.1 | 86.84 | PASS | 70-125 |

**INTERNAL STANDARD: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| CCB6 | CCB | 1 | 27106.5 | 31005.6 | 87.42 | PASS | 70-125 | 955171.5 | 944944.1 | 101.08 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 32859.4 | 31005.6 | 105.98 | PASS | 70-125 | 963219.6 | 944944.1 | 101.93 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 34152.1 | 31005.6 | 110.15 | PASS | 70-125 | 978849.9 | 944944.1 | 103.59 | PASS | 70-125 |
| N034162-001A | SAMP | 10 | 36457 | 31005.6 | 117.58 | PASS | 70-125 | 1056296.3 | 944944.1 | 111.78 | PASS | 70-125 |
| N034162-003B | SAMP | 1 | 31121.5 | 31005.6 | 100.37 | PASS | 70-125 | 919203.8 | 944944.1 | 97.28 | PASS | 70-125 |
| N034162-003B | SAMP | 10 | 36306.7 | 31005.6 | 117.1 | PASS | 70-125 | 1066226.2 | 944944.1 | 112.83 | PASS | 70-125 |
| N034164-001A | SAMP | 1 | 26523.3 | 31005.6 | 85.54 | PASS | 70-125 | 850015.8 | 944944.1 | 89.95 | PASS | 70-125 |
| N034181-001B | SAMP | 1 | 33014.2 | 31005.6 | 106.48 | PASS | 70-125 | 987022.4 | 944944.1 | 104.45 | PASS | 70-125 |
| N034191-001B | SAMP | 1 | 32129 | 31005.6 | 103.62 | PASS | 70-125 | 957545.7 | 944944.1 | 101.33 | PASS | 70-125 |
| N034195-001A | SAMP | 5 | 32156.8 | 31005.6 | 103.71 | PASS | 70-125 | 984851.1 | 944944.1 | 104.22 | PASS | 70-125 |
| N034178-003B | SAMP | 1 | 25705.3 | 31005.6 | 82.91 | PASS | 70-125 | 845837.4 | 944944.1 | 89.51 | PASS | 70-125 |
| N034178-004B | SAMP | 1 | 25111 | 31005.6 | 80.99 | PASS | 70-125 | 838012.7 | 944944.1 | 88.68 | PASS | 70-125 |
| N034178-005B | SAMP | 1 | 25794.3 | 31005.6 | 83.19 | PASS | 70-125 | 852264.2 | 944944.1 | 90.19 | PASS | 70-125 |
| CCV7 | CCV | 1 | 33138.8 | 31005.6 | 106.88 | PASS | 70-125 | 1053397 | 944944.1 | 111.48 | PASS | 70-125 |
| CCB7 | CCB | 1 | 27960.2 | 31005.6 | 90.18 | PASS | 70-125 | 963738.9 | 944944.1 | 101.99 | PASS | 70-125 |
| N034178-006B | SAMP | 1 | 29190.1 | 31005.6 | 94.14 | PASS | 70-125 | 909238.7 | 944944.1 | 96.22 | PASS | 70-125 |
| N034178-007B | SAMP | 1 | 29292.5 | 31005.6 | 94.47 | PASS | 70-125 | 906389.4 | 944944.1 | 95.92 | PASS | 70-125 |
| N034178-007B | SAMP | 5 | 31395.3 | 31005.6 | 101.26 | PASS | 70-125 | 973444.9 | 944944.1 | 103.02 | PASS | 70-125 |
| N034178-008B | SAMP | 1 | 30373.5 | 31005.6 | 97.96 | PASS | 70-125 | 909164.1 | 944944.1 | 96.21 | PASS | 70-125 |
| N034178-009B | SAMP | 1 | 30357.9 | 31005.6 | 97.91 | PASS | 70-125 | 916131.4 | 944944.1 | 96.95 | PASS | 70-125 |
| N034178-010B | SAMP | 1 | 27356.9 | 31005.6 | 88.23 | PASS | 70-125 | 880259 | 944944.1 | 93.15 | PASS | 70-125 |
| N034178-011B | SAMP | 1 | 28168.3 | 31005.6 | 90.85 | PASS | 70-125 | 907328.3 | 944944.1 | 96.019 | PASS | 70-125 |
| N034196-002B | SAMP | 1 | 28672.5 | 31005.6 | 92.48 | PASS | 70-125 | 928913.8 | 944944.1 | 98.3 | PASS | 70-125 |
| N034196-002B | SAMP | 5 | 33501.7 | 31005.6 | 108.05 | PASS | 70-125 | 1039466.8 | 944944.1 | 110 | PASS | 70-125 |
| N034196-003B | SAMP | 1 | 25818.9 | 31005.6 | 83.27 | PASS | 70-125 | 841540.1 | 944944.1 | 89.057 | PASS | 70-125 |
| CCV8 | CCV | 1 | 33482.9 | 31005.6 | 107.99 | PASS | 70-125 | 1073331.7 | 944944.1 | 113.59 | PASS | 70-125 |
| CCB8 | CCB | 1 | 30127.4 | 31005.6 | 97.17 | PASS | 70-125 | 1019272.8 | 944944.1 | 107.87 | PASS | 70-125 |
| N034196-003B | SAMP | 5 | 30855.4 | 31005.6 | 99.52 | PASS | 70-125 | 972644 | 944944.1 | 102.93 | PASS | 70-125 |
| N034196-004B | SAMP | 1 | 25033.2 | 31005.6 | 80.74 | PASS | 70-125 | 831476.9 | 944944.1 | 87.99 | PASS | 70-125 |
| N034196-004B | SAMP | 5 | 31882.9 | 31005.6 | 102.83 | PASS | 70-125 | 1000056 | 944944.1 | 105.83 | PASS | 70-125 |
| CCV9 | CCV | 1 | 30257.6 | 31005.6 | 97.59 | PASS | 70-125 | 956596.5 | 944944.1 | 101.23 | PASS | 70-125 |
| CCB9 | CCB | 1 | 32047.8 | 31005.6 | 103.36 | PASS | 70-125 | 1055728.1 | 944944.1 | 111.72 | PASS | 70-125 |
| ICSA4 | ICSA | 1 | 29211.3 | 31005.6 | 94.21 | PASS | 70-125 | 886961.3 | 944944.1 | 93.86 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 30308.8 | 31005.6 | 97.75 | PASS | 70-125 | 912242.5 | 944944.1 | 96.54 | PASS | 70-125 |
| CCV10 | CCV | 1 | 30400.1 | 31005.6 | 98.047 | PASS | 70-125 | 935328 | 944944.1 | 98.98 | PASS | 70-125 |
| CCB10 | CCB | 1 | 32019.8 | 31005.6 | 103.27 | PASS | 70-125 | 979920.8 | 944944.1 | 103.7 | PASS | 70-125 |
| CCV11 | CCV | 1 | 30480.3 | 31005.6 | 98.31 | PASS | 70-125 | 911388.7 | 944944.1 | 96.45 | PASS | 70-125 |
| CCB11 | CCB | 1 | 32606.6 | 31005.6 | 105.16 | PASS | 70-125 | 969119 | 944944.1 | 102.56 | PASS | 70-125 |
| N034178-003B | SAMP | 1 | 22910.1 | 31005.6 | 73.89 | PASS | 70-125 | 733858.1 | 944944.1 | 77.66 | PASS | 70-125 |
| N034178-005B | SAMP | 1 | 24639.3 | 31005.6 | 79.47 | PASS | 70-125 | 787459.8 | 944944.1 | 83.33 | PASS | 70-125 |
| CCV12 | CCV | 1 | 32565.5 | 31005.6 | 105.03 | PASS | 70-125 | 1014008.2 | 944944.1 | 107.31 | PASS | 70-125 |

**INTERNAL STANDARD: 190228A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| CCB12 | CCB | 1 | 33515.1 | 31005.6 | 108.09 | PASS | 70-125 | 1043676.7 | 944944.1 | 110.45 | PASS | 70-125 |
| N034178-006B | SAMP | 1 | 28232.9 | 31005.6 | 91.057 | PASS | 70-125 | 857004 | 944944.1 | 90.69 | PASS | 70-125 |
| N034178-008B | SAMP | 1 | 30581.6 | 31005.6 | 98.63 | PASS | 70-125 | 919659.3 | 944944.1 | 97.32 | PASS | 70-125 |
| N034178-010B | SAMP | 1 | 27509.4 | 31005.6 | 88.72 | PASS | 70-125 | 863200.8 | 944944.1 | 91.35 | PASS | 70-125 |
| N034196-003B | SAMP | 1 | 25815.5 | 31005.6 | 83.26 | PASS | 70-125 | 827723 | 944944.1 | 87.59 | PASS | 70-125 |
| N034196-004B | SAMP | 1 | 26594.5 | 31005.6 | 85.77 | PASS | 70-125 | 848459.3 | 944944.1 | 89.79 | PASS | 70-125 |
| N034178-006B | SAMP | 1 | 29440.5 | 31005.6 | 94.95 | PASS | 70-125 | 919083.5 | 944944.1 | 97.26 | PASS | 70-125 |
| N034196-003B | SAMP | 1 | 25851.1 | 31005.6 | 83.38 | PASS | 70-125 | 815971.4 | 944944.1 | 86.35 | PASS | 70-125 |
| N034196-004B | SAMP | 1 | 25867.9 | 31005.6 | 83.43 | PASS | 70-125 | 825864 | 944944.1 | 87.4 | PASS | 70-125 |
| N034196-004B | SAMP | 1 | 25532.9 | 31005.6 | 82.35 | PASS | 70-125 | 822128.7 | 944944.1 | 87.003 | PASS | 70-125 |
| CCV13 | CCV | 1 | 32470.8 | 31005.6 | 104.73 | PASS | 70-125 | 1015016 | 944944.1 | 107.42 | PASS | 70-125 |
| CCB13 | CCB | 1 | 33075.4 | 31005.6 | 106.68 | PASS | 70-125 | 1046539.7 | 944944.1 | 110.75 | PASS | 70-125 |
| ICSA5 | ICSA | 1 | 29070 | 31005.6 | 93.76 | PASS | 70-125 | 888467.8 | 944944.1 | 94.023 | PASS | 70-125 |
| ICSAB5 | ICSAB | 1 | 30162 | 31005.6 | 97.28 | PASS | 70-125 | 889946.6 | 944944.1 | 94.18 | PASS | 70-125 |

**INTERNAL STANDARD: 190302A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 36258.7 | 36258.7 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 38489.5 | 36258.7 | 106.15 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 33223.4 | 36258.7 | 91.63 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 33416.1 | 36258.7 | 92.16 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 33360.5 | 36258.7 | 92.007 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 32189.2 | 36258.7 | 88.78 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 32705.7 | 36258.7 | 90.2 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 32480.9 | 36258.7 | 89.58 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 31237.3 | 36258.7 | 86.15 | PASS | 70-125 |
| ICV | ICV | 1 | 31201.6 | 36258.7 | 86.053 | PASS | 70-125 |
| ICB | ICB | 1 | 33515 | 36258.7 | 92.43 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 33736.7 | 36258.7 | 93.044 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 32857.1 | 36258.7 | 90.62 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 33066.5 | 36258.7 | 91.2 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 34734.5 | 36258.7 | 95.8 | PASS | 70-125 |
| N034160-001A | SAMP | 1 | 33422.6 | 36258.7 | 92.18 | PASS | 70-125 |
| CCV1 | CCV | 1 | 30053.9 | 36258.7 | 82.89 | PASS | 70-125 |
| CCB1 | CCB | 1 | 29897 | 36258.7 | 82.45 | PASS | 70-125 |
| CCV2 | CCV | 1 | 30721.9 | 36258.7 | 84.73 | PASS | 70-125 |
| CCB2 | CCB | 1 | 30896.7 | 36258.7 | 85.21 | PASS | 70-125 |
| CCV3 | CCV | 1 | 29471.7 | 36258.7 | 81.28 | PASS | 70-125 |
| CCB3 | CCB | 1 | 34729.9 | 36258.7 | 95.78 | PASS | 70-125 |
| CCV4 | CCV | 1 | 28956.3 | 36258.7 | 79.86 | PASS | 70-125 |
| CCB4 | CCB | 1 | 29899.1 | 36258.7 | 82.46 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 30481.4 | 36258.7 | 84.066 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 29093.3 | 36258.7 | 80.24 | PASS | 70-125 |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-MS-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034178
Test Method: EPA 6020
Analysis Date: 2/28/2019 / 3/2/2019

Matrix: Groundwater
Batch No.: 72522

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to several analytes. The calculated concentration is <25RL.
Dilution test failed for Mo.

| Sample ID | Analyte | Units | Calc Val | OQual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|
| N034160-001A DT 5X | Arsenic | ug/L | 0 | NA | 0.247468 | 100.00% | 10 |
| N034160-001A DT 5X | Chromium | ug/L | 0 | NA | 0.698952 | 100.00% | 10 |
| N034160-001A DT 25X | Manganese | ug/L | 387.2477 | PASS | 374.7885 | 3.32% | 10 |
| N034160-001A DT 5X | Molybdenum | ug/L | 28.7719 | FAIL | 32.38428 | 11.15% | 10 |
| N034160-001A DT 5X | Selenium | ug/L | 4.534687 | NA | 4.526804 | 0.17% | 10 |

Note: NA - Not applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | N034160-001A-PS | SampType: | PS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72522 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306008 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 44.464 | 0.50 | 10.00 | 32.38 | 121 | 80 | 120 | | | | S |
| Selenium | 14.865 | 0.50 | 10.00 | 4.527 | 103 | 80 | 120 | | | | |

| Sample ID | N034160-001A-PS | SampType: | PS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72522 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306012 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 483.253 | 2.5 | 100.0 | 374.8 | 108 | 80 | 120 | | | | |

| Sample ID | N034160-001A-PS | SampType: | PS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 132217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72522 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 2/28/2019 | SeqNo: | 3306475 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 10.549 | 0.10 | 10.00 | 0.2475 | 103 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034178
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | **N034160-001A-PS** | SampType: **PS** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132224** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **72522** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **2/28/2019** | SeqNo: **3306178** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.593 | 1.0 | 10.00 | 0.6990 | 98.9 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Amount of Sample:** 25 mL
**Units:** ug/L

| Analyte | AMT SPIKED, ppb | 1 | 2 | 3 | 4 | 5 | 6 | 7 | SD | MDL | LOD | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANTIMONY | 0.50 | 0.525 | 0.514 | 0.473 | 0.500 | 0.492 | 0.486 | 0.530 | 0.0210 | 0.0660 | 0.100 | 0.50 |
| ARSENIC | 0.10 | 0.099 | 0.104 | 0.087 | 0.048 | 0.060 | 0.069 | 0.120 | 0.0259 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 1.00 | 1.041 | 1.059 | 1.052 | 1.011 | 0.967 | 0.957 | 1.023 | 0.0403 | 0.1264 | 0.250 | 1.00 |
| BERYLLIUM | 0.50 | 0.469 | 0.476 | 0.473 | 0.495 | 0.480 | 0.488 | 0.507 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.50 | 0.515 | 0.513 | 0.492 | 0.534 | 0.499 | 0.483 | 0.508 | 0.0168 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 1.00 | 0.979 | 0.986 | 0.940 | 0.990 | 0.946 | 0.978 | 0.977 | 0.0197 | 0.0618 | 0.250 | 1.00 |
| COBALT | 0.50 | 0.499 | 0.489 | 0.486 | 0.488 | 0.465 | 0.502 | 0.505 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| COPPER | 1.00 | 1.110 | 0.667 | 1.039 | 1.060 | 1.006 | 1.099 | 1.075 | 0.1544 | 0.4850 | 0.500 | 1.00 |
| IRON | 10.00 | 10.873 | 10.802 | 10.142 | 9.991 | 9.846 | 9.852 | 10.596 | 0.4463 | 1.4014 | 2.500 | 10.00 |
| LEAD | 1.00 | 0.928 | 0.931 | 0.899 | 0.996 | 0.990 | 0.987 | 0.997 | 0.0406 | 0.1274 | 0.250 | 1.00 |
| MANGANESE | 0.50 | 0.577 | 0.588 | 0.561 | 0.566 | 0.517 | 0.541 | 0.520 | 0.0276 | 0.0866 | 0.100 | 0.50 |
| MOLYBDENUM | 0.50 | 0.514 | 0.504 | 0.467 | 0.478 | 0.456 | 0.433 | 0.527 | 0.0338 | 0.1061 | 0.250 | 0.50 |
| NICKEL | 1.00 | 0.961 | 0.965 | 0.977 | 0.907 | 0.914 | 0.962 | 1.075 | 0.0551 | 0.1731 | 0.250 | 1.00 |
| SELENIUM | 0.50 | 0.450 | 0.478 | 0.419 | 0.693 | 0.707 | 0.495 | 0.555 | 0.1155 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.50 | 0.558 | 0.511 | 0.490 | 0.542 | 0.458 | 0.490 | 0.684 | 0.0745 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.50 | 0.437 | 0.428 | 0.408 | 0.538 | 0.446 | 0.438 | 0.525 | 0.0504 | 0.1583 | 0.250 | 0.50 |
| URANIUM | 0.50 | 0.478 | 0.467 | 0.461 | 0.517 | 0.510 | 0.521 | 0.521 | 0.0267 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 1.00 | 0.950 | 0.969 | 0.900 | 0.844 | 0.829 | 0.848 | 1.053 | 0.0820 | 0.2574 | 0.500 | 1.00 |
| ZINC | 10.00 | 11.259 | 11.279 | 10.915 | 9.620 | 9.849 | 9.745 | 10.241 | 0.7235 | 2.2717 | 2.500 | 10.00 |

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Units:** ug/L

| Analyte | MDLs | MDLb | MDL | LOD | PQL |
|---|---|---|---|---|---|
| ANTIMONY | 0.0660 | 0.1564 | 0.1564 | 0.300 | 0.50 |
| ARSENIC | 0.0813 | 0.0387 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 0.1264 | 0.1497 | 0.1497 | 0.300 | 1.00 |
| BERYLLIUM | 0.0424 | 0.0153 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.0527 | 0.0060 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 0.0618 | 0.1298 | 0.1298 | 0.300 | 1.00 |
| COBALT | 0.0424 | 0.0339 | 0.0424 | 0.100 | 0.50 |
| COPPER | 0.4850 | 0.5459 | 0.5459 | 0.600 | 1.00 |
| IRON | 1.4014 | 4.3484 | 4.3484 | 5.000 | 10.00 |
| LEAD | 0.1274 | 0.1008 | 0.1274 | 0.300 | 1.00 |
| MANGANESE | 0.0866 | 0.2552 | 0.2552 | 0.300 | 0.50 |
| MOLYBDENUM | 0.1061 | 0.2149 | 0.2149 | 0.300 | 0.50 |
| NICKEL | 0.1731 | 0.2606 | 0.2606 | 0.300 | 1.00 |
| SELENIUM | 0.3628 | 0.0953 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.2340 | 0.2023 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.1583 | 0.1924 | 0.1924 | 0.300 | 0.50 |
| URANIUM | 0.0838 | 0.0020 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 0.2574 | 0.2768 | 0.2768 | 0.600 | 1.00 |
| ZINC | 2.2717 | 0.4511 | 2.2717 | 3.000 | 10.00 |

March 20, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034443

RE: PG&E Topock - PMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on March 05, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

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**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab Order:** N034443

# CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Magnesium in QC samples N034443-001B-MS1 and N034443-001B-MSD1 possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed and PS passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium in QC samples N034443-001B-MS1 and N034443-001B-MSD1 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N034443-002B-MS2 and N034443-002B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab Order:** N034443
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034443-001A | PE-01-0319 | Groundwater | 3/5/2019 10:20:00 AM | 3/5/2019 | 3/20/2019 |
| N034443-001B | PE-01-0319 | Groundwater | 3/5/2019 10:20:00 AM | 3/5/2019 | 3/20/2019 |
| N034443-001C | PE-01-0319 | Groundwater | 3/5/2019 10:20:00 AM | 3/5/2019 | 3/20/2019 |
| N034443-001D | PE-01-0319 | Groundwater | 3/5/2019 10:20:00 AM | 3/5/2019 | 3/20/2019 |
| N034443-002A | TW-03D-0319 | Groundwater | 3/5/2019 10:10:00 AM | 3/5/2019 | 3/20/2019 |
| N034443-002B | TW-03D-0319 | Groundwater | 3/5/2019 10:10:00 AM | 3/5/2019 | 3/20/2019 |
| N034443-002C | TW-03D-0319 | Groundwater | 3/5/2019 10:10:00 AM | 3/5/2019 | 3/20/2019 |
| N034443-002D | TW-03D-0319 | Groundwater | 3/5/2019 10:10:00 AM | 3/5/2019 | 3/20/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:20:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190306H** | QC Batch: **R132345** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 3500 | 0.10 | 0.10 | | umhos/cm | 1 | 3/6/2019 10:50 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190306H** | QC Batch: **R132345** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 7400 | 0.10 | 0.10 | | umhos/cm | 1 | 3/6/2019 10:50 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID | **N034444-001ADUP** | SampType: | **DUP** | TestCode: | **120.1_WPGE** | Units: | **umhos/cm** | Prep Date: | | RunNo: | **132345** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: | **R132345** | TestNo: | **EPA 120.1** | | | Analysis Date: | **3/6/2019** | SeqNo: | **3310579** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 7490.000 | 0.10 | | | | | | 7460 | 0.401 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:20:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190306D** | QC Batch: **R132317** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.6 | 0.10 | 0.10 | H | pH Units | 1 | 3/6/2019 10:35 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/6/2019 10:35 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190306D** | QC Batch: **R132317** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.3 | 0.10 | 0.10 | H | pH Units | 1 | 3/6/2019 10:35 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/6/2019 10:35 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 150.1_4500H+B_W**

Sample ID **N034443-001CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **132317**
Client ID: **ZZZZZZ** Batch ID: **R132317** TestNo: **SM4500-H+B** Analysis Date: **3/6/2019** SeqNo: **3309473**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 7.690 | 0.10 | | | | | | 7.650 | 0.522 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:20:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190306G** | QC Batch: **72768** | | | PrepDate | **3/6/2019** | | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 2200 | 25 | 25 | | mg/L | 1 | 3/6/2019 01:23 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190306G** | QC Batch: **72768** | | | PrepDate | **3/6/2019** | | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 4500 | 50 | 50 | | mg/L | 1 | 3/6/2019 01:23 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.1_2540C_W**

| Sample ID | LCS-72768 | SampType: | LCS | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 3/6/2019 | RunNo: | 132344 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72768 | TestNo: | SM2540C | | | Analysis Date: | 3/6/2019 | SeqNo: | 3310569 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 975.000 | 10 | 1000 | 0 | 97.5 | 80 | 120 | | | | |

| Sample ID | MB-72768 | SampType: | MBLK | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 3/6/2019 | RunNo: | 132344 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72768 | TestNo: | SM2540C | | | Analysis Date: | 3/6/2019 | SeqNo: | 3310570 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | ND | 10 | | | | | | | | | |

| Sample ID | N034444-002BDUP | SampType: | DUP | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 3/6/2019 | RunNo: | 132344 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72768 | TestNo: | SM2540C | | | Analysis Date: | 3/6/2019 | SeqNo: | 3310577 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 4425.000 | 50 | | | | | | 4425 | 0 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034443-001

**Client Sample ID:** PE-01-0319
**Collection Date:** 3/5/2019 10:20:00 AM
**Matrix:** GROUNDWATER

## DISSOLVED METALS BY ICP

**EPA 200.7**

RunID: **NV00922-ICP2_190319E** QC Batch: **72815** PrepDate **3/11/2019** Analyst: **CEI**

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| Calcium | 160000 | 85 | 500 | | µg/L | 1 | 3/20/2019 01:16 AM |
| Iron | ND | 18 | 20 | | µg/L | 1 | 3/20/2019 01:16 AM |
| Magnesium | 40000 | 48 | 100 | | µg/L | 1 | 3/20/2019 01:16 AM |
| Sodium | 640000 | 4800 | 25000 | | µg/L | 50 | 3/20/2019 04:13 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034443-002

**Client Sample ID:** TW-03D-0319
**Collection Date:** 3/5/2019 10:10:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | | | **EPA 200.7** | | | | |
| RunID: **NV00922-ICP2_190319E** | QC Batch: **72815** | | | PrepDate | **3/11/2019** | Analyst: **CEI** | |
| Calcium | 190000 | 85 | 500 | | µg/L | 1 | 3/20/2019 01:49 AM |
| Iron | ND | 18 | 20 | | µg/L | 1 | 3/20/2019 01:49 AM |
| Magnesium | 27000 | 48 | 100 | | µg/L | 1 | 3/20/2019 01:49 AM |
| Sodium | 1400000 | 4800 | 25000 | | µg/L | 50 | 3/20/2019 04:16 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

Sample ID **LCS1-72815** SampType: **LCS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **132622**
Client ID: **LCSW** Batch ID: **72815** TestNo: **EPA 200.7** Analysis Date: **3/20/2019** SeqNo: **3323072**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 4949.323 | 500 | 5000 | 0 | 99.0 | 85 | 115 | | | | |
| Iron | 113.420 | 20 | 100.0 | 0 | 113 | 85 | 115 | | | | |
| Magnesium | 4925.582 | 100 | 5000 | 0 | 98.5 | 85 | 115 | | | | |

Sample ID **N034443-001B-PS** SampType: **PS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132622**
Client ID: **ZZZZZZ** Batch ID: **72815** TestNo: **EPA 200.7** Analysis Date: **3/20/2019** SeqNo: **3323075**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 170307.661 | 500 | 5000 | 163100 | 145 | 80 | 120 | | | | S |
| Iron | 90.942 | 20 | 100.0 | 0 | 90.9 | 80 | 120 | | | | |
| Magnesium | 44496.549 | 100 | 5000 | 39590 | 98.2 | 80 | 120 | | | | |

Sample ID **N034443-001B-MS1** SampType: **MS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **132622**
Client ID: **ZZZZZZ** Batch ID: **72815** TestNo: **EPA 200.7** Analysis Date: **3/20/2019** SeqNo: **3323076**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 161594.259 | 500 | 5000 | 163100 | -29.8 | 75 | 125 | | | | S |
| Iron | 87.797 | 20 | 100.0 | 0 | 87.8 | 75 | 125 | | | | |
| Magnesium | 42427.239 | 100 | 5000 | 39590 | 56.8 | 75 | 125 | | | | S |

Sample ID **N034443-001B-MSD** SampType: **MSD** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **132622**
Client ID: **ZZZZZZ** Batch ID: **72815** TestNo: **EPA 200.7** Analysis Date: **3/20/2019** SeqNo: **3323077**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 161241.577 | 500 | 5000 | 163100 | -36.8 | 75 | 125 | 161600 | 0.218 | 20 | S |
| Iron | 87.211 | 20 | 100.0 | 0 | 87.2 | 75 | 125 | 87.80 | 0.670 | 20 | |
| Magnesium | 42527.717 | 100 | 5000 | 39590 | 58.8 | 75 | 125 | 42430 | 0.237 | 20 | S |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID | MB-72815 | SampType: | MBLK | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 3/11/2019 | RunNo: | 132622 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72815 | TestNo: | EPA 200.7 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323083 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | ND | 500 | | | | | | | | | |
| Iron | ND | 20 | | | | | | | | | |
| Magnesium | ND | 100 | | | | | | | | | |

| Sample ID | MB-72815 | SampType: | MBLK | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 3/11/2019 | RunNo: | 132625 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72815 | TestNo: | EPA 200.7 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323141 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | ND | 500 | | | | | | | | | |

| Sample ID | LCS2-72815 | SampType: | LCS | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 3/11/2019 | RunNo: | 132625 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72815 | TestNo: | EPA 200.7 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323142 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 19846.157 | 500 | 20000 | 0 | 99.2 | 85 | 115 | | | | |

| Sample ID | N034443-002B-PS | SampType: | PS | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | | RunNo: | 132625 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72815 | TestNo: | EPA 200.7 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323148 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 1552632.287 | 25000 | 20000 | 1443000 | 548 | 80 | 120 | | | | S |

| Sample ID | N034443-002B-MS2 | SampType: | MS | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 3/11/2019 | RunNo: | 132625 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72815 | TestNo: | EPA 200.7 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323149 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 1512436.039 | 25000 | 20000 | 1443000 | 347 | 75 | 125 | | | | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID | N034443-002B-MSD | SampType: | MSD | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 3/11/2019 | RunNo: | 132625 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72815 | TestNo: | EPA 200.7 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323150 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 1542081.863 | 25000 | 20000 | 1443000 | 495 | 75 | 125 | 1512000 | 1.94 | 20 | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:20:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICPMS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_190307C** | QC Batch: **72774** | | | PrepDate | **3/7/2019** | Analyst: **CEI** | |
| Manganese | 860 | 2.6 | 5.0 | | µg/L | 10 | 3/8/2019 06:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICPMS** | | | | | | | |
| **EPA 200.8** | | | | | | | |
| RunID: **NV00922-ICP7_190307C** QC Batch: **72774** PrepDate **3/7/2019** Analyst: **CEI** | | | | | | | |
| Manganese | 21 | 0.26 | 0.50 | | µg/L | 1 | 3/8/2019 04:07 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

| Sample ID **MB-72774** | SampType: **MBLK** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **3/7/2019** | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72774** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312928** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **LCS-72774** | SampType: **LCS** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **3/7/2019** | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72774** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312929** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 105.842 | 0.50 | 100.0 | 0 | 106 | 85 | 115 | | | | |

| Sample ID **N034443-001B-PS** | SampType: **PS** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72774** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312966** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 942.313 | 5.0 | 100.0 | 855.5 | 86.8 | 80 | 120 | | | | |

| Sample ID **N034443-001B-MS** | SampType: **MS** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **3/7/2019** | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72774** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312967** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 939.656 | 5.0 | 100.0 | 855.5 | 84.2 | 75 | 125 | | | | |

| Sample ID **N034443-001B-MSD** | SampType: **MSD** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **3/7/2019** | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72774** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312968** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 940.956 | 5.0 | 100.0 | 855.5 | 85.5 | 75 | 125 | 939.7 | 0.138 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034443-001

**Client Sample ID:** PE-01-0319
**Collection Date:** 3/5/2019 10:20:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190308A** QC Batch: **R132383** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/8/2019 10:17 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_190307C** QC Batch: **72774** | | | | PrepDate | **3/7/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 3/8/2019 03:25 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190308A** | QC Batch: **R132383** | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | 500 | 3.3 | 20 | | µg/L | 100 | 3/8/2019 11:14 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_190307C** | QC Batch: **72774** | | | PrepDate | **3/7/2019** | | Analyst: **CEI** |
| Chromium | 520 | 0.65 | 5.0 | | µg/L | 5 | 3/8/2019 07:25 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID | **MB-72774** | SampType: | **MBLK** | TestCode: | **200.8DIS_Cr** | Units: | **µg/L** | Prep Date: | **3/7/2019** | RunNo: | **132392** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **PBW** | Batch ID: | **72774** | TestNo: | **EPA 200.8** | | | Analysis Date: | **3/8/2019** | SeqNo: | **3313035** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | **LCS-72774** | SampType: | **LCS** | TestCode: | **200.8DIS_Cr** | Units: | **µg/L** | Prep Date: | **3/7/2019** | RunNo: | **132392** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **LCSW** | Batch ID: | **72774** | TestNo: | **EPA 200.8** | | | Analysis Date: | **3/8/2019** | SeqNo: | **3313036** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.072 | 1.0 | 10.00 | 0 | 101 | 85 | 115 | | | | |

| Sample ID | **N034443-001B-PS** | SampType: | **PS** | TestCode: | **200.8DIS_Cr** | Units: | **µg/L** | Prep Date: | | RunNo: | **132392** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: | **72774** | TestNo: | **EPA 200.8** | | | Analysis Date: | **3/8/2019** | SeqNo: | **3313039** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.208 | 1.0 | 10.00 | 0 | 102 | 80 | 120 | | | | |

| Sample ID | **N034443-001B-MS** | SampType: | **MS** | TestCode: | **200.8DIS_Cr** | Units: | **µg/L** | Prep Date: | **3/7/2019** | RunNo: | **132392** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: | **72774** | TestNo: | **EPA 200.8** | | | Analysis Date: | **3/8/2019** | SeqNo: | **3313040** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.089 | 1.0 | 10.00 | 0 | 101 | 75 | 125 | | | | |

| Sample ID | **N034443-001B-MSD** | SampType: | **MSD** | TestCode: | **200.8DIS_Cr** | Units: | **µg/L** | Prep Date: | **3/7/2019** | RunNo: | **132392** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: | **72774** | TestNo: | **EPA 200.8** | | | Analysis Date: | **3/8/2019** | SeqNo: | **3313043** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.131 | 1.0 | 10.00 | 0 | 101 | 75 | 125 | 10.09 | 0.421 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | MB-R132383 | SampType: | MBLK | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132383 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132383 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3312461 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID | LCS-R132383 | SampType: | LCS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132383 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132383 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3312462 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.235 | 0.20 | 5.000 | 0 | 105 | 90 | 110 | | | | |

| Sample ID | N034442-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132383 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132383 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3312464 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.116 | 0.20 | 1.000 | 0.08240 | 103 | 90 | 110 | | | | |

| Sample ID | N034483-003AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132383 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132383 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3312466 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.090 | 0.20 | 1.000 | 0 | 109 | 90 | 110 | | | | |

| Sample ID | N034443-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132383 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132383 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3312468 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.077 | 0.20 | 1.000 | 0 | 108 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034443-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132383 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132383 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3312474 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1025.520 | 20 | 500.0 | 503.9 | 104 | 90 | 110 | | | | |

| Sample ID | N034443-002AMSD | SampType: | MSD | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132383 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132383 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3312475 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1022.840 | 20 | 500.0 | 503.9 | 104 | 90 | 110 | 1026 | 0.262 | 20 | |

| Sample ID | N034439-001ADUP | SampType: | DUP | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132383 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132383 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3312482 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.981 | 0.20 | | | | | | 0.9571 | 2.51 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:20:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190306A** | QC Batch: **R132314** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 250 | 1.2 | 5.0 | | mg/L | 1 | 3/6/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190306A** | QC Batch: **R132314** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 160 | 1.2 | 5.0 | | mg/L | 1 | 3/6/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 2320_W_SP**

| Sample ID **LCS-R132314** | SampType: **LCS** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | | | RunNo: **132314** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R132314** | TestNo: **SM 2320 B** | | Analysis Date: **3/6/2019** | | | SeqNo: **3309426** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Alkalinity, Total (As CaCO3) | 100.849 | 5.0 | 100.0 | 0 | 101 | 85 | 115 | | | | |

| Sample ID **MB-R132314** | SampType: **MBLK** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | | | RunNo: **132314** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R132314** | TestNo: **SM 2320 B** | | Analysis Date: **3/6/2019** | | | SeqNo: **3309427** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Alkalinity, Total (As CaCO3) | ND | 5.0 | | | | | | | | | |

| Sample ID **N034443-002CDUP** | SampType: **DUP** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | | | RunNo: **132314** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132314** | TestNo: **SM 2320 B** | | Analysis Date: **3/6/2019** | | | SeqNo: **3309435** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Alkalinity, Total (As CaCO3) | 163.482 | 5.0 | | | | | | 163.5 | 0 | 30 | |

| Sample ID **N034443-002CMS** | SampType: **MS** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | | | RunNo: **132314** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132314** | TestNo: **SM 2320 B** | | Analysis Date: **3/6/2019** | | | SeqNo: **3309436** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Alkalinity, Total (As CaCO3) | 259.023 | 5.0 | 100.0 | 163.5 | 95.5 | 75 | 125 | | | | |

| Sample ID **N034443-002CMSD** | SampType: **MSD** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | | | RunNo: **132314** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132314** | TestNo: **SM 2320 B** | | Analysis Date: **3/6/2019** | | | SeqNo: **3309437** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Alkalinity, Total (As CaCO3) | 257.962 | 5.0 | 100.0 | 163.5 | 94.5 | 75 | 125 | 259.0 | 0.411 | 20 | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:20:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| **EPA 300.0** | | | | | | | |
| RunID: **NV00922-IC8_190308A** QC Batch: **R132421** | | | | PrepDate | | | Analyst: **RAB** |
| Chloride | 870 | 1.8 | 100 | | mg/L | 200 | 3/8/2019 10:22 AM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| **EPA 300.0** | | | | | | | |
| RunID: **NV00922-IC8_190308A** QC Batch: **R132421** | | | | PrepDate | | | Analyst: **RAB** |
| Sulfate | 320 | 1.1 | 25 | | mg/L | 50 | 3/8/2019 12:21 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| **EPA 300.0** | | | | | | | |
| RunID: **NV00922-IC8_190308A** QC Batch: **R132421** | | | | PrepDate | | | Analyst: **RAB** |
| Chloride | 2100 | 4.6 | 250 | | mg/L | 500 | 3/8/2019 10:07 AM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| **EPA 300.0** | | | | | | | |
| RunID: **NV00922-IC8_190308A** QC Batch: **R132421** | | | | PrepDate | | | Analyst: **RAB** |
| Sulfate | 510 | 1.1 | 25 | | mg/L | 50 | 3/8/2019 01:05 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID | MB-R132421_CL | SampType: | MBLK | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132421 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132421 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3314648 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.150 | 0.50 | | | | | | | | | |

| Sample ID | LCS-R132421_CL | SampType: | LCS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132421 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132421 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3314649 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.974 | 0.50 | 2.000 | 0 | 98.7 | 90 | 110 | | | | |

| Sample ID | N034443-001CDUP | SampType: | DUP | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132421 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132421 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3314652 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 861.480 | 100 | | | | | | 865.6 | 0.477 | 20 | |

| Sample ID | N034443-002CMS | SampType: | MS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132421 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132421 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3314653 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 3180.300 | 250 | 1000 | 2104 | 108 | 80 | 120 | | | | |

| Sample ID | N034443-002CMSD | SampType: | MSD | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132421 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132421 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3314654 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 3182.050 | 250 | 1000 | 2104 | 108 | 80 | 120 | 3180 | 0.0550 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID | MB-R132421_SO4 | SampType: | MBLK | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132421 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132421 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3314667 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.214 | 0.50 | | | | | | | | | |

| Sample ID | LCS-R132421_SO4 | SampType: | LCS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132421 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132421 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3314668 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.944 | 0.50 | 4.000 | 0 | 98.6 | 90 | 110 | | | | |

| Sample ID | N034444-002BDUP | SampType: | DUP | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132421 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132421 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3314670 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 512.035 | 25 | | | | | | 513.0 | 0.194 | 20 | |

| Sample ID | N034443-001CMS | SampType: | MS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132421 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132421 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3314674 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 512.135 | 25 | 200.0 | 316.1 | 98.0 | 80 | 120 | | | | |

| Sample ID | N034443-001CMSD | SampType: | MSD | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132421 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132421 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3314675 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 517.015 | 25 | 200.0 | 316.1 | 100 | 80 | 120 | 512.1 | 0.948 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:20:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190307E** | QC Batch: **R132358** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | ND | 0.032 | 0.050 | | mg/L | 1 | 3/7/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190307E** | QC Batch: **R132358** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 2.9 | 0.16 | 0.25 | | mg/L | 5 | 3/7/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | MB-R132358 | SampType: | MBLK | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132358 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132358 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/7/2019 | SeqNo: | 3310834 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID | LCS-R132358 | SampType: | LCS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132358 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132358 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/7/2019 | SeqNo: | 3310835 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.505 | 0.050 | 0.5000 | 0 | 101 | 85 | 115 | | | | |

| Sample ID | N034443-002DDUP | SampType: | DUP | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132358 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132358 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/7/2019 | SeqNo: | 3310839 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 2.907 | 0.25 | | | | | | 2.936 | 1.03 | 20 | |

| Sample ID | N034444-002DMS | SampType: | MS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132358 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132358 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/7/2019 | SeqNo: | 3310841 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 5.495 | 0.25 | 2.500 | 3.026 | 98.8 | 75 | 125 | | | | |

| Sample ID | N034444-002DMSD | SampType: | MSD | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132358 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132358 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/7/2019 | SeqNo: | 3310842 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 5.334 | 0.25 | 2.500 | 3.026 | 92.3 | 75 | 125 | 5.494 | 2.97 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID: |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State: |
| Address: Roseville, CA 95661 | Email: [redacted] | Address: | Sample Receipt Condition: 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present; 5. IR number 2 ✓; 6. Method of Cooling: Ice |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@nivox.com P.O.# | Sample Temp: 2.6°C |
| Submitted By: | Phone: 916-786-3302 Fax: | Phone: 949-727-1400, ext 200 Fax: | |
| Title: | Sampled By: Spencer Doolittle | Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface | Courier: |
| Signature: Date: | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | | Tracking No.: |
| I hereby authorize ASSET Labs to perform the tests indicated below. | Signature: | Date: 3/5/19 | |
| Project Name: PG&E Topock - PMP | | | |
| Project Number: RC000753.801D | | | |

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly) | Dissolved metals (EPA 200.8) FF; HNO3, 500 mL poly Cr, Mn (500mL Poly) | Dissolved metals (EPA200.7) FF; HNO3 Ca, Mg, Fe, Na, (500mL Poly) | Anions (E300.0); Cl, SO4 (1 liter poly) | pH (SM4500HB) (1 liter poly) | TDS (SM2540C) (1 liter poly) | Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly) | Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034443-01 | PE-01-0319 | 3/5/19 | 1020 | | X | X | X | X | X | X | X | X | E | 4 | P | BN | |
| 2 | -02 | TW-03D-0319 | 3/5/19 | 1010 | | X | X | X | X | X | X | X | X | E | 4 | P | BN | |
| 3 | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | |

| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| SDoolittle | 3/5/19 1320 | [signature] | 3/5/19 1320 |
| [signature] | 3-5-19 1623 | [signature] JORDAN | 3/5/19 1622 |
| JORDAN | 3-5-19 1945 | JORDAN | 3-5-19 1945 |

**Turn Around Time (TAT)**

| | | |
|---|---|---|
| | A | < 24 Hrs or Same Day TAT |
| | B | = Next Workday |
| | C | = 2 Workdays |
| | D | = 3 Workdays |
| x | E | = Routine 5-7 Workdays |

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

**Preservatives:**

| | | | |
|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C |
| Z=$Zn(AC)_2$ | O=NaOH | T=$Na_2S_2O_3$ | |
| Others/Specify: | B | (NH4)2SO4/NH4OH | |

**Container Type:**

| | | |
|---|---|---|
| T=Tube | V=VOA | P=Pint |
| J=Jar | B=Tedlar | G=Glass |
| M=Metal | M=Metal | C=Can |

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy
Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 3/5/2019 | Workorder: | N034443 |
| Rep sample Temp (Deg C): | 2.6 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | NA | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☐ | No ☑ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☑ | No ☐ | NA ☐ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments: Samples for pH were past holding time upon receipt.

Checklist Completed By: YR 3/6/2019

Reviewed By: LG 031019

**Subject:** RE: N034443 COC and Work Order Summaries for Samples Received 3/5/2019
**From:** "Madsen, Laura" <Laura.Madsen@arcadis.com>
**Date:** 3/6/2019 11:16 AM
**To:** "samplecontrol.lv@assetlaboratories.com" <samplecontrol.lv@assetlaboratories.com>, Yoandra Rodriguez <yoandra@assetlaboratories.com>, "nancy@assetlaboratories.com" <nancy@assetlaboratories.com>, "marlon@assetlaboratories.com" <marlon@assetlaboratories.com>
**CC:** Tina Rice <Tina.Rice@critigen.com>, "Madsen, Laura" <Laura.Madsen@arcadis.com>

Hi Yoandra,
Can you please add specific Conductance method 120.1 to both samples? The COC inadvertently missed selecting the analyte.

Thanks!
Laura

---

**From:** Sample Control <samplecontrol.lv@assetlaboratories.com>
**Sent:** Wednesday, March 6, 2019 12:27 PM
**To:** Bush, Dan <Dan.Bush@arcadis.com>; Dan Moore <Daniel.Moore@critigen.com>
**Cc:** Madsen, Laura <Laura.Madsen@arcadis.com>; Sean.Maurel@arcadis.com; Tina Rice <Tina.Rice@critigen.com>; Kalib Sumter <Kalib.Sumter@critigen.com>; rsunjara@blainetech.com; Nicholas.Vadpey@arcadis.com; Harmon, Alison <Ali.Harmon@arcadis.com>; Serna, Erica <Erica.Serna@arcadis.com>; jmahn@blainetech.com; Borelis, Mariah <Mariah.Borelis@arcadis.com>; Bloes, Marty <mbloes@pivox.com>
**Subject:** N034443 COC and Work Order Summaries for Samples Received 3/5/2019

Hi Dan Bush:

Enclosed are COC and WO Summaries for samples received 3/5/2019. If you have any questions, please contact your Project Manager listed below.

**Marlon Cartin**
3151 W. Post Road
Las Vegas, Nevada
89118
**Tel. No.:** (702)-307-2659 Ext. 410
**Cel. No.:** (702)-439-0421
**Email:** marlon@assetlaboratories.com

Thank you for using ASSET Laboratories.

Sincerely,
Mary Ann Balilu
Sample Control Officer

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | **P:** 562.219.7435 | **F:** 562.219.7436
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | **P:** 702.307.2659 | **F:** 702.307.2691
www.assetlaboratories.com

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# ASSET Laboratories

## WORK ORDER Summary

*06-Mar-19*

**WorkOrder:** N034443

**Client ID:** ARCUS02

**Project:** PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/5/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034443-001A | PE-01-0319 | 3/5/2019 10:20:00 AM | 3/19/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034443-001B | | | 3/19/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 3/19/2019 | | EPA 200.7 | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 3/19/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 3/19/2019 | | EPA 200.8 | DISSOLVED METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| | | | 3/19/2019 | | EPA 200.8 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034443-001C | | | 3/19/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | LSR |
| N034443-001D | | | 3/19/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034443-002A | TW-03D-0319 | 3/5/2019 10:10:00 AM | 3/19/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034443-002B | | | 3/19/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 3/19/2019 | | EPA 200.7 | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 3/19/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 3/19/2019 | | EPA 200.8 | DISSOLVED METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| | | | 3/19/2019 | | EPA 200.8 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034443-002C | | | 3/19/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |

# ASSET Laboratories

## WORK ORDER Summary

*06-Mar-19*

**WorkOrder:** N034443

**Client ID:** ARCUS02

**Project:** PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/5/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034443-002C | TW-03D-0319 | 3/5/2019 10:10:00 AM | 3/19/2019 | Groundwater | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | LSR |
| N034443-002D | | | 3/19/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034443-003A | FOLDER | 3/19/2019 | 3/19/2019 | | EDD | RWQCB | ☐ | ☐ | ☐ | LAB |
| | | | 3/19/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 3/19/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# *ARCADIS*

Project: PG&E Topock - PMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N034443

## *ANALYTICAL and QC RESULTS*
## *SAMPLE RECEIVING ITEMS*

*PRIVILEGED AND CONFIDENTIAL*

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## ASSET Laboratories Work Order: N034443


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March 20, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034443

RE: PG&E Topock - PMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on March 05, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab Order:** N034443

# CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Magnesium in QC samples N034443-001B-MS1 and N034443-001B-MSD1 possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed and PS passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium in QC samples N034443-001B-MS1 and N034443-001B-MSD1 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N034443-002B-MS2 and N034443-002B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

## ASSET Laboratories

**Date:** *20-Mar-19*

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab Order:** N034443
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034443-001A | PE-01-0319 | Groundwater | 3/5/2019 10:20:00 AM | 3/5/2019 | 3/20/2019 |
| N034443-001B | PE-01-0319 | Groundwater | 3/5/2019 10:20:00 AM | 3/5/2019 | 3/20/2019 |
| N034443-001C | PE-01-0319 | Groundwater | 3/5/2019 10:20:00 AM | 3/5/2019 | 3/20/2019 |
| N034443-001D | PE-01-0319 | Groundwater | 3/5/2019 10:20:00 AM | 3/5/2019 | 3/20/2019 |
| N034443-002A | TW-03D-0319 | Groundwater | 3/5/2019 10:10:00 AM | 3/5/2019 | 3/20/2019 |
| N034443-002B | TW-03D-0319 | Groundwater | 3/5/2019 10:10:00 AM | 3/5/2019 | 3/20/2019 |
| N034443-002C | TW-03D-0319 | Groundwater | 3/5/2019 10:10:00 AM | 3/5/2019 | 3/20/2019 |
| N034443-002D | TW-03D-0319 | Groundwater | 3/5/2019 10:10:00 AM | 3/5/2019 | 3/20/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:20:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190306H** | QC Batch: **R132345** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 3500 | 0.10 | 0.10 | | umhos/cm | 1 | 3/6/2019 10:50 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190306H** | QC Batch: **R132345** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 7400 | 0.10 | 0.10 | | umhos/cm | 1 | 3/6/2019 10:50 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Sample ID **N034444-001ADUP** | SampType: **DUP** | TestCode: **120.1_WPGE** | Units: **umhos/cm** | Prep Date: | | | | RunNo: **132345** | |
| Client ID: **ZZZZZZ** | Batch ID: **R132345** | TestNo: **EPA 120.1** | | Analysis Date: **3/6/2019** | | | | SeqNo: **3310579** | |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 7490.000 | 0.10 | | | | | | 7460 | 0.401 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034443-001

**Client Sample ID:** PE-01-0319
**Collection Date:** 3/5/2019 10:20:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190306D** | QC Batch: **R132317** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.6 | 0.10 | 0.10 | H | pH Units | 1 | 3/6/2019 10:35 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/6/2019 10:35 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034443-002

**Client Sample ID:** TW-03D-0319
**Collection Date:** 3/5/2019 10:10:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190306D** | QC Batch: **R132317** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.3 | 0.10 | 0.10 | H | pH Units | 1 | 3/6/2019 10:35 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/6/2019 10:35 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 150.1_4500H+B_W**

Sample ID **N034443-001CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **132317**
Client ID: **ZZZZZZ** Batch ID: **R132317** TestNo: **SM4500-H+B** Analysis Date: **3/6/2019** SeqNo: **3309473**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 7.690 | 0.10 | | | | | | 7.650 | 0.522 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:20:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190306G** | QC Batch: **72768** | | | PrepDate | **3/6/2019** | | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 2200 | 25 | 25 | | mg/L | 1 | 3/6/2019 01:23 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190306G** | QC Batch: **72768** | | | PrepDate | **3/6/2019** | | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 4500 | 50 | 50 | | mg/L | 1 | 3/6/2019 01:23 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.1_2540C_W**

| Sample ID | LCS-72768 | SampType: | LCS | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 3/6/2019 | RunNo: | 132344 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72768 | TestNo: | SM2540C | | | Analysis Date: | 3/6/2019 | SeqNo: | 3310569 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 975.000 | 10 | 1000 | 0 | 97.5 | 80 | 120 | | | | |

| Sample ID | MB-72768 | SampType: | MBLK | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 3/6/2019 | RunNo: | 132344 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72768 | TestNo: | SM2540C | | | Analysis Date: | 3/6/2019 | SeqNo: | 3310570 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | ND | 10 | | | | | | | | | |

| Sample ID | N034444-002BDUP | SampType: | DUP | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 3/6/2019 | RunNo: | 132344 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72768 | TestNo: | SM2540C | | | Analysis Date: | 3/6/2019 | SeqNo: | 3310577 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 4425.000 | 50 | | | | | | 4425 | 0 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034443-001

**Client Sample ID:** PE-01-0319
**Collection Date:** 3/5/2019 10:20:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | | | **EPA 200.7** | | | | |
| RunID: **NV00922-ICP2_190319E** | QC Batch: **72815** | | | | PrepDate | **3/11/2019** | Analyst: **CEI** |
| Calcium | 160000 | 85 | 500 | | µg/L | 1 | 3/20/2019 01:16 AM |
| Iron | ND | 18 | 20 | | µg/L | 1 | 3/20/2019 01:16 AM |
| Magnesium | 40000 | 48 | 100 | | µg/L | 1 | 3/20/2019 01:16 AM |
| Sodium | 640000 | 4800 | 25000 | | µg/L | 50 | 3/20/2019 04:13 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | | | **EPA 200.7** | | | | |
| RunID: **NV00922-ICP2_190319E** | QC Batch: **72815** | | | | PrepDate | **3/11/2019** | Analyst: **CEI** |
| Calcium | 190000 | 85 | 500 | | µg/L | 1 | 3/20/2019 01:49 AM |
| Iron | ND | 18 | 20 | | µg/L | 1 | 3/20/2019 01:49 AM |
| Magnesium | 27000 | 48 | 100 | | µg/L | 1 | 3/20/2019 01:49 AM |
| Sodium | 1400000 | 4800 | 25000 | | µg/L | 50 | 3/20/2019 04:16 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

Sample ID **LCS1-72815** SampType: **LCS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **132622**
Client ID: **LCSW** Batch ID: **72815** TestNo: **EPA 200.7** Analysis Date: **3/20/2019** SeqNo: **3323072**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 4949.323 | 500 | 5000 | 0 | 99.0 | 85 | 115 | | | | |
| Iron | 113.420 | 20 | 100.0 | 0 | 113 | 85 | 115 | | | | |
| Magnesium | 4925.582 | 100 | 5000 | 0 | 98.5 | 85 | 115 | | | | |

Sample ID **N034443-001B-PS** SampType: **PS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132622**
Client ID: **ZZZZZZ** Batch ID: **72815** TestNo: **EPA 200.7** Analysis Date: **3/20/2019** SeqNo: **3323075**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 170307.661 | 500 | 5000 | 163100 | 145 | 80 | 120 | | | | S |
| Iron | 90.942 | 20 | 100.0 | 0 | 90.9 | 80 | 120 | | | | |
| Magnesium | 44496.549 | 100 | 5000 | 39590 | 98.2 | 80 | 120 | | | | |

Sample ID **N034443-001B-MS1** SampType: **MS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **132622**
Client ID: **ZZZZZZ** Batch ID: **72815** TestNo: **EPA 200.7** Analysis Date: **3/20/2019** SeqNo: **3323076**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 161594.259 | 500 | 5000 | 163100 | -29.8 | 75 | 125 | | | | S |
| Iron | 87.797 | 20 | 100.0 | 0 | 87.8 | 75 | 125 | | | | |
| Magnesium | 42427.239 | 100 | 5000 | 39590 | 56.8 | 75 | 125 | | | | S |

Sample ID **N034443-001B-MSD** SampType: **MSD** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **3/11/2019** RunNo: **132622**
Client ID: **ZZZZZZ** Batch ID: **72815** TestNo: **EPA 200.7** Analysis Date: **3/20/2019** SeqNo: **3323077**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 161241.577 | 500 | 5000 | 163100 | -36.8 | 75 | 125 | 161600 | 0.218 | 20 | S |
| Iron | 87.211 | 20 | 100.0 | 0 | 87.2 | 75 | 125 | 87.80 | 0.670 | 20 | |
| Magnesium | 42527.717 | 100 | 5000 | 39590 | 58.8 | 75 | 125 | 42430 | 0.237 | 20 | S |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID | MB-72815 | SampType: | MBLK | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 3/11/2019 | RunNo: | 132622 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72815 | TestNo: | EPA 200.7 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323083 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | ND | 500 | | | | | | | | | |
| Iron | ND | 20 | | | | | | | | | |
| Magnesium | ND | 100 | | | | | | | | | |

| Sample ID | MB-72815 | SampType: | MBLK | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 3/11/2019 | RunNo: | 132625 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72815 | TestNo: | EPA 200.7 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323141 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | ND | 500 | | | | | | | | | |

| Sample ID | LCS2-72815 | SampType: | LCS | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 3/11/2019 | RunNo: | 132625 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72815 | TestNo: | EPA 200.7 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323142 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 19846.157 | 500 | 20000 | 0 | 99.2 | 85 | 115 | | | | |

| Sample ID | N034443-002B-PS | SampType: | PS | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | | RunNo: | 132625 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72815 | TestNo: | EPA 200.7 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323148 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 1552632.287 | 25000 | 20000 | 1443000 | 548 | 80 | 120 | | | | S |

| Sample ID | N034443-002B-MS2 | SampType: | MS | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 3/11/2019 | RunNo: | 132625 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72815 | TestNo: | EPA 200.7 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323149 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 1512436.039 | 25000 | 20000 | 1443000 | 347 | 75 | 125 | | | | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID | N034443-002B-MSD | SampType: | MSD | TestCode: | 200.7_WDPG | Units: | µg/L | Prep Date: | 3/11/2019 | RunNo: | 132625 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72815 | TestNo: | EPA 200.7 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323150 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 1542081.863 | 25000 | 20000 | 1443000 | 495 | 75 | 125 | 1512000 | 1.94 | 20 | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | PE-01-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:20:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICPMS** | | | | | | | |
| **EPA 200.8** | | | | | | | |
| RunID: **NV00922-ICP7_190307C** QC Batch: **72774** | | | | PrepDate | **3/7/2019** | Analyst: **CEI** | |
| Manganese | 860 | 2.6 | 5.0 | | µg/L | 10 | 3/8/2019 06:55 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICPMS** | | | | | | | |
| **EPA 200.8** | | | | | | | |
| RunID: **NV00922-ICP7_190307C** QC Batch: **72774** PrepDate **3/7/2019** Analyst: **CEI** | | | | | | | |
| Manganese | 21 | 0.26 | 0.50 | | µg/L | 1 | 3/8/2019 04:07 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

| Sample ID **MB-72774** | SampType: **MBLK** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **3/7/2019** | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72774** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312928** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **LCS-72774** | SampType: **LCS** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **3/7/2019** | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72774** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312929** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 105.842 | 0.50 | 100.0 | 0 | 106 | 85 | 115 | | | | |

| Sample ID **N034443-001B-PS** | SampType: **PS** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72774** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312966** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 942.313 | 5.0 | 100.0 | 855.5 | 86.8 | 80 | 120 | | | | |

| Sample ID **N034443-001B-MS** | SampType: **MS** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **3/7/2019** | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72774** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312967** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 939.656 | 5.0 | 100.0 | 855.5 | 84.2 | 75 | 125 | | | | |

| Sample ID **N034443-001B-MSD** | SampType: **MSD** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: **3/7/2019** | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72774** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312968** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 940.956 | 5.0 | 100.0 | 855.5 | 85.5 | 75 | 125 | 939.7 | 0.138 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034443-001

**Client Sample ID:** PE-01-0319
**Collection Date:** 3/5/2019 10:20:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190308A** | QC Batch: **R132383** | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/8/2019 10:17 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_190307C** | QC Batch: **72774** | | | PrepDate | **3/7/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 3/8/2019 03:25 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034443-002

**Client Sample ID:** TW-03D-0319
**Collection Date:** 3/5/2019 10:10:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190308A** | QC Batch: **R132383** | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | 500 | 3.3 | 20 | | µg/L | 100 | 3/8/2019 11:14 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_190307C** | QC Batch: **72774** | | | PrepDate | **3/7/2019** | | Analyst: **CEI** |
| Chromium | 520 | 0.65 | 5.0 | | µg/L | 5 | 3/8/2019 07:25 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID | MB-72774 | SampType: | MBLK | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | 3/7/2019 | RunNo: | 132392 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72774 | TestNo: | EPA 200.8 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3313035 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-72774 | SampType: | LCS | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | 3/7/2019 | RunNo: | 132392 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72774 | TestNo: | EPA 200.8 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3313036 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.072 | 1.0 | 10.00 | 0 | 101 | 85 | 115 | | | | |

| Sample ID | N034443-001B-PS | SampType: | PS | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | | RunNo: | 132392 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72774 | TestNo: | EPA 200.8 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3313039 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.208 | 1.0 | 10.00 | 0 | 102 | 80 | 120 | | | | |

| Sample ID | N034443-001B-MS | SampType: | MS | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | 3/7/2019 | RunNo: | 132392 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72774 | TestNo: | EPA 200.8 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3313040 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.089 | 1.0 | 10.00 | 0 | 101 | 75 | 125 | | | | |

| Sample ID | N034443-001B-MSD | SampType: | MSD | TestCode: | 200.8DIS_Cr | Units: | µg/L | Prep Date: | 3/7/2019 | RunNo: | 132392 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72774 | TestNo: | EPA 200.8 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3313043 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.131 | 1.0 | 10.00 | 0 | 101 | 75 | 125 | 10.09 | 0.421 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | MB-R132383 | SampType: | MBLK | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132383 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132383 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3312461 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Hexavalent Chromium | | ND | 0.20 | | | | | | | | | | |

| Sample ID | LCS-R132383 | SampType: | LCS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132383 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132383 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3312462 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Hexavalent Chromium | | 5.235 | 0.20 | 5.000 | 0 | 105 | 90 | 110 | | | | | |

| Sample ID | N034442-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132383 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132383 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3312464 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Hexavalent Chromium | | 1.116 | 0.20 | 1.000 | 0.08240 | 103 | 90 | 110 | | | | | |

| Sample ID | N034483-003AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132383 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132383 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3312466 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Hexavalent Chromium | | 1.090 | 0.20 | 1.000 | 0 | 109 | 90 | 110 | | | | | |

| Sample ID | N034443-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132383 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132383 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3312468 | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Hexavalent Chromium | | 1.077 | 0.20 | 1.000 | 0 | 108 | 90 | 110 | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **N034443-002AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132383** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132383** | TestNo: **EPA 218.6** | | Analysis Date: **3/8/2019** | SeqNo: **3312474** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1025.520 | 20 | 500.0 | 503.9 | 104 | 90 | 110 | | | | |

| Sample ID **N034443-002AMSD** | SampType: **MSD** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132383** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132383** | TestNo: **EPA 218.6** | | Analysis Date: **3/8/2019** | SeqNo: **3312475** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1022.840 | 20 | 500.0 | 503.9 | 104 | 90 | 110 | 1026 | 0.262 | 20 | |

| Sample ID **N034439-001ADUP** | SampType: **DUP** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132383** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132383** | TestNo: **EPA 218.6** | | Analysis Date: **3/8/2019** | SeqNo: **3312482** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.981 | 0.20 | | | | | | 0.9571 | 2.51 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034443-001

**Client Sample ID:** PE-01-0319
**Collection Date:** 3/5/2019 10:20:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190306A** | QC Batch: **R132314** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 250 | 1.2 | 5.0 | | mg/L | 1 | 3/6/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190306A** | QC Batch: **R132314** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 160 | 1.2 | 5.0 | | mg/L | 1 | 3/6/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 2320_W_SP**

| Sample ID **LCS-R132314** | SampType: **LCS** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | | | RunNo: **132314** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R132314** | TestNo: **SM 2320 B** | | Analysis Date: **3/6/2019** | | | SeqNo: **3309426** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Alkalinity, Total (As CaCO3) | 100.849 | 5.0 | 100.0 | 0 | 101 | 85 | 115 | | | | |

| Sample ID **MB-R132314** | SampType: **MBLK** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | | | RunNo: **132314** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R132314** | TestNo: **SM 2320 B** | | Analysis Date: **3/6/2019** | | | SeqNo: **3309427** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Alkalinity, Total (As CaCO3) | ND | 5.0 | | | | | | | | | |

| Sample ID **N034443-002CDUP** | SampType: **DUP** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | | | RunNo: **132314** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132314** | TestNo: **SM 2320 B** | | Analysis Date: **3/6/2019** | | | SeqNo: **3309435** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Alkalinity, Total (As CaCO3) | 163.482 | 5.0 | | | | | | 163.5 | 0 | 30 | |

| Sample ID **N034443-002CMS** | SampType: **MS** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | | | RunNo: **132314** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132314** | TestNo: **SM 2320 B** | | Analysis Date: **3/6/2019** | | | SeqNo: **3309436** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Alkalinity, Total (As CaCO3) | 259.023 | 5.0 | 100.0 | 163.5 | 95.5 | 75 | 125 | | | | |

| Sample ID **N034443-002CMSD** | SampType: **MSD** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | | | RunNo: **132314** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132314** | TestNo: **SM 2320 B** | | Analysis Date: **3/6/2019** | | | SeqNo: **3309437** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Alkalinity, Total (As CaCO3) | 257.962 | 5.0 | 100.0 | 163.5 | 94.5 | 75 | 125 | 259.0 | 0.411 | 20 | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034443-001

**Client Sample ID:** PE-01-0319
**Collection Date:** 3/5/2019 10:20:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190308A** QC Batch: **R132421** | | | | PrepDate | | | Analyst: **RAB** |
| Chloride | 870 | 1.8 | 100 | | mg/L | 200 | 3/8/2019 10:22 AM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190308A** QC Batch: **R132421** | | | | PrepDate | | | Analyst: **RAB** |
| Sulfate | 320 | 1.1 | 25 | | mg/L | 50 | 3/8/2019 12:21 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| **EPA 300.0** | | | | | | | |
| RunID: **NV00922-IC8_190308A** QC Batch: **R132421** | | | | PrepDate | | | Analyst: **RAB** |
| Chloride | 2100 | 4.6 | 250 | | mg/L | 500 | 3/8/2019 10:07 AM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| **EPA 300.0** | | | | | | | |
| RunID: **NV00922-IC8_190308A** QC Batch: **R132421** | | | | PrepDate | | | Analyst: **RAB** |
| Sulfate | 510 | 1.1 | 25 | | mg/L | 50 | 3/8/2019 01:05 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID | MB-R132421_CL | SampType: | MBLK | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132421 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132421 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3314648 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.150 | 0.50 | | | | | | | | | |

| Sample ID | LCS-R132421_CL | SampType: | LCS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132421 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132421 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3314649 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.974 | 0.50 | 2.000 | 0 | 98.7 | 90 | 110 | | | | |

| Sample ID | N034443-001CDUP | SampType: | DUP | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132421 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132421 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3314652 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 861.480 | 100 | | | | | | 865.6 | 0.477 | 20 | |

| Sample ID | N034443-002CMS | SampType: | MS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132421 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132421 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3314653 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 3180.300 | 250 | 1000 | 2104 | 108 | 80 | 120 | | | | |

| Sample ID | N034443-002CMSD | SampType: | MSD | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132421 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132421 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3314654 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 3182.050 | 250 | 1000 | 2104 | 108 | 80 | 120 | 3180 | 0.0550 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID | MB-R132421_SO4 | SampType: | MBLK | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132421 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132421 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3314667 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.214 | 0.50 | | | | | | | | | |

| Sample ID | LCS-R132421_SO4 | SampType: | LCS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132421 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132421 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3314668 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.944 | 0.50 | 4.000 | 0 | 98.6 | 90 | 110 | | | | |

| Sample ID | N034444-002BDUP | SampType: | DUP | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132421 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132421 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3314670 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 512.035 | 25 | | | | | | 513.0 | 0.194 | 20 | |

| Sample ID | N034443-001CMS | SampType: | MS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132421 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132421 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3314674 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 512.135 | 25 | 200.0 | 316.1 | 98.0 | 80 | 120 | | | | |

| Sample ID | N034443-001CMSD | SampType: | MSD | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132421 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132421 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/8/2019 | SeqNo: | 3314675 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 517.015 | 25 | 200.0 | 316.1 | 100 | 80 | 120 | 512.1 | 0.948 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D
**Lab ID:** N034443-001

**Client Sample ID:** PE-01-0319
**Collection Date:** 3/5/2019 10:20:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190307E** | QC Batch: **R132358** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | ND | 0.032 | 0.050 | | mg/L | 1 | 3/7/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | TW-03D-0319 |
| **Lab Order:** | N034443 | **Collection Date:** | 3/5/2019 10:10:00 AM |
| **Project:** | PG&E Topock - PMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034443-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190307E** | QC Batch: **R132358** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 2.9 | 0.16 | 0.25 | | mg/L | 5 | 3/7/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | MB-R132358 | SampType: | MBLK | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132358 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132358 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/7/2019 | SeqNo: | 3310834 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID | LCS-R132358 | SampType: | LCS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132358 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132358 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/7/2019 | SeqNo: | 3310835 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.505 | 0.050 | 0.5000 | 0 | 101 | 85 | 115 | | | | |

| Sample ID | N034443-002DDUP | SampType: | DUP | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132358 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132358 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/7/2019 | SeqNo: | 3310839 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 2.907 | 0.25 | | | | | | 2.936 | 1.03 | 20 | |

| Sample ID | N034444-002DMS | SampType: | MS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132358 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132358 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/7/2019 | SeqNo: | 3310841 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 5.495 | 0.25 | 2.500 | 3.026 | 98.8 | 75 | 125 | | | | |

| Sample ID | N034444-002DMSD | SampType: | MSD | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132358 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132358 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/7/2019 | SeqNo: | 3310842 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 5.334 | 0.25 | 2.500 | 3.026 | 92.3 | 75 | 125 | 5.494 | 2.97 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD



| | | | | | | |
|---|---|---|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement | QA/QC | Sample Receipt Condition | Y / N |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | Excel EDD | RTNE | 1. Chilled | ✓ |
| Address: Roseville, CA 95661 | Email: [illegible] | Address: | Geotracker | RWQCB ✓ | 2. Headspace | |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@nivox.com | Labspec | CalTrans | 3. Container Intact | ✓ |
| Submitted By: | | P.O.# | Others ✓ | LEVEL III | 4. Seal Present | ✓ |
| Title: | Phone: 916-786-3302 Fax: | Phone: 949-727-1400, ext 200 Fax: | Specify: RWQCB | LEVEL IV | 5. IR number | 2 |
| Signature: Date: | Sampled By: Spencer Doolittle | | Global ID: | Regulatory | 6. Method of Cooling: Ice | |
| I hereby authorize ASSET Labs to perform the tests indicated below. | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | | | Specify State: | Sample Temp: 2.6°C | |
| Project Name: PG&E Topock - PMP | Signature: | Date: 3/5/19 | | | Courier: | |
| Project Number: RC000753.801D | | | | | Tracking No.: | |

Matrix: Ground x | Sediment | Potable | Soil | NPDES | Other Solid | Surface

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly) | Dissolved metals (EPA 200.8) FF; HNO3, 500 mL poly Cr, Mn (500mL Poly) | Dissolved metals (EPA200.7) FF; HNO3 Ca, Mg, Fe, Na, (500mL Poly) | Anions (E300.0); Cl, SO4 (1 liter poly) | pH (SM4500HB) (1 liter poly) | TDS (SM2540C) (1 liter poly) | Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly) | Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034443-01 | PE-01-0319 | 3/5/19 | 1020 | | X | X | X | X | X | X | X | X | E | 4 | P | BN | |
| 2 | -02 | TW-03D-0319 | 3/5/19 | 1010 | | X | X | X | X | X | X | X | X | E | 4 | P | BN | |
| 3 | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | |

| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| SDoolittle | 3/5/19 1320 | [illegible] | 3/5/19 1320 |
| [illegible] 3-5-19 | 1623 | [illegible] 3/5/19 | 1622 |
| JORDAN 3-5-19 | 1945 | JORDAN 3-5-19 | 1945 |

**Turn Around Time (TAT)**

| | | |
|---|---|---|
| | A | < 24 Hrs or Same Day TAT |
| | B | = Next Workday |
| | C | = 2 Workdays |
| | D | = 3 Workdays |
| X | E | = Routine 5-7 Workdays |

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

**Preservatives:**

| | | | |
|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C |
| Z=$Zn(AC)_2$ | O=NaOH | T=$Na_2S_2O_3$ | |
| Others/Specify: | B | (NH4)2SO4/NH4OH | |

**Container Type:**

| | | |
|---|---|---|
| T=Tube | V=VOA | P=Pint |
| J=Jar | B=Tedlar | G=Glass |
| M=Metal | M=Metal | C=Can |

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy
Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 3/5/2019 | Workorder: | N034443 |
| Rep sample Temp (Deg C): | 2.6 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | NA | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☐ | No ☑ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☑ | No ☐ | NA ☐ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments: Samples for pH were past holding time upon receipt.

Checklist Completed By: YR 3/6/2019

Reviewed By: LG 031019

**Subject:** RE: N034443 COC and Work Order Summaries for Samples Received 3/5/2019
**From:** "Madsen, Laura" <Laura.Madsen@arcadis.com>
**Date:** 3/6/2019 11:16 AM
**To:** "samplecontrol.lv@assetlaboratories.com" <samplecontrol.lv@assetlaboratories.com>, Yoandra Rodriguez <yoandra@assetlaboratories.com>, "nancy@assetlaboratories.com" <nancy@assetlaboratories.com>, "marlon@assetlaboratories.com" <marlon@assetlaboratories.com>
**CC:** Tina Rice <Tina.Rice@critigen.com>, "Madsen, Laura" <Laura.Madsen@arcadis.com>

Hi Yoandra,
Can you please add specific Conductance method 120.1 to both samples? The COC inadvertently missed selecting the analyte.

Thanks!
Laura

---

**From:** Sample Control <samplecontrol.lv@assetlaboratories.com>
**Sent:** Wednesday, March 6, 2019 12:27 PM
**To:** Bush, Dan <Dan.Bush@arcadis.com>; Dan Moore <Daniel.Moore@critigen.com>
**Cc:** Madsen, Laura <Laura.Madsen@arcadis.com>; Sean.Maurel@arcadis.com; Tina Rice <Tina.Rice@critigen.com>; Kalib Sumter <Kalib.Sumter@critigen.com>; rsunjara@blainetech.com; Nicholas.Vadpey@arcadis.com; Harmon, Alison <Ali.Harmon@arcadis.com>; Serna, Erica <Erica.Serna@arcadis.com>; jmahn@blainetech.com; Borelis, Mariah <Mariah.Borelis@arcadis.com>; Bloes, Marty <mbloes@pivox.com>
**Subject:** N034443 COC and Work Order Summaries for Samples Received 3/5/2019

Hi Dan Bush:

Enclosed are COC and WO Summaries for samples received 3/5/2019. If you have any questions, please contact your Project Manager listed below.

**Marlon Cartin**
3151 W. Post Road
Las Vegas, Nevada
89118
**Tel. No.:** (702)-307-2659 Ext. 410
**Cel. No.:** (702)-439-0421
**Email:** marlon@assetlaboratories.com

Thank you for using ASSET Laboratories.

Sincerely,
Mary Ann Balilu
Sample Control Officer

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | **P:** 562.219.7435 | **F:** 562.219.7436
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www.assetlaboratories.com

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# ASSET Laboratories

## WORK ORDER Summary

*06-Mar-19*

**WorkOrder:** N034443

**Client ID:** ARCUS02

**Project:** PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/5/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034443-001A | PE-01-0319 | 3/5/2019 10:20:00 AM | 3/19/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034443-001B | | | 3/19/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 3/19/2019 | | EPA 200.7 | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 3/19/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 3/19/2019 | | EPA 200.8 | DISSOLVED METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| | | | 3/19/2019 | | EPA 200.8 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034443-001C | | | 3/19/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | LSR |
| N034443-001D | | | 3/19/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034443-002A | TW-03D-0319 | 3/5/2019 10:10:00 AM | 3/19/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034443-002B | | | 3/19/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 3/19/2019 | | EPA 200.7 | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 3/19/2019 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 3/19/2019 | | EPA 200.8 | DISSOLVED METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| | | | 3/19/2019 | | EPA 200.8 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034443-002C | | | 3/19/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |

# WORK ORDER Summary

*06-Mar-19*

**WorkOrder:** N034443

**Client ID:** ARCUS02

**Project:** PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/5/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034443-002C | TW-03D-0319 | 3/5/2019 10:10:00 AM | 3/19/2019 | Groundwater | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | LSR |
| | | | 3/19/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | LSR |
| N034443-002D | | | 3/19/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034443-003A | FOLDER | 3/19/2019 | 3/19/2019 | | EDD | RWQCB | ☐ | ☐ | ☐ | LAB |
| | | | 3/19/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 3/19/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# List of Analysts

## ASSET Laboratories Work Order: N034443

| NAME | TEST METHOD |
|---|---|
| Quennie Manimtim | SM 4500-NO3F |
| Claire Ignacio | EPA 200.7_Dissolved, EPA 200.8_Dissolved |
| Ria Abes | EPA 218.6, EPA 300.0 |
| Lilia Ramit | EPA 120.1, SM 4500-H+B, SM 2540C, SM 2320 B |

# EPA 120.1

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R132345 **Analyst:** LSR

**ASSET #:** N034443 **Date Analyzed:** 6-Mar

**Method:** EPA 120.1

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | | | X | | | |
| 11. LCS compounds within control limits. | | | X | | | |
| 12. MS/MSD RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer Julia Ramit Date: 3/8/2019

2nd Level Reviewer 3/14/2019 Date:

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

# Conductivity Logbook

**Date:** 3/4/19 1045
**Analyst:** LSR

| | Standard | Std ID | Reading | Comments |
|---|---|---|---|---|
| | 11.26 uS/cm | CIW-181011A | 11.41 @20.2°C | % Rec: (90-110%) |
| | 1410 | 190107D | 1419 @20.4°C | |
| | 9988 | 180731E | 10070 @20.4°C | |
| | 99661 | 181121B | 100500 @20.4°C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | N034401-001B | H2O | 591 @19.9°C | |
| 2 | 1BDUP | | 593 @19.7°C | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | 1413 uS/cm | CIW-181022A | 1429 @19.9°C | |
| 9 | 10000 | B | 10030 @20.1°C | |
| 10 | 99,922 | C | 99700 @20.2°C | |
| Dup | | | | RPD Criteria: 2% |
| | Std Chk: | | | % Rec: (90-110%) |

Julia Ramit 3/8/2019

**Date:** 3/6/19 1050
**Analyst:** LSR

| | Standard | Std ID | Reading | Comments |
|---|---|---|---|---|
| | 11.26 uS/cm | CIW-181011A | 11.13 @20.7°C | % Rec: (90-110%) |
| | 1410 | 190107D | 1412 @20.9°C | |
| | 9988 | 180731E | 10030 @20.9°C | |
| | 99661 | 181121B | 100200 @20.9°C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | N034444-001A | H2O | 7460 @19.8°C | |
| 2 | 1DUP | | 7490 @19.5°C | |
| 3 | 2B | | 7530 @19.5°C | |
| 4 | N034443-001C | | 3520 @19.3°C | |
| 5 | 2C | | 7410 @19.1°C | |
| 6 | | | | |
| 7 | 1413 uS/cm | CIW-181022A | 1426 @20.2°C | |
| 8 | 10000 | B | 10280 @20.4°C | |
| 9 | 99922 | C | 103100 @19.9°C | |
| 10 | | | | |
| Dup | | | | RPD Criteria: 2% |
| | Std Chk: | | | % Rec: (90-110%) |

Logbook # 7

# SM 4500-H+B

# pH Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R132317 **Instrument ID:** pH meter

**ASSET #:** N034443 **Analyst:** LSR

**Date Analyzed:** 6-Mar

**Method:** EPA 150.1 / SM 4500H+B

| pH Meter Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. Was the meter calibrated using 3 buffers (4,7 and 10)? | X | | | | | |
| 2. Was a closing buffer used at the end of analysis? | X | | | | | |
| 3. Was the meter checked every 10 samples? | | | X | | | |
| **Sample Information** | | | | | | |
| 4. Are all samples analyzed within hold time. | | X | | | | |
| **QC Items** | | | | | | |
| 5. Was a duplicate sample analyzed? | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 6. Are Non-Conformances documented | | | X | | | |
| 7. Runlog complete and included in package. | X | | | | | |
| **Preliminary Report** | | | | | | |
| 8. Does the raw data match the preliminary report? | X | | | | | |
| 9. Are analytical results correct? | X | | | | | |
| 10. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 3/8/2019

2nd Level Reviewer: 3/14/2019 Date:

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

# pH Logbook

**Date:** 3/5/19 1550
**Analyst:** UR

| Standard | Std ID | pH | Comments |
|---|---|---|---|
| Buffer 7 | CNW-190107A | 7.02 @25C | |
| Buffer 4 | " B | 3.99 @25C | |
| Buffer 10 | CNW-190111G | 10.03 @25C | |
| Slope | | 96.2 | Acceptance Criteria: 95%-105% |

| | Sample ID | Matrix | pH | Comments |
|---|---|---|---|---|
| 1 | N0344416-001B | H2O | 7.63 @25C | |
| 2 | " 1BDUP | " | 7.66 @25C | |
| 3 | N0344424-001D | " | 7.93 @25C | |
| 4 | " 1DDUP | " | 7.96 @25C | |
| 5 | " 2D | " | 7.75 @25C | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| Dup | | | | Accept: 10% water, 20% soil |
| | Buffer 7, 4, 10 (Circle one) | CNW-190218A | 6.96 @ 25C | Accept: +/-0.05 pH units from expected value |

**Date:** 3/6/19 1035
**Analyst:** UR

| Standard | Std ID | pH | Comments |
|---|---|---|---|
| Buffer 7 | CNW-190107A | 7.00 @25C | |
| Buffer 4 | " B | 4.04 @25C | |
| Buffer 10 | CNW-190111G | 10.00 @25C | |
| Slope | | 97.0% | Acceptance Criteria: 95%-105% |

| | Sample ID | Matrix | pH | Comments |
|---|---|---|---|---|
| 1 | N0344443-001C | H2O | 7.65 @25C | |
| 2 | " 1CDUP | " | 7.69 @25C | |
| 3 | " 2C | " | 7.29 @25C | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | Julia Ramit | 3/8/2019 | | Buffer 7 CNW190218A = 7.03 @25C |
| 9 | | | | |
| 10 | | | | |
| Dup | | | | Accept: 10% water, 20% soil |
| | Buffer 7, 4, 10 | | | Accept: +/-0.05 pH units from expected value |

# SM 2540C

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72768 **Analyst:** LSR

**ASSET #:** N034443 **Date Analyzed:** 6-Mar

**Method:** EPA 160.1 / SM 2540C

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | | | |
| 11. LCS compounds within control limits. | X | | | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 3/15/2019

2nd Level Reviewer: 3/18/2019 Date:

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** SM 2540C
**TEST NAME:** Total Filterable Residue
**MATRIX:** Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N034443-001C,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(59.6560-59.5687)*1000000}{40}$$
$$= 2182.5 \text{ mg/L}$$

Reporting result in two significant figures,

TDS= 2200 mg/L

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/6/2019 1:23:48 P**
Prep End Date: **3/7/2019 11:30:00 A**

Reviewed/ Date: 3/18/2019

Initials/ Date: Lilia Ramit 3/15/2019

Prep Batch **72768** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Temp. (°C): **180**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72768 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-72768 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034424-001D | Water | | 75 | ☐ | 0 | 0 | 100 | 1.333 | | |
| N034424-002D | Water | | 75 | ☐ | 0 | 0 | 100 | 1.333 | | |
| N034443-001C | Groundwater | | 40 | ☐ | 0 | 0 | 100 | 2.500 | | |
| N034443-002C | Groundwater | | 20 | ☐ | 0 | 0 | 100 | 5.000 | | |
| N034444-001A | Water | | 20 | ☐ | 0 | 0 | 100 | 5.000 | | |
| N034444-002B | Water | | 20 | ☐ | 0 | 0 | 100 | 5.000 | | |
| N034444-002B-DU | Water | | 20 | ☐ | 0 | 0 | 100 | 5.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10404 | Glass Fiber Filter, 47mm |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| IWST190219A | 1000 ppm NaCl | LCS | 100 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/6/2019 1:23:48 P**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 3/15/2019

Prep Batch **72768** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit** Prep Factor Units: **mL / mL**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72768 | Water | WST190219A | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-72768 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034424-001D | Water | 1815 | 100 | 175 ☐ | 0 | 0 | 100 | 1.000 | | |
| N034424-002D | Water | 1682 | 100 | 175 ☐ | 0 | 0 | 100 | 1.000 | | |
| N034443-001C | Groundwater | 3520 | 100 | 140 ☐ | 0 | 0 | 100 | 1.000 | | |
| N034443-002C | Groundwater | 7410 | 100 | 20 ☐ | 0 | 0 | 100 | 1.000 | | |
| N034444-001A | Water | 7460 | 100 | 20 ☐ | 0 | 0 | 100 | 1.000 | | |
| N034444-002B | Water | 7530 | 100 | 20 ☐ | 0 | 0 | 100 | 1.000 | | |
| N034444-002B-DU | Water | 1 | 100 | 20 ☐ | 0 | 0 | 100 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10404

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

## SOLIDS RAW DATA

TEST :TSS/TDS/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 3/6/19 1323 HH | MB 72768 | 100 | 69.8210<br>69.8214 | 69.8295<br>69.8215 | |
| KK | LCS 72768 | 100 | 70.7225<br>70.7230 | 70.8209<br>70.8205 | |
| IA | NO34424-001D | 75 | 76.4739<br>76.4740 | 76.5782<br>76.5779 | |
| AA | 2D | 75 | 68.3282<br>68.3279 | 68.4275<br>68.4271 | |
| 16 | NO34443-001C | 40 | 59.5688<br>59.5687 | 59.6563<br>59.6560 | 1 |
| 19 | 2E | 20 | 60.9508<br>60.9507 | 61.0404<br>61.0407 | |
| V | NO34444-001A | 20 | 48.8832<br>48.8831 | 48.9719<br>48.9704 | |
| 15 | 2B | 20 | 61.5120<br>61.5122 | 61.6011<br>61.6007 | |
| 1B | 2B DUP | 20 | 60.5953<br>60.5955 | 60.6844<br>60.6840 | |
| | 99.9996 | C | 130 3/7/19 | | |

Julia Ramit 3/15/2019

# TOTAL DISSOLVED SOLIDS, TDS

## TDS, mg/L = (A-B) X 10000*PF

where:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
PF = 100/volume of sample used in mL

| Date Finished: | vol of sample (mL) | weight of dish in grams (B) | weight in grams of dish + residue after drying (A) | (A-B)*10000 | prep fact (PF) | TDS, mg/L | CONDUCTIVITY | RATIO | Sample Type |
|---|---|---|---|---|---|---|---|---|---|
| 3/7/2019 | | | | | | | | | |
| MB-72768 | 100 | 69.8214 | 69.8215 | 1 | 1 | 1 | | | MBLK |
| LCS-72768 | 100 | 70.723 | 70.8205 | 975 | 1 | 975 | | | LCS |
| N034424-001D | 75 | 76.474 | 76.5779 | 1039 | 1.33333333 | 1385.33333 | 1815 | 0.763 | SAMP |
| N034424-002D | 75 | 68.3279 | 68.4271 | 992 | 1.33333333 | 1322.66667 | 1682 | 0.786 | SAMP |
| N034443-001C | 40 | 59.5687 | 59.656 | 873 | 2.5 | 2182.5 | 3520 | 0.620 | SAMP |
| N034443-002C | 20 | 60.9507 | 61.0401 | 894 | 5 | 4470 | 7410 | 0.603 | SAMP |
| N034444-001A | 20 | 48.8831 | 48.9714 | 883 | 5 | 4415 | 7460 | 0.592 | SAMP |
| N034444-002B | 20 | 61.5122 | 61.6007 | 885 | 5 | 4425 | 7530 | 0.588 | SAMP |
| N034444-002BDUP | 20 | 60.5955 | 60.684 | 885 | 5 | 4425 | 7530 | 0.588 | DUP |

Silia Ramit 3/15/2019

# EPA 200.7
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72815
**ASSET #:** N034443
**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 3/19/2019

**Method:**

[X] EPA 6010B / 200.7 [ ] EPA 7470A / 7471A/245.1
[ ] EPA 6020 / 200.8 [ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | X | | | X | | |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

% Rec of Ca in N034443-001B PS/MS/MSD failed, low bias. However, LCS passed criteria.
% Rec of Mg in N034443-001B MS/MSD failed, low bias. Hiwever, LCS passed criteria.
Dilution test for Mg failed. However, PS passed criteria.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: 3/21/2019

2nd Level Reviewer 3/21/2019 Date: —

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72815
**ASSET #:** N034443
**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 3/20/2019

**Method:**

[X] EPA 6010B / 200.7 [ ] EPA 7470A / 7471A/245.1
[ ] EPA 6020 / 200.8 [ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

% Rec of Na in N034443-002B PS/MS/MSD failed, high bias. However, LCS passed criteria.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: 3/21/2019

2nd Level Reviewer 3/21/2019 Date: —

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA ~~6010B~~ 200.7
**TEST NAME:** Heavy Metals by ICP
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Calcium concentration, in ug/L , in the original sample as follows:

Calcium , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N034443-001B** , the concentration ir ug/L is calculated as follows:

Calcium , ug/L = 163.083 * 1 *(25/25) * 1000

Calcium , ug/L = 163083

Reporting results in two significant figures,

**Calcium , ug/L = 160000**

NS 3/21/2019

# % RSD SUMMARY

**RSD SUMMARY: 190319C**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Ca | 0 | 8.19 | 15 | PASS |
| Standard1 | ICAL | 1 | Ca | 0.2 | 29.87 | 15 | <PQL |
| Standard2 | ICAL | 1 | Ca | 1 | 2.56 | 15 | PASS |
| Standard3 | ICAL | 1 | Ca | 2 | 0.96 | 15 | PASS |
| Standard4 | ICAL | 1 | Ca | 5 | 0.61 | 15 | PASS |
| Standard5 | ICAL | 1 | Ca | 7.5 | 1.14 | 15 | PASS |
| Standard6 | ICAL | 1 | Ca | 10 | 0.43 | 15 | PASS |
| Standard7 | ICAL | 1 | Ca | 20 | 0.53 | 15 | PASS |
| ICV | ICV | 1 | Ca | 9.9 | 0.72 | 15 | PASS |
| ICB | ICB | 1 | Ca | 0.025 | 410.47 | 15 | <PQL |
| LLICV | CCV1 | 1 | Ca | 0.2 | 11.64 | 20 | PASS |
| LLICV | CCV1 | 1 | Ca | 0.2 | 9.61 | 20 | PASS |
| ICSA1 | ICSA | 1 | Ca | 489.23 | 0.31 | 15 | PASS |
| ICSA1 | ICSA | 1 | Ca | 449.81 | 0.86 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Ca | 543.45 | 0.59 | 15 | PASS |
| MB-72815 | MBLK | 1 | Ca | 0.072 | 20.054 | 15 | <PQL |
| LCS1-72815 | LCS | 1 | Ca | 4.95 | 1.64 | 15 | PASS |
| N034443-001B | SAMP | 1 | Ca | 163.08 | 0.2 | 15 | PASS |
| N034443-001B | SAMP | 5 | Ca | 35.66 | 0.59 | 15 | PASS |
| N034443-001B-PS | PS | 1 | Ca | 170.31 | 0.19 | 15 | PASS |
| N034443-001B-MS1 | MS | 1 | Ca | 161.59 | 0.13 | 15 | PASS |
| N034443-001B-MSD1 | MSD | 1 | Ca | 161.24 | 0.13 | 15 | PASS |
| N034443-002B | SAMP | 1 | Ca | 192.54 | 0.17 | 15 | PASS |
| N034444-001C | SAMP | 1 | Ca | 199.1 | 0.14 | 15 | PASS |
| N034444-002E | SAMP | 1 | Ca | 117.02 | 0.54 | 15 | PASS |
| CCV1 | CCV | 1 | Ca | 9.97 | 0.61 | 15 | PASS |
| CCB1 | CCB | 1 | Ca | -0.011 | 367.82 | 15 | <PQL |
| MB-72815 | MBLK | 1 | Ca | 0.05 | 136.12 | 15 | <PQL |
| CCV2 | CCV | 1 | Ca | 10.18 | 0.48 | 15 | PASS |
| CCB2 | CCB | 1 | Ca | -0.01 | 428.88 | 15 | <PQL |
| ICSA2 | ICSA | 1 | Ca | 450 | 0.68 | 15 | PASS |
| ICSA2 | ICSA | 1 | Ca | 452.25 | 0.22 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Ca | 533.32 | 0.68 | 15 | PASS |
| CalBlk | IBLK | 1 | Fe | 0 | 54.74 | 15 | <PQL |
| Standard1 | ICAL | 1 | Fe | 0.02 | 8.099 | 15 | PASS |
| Standard2 | ICAL | 1 | Fe | 0.05 | 1.58 | 15 | PASS |
| Standard3 | ICAL | 1 | Fe | 2 | 0.56 | 15 | PASS |
| Standard4 | ICAL | 1 | Fe | 5 | 0.53 | 15 | PASS |
| Standard5 | ICAL | 1 | Fe | 7.5 | 0.5 | 15 | PASS |
| Standard6 | ICAL | 1 | Fe | 10 | 0.31 | 15 | PASS |
| Standard7 | ICAL | 1 | Fe | 20 | 0.12 | 15 | PASS |
| ICV | ICV | 1 | Fe | 10.054 | 0.37 | 15 | PASS |

**RSD SUMMARY: 190319C**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| ICB | ICB | 1 | Fe | -0.0018 | 49.31 | 15 | <PQL |
| LLICV | CCV1 | 1 | Fe | 0.02 | 10.0077 | 20 | PASS |
| LLICV | CCV1 | 1 | Fe | 0.018 | 5.58 | 20 | PASS |
| ICSA1 | ICSA | 1 | Fe | 161.93 | 0.033 | 15 | PASS |
| ICSA1 | ICSA | 1 | Fe | 190.01 | 0.15 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Fe | 182.78 | 0.13 | 15 | PASS |
| MB-72815 | MBLK | 1 | Fe | 0.016 | 10.07 | 15 | PASS |
| LCS1-72815 | LCS | 1 | Fe | 0.11 | 3.35 | 15 | PASS |
| N034443-001B | SAMP | 1 | Fe | 0.0013 | 79.84 | 15 | <PQL |
| N034443-001B | SAMP | 5 | Fe | -0.0045 | 13.53 | 15 | PASS |
| N034443-001B-PS | PS | 1 | Fe | 0.091 | 0.74 | 15 | PASS |
| N034443-001B-MS1 | MS | 1 | Fe | 0.088 | 1.005 | 15 | PASS |
| N034443-001B-MSD1 | MSD | 1 | Fe | 0.087 | 0.89 | 15 | PASS |
| N034443-002B | SAMP | 1 | Fe | -0.00047 | 80.29 | 15 | <PQL |
| N034444-001C | SAMP | 1 | Fe | -0.0041 | 30.44 | 15 | <PQL |
| N034444-002E | SAMP | 1 | Fe | 0.0019 | 28.099 | 15 | <PQL |
| CCV1 | CCV | 1 | Fe | 10 | 0.83 | 15 | PASS |
| CCB1 | CCB | 1 | Fe | -0.0048 | 13.34 | 15 | PASS |
| MB-72815 | MBLK | 1 | Fe | 0.0067 | 8.092 | 15 | PASS |
| CCV2 | CCV | 1 | Fe | 10.18 | 0.84 | 15 | PASS |
| CCB2 | CCB | 1 | Fe | -0.0037 | 12.3 | 15 | PASS |
| ICSA2 | ICSA | 1 | Fe | 190.08 | 0.079 | 15 | PASS |
| ICSA2 | ICSA | 1 | Fe | 190.28 | 0.0065 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Fe | 180.12 | 0.015 | 15 | PASS |
| CalBlk | IBLK | 1 | Mg | 0 | 9.71 | 15 | PASS |
| Standard1 | ICAL | 1 | Mg | 0.1 | 2.42 | 15 | PASS |
| Standard2 | ICAL | 1 | Mg | 1 | 0.37 | 15 | PASS |
| Standard3 | ICAL | 1 | Mg | 2 | 0.59 | 15 | PASS |
| Standard4 | ICAL | 1 | Mg | 5 | 0.63 | 15 | PASS |
| Standard5 | ICAL | 1 | Mg | 7.5 | 0.49 | 15 | PASS |
| Standard6 | ICAL | 1 | Mg | 10 | 0.31 | 15 | PASS |
| Standard7 | ICAL | 1 | Mg | 20 | 0.11 | 15 | PASS |
| ICV | ICV | 1 | Mg | 10.033 | 0.33 | 15 | PASS |
| ICB | ICB | 1 | Mg | -0.0025 | 31.87 | 15 | <PQL |
| LLICV | CCV1 | 1 | Mg | 0.1 | 1.61 | 20 | PASS |
| LLICV | CCV1 | 1 | Mg | 0.099 | 0.57 | 20 | PASS |
| ICSA1 | ICSA | 1 | Mg | 461.17 | 0.071 | 15 | PASS |
| ICSA1 | ICSA | 1 | Mg | 412.66 | 0.095 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Mg | 506.01 | 0.28 | 15 | PASS |
| MB-72815 | MBLK | 1 | Mg | 0.049 | 8.6 | 15 | PASS |
| LCS1-72815 | LCS | 1 | Mg | 4.93 | 0.17 | 15 | PASS |
| N034443-001B | SAMP | 1 | Mg | 39.59 | 0.091 | 15 | PASS |

**RSD SUMMARY: 190319C**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| N034443-001B | SAMP | 5 | Mg | 9.066 | 0.5 | 15 | PASS |
| N034443-001B-PS | PS | 1 | Mg | 44.5 | 0.15 | 15 | PASS |
| N034443-001B-MS1 | MS | 1 | Mg | 42.43 | 0.17 | 15 | PASS |
| N034443-001B-MSD1 | MSD | 1 | Mg | 42.53 | 0.13 | 15 | PASS |
| N034443-002B | SAMP | 1 | Mg | 26.75 | 0.066 | 15 | PASS |
| N034444-001C | SAMP | 1 | Mg | 27.5 | 0.19 | 15 | PASS |
| N034444-002E | SAMP | 1 | Mg | 25.34 | 0.09 | 15 | PASS |
| CCV1 | CCV | 1 | Mg | 9.97 | 0.82 | 15 | PASS |
| CCB1 | CCB | 1 | Mg | -0.0034 | 16.42 | 15 | <PQL |
| MB-72815 | MBLK | 1 | Mg | 0.029 | 2.38 | 15 | PASS |
| CCV2 | CCV | 1 | Mg | 10.18 | 0.84 | 15 | PASS |
| CCB2 | CCB | 1 | Mg | -0.0026 | 36.61 | 15 | <PQL |
| ICSA2 | ICSA | 1 | Mg | 413.92 | 0.038 | 15 | PASS |
| ICSA2 | ICSA | 1 | Mg | 414.46 | 0.13 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Mg | 497.16 | 0.06 | 15 | PASS |

**RSD SUMMARY: 190320A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Na | 0 | 1.69 | 15 | PASS |
| Standard1 | ICAL | 1 | Na | 0.1 | 8.23 | 15 | PASS |
| Standard2 | ICAL | 1 | Na | 1 | 0.51 | 15 | PASS |
| Standard3 | ICAL | 1 | Na | 5 | 0.15 | 15 | PASS |
| Standard4 | ICAL | 1 | Na | 10 | 0.28 | 15 | PASS |
| Standard5 | ICAL | 1 | Na | 20 | 0.037 | 15 | PASS |
| Standard6 | ICAL | 1 | Na | 40 | 0.12 | 15 | PASS |
| ICV | ICV | 1 | Na | 10.04 | 0.27 | 15 | PASS |
| ICB | ICB | 1 | Na | -0.011 | 38.92 | 15 | <PQL |
| LLICV | CCV | 1 | Na | 0.11 | 5.45 | 20 | PASS |
| ICSA1 | ICSA | 1 | Na | -0.017 | 24.34 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | Na | 10.11 | 0.085 | 15 | PASS |
| MB-72815 | MBLK | 1 | Na | -0.0048 | 28.11 | 15 | <PQL |
| LCS2-72815 | LCS | 1 | Na | 19.85 | 0.13 | 15 | PASS |
| N034443-001B | SAMP | 10 | Na | 62.41 | 0.19 | 15 | PASS |
| N034443-002B | SAMP | 10 | Na | 143.61 | 1.62 | 15 | PASS |
| N034443-001B | SAMP | 50 | Na | 12.74 | 0.11 | 15 | PASS |
| N034443-002B | SAMP | 50 | Na | 28.86 | 0.17 | 15 | PASS |
| N034443-002B | SAMP | 250 | Na | 5.86 | 0.14 | 15 | PASS |
| N034443-002B-PS | PS | 50 | Na | 31.053 | 0.25 | 15 | PASS |
| N034443-002B-MS2 | MS | 50 | Na | 30.25 | 0.17 | 15 | PASS |
| N034443-002B-MSD2 | MSD | 50 | Na | 30.84 | 0.18 | 15 | PASS |
| CCV1 | CCV | 1 | Na | 10.22 | 0.052 | 15 | PASS |
| CCB1 | CCB | 1 | Na | -0.017 | 24.74 | 15 | <PQL |
| CCV2 | CCV | 1 | Na | 10.28 | 0.011 | 15 | PASS |
| CCB2 | CCB | 1 | Na | -0.023 | 8.49 | 15 | PASS |
| CCV3 | CCV | 1 | Na | 10.29 | 0.1 | 15 | PASS |
| CCB3 | CCB | 1 | Na | -0.031 | 7.39 | 15 | PASS |
| CCV4 | CCV | 1 | Na | 10.27 | 0.083 | 15 | PASS |
| CCB4 | CCB | 1 | Na | -0.037 | 22.08 | 15 | <PQL |
| ICSA2 | ICSA | 1 | Na | -0.04 | 4.0035 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Na | 10.26 | 0.028 | 15 | PASS |
| CCV5 | CCV | 1 | Na | 10.25 | 0.084 | 15 | PASS |
| CCB5 | CCB | 1 | Na | -0.039 | 28.92 | 15 | <PQL |
| CCV6 | CCV | 1 | Na | 10.26 | 0.12 | 15 | PASS |
| CCB6 | CCB | 1 | Na | -0.04 | 19.16 | 15 | <PQL |
| ICSA3 | ICSA | 1 | Na | -0.041 | 12.11 | 15 | PASS |
| ICSAB3 | ICSAB | 1 | Na | 10.26 | 0.19 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190319C**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-181001A,0.5<50mL |
| Standard2 | MWST-181001E |
| Standard3 | MWST-181001J,5<50mL |
| Standard4 | MWST-181001J,12.5<50mL |
| Standard5 | MWST-181001J,15<40mL |
| Standard6 | MWST-181001J,25<50mL |
| Standard7 | MWST-181001J |
| ICV | MWST-181001O |
| CCV | MWST-181001J,25<50mL |
| ICSA/ICSAB | MWST-181001R/MWST-180730A |
| Int. Std. (Y) | MSST-180926A/B |
| PS Spike | MWST-180930D/E/F |

| | A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|---|
| | 1 | CalBlk | IBLK | 1 | 03/19/2019 | 11:02:14 PM |
| | 2 | Standard1 | ICAL | 1 | 03/19/2019 | 11:06:59 PM |
| | 3 | Standard2 | ICAL | 1 | 03/19/2019 | 11:11:44 PM |
| | 4 | Standard3 | ICAL | 1 | 03/19/2019 | 11:17:00 PM |
| | 5 | Standard4 | ICAL | 1 | 03/19/2019 | 11:22:16 PM |
| | 6 | Standard5 | ICAL | 1 | 03/19/2019 | 11:29:34 PM |
| | 7 | Standard6 | ICAL | 1 | 03/19/2019 | 11:36:54 PM |
| | 8 | Standard7 | ICAL | 1 | 03/19/2019 | 11:44:16 PM |
| | 250 | ICV | ICV | 1 | 03/19/2019 | 11:51:40 PM |
| | 1 | ICB | ICB | 1 | 03/20/2019 | 12:07:18 AM |
| NR | 2 | LLICV | CCV1 | 1 | 03/20/2019 | 12:16:51 AM |
| | 2 | LLICV | CCV1 | 1 | 03/20/2019 | 12:20:22 AM |
| NR | 9 | ICSA1 | ICSA | 1 | 03/20/2019 | 12:25:39 AM |
| | 9 | ICSA1 | ICSA | 1 | 03/20/2019 | 12:51:49 AM |
| | 10 | ICSAB1 | ICSAB | 1 | 03/20/2019 | 12:59:14 AM |
| NR | 191 | MB-72815 | MBLK | 1 | 03/20/2019 | 01:06:40 AM |
| | 192 | LCS1-72815 | LCS | 1 | 03/20/2019 | 01:11:30 AM |
| | 193 | N034443-001B | SAMP | 1 | 03/20/2019 | 01:16:49 AM |
| | 194 | N034443-001B | SAMP | 5 | 03/20/2019 | 01:23:39 AM |
| | 195 | N034443-001B-PS | PS | 1 | 03/20/2019 | 01:28:58 AM |
| | 196 | N034443-001B-MS1 | MS | 1 | 03/20/2019 | 01:35:48 AM |
| | 197 | N034443-001B-MSD1 | MSD | 1 | 03/20/2019 | 01:42:39 AM |
| | 198 | N034443-002B | SAMP | 1 | 03/20/2019 | 01:49:45 AM |
| | 199 | N034444-001C | SAMP | 1 | 03/20/2019 | 01:56:35 AM |
| | 200 | N034444-002E | SAMP | 1 | 03/20/2019 | 02:03:25 AM |
| | 7 | CCV1 | CCV | 1 | 03/20/2019 | 02:10:14 AM |
| | 1 | CCB1 | CCB | 1 | 03/20/2019 | 02:19:56 AM |
| | 191 | MB-72815 | MBLK | 1 | 03/20/2019 | 02:24:03 AM |

NS 3/21/2019

| | A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|---|
| | 7 | CCV2 | CCV | 1 | 03/20/2019 | 02:27:46 AM |
| | 1 | CCB2 | CCB | 1 | 03/20/2019 | 02:37:42 AM |
| NR | 9 | ICSA2 | ICSA | 1 | 03/20/2019 | 02:45:31 AM |
| | 9 | ICSA2 | ICSA | 1 | 03/20/2019 | 02:52:14 AM |
| | 10 | ICSAB2 | ICSAB | 1 | 03/20/2019 | 02:59:41 AM |

**INJECTION LOG: 190320A**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-181001P,0.025<50mL |
| Standard2 | MWST-181001P,0.25<50mL |
| Standard3 | MWST-181001P,1.25<50mL |
| Standard4 | MWST-181001P,2.5<50mL |
| Standard5 | MWST-181001P,5<50mL |
| Standard6 | MWST-181001P,10<50mL |
| ICV | MWST-180615A |
| CCV | MWST-181001P,2.5<50mL |
| ICSA/ICSAB | MWST-181001R/Q |
| Int. Std. (Sc): | MSST-180926A/B |
| PS Spike | MSST-140120B/ -180608B/A |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CalBlk | IBLK | 1 | 03/20/2019 | 03:12:52 AM |
| 11 | Standard1 | ICAL | 1 | 03/20/2019 | 03:16:06 AM |
| 12 | Standard2 | ICAL | 1 | 03/20/2019 | 03:19:20 AM |
| 13 | Standard3 | ICAL | 1 | 03/20/2019 | 03:23:05 AM |
| 14 | Standard4 | ICAL | 1 | 03/20/2019 | 03:26:51 AM |
| 15 | Standard5 | ICAL | 1 | 03/20/2019 | 03:30:40 AM |
| 16 | Standard6 | ICAL | 1 | 03/20/2019 | 03:34:32 AM |
| 17 | ICV | ICV | 1 | 03/20/2019 | 03:38:34 AM |
| 1 | ICB | ICB | 1 | 03/20/2019 | 03:42:24 AM |
| 11 | LLICV | CCV | 1 | 03/20/2019 | 03:47:28 AM |
| 18 | ICSA1 | ICSA | 1 | 03/20/2019 | 03:50:59 AM |
| 19 | ICSAB1 | ICSAB | 1 | 03/20/2019 | 03:54:15 AM |
| 203 | MB-72815 | MBLK | 1 | 03/20/2019 | 03:58:05 AM |
| 204 | LCS2-72815 | LCS | 1 | 03/20/2019 | 04:01:23 AM |
| 205 | N034443-001B | SAMP | 10 | 03/20/2019 | 04:05:18 AM |
| 206 | N034443-002B | SAMP | 10 | 03/20/2019 | 04:09:07 AM |
| 207 | N034443-001B | SAMP | 50 | 03/20/2019 | 04:13:23 AM |
| 208 | N034443-002B | SAMP | 50 | 03/20/2019 | 04:16:42 AM |
| 209 | N034443-002B | SAMP | 250 | 03/20/2019 | 04:20:00 AM |
| 210 | N034443-002B-PS | PS | 50 | 03/20/2019 | 04:23:18 AM |
| 211 | N034443-002B-MS2 | MS | 50 | 03/20/2019 | 04:26:36 AM |
| 212 | N034443-002B-MSD2 | MSD | 50 | 03/20/2019 | 04:29:54 AM |
| 2 | CCV1 | CCV | 1 | 03/20/2019 | 04:33:12 AM |
| 1 | CCB1 | CCB | 1 | 03/20/2019 | 04:37:24 AM |
| 213 | MB-72946 | MBLK | 1 | 03/20/2019 | 04:40:38 AM |
| 214 | LCS2-72946 | LCS | 1 | 03/20/2019 | 04:43:56 AM |
| 215 | N034574-004A | SAMP | 1 | 03/20/2019 | 04:47:51 AM |
| 216 | N034574-004A | SAMP | 5 | 03/20/2019 | 04:51:09 AM |
| 217 | N034574-004A-PS | PS | 1 | 03/20/2019 | 04:54:28 AM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 218 | N034574-004A-MS2 | MS | 1 | 03/20/2019 | 04:58:24 AM |
| 219 | N034574-004A-MSD2 | MSD | 1 | 03/20/2019 | 05:02:19 AM |
| 22 | MB-72906 | MBLK | 1 | 03/20/2019 | 05:06:14 AM |
| 23 | LCS-72906 | LCS | 1 | 03/20/2019 | 05:09:31 AM |
| 30 | N034621-001A | SAMP | 1 | 03/20/2019 | 05:13:18 AM |
| 2 | CCV2 | CCV | 1 | 03/20/2019 | 05:17:07 AM |
| 1 | CCB2 | CCB | 1 | 03/20/2019 | 05:20:56 AM |
| 31 | N034621-001A | SAMP | 5 | 03/20/2019 | 05:24:11 AM |
| 30 | N034621-001A | SAMP | 1 | 03/20/2019 | 05:27:56 AM |
| 32 | N034621-001A-PS | PS | 1 | 03/20/2019 | 05:31:46 AM |
| 33 | N034621-001A-MS | MS | 1 | 03/20/2019 | 05:35:39 AM |
| 34 | N034621-001A-MSD | MSD | 1 | 03/20/2019 | 05:39:29 AM |
| 35 | N034621-002A | SAMP | 1 | 03/20/2019 | 05:43:20 AM |
| 36 | N034621-003A | SAMP | 1 | 03/20/2019 | 05:47:08 AM |
| 37 | N034621-004A | SAMP | 1 | 03/20/2019 | 05:50:54 AM |
| 38 | N034621-005A | SAMP | 1 | 03/20/2019 | 05:54:40 AM |
| 39 | N034621-006A | SAMP | 1 | 03/20/2019 | 05:58:26 AM |
| 2 | CCV3 | CCV | 1 | 03/20/2019 | 06:02:12 AM |
| 1 | CCB3 | CCB | 1 | 03/20/2019 | 06:06:00 AM |
| 40 | N034621-007A | SAMP | 1 | 03/20/2019 | 06:09:30 AM |
| 43 | N034622-003A | SAMP | 1 | 03/20/2019 | 06:13:16 AM |
| 44 | N034623-001A | SAMP | 1 | 03/20/2019 | 06:17:04 AM |
| 45 | N034623-002A | SAMP | 1 | 03/20/2019 | 06:20:53 AM |
| 46 | N034623-003A | SAMP | 1 | 03/20/2019 | 06:25:00 AM |
| 47 | N034623-004A | SAMP | 1 | 03/20/2019 | 06:28:49 AM |
| 48 | MB-72907 | MBLK | 1 | 03/20/2019 | 06:32:35 AM |
| 49 | LCS-72907 | LCS | 1 | 03/20/2019 | 06:35:50 AM |
| 50 | N034623-005A | SAMP | 1 | 03/20/2019 | 06:39:38 AM |
| 51 | N034623-005A | SAMP | 5 | 03/20/2019 | 06:43:24 AM |
| 2 | CCV4 | CCV | 1 | 03/20/2019 | 06:47:09 AM |
| 1 | CCB4 | CCB | 1 | 03/20/2019 | 06:50:58 AM |
| 18 | ICSA2 | ICSA | 1 | 03/20/2019 | 06:54:12 AM |
| 19 | ICSAB2 | ICSAB | 1 | 03/20/2019 | 06:57:28 AM |
| 52 | N034623-005A-PS | PS | 1 | 03/20/2019 | 07:01:17 AM |
| 53 | N034623-005A-MS | MS | 1 | 03/20/2019 | 07:05:06 AM |
| 54 | N034623-005A-MSD | MSD | 1 | 03/20/2019 | 07:08:55 AM |
| 55 | N034623-006A | SAMP | 1 | 03/20/2019 | 07:12:44 AM |
| 56 | N034623-007A | SAMP | 1 | 03/20/2019 | 07:16:31 AM |
| 57 | N034623-008A | SAMP | 1 | 03/20/2019 | 07:20:18 AM |
| 58 | N034623-009A | SAMP | 1 | 03/20/2019 | 07:24:07 AM |
| 59 | N034623-010A | SAMP | 1 | 03/20/2019 | 07:27:57 AM |
| 60 | N034623-011A | SAMP | 1 | 03/20/2019 | 07:31:43 AM |
| 61 | N034623-012A | SAMP | 1 | 03/20/2019 | 07:35:29 AM |
| 2 | CCV5 | CCV | 1 | 03/20/2019 | 07:39:15 AM |
| 1 | CCB5 | CCB | 1 | 03/20/2019 | 07:43:03 AM |
| 62 | N034623-013A | SAMP | 1 | 03/20/2019 | 07:46:17 AM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 63 | N034623-014A | SAMP | 1 | 03/20/2019 | 07:50:04 AM |
| 64 | N034623-015A | SAMP | 1 | 03/20/2019 | 07:53:50 AM |
| 65 | N034574-001A | SAMP | 1 | 03/20/2019 | 07:57:20 AM |
| 66 | N034574-002A | SAMP | 1 | 03/20/2019 | 08:01:06 AM |
| 67 | N034574-003A | SAMP | 1 | 03/20/2019 | 08:04:52 AM |
| 2 | CCV6 | CCV | 1 | 03/20/2019 | 08:08:39 AM |
| 1 | CCB6 | CCB | 1 | 03/20/2019 | 08:12:48 AM |
| 18 | ICSA3 | ICSA | 1 | 03/20/2019 | 08:16:02 AM |
| 19 | ICSAB3 | ICSAB | 1 | 03/20/2019 | 08:19:19 AM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/11/2019 8:00:00**
Prep End Date: **3/11/2019 11:00:00**
Prep Batch **72815** Prep Code: **200.7_PR**

Reviewed/ Date: NS 3/21/2019
Initials/ Date: for
Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **DB-2-10** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS1-72815 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| LCS2-72815 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-72815 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034443-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034443-001B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034443-001B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034443-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034443-002B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034443-002B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034444-001C | Water | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034444-002E | Water | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10758 | HYDROCHLORIC ACID |
| 10765 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MSST-140120B | Sodium | LCS,MS,MSD | 0.05 |
| MSST-180608A | Strontium | LCS,MS,MSD | 0.125 |
| MSST-180608B | Potassium | LCS,MS,MSD | 0.05 |
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190319C**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Magnesium** | | | | | | | | |
| CalBlk | 03/19/2019 | 11:02:14 PM | Mg | 279.079 | 114 | 0.00 | mg/L | |
| Standard1 | 03/19/2019 | 11:06:59 PM | Mg | 279.079 | 743 | 0.1000 | mg/L | |
| Standard2 | 03/19/2019 | 11:11:44 PM | Mg | 279.079 | 7239 | 1.000 | mg/L | |
| Standard3 | 03/19/2019 | 11:17:00 PM | Mg | 279.079 | 15068 | 2.000 | mg/L | |
| Standard4 | 03/19/2019 | 11:22:16 PM | Mg | 279.079 | 38895 | 5.000 | mg/L | |
| Standard5 | 03/19/2019 | 11:29:34 PM | Mg | 279.079 | 56953 | 7.500 | mg/L | |
| Standard6 | 03/19/2019 | 11:36:54 PM | Mg | 279.079 | 77970 | 10.000 | mg/L | |
| Standard7 | 03/19/2019 | 11:44:16 PM | Mg | 279.079 | 151863 | 20.000 | mg/L | 0.9999 |
| **Calcium** | | | | | | | | |
| CalBlk | 03/19/2019 | 11:02:14 PM | Ca | 227.546 | -50 | 0.00 | mg/L | |
| Standard1 | 03/19/2019 | 11:06:59 PM | Ca | 227.546 | 26 | 0.2000 | mg/L | |
| Standard2 | 03/19/2019 | 11:11:44 PM | Ca | 227.546 | 127 | 1.000 | mg/L | |
| Standard3 | 03/19/2019 | 11:17:00 PM | Ca | 227.546 | 259 | 2.000 | mg/L | |
| Standard4 | 03/19/2019 | 11:22:16 PM | Ca | 227.546 | 656 | 5.000 | mg/L | |
| Standard5 | 03/19/2019 | 11:29:34 PM | Ca | 227.546 | 957 | 7.500 | mg/L | |
| Standard6 | 03/19/2019 | 11:36:54 PM | Ca | 227.546 | 1302 | 10.000 | mg/L | |
| Standard7 | 03/19/2019 | 11:44:16 PM | Ca | 227.546 | 2569 | 20.000 | mg/L | 1.0000 |
| **Iron** | | | | | | | | |
| CalBlk | 03/19/2019 | 11:02:14 PM | Fe | 273.953 | 50 | 0.00 | mg/L | |
| Standard1 | 03/19/2019 | 11:06:59 PM | Fe | 273.953 | 254 | 0.0200 | mg/L | |
| Standard2 | 03/19/2019 | 11:11:44 PM | Fe | 273.953 | 955 | 0.050 | mg/L | |
| Standard3 | 03/19/2019 | 11:17:00 PM | Fe | 273.953 | 25817 | 2.000 | mg/L | |
| Standard4 | 03/19/2019 | 11:22:16 PM | Fe | 273.953 | 66748 | 5.000 | mg/L | |
| Standard5 | 03/19/2019 | 11:29:34 PM | Fe | 273.953 | 97638 | 7.500 | mg/L | |
| Standard6 | 03/19/2019 | 11:36:54 PM | Fe | 273.953 | 133882 | 10.000 | mg/L | |
| Standard7 | 03/19/2019 | 11:44:16 PM | Fe | 273.953 | 259302 | 20.000 | mg/L | 0.9999 |

**INITIAL CALIBRATION SUMMARY: 190320A**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Sodium** | | | | | | | | |
| CalBlk | 03/20/2019 | 03:12:52 AM | Na | 589.594 | 195 | 0.00 | mg/L | |
| Standard1 | 03/20/2019 | 03:16:06 AM | Na | 589.594 | 313 | 0.1000 | mg/L | |
| Standard2 | 03/20/2019 | 03:19:20 AM | Na | 589.594 | 2812 | 1.000 | mg/L | |
| Standard3 | 03/20/2019 | 03:23:05 AM | Na | 589.594 | 14241 | 5.000 | mg/L | |
| Standard4 | 03/20/2019 | 03:26:51 AM | Na | 589.594 | 28167 | 10.000 | mg/L | |
| Standard5 | 03/20/2019 | 03:30:40 AM | Na | 589.594 | 55687 | 20.000 | mg/L | |
| Standard6 | 03/20/2019 | 03:34:32 AM | Na | 589.594 | 112186 | 40.000 | mg/L | 1.0000 |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

Sample ID **ICV** SampType: **ICV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132622**
Client ID: **ICV** Batch ID: **R132622** TestNo: **EPA 200.7** Analysis Date: **3/19/2019** SeqNo: **3323064**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 9896.181 | 500 | 10000 | 0 | 99.0 | 90 | 110 | | | | |
| Iron | 10053.607 | 20 | 10000 | 0 | 101 | 90 | 110 | | | | |
| Magnesium | 10032.994 | 100 | 10000 | 0 | 100 | 90 | 110 | | | | |

Sample ID **LLICV** SampType: **CCV1** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132622**
Client ID: **ZZZZZZ** Batch ID: **R132622** TestNo: **EPA 200.7** Analysis Date: **3/20/2019** SeqNo: **3323067**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 196.823 | 500 | 200.0 | 0 | 98.4 | 80 | 120 | | | | |
| Iron | 18.055 | 20 | 20.00 | 0 | 90.3 | 80 | 120 | | | | |
| Magnesium | 99.316 | 100 | 100.0 | 0 | 99.3 | 80 | 120 | | | | |

Sample ID **CCV1** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132622**
Client ID: **CCV** Batch ID: **R132622** TestNo: **EPA 200.7** Analysis Date: **3/20/2019** SeqNo: **3323081**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 9966.449 | 500 | 10000 | 0 | 99.7 | 90 | 110 | | | | |
| Iron | 9996.732 | 20 | 10000 | 0 | 100 | 90 | 110 | | | | |
| Magnesium | 9970.933 | 100 | 10000 | 0 | 99.7 | 90 | 110 | | | | |

Sample ID **CCV2** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132622**
Client ID: **CCV** Batch ID: **R132622** TestNo: **EPA 200.7** Analysis Date: **3/20/2019** SeqNo: **3323084**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 10181.006 | 500 | 10000 | 0 | 102 | 90 | 110 | | | | |
| Iron | 10184.342 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |
| Magnesium | 10184.274 | 100 | 10000 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132625** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132625** | TestNo: **EPA 200.7** | | Analysis Date: **3/20/2019** | SeqNo: **3323136** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10039.582 | 500 | 10000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132625** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132625** | TestNo: **EPA 200.7** | | Analysis Date: **3/20/2019** | SeqNo: **3323138** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 114.602 | 500 | 100.0 | 0 | 115 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132625** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132625** | TestNo: **EPA 200.7** | | Analysis Date: **3/20/2019** | SeqNo: **3323151** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10217.246 | 500 | 10000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132625** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132625** | TestNo: **EPA 200.7** | | Analysis Date: **3/20/2019** | SeqNo: **3323163** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10276.690 | 500 | 10000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132625** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132625** | TestNo: **EPA 200.7** | | Analysis Date: **3/20/2019** | SeqNo: **3323175** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10288.467 | 500 | 10000 | 0 | 103 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132625** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132625** | TestNo: **EPA 200.7** | | Analysis Date: **3/20/2019** | SeqNo: **3323187** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10272.492 | 500 | 10000 | 0 | 103 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

Sample ID **ICB** SampType: **ICB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132622**
Client ID: **ICB** Batch ID: **R132622** TestNo: **EPA 200.7** Analysis Date: **3/20/2019** SeqNo: **3323065**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 24.891 | 500 | | | | | | | | | |
| Iron | -1.75291 | 20 | | | | | | | | | |
| Magnesium | -2.538337 | 100 | | | | | | | | | |

Sample ID **CCB1** SampType: **CCB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132622**
Client ID: **CCB** Batch ID: **R132622** TestNo: **EPA 200.7** Analysis Date: **3/20/2019** SeqNo: **3323082**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | -10.866034 | 500 | | | | | | | | | |
| Iron | -4.79839 | 20 | | | | | | | | | |
| Magnesium | -3.393795 | 100 | | | | | | | | | |

Sample ID **CCB2** SampType: **CCB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132622**
Client ID: **CCB** Batch ID: **R132622** TestNo: **EPA 200.7** Analysis Date: **3/20/2019** SeqNo: **3323085**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | -10.044691 | 500 | | | | | | | | | |
| Iron | -3.724508 | 20 | | | | | | | | | |
| Magnesium | -2.576447 | 100 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132625** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132625** | TestNo: **EPA 200.7** | | Analysis Date: **3/20/2019** | SeqNo: **3323137** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | -10.507619 | 500 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132625** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132625** | TestNo: **EPA 200.7** | | Analysis Date: **3/20/2019** | SeqNo: **3323152** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | -16.584997 | 500 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132625** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132625** | TestNo: **EPA 200.7** | | Analysis Date: **3/20/2019** | SeqNo: **3323164** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | -22.914713 | 500 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132625** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132625** | TestNo: **EPA 200.7** | | Analysis Date: **3/20/2019** | SeqNo: **3323176** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | -31.082639 | 500 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132625** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132625** | TestNo: **EPA 200.7** | | Analysis Date: **3/20/2019** | SeqNo: **3323188** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | -37.484973 | 500 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

Sample ID **ICSA1** SampType: **ICSA** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132622**
Client ID: **ICSA** Batch ID: **R132622** TestNo: **EPA 200.7** Analysis Date: **3/20/2019** SeqNo: **3323069**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 441931.282 | 50 | 500000 | 0 | 88.4 | 80 | 120 | | | | |
| Calcium | 449807.879 | 500 | 500000 | 0 | 90.0 | 80 | 120 | | | | |
| Iron | 190006.596 | 20 | 200000 | 0 | 95.0 | 80 | 120 | | | | |
| Magnesium | 412661.901 | 100 | 500000 | 0 | 82.5 | 80 | 120 | | | | |

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132622**
Client ID: **ICSAB** Batch ID: **R132622** TestNo: **EPA 200.7** Analysis Date: **3/20/2019** SeqNo: **3323070**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 537863.550 | 50 | 500000 | 0 | 108 | 80 | 120 | | | | |
| Calcium | 543451.359 | 500 | 500000 | 0 | 109 | 80 | 120 | | | | |
| Iron | 182780.051 | 20 | 200000 | 0 | 91.4 | 80 | 120 | | | | |
| Magnesium | 506013.583 | 100 | 500000 | 0 | 101 | 80 | 120 | | | | |

Sample ID **ICSA2** SampType: **ICSA** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132622**
Client ID: **ICSA** Batch ID: **R132622** TestNo: **EPA 200.7** Analysis Date: **3/20/2019** SeqNo: **3323087**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 442722.891 | 50 | 500000 | 0 | 88.5 | 80 | 120 | | | | |
| Calcium | 452245.511 | 500 | 500000 | 0 | 90.4 | 80 | 120 | | | | |
| Iron | 190283.302 | 20 | 200000 | 0 | 95.1 | 80 | 120 | | | | |
| Magnesium | 414459.586 | 100 | 500000 | 0 | 82.9 | 80 | 120 | | | | |

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132622**
Client ID: **ICSAB** Batch ID: **R132622** TestNo: **EPA 200.7** Analysis Date: **3/20/2019** SeqNo: **3323088**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 526633.621 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **132622**
Client ID: **ICSAB** Batch ID: **R132622** TestNo: **EPA 200.7** Analysis Date: **3/20/2019** SeqNo: **3323088**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 533324.437 | 500 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Iron | 180121.465 | 20 | 200000 | 0 | 90.1 | 80 | 120 | | | | |
| Magnesium | 497164.667 | 100 | 500000 | 0 | 99.4 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132625** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132625** | TestNo: **EPA 200.7** | | Analysis Date: **3/20/2019** | SeqNo: **3323139** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | -17.389247 | 500 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132625** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132625** | TestNo: **EPA 200.7** | | Analysis Date: **3/20/2019** | SeqNo: **3323140** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10111.110 | 500 | 10000 | 0 | 101 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132625** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132625** | TestNo: **EPA 200.7** | | Analysis Date: **3/20/2019** | SeqNo: **3323189** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | -39.931003 | 500 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132625** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132625** | TestNo: **EPA 200.7** | | Analysis Date: **3/20/2019** | SeqNo: **3323190** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10259.308 | 500 | 10000 | 0 | 103 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190319C**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 1 | 99.83 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1.064 | 106.4 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 1.014 | 101.39 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 0.97 | 97.45 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 1.0005 | 100.05 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 0.97 | 96.68 | 65-125 | PASS |
| Standard7 | ICAL | 1 | 0.98 | 97.55 | 65-125 | PASS |
| ICV | ICV | 1 | 1 | 99.94 | 65-125 | PASS |
| ICB | ICB | 1 | 1.0013 | 100.13 | 65-125 | PASS |
| LLICV | CCV1 | 1 | 0.99 | 98.51 | 65-125 | PASS |
| LLICV | CCV1 | 1 | 0.98 | 98.16 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 1.029 | 102.91 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 1.13 | 112.83 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 0.83 | 82.77 | 65-125 | PASS |
| MB-72815 | MBLK | 1 | 0.97 | 97.36 | 65-125 | PASS |
| LCS1-72815 | LCS | 1 | 0.95 | 94.93 | 65-125 | PASS |
| N034443-001B | SAMP | 1 | 0.97 | 97.31 | 65-125 | PASS |
| N034443-001B | SAMP | 5 | 0.96 | 96.39 | 65-125 | PASS |
| N034443-001B-PS | PS | 1 | 0.97 | 96.66 | 65-125 | PASS |
| N034443-001B-MS1 | MS | 1 | 0.97 | 97.5 | 65-125 | PASS |
| N034443-001B-MSD1 | MSD | 1 | 0.97 | 97.44 | 65-125 | PASS |
| N034443-002B | SAMP | 1 | 0.91 | 91.24 | 65-125 | PASS |
| N034444-001C | SAMP | 1 | 0.93 | 92.93 | 65-125 | PASS |
| N034444-002E | SAMP | 1 | 0.94 | 93.65 | 65-125 | PASS |
| CCV1 | CCV | 1 | 0.99 | 99.11 | 65-125 | PASS |
| CCB1 | CCB | 1 | 1 | 99.53 | 65-125 | PASS |
| MB-72815 | MBLK | 1 | 1 | 99.93 | 65-125 | PASS |
| CCV2 | CCV | 1 | 0.97 | 97.37 | 65-125 | PASS |
| CCB2 | CCB | 1 | 1 | 99.75 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 1.12 | 111.92 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 1.12 | 111.92 | 65-125 | PASS |
| ICSAB2 | ICSAB | 1 | 0.83 | 83.48 | 65-125 | PASS |

**INTERNAL STANDARD: 190320A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Scandium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 1.0068 | 100.68 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1.0071 | 100.71 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 1 | 99.5 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 1 | 99.95 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 0.99 | 98.76 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 0.99 | 98.63 | 65-125 | PASS |
| ICV | ICV | 1 | 1 | 99.53 | 65-125 | PASS |
| ICB | ICB | 1 | 1 | 100 | 65-125 | PASS |
| LLICV | CCV | 1 | 1.0001 | 100.01 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 1.0055 | 100.55 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 0.98 | 97.83 | 65-125 | PASS |
| MB-72815 | MBLK | 1 | 1 | 99.6 | 65-125 | PASS |
| LCS2-72815 | LCS | 1 | 1.074 | 107.4 | 65-125 | PASS |
| N034443-001B | SAMP | 10 | 0.99 | 98.93 | 65-125 | PASS |
| N034443-002B | SAMP | 10 | 0.97 | 96.88 | 65-125 | PASS |
| N034443-001B | SAMP | 50 | 0.99 | 98.6 | 65-125 | PASS |
| N034443-002B | SAMP | 50 | 0.97 | 97.3 | 65-125 | PASS |
| N034443-002B | SAMP | 250 | 0.98 | 97.87 | 65-125 | PASS |
| N034443-002B-PS | PS | 50 | 0.97 | 97.2 | 65-125 | PASS |
| N034443-002B-MS2 | MS | 50 | 0.98 | 97.65 | 65-125 | PASS |
| N034443-002B-MSD2 | MSD | 50 | 0.98 | 97.64 | 65-125 | PASS |
| CCV1 | CCV | 1 | 0.97 | 97.18 | 65-125 | PASS |
| CCB1 | CCB | 1 | 0.97 | 97.17 | 65-125 | PASS |
| CCV2 | CCV | 1 | 0.96 | 96.48 | 65-125 | PASS |
| CCB2 | CCB | 1 | 0.97 | 96.58 | 65-125 | PASS |
| CCV3 | CCV | 1 | 0.97 | 97.19 | 65-125 | PASS |
| CCB3 | CCB | 1 | 0.97 | 97.24 | 65-125 | PASS |
| CCV4 | CCV | 1 | 0.97 | 97.22 | 65-125 | PASS |
| CCB4 | CCB | 1 | 0.98 | 97.65 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 0.99 | 99.25 | 65-125 | PASS |
| ICSAB2 | ICSAB | 1 | 0.97 | 97.3 | 65-125 | PASS |
| CCV5 | CCV | 1 | 0.98 | 97.82 | 65-125 | PASS |
| CCB5 | CCB | 1 | 0.98 | 97.94 | 65-125 | PASS |
| CCV6 | CCV | 1 | 0.97 | 97.15 | 65-125 | PASS |
| CCB6 | CCB | 1 | 0.97 | 97.45 | 65-125 | PASS |
| ICSA3 | ICSA | 1 | 1 | 100 | 65-125 | PASS |
| ICSAB3 | ICSAB | 1 | 0.98 | 98.33 | 65-125 | PASS |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034443
Test Method: EPA 200.7
Analysis Date: 03 / 19 - 20 / 2019

Matrix: Groundwater
Batch No.: 72815

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test for Mg failed. However, PS passed criteria.
Dilution test is not applicable to Fe. The calculated concentration is <25RL.

| Sample ID | Analyte | Symbol | Units | Calc Val | Oqual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|---|
| N034443-001B DT 5x | Calcium | Ca | µg/L | 178283.8 | PASS | 163082.6 | 9.32% | 10 |
| N034443-001B DT 5x | Iron | Fe | µg/L | 0 | NA | 0 | | 10 |
| N034443-001B DT 5x | Magnesium | Mg | µg/L | 45327.51 | FAIL | 39585.75 | 14.50% | 10 |
| N034443-002B DT 250x | Sodium | Na | µg/L | 1464081 | PASS | 1443004 | 1.46% | 10 |

Note: NA - Not Applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WDPGEPPB**

| Sample ID **N034443-001B-PS** | SampType: **PS** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132622** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72815** | TestNo: **EPA 200.7** | | Analysis Date: **3/20/2019** | SeqNo: **3323075** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 170307.661 | 500 | 5000 | 163100 | 145 | 80 | 120 | | | | S |
| Iron | 90.942 | 20 | 100.0 | 0 | 90.9 | 80 | 120 | | | | |
| Magnesium | 44496.549 | 100 | 5000 | 39590 | 98.2 | 80 | 120 | | | | |

| Sample ID **N034443-002B-PS** | SampType: **PS** | TestCode: **200.7_WDPG** | Units: **µg/L** | Prep Date: | RunNo: **132625** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72815** | TestNo: **EPA 200.7** | | Analysis Date: **3/20/2019** | SeqNo: **3323148** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 1552632.287 | 25000 | 20000 | 1443000 | 548 | 80 | 120 | | | | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

**Acceptance Criteria:** MDL < spike < 10XMDL

| Analyte | Wavelength | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Spike Conc., mg/L | SD | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ag | 328.069 | 0.0033 | 0.0031 | 0.0033 | 0.0033 | 0.0031 | 0.0030 | 0.0047 | 0.003 | 0.00061604 | **0.001936** | 0.003 |
| Al | 237.312 | 0.0664 | 0.0603 | 0.0656 | 0.0650 | 0.0658 | 0.0660 | 0.0946 | 0.050 | 0.01254823 | **0.039439** | 0.050 |
| As | 188.983 | 0.0131 | 0.0089 | 0.0120 | 0.0089 | 0.0060 | 0.0102 | 0.0080 | 0.010 | 0.00223806 | **0.007034** | 0.010 |
| B | 249.679 | 0.1491 | 0.1267 | 0.1281 | 0.1467 | 0.1261 | 0.1195 | 0.1015 | 0.100 | 0.01801843 | **0.056632** | 0.100 |
| Ba | 233.529 | 0.0033 | 0.0031 | 0.0033 | 0.0031 | 0.0032 | 0.0030 | 0.0024 | 0.003 | 0.00033070 | **0.001039** | 0.003 |
| Be | 313.104 | 0.0012 | 0.0011 | 0.0012 | 0.0012 | 0.0011 | 0.0011 | 0.0011 | 0.001 | 0.00006873 | **0.000216** | 0.001 |
| Ca | 227.546 | 0.2381 | 0.2231 | 0.2559 | 0.2299 | 0.2194 | 0.2473 | 0.2691 | 0.200 | 0.02202408 | **0.069222** | 0.200 |
| Cd | 214.437 | 0.0031 | 0.0029 | 0.0031 | 0.0032 | 0.0031 | 0.0031 | 0.0025 | 0.003 | 0.00027049 | **0.000850** | 0.003 |
| Co | 228.614 | 0.0030 | 0.0028 | 0.0030 | 0.0031 | 0.0031 | 0.0031 | 0.0027 | 0.003 | 0.00014491 | **0.000455** | 0.003 |
| Cr | 267.719 | 0.0009 | 0.0008 | 0.0009 | 0.0012 | 0.0012 | 0.0013 | 0.0009 | 0.001 | 0.00017120 | **0.000538** | 0.001 |
| Fe | 273.953 | 0.0255 | 0.0226 | 0.0242 | 0.0255 | 0.0252 | 0.0248 | 0.0387 | 0.020 | 0.00552308 | **0.017359** | 0.020 |
| Mg | 279.079 | 0.1124 | 0.1052 | 0.1129 | 0.1315 | 0.1305 | 0.1314 | 0.1435 | 0.100 | 0.01532024 | **0.048152** | 0.100 |
| Mn | 257.607 | 0.0119 | 0.0111 | 0.0120 | 0.0122 | 0.0121 | 0.0122 | 0.0099 | 0.010 | 0.00098403 | **0.003093** | 0.010 |
| Mo | 202.03 | 0.0079 | 0.0068 | 0.0067 | 0.0065 | 0.0065 | 0.0062 | 0.0057 | 0.005 | 0.00083918 | **0.002638** | 0.005 |
| Ni | 231.604 | 0.0061 | 0.0056 | 0.0062 | 0.0060 | 0.0060 | 0.0062 | 0.0045 | 0.005 | 0.00062690 | **0.001970** | 0.005 |
| Pb | 220.351 | 0.0124 | 0.0117 | 0.0127 | 0.0115 | 0.0120 | 0.0118 | 0.0090 | 0.010 | 0.00126325 | **0.003970** | 0.010 |
| Sb | 206.836 | 0.0102 | 0.0095 | 0.0104 | 0.0112 | 0.0117 | 0.0111 | 0.0080 | 0.010 | 0.00117407 | **0.003690** | 0.010 |
| Se | 196.025 | 0.0102 | 0.0087 | 0.0114 | 0.0136 | 0.0144 | 0.0136 | 0.0075 | 0.010 | 0.00251341 | **0.007900** | 0.010 |
| Sn | 189.927 | 0.0095 | 0.0084 | 0.0090 | 0.0124 | 0.0126 | 0.0129 | 0.0099 | 0.010 | 0.00175765 | **0.005524** | 0.010 |
| Ti | 334.943 | 0.0114 | 0.0106 | 0.0115 | 0.0115 | 0.0115 | 0.0115 | 0.0098 | 0.010 | 0.00074093 | **0.002329** | 0.010 |
| Tl | 190.794 | 0.0170 | 0.0150 | 0.0165 | 0.0171 | 0.0180 | 0.0168 | 0.0151 | 0.015 | 0.00116288 | **0.003655** | 0.015 |
| V | 292.404 | 0.0025 | 0.0024 | 0.0025 | 0.0032 | 0.0032 | 0.0032 | 0.0027 | 0.003 | 0.00038496 | **0.001210** | 0.003 |
| Zn | 206.201 | 0.0109 | 0.0100 | 0.0107 | 0.0125 | 0.0124 | 0.0124 | 0.0095 | 0.010 | 0.00123731 | **0.003889** | 0.010 |

## METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

| Analyte | ICP-02 MDL | MDL Blank | Higher MDL | LOD | PQL |
|---|---|---|---|---|---|
| Ag | 0.001936 | 0.002362 | 0.002362 | 0.002 | 0.003 |
| Al | 0.039439 | 0.039859 | 0.039859 | 0.04 | 0.5 |
| As | 0.007034 | 0.007672 | 0.007672 | 0.0075 | 0.01 |
| B | 0.056632 | 0.074419 | 0.074419 | 0.075 | 0.1 |
| Ba | 0.001039 | 0.000433 | 0.001039 | 0.001 | 0.003 |
| Be | 0.000216 | 0.000311 | 0.000311 | 0.0005 | 0.003 |
| Ca | 0.069222 | 0.084832 | 0.084832 | 0.1 | 0.5 |
| Cd | 0.000850 | 0.000592 | 0.000850 | 0.001 | 0.003 |
| Co | 0.000455 | 0.001902 | 0.001902 | 0.001 | 0.003 |
| Cr | 0.000538 | 0.000527 | 0.000538 | 0.001 | 0.003 |
| Fe | 0.017359 | 0.017751 | 0.017751 | 0.018 | 0.1 |
| Mg | 0.048152 | 0.043017 | 0.048152 | 0.05 | 0.1 |
| Mn | 0.003093 | 0.000782 | 0.003093 | 0.005 | 0.5 |
| Mo | 0.002638 | 0.002482 | 0.002638 | 0.0025 | 0.005 |
| Ni | 0.001970 | 0.000822 | 0.001970 | 0.0025 | 0.005 |
| Pb | 0.003970 | 0.002762 | 0.003970 | 0.005 | 0.005 |
| Sb | 0.003690 | 0.004504 | 0.004504 | 0.005 | 0.01 |
| Se | 0.007900 | 0.008549 | 0.008549 | 0.008 | 0.01 |
| Sn | 0.005524 | 0.003415 | 0.005524 | 0.0075 | 0.05 |
| Ti | 0.002329 | 0.001493 | 0.002329 | 0.005 | 0.05 |
| Tl | 0.003655 | 0.005987 | 0.005987 | 0.005 | 0.015 |
| V | 0.001210 | 0.000749 | 0.001210 | 0.002 | 0.003 |
| Zn | 0.003889 | 0.007683 | 0.007683 | 0.008 | 0.01 |

## LOD & PQL VERIFICATION

**Analytical Method:** EPA 6010B / 200.7
**Date of Analysis:** 4/30/2018
**Instrument Name:** ICP2
**Analyst:** MI

**Matrix:** Water
**Units:** mg/L

| Compound | MDL | LOD | | PQL | | |
|---|---|---|---|---|---|---|
| | | Spike | Recovered | Spike | Recovered | % Recovery |
| Potassium | 0.08509 | 0.250 | 0.304 | 0.500 | 0.544 | 108.9 |
| Sodium | 0.09611 | 0.250 | 0.274 | 0.500 | 0.521 | 104.1 |
| Strontium | 0.00220 | 0.025 | 0.027 | 0.050 | 0.054 | 108.0 |

**Method Detection Limit**

**Analytical Method:** EPA 6010B / 200.7
**Digestion Method:** EPA 200.7
**Date of Analysis:** 4/26/2018,4/27/18, 4/28/18
**Instrument Name:** ICP2
**Analysts:** MEI

**Matrix:** Water
**Amount of Sample:** 25 mL
**Units:** mg/L

| Analyte | 1 | 2 | 3 | 4 | 5 | 6 | 7 | SD | Ave | AMT SPIKED | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | 0.52047 | 0.51468 | 0.50982 | 0.46507 | 0.46016 | 0.45873 | 0.49093 | 0.02710 | 0.48855 | 0.5000 | 0.08509 | 0.5 |
| Sodium | 0.55314 | 0.5464 | 0.5354 | 0.4861 | 0.49466 | 0.48423 | 0.49053 | 0.03061 | 0.51292 | 0.5000 | 0.09611 | 0.5 |
| Strontium | 0.0543 | 0.05418 | 0.05429 | 0.05295 | 0.05353 | 0.05251 | 0.05341 | 0.00070 | 0.05360 | 0.0250 | 0.00220 | 0.05 |

MBLK

| Analyte | 1 | 2 | 3 | 4 | 5 | 6 | 7 | SD | Ave | MDL |
|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | 0.046 | 0.02365 | 0.01213 | -0.00541 | -0.0022 | -0.00535 | 0.03047 | 0.02002 | 0.01418 | 0.0771 |
| Sodium | 0.04731 | 0.03661 | 0.02294 | -0.0006 | -0.00135 | -0.00646 | -0.00911 | 0.02270 | 0.01276 | 0.0841 |
| Strontium | 0.00006 | -0.0006 | -0.0002 | 0.00003 | -0.00002 | 0.00001 | 0.00035 | 0.00029 | -0.00005 | 0.0009 |

Note: MDL spike is used since its value is greater than the MDL blank.

# EPA 200.8
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72774
**ASSET #:** N034443
**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 3/7/2019

**Method:**

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | X | | | X | | |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | X | | | X | | |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: _____

2nd Level Reviewer 3/14/2019 Date: —

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA 6020
**TEST NAME:** Heavy Metals by ICP-MS
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Chromium concentration, in ug/L , in the original sample as follows:

Chromium , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N034443-002B** , the concentration in ug/L is calculated as follows:

Chromium , ug/L = 103.137 * 5 *( 125 / 25 )

Chromium , ug/L = 515.685

Reporting results in two significant figures,

**Chromium , ug/L = 520**

# % RSD SUMMARY

**PERCENT RSD SUMMARY: 190307B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 52 Cr [2] | | | | 55 Mn [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.11 | 12.78 | 15 | PASS | 0.094 | 17.67 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.5 | 2.11 | 15 | PASS | 0.49 | 4.27 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 5.23 | 2.73 | 15 | PASS | 5.23 | 0.3 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.36 | 0.88 | 15 | PASS | 10.057 | 1.7 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.75 | 0.57 | 15 | PASS | 20.69 | 1.32 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.67 | 1 | 15 | PASS | 40.69 | 0.77 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.57 | 0.91 | 15 | PASS | 100.63 | 2.16 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.48 | 0.33 | 15 | PASS | 199.47 | 0.36 | 15 | PASS |
| ICV | ICV | 1 | 10.76 | 0.99 | 15 | PASS | 108.31 | 0.91 | 15 | PASS |
| ICB | ICB | 1 | 0.0095 | 98.35 | 15 | <PQL | 0.36 | 24.33 | 15 | <PQL |
| LLICV | CCV1 | 1 | 1.042 | 3.64 | 20 | PASS | 0.99 | 3.79 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 21.43 | 2.058 | 15 | PASS | 20.45 | 1.82 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.97 | 3.46 | 20 | PASS | 0.57 | 4.095 | 20 | PASS |
| CCV1 | CCV | 1 | 20.7 | 1.56 | 15 | PASS | 20.95 | 2.35 | 15 | PASS |
| CCB1 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV2 | CCV | 1 | 20.7 | 1.27 | 15 | PASS | 20.89 | 2.15 | 15 | PASS |
| CCB2 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| MB-72774 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LCS-72774 | LCS | 1 | 10.072 | 0.73 | 15 | PASS | 105.84 | 1.3 | 15 | PASS |
| N034443-001B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 805.92 | 1.76 | 15 | PASS |
| N034443-001B | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 166.66 | 0.58 | 15 | PASS |
| N034443-001B-PS | PS | 1 | 10.21 | 1.61 | 15 | PASS | 906.31 | 1.52 | 15 | PASS |
| N034443-001B-MS | MS | 1 | 10.089 | 1.32 | 15 | PASS | 916.39 | 0.66 | 15 | PASS |
| CCV3 | CCV | 1 | 20.7 | 1.37 | 15 | PASS | 20.91 | 1.13 | 15 | PASS |
| CCB3 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.19 | 12.41 | 15 | PASS |
| N034443-001B-MSD | MSD | 1 | 10.13 | 1.76 | 15 | PASS | 908.9 | 0.75 | 15 | PASS |
| N034443-002B | SAMP | 1 | 520.85 | 2.56 | 15 | PASS | 20.76 | 2.58 | 15 | PASS |
| N034444-001C | SAMP | 1 | 510.54 | 0.49 | 15 | PASS | 8.91 | 4.69 | 15 | PASS |
| N034444-002E | SAMP | 1 | 0.15 | 24.31 | 15 | <PQL | 13.21 | 0.52 | 15 | PASS |
| N034412-001B | SAMP | 1 | 0.88 | 7.82 | 15 | PASS | 1.62 | 1.68 | 15 | PASS |
| N034451-001A | SAMP | 1 | 0.67 | 5.57 | 15 | PASS | 1.73 | 4.062 | 15 | PASS |
| N034451-002A | SAMP | 1 | 4.15 | 2.92 | 15 | PASS | 39.83 | 1.26 | 15 | PASS |
| N034451-003A | SAMP | 1 | 0.89 | 3.4 | 15 | PASS | 9.53 | 1.57 | 15 | PASS |
| N034451-004A | SAMP | 1 | 0.17 | 14.97 | 15 | PASS | 1.94 | 2.56 | 15 | PASS |
| N034456-001C | SAMP | 1 | 1.069 | 4.53 | 15 | PASS | 11.21 | 1.9 | 15 | PASS |
| CCV4 | CCV | 1 | 20.55 | 0.26 | 15 | PASS | 21.1 | 0.3 | 15 | PASS |
| CCB4 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.036 | 16.39 | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 22.35 | 1.2 | 15 | PASS | 21.44 | 1.067 | 15 | PASS |

**PERCENT RSD SUMMARY: 190307B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 52 Cr [2] | | | | 55 Mn [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| CCV5 | CCV | 1 | 21.07 | 1.52 | 15 | PASS | 21.54 | 0.65 | 15 | PASS |
| CCB5 | CCB | 1 | 0.023 | 21.74 | 15 | <PQL | 0.21 | 12.21 | 15 | PASS |
| N034443-001B | SAMP | 10 | 0.0008 | 1999.13 | 15 | <PQL | 85.55 | 1.79 | 15 | PASS |
| N034443-001B | SAMP | 50 | 0.0068 | 97.68 | 15 | <PQL | 17.64 | 1.3 | 15 | PASS |
| N034443-001B-PS | PS | 10 | 1.07 | 0.76 | 15 | PASS | 94.23 | 1.59 | 15 | PASS |
| N034443-001B-MS | MS | 10 | 1.069 | 2.54 | 15 | PASS | 93.97 | 0.99 | 15 | PASS |
| N034443-001B-MSD | MSD | 10 | 1.043 | 3.35 | 15 | PASS | 94.096 | 1.23 | 15 | PASS |
| N034443-002B | SAMP | 5 | 103.14 | 1.35 | 15 | PASS | 4.48 | 5.81 | 15 | PASS |
| N034444-001C | SAMP | 5 | 105.39 | 0.89 | 15 | PASS | 2.15 | 6.89 | 15 | PASS |
| N034456-001C | SAMP | 5 | 0.28 | 3.31 | 15 | PASS | 2.38 | 5.43 | 15 | PASS |
| CCV6 | CCV | 1 | 20.64 | 1.89 | 15 | PASS | 21.16 | 0.87 | 15 | PASS |
| CCB6 | CCB | 1 | 0.0051 | 147.91 | 15 | <PQL | 0.079 | 21.28 | 15 | <PQL |
| N034456-001C | SAMP | 5 | 617.8 | 87.58 | 15 | NR! | 377.052 | 12.75 | 15 | PASS |
| CCV7 | CCV | 1 | 20.85 | 0.65 | 15 | PASS | 21.26 | 0.51 | 15 | PASS |
| CCB7 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.076 | 56.14 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 21.39 | 2.9 | 15 | PASS | 18.36 | 0.26 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190307B**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| B0307001.D | RINSE | RINSE | 1 | 03/07/19 10:53 PM |
| B0307002.D | Cal Blank | IBLK | 1 | 03/07/19 10:59 PM |
| B0307003.D | Std1-0.1/1 ppb | ICAL | 1 | 03/07/19 11:05 PM |
| B0307004.D | Std2-0.5/5 ppb | ICAL | 1 | 03/07/19 11:11 PM |
| B0307005.D | Std3-5/50 ppb | ICAL | 1 | 03/07/19 11:17 PM |
| B0307006.D | Std4-10/100 ppb | ICAL | 1 | 03/07/19 11:23 PM |
| B0307007.D | Std5-20/200 ppb | ICAL | 1 | 03/07/19 11:29 PM |
| B0307008.D | Std6-40/400 ppb | ICAL | 1 | 03/07/19 11:35 PM |
| B0307009.D | Std7-100/1000 ppb | ICAL | 1 | 03/07/19 11:40 PM |
| B0307010.D | Std8-200/2000 ppb | ICAL | 1 | 03/07/19 11:46 PM |
| B0307011.D | ICV | ICV | 1 | 03/07/19 11:52 PM |
| B0307012.D | ICB | ICB | 1 | 03/07/19 11:58 PM |
| B0307013.D | LLICV | CCV1 | 1 | 03/08/19 12:04 AM |
| B0307014.D | ICSA1 | ICSA | 1 | 03/08/19 12:10 AM |
| B0307015.D | ICSAB1 | ICSAB | 1 | 03/08/19 12:16 AM |
| B0307016.D | LLICV | CCV1 | 1 | 03/08/19 12:22 AM |
| B0307017.D | MB-72773 | MBLK | 1 | 03/08/19 12:29 AM |
| B0307018.D | LCS-72773 | LCS | 1 | 03/08/19 12:34 AM |
| B0307019.D | N034437-001B | SAMP | 1 | 03/08/19 12:40 AM |
| B0307020.D | N034437-001B | SAMP | 5 | 03/08/19 12:45 AM |
| B0307021.D | N034437-001B-PS | PS | 1 | 03/08/19 12:51 AM |
| B0307022.D | N034437-001B-MS | MS | 1 | 03/08/19 12:57 AM |
| B0307023.D | N034437-001B-MSD | MSD | 1 | 03/08/19 1:03 AM |
| B0307024.D | N034438-001B | SAMP | 1 | 03/08/19 1:09 AM |
| B0307025.D | N034439-001B | SAMP | 1 | 03/08/19 1:15 AM |
| B0307026.D | N034439-002B | SAMP | 1 | 03/08/19 1:21 AM |
| B0307027.D | CCV1 | CCV | 1 | 03/08/19 1:27 AM |
| B0307028.D | CCB1 | CCB | 1 | 03/08/19 1:33 AM |
| B0307029.D | N034439-003B | SAMP | 1 | 03/08/19 1:39 AM |
| B0307030.D | N034439-004B | SAMP | 1 | 03/08/19 1:45 AM |
| B0307031.D | N034442-001A | SAMP | 1 | 03/08/19 1:51 AM |
| B0307032.D | N034483-001A | SAMP | 1 | 03/08/19 1:57 AM |
| B0307033.D | N034483-002A | SAMP | 1 | 03/08/19 2:02 AM |
| B0307034.D | N034484-001B | SAMP | 1 | 03/08/19 2:08 AM |
| B0307035.D | N034484-002B | SAMP | 1 | 03/08/19 2:14 AM |
| B0307036.D | N034484-003B | SAMP | 1 | 03/08/19 2:20 AM |
| B0307037.D | N034486-001B | SAMP | 1 | 03/08/19 2:26 AM |
| B0307038.D | N034486-002B | SAMP | 1 | 03/08/19 2:32 AM |
| B0307039.D | CCV2 | CCV | 1 | 03/08/19 2:38 AM |
| B0307040.D | CCB2 | CCB | 1 | 03/08/19 2:44 AM |
| B0307041.D | N034487-001B | SAMP | 1 | 03/08/19 2:50 AM |
| B0307042.D | N034487-002B | SAMP | 1 | 03/08/19 2:57 AM |

**INJECTION LOG: 190307B**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| B0307043.D | N034488-001B | SAMP | 1 | 03/08/19 3:02 AM |
| B0307044.D | RINSE | RINSE | 1 | 03/08/19 3:09 AM |
| B0307045.D | MB-72774 | MBLK | 1 | 03/08/19 3:13 AM |
| B0307046.D | LCS-72774 | LCS | 1 | 03/08/19 3:19 AM |
| B0307047.D | N034443-001B | SAMP | 1 | 03/08/19 3:25 AM |
| B0307048.D | N034443-001B | SAMP | 5 | 03/08/19 3:31 AM |
| B0307049.D | N034443-001B-PS | PS | 1 | 03/08/19 3:37 AM |
| B0307050.D | N034443-001B-MS | MS | 1 | 03/08/19 3:43 AM |
| B0307051.D | CCV3 | CCV | 1 | 03/08/19 3:49 AM |
| B0307052.D | CCB3 | CCB | 1 | 03/08/19 3:55 AM |
| B0307053.D | N034443-001B-MSD | MSD | 1 | 03/08/19 4:01 AM |
| B0307054.D | N034443-002B | SAMP | 1 | 03/08/19 4:07 AM |
| B0307055.D | N034444-001C | SAMP | 1 | 03/08/19 4:13 AM |
| B0307056.D | N034444-002E | SAMP | 1 | 03/08/19 4:19 AM |
| B0307057.D | N034412-001B | SAMP | 1 | 03/08/19 4:24 AM |
| B0307058.D | N034451-001A | SAMP | 1 | 03/08/19 4:30 AM |
| B0307059.D | N034451-002A | SAMP | 1 | 03/08/19 4:36 AM |
| B0307060.D | N034451-003A | SAMP | 1 | 03/08/19 4:42 AM |
| B0307061.D | N034451-004A | SAMP | 1 | 03/08/19 4:48 AM |
| B0307062.D | N034456-001C | SAMP | 1 | 03/08/19 4:54 AM |
| B0307063.D | CCV4 | CCV | 1 | 03/08/19 5:00 AM |
| B0307064.D | CCB4 | CCB | 1 | 03/08/19 5:06 AM |
| B0307065.D | ICSA2 | ICSA | 1 | 03/08/19 5:13 AM |
| B0307066.D | ICSAB2 | ICSAB | 1 | 03/08/19 5:19 AM |
| B0307067.D | MB-72730 | MBLK | 1 | 03/08/19 5:25 AM |
| B0307068.D | LCS-72730 | LCS | 1 | 03/08/19 5:30 AM |
| B0307069.D | N034373-001A | SAMP | 1 | 03/08/19 5:36 AM |
| B0307070.D | N034373-001A | SAMP | 5 | 03/08/19 5:42 AM |
| B0307071.D | N034373-001A-PS | PS | 1 | 03/08/19 5:48 AM |
| B0307072.D | N034373-001A-MS | MS | 1 | 03/08/19 5:54 AM |
| B0307073.D | N034373-001A-MSD | MSD | 1 | 03/08/19 6:00 AM |
| B0307074.D | N034373-001A | SAMP | 1 | 03/08/19 6:06 AM |
| B0307075.D | N034408-001A | SAMP | 1 | 03/08/19 6:12 AM |
| B0307076.D | N034408-003A | SAMP | 1 | 03/08/19 6:18 AM |
| B0307077.D | CCV5 | CCV | 1 | 03/08/19 6:24 AM |
| B0307078.D | CCB5 | CCB | 1 | 03/08/19 6:30 AM |
| B0307079.D | N034408-004B | SAMP | 1 | 03/08/19 6:36 AM |
| B0307080.D | N034408-005A | SAMP | 1 | 03/08/19 6:42 AM |
| B0307081.D | N034443-001B | SAMP | 10 | 03/08/19 6:55 AM |
| B0307082.D | N034443-001B | SAMP | 50 | 03/08/19 7:01 AM |
| B0307083.D | N034443-001B-PS | PS | 10 | 03/08/19 7:07 AM |
| B0307084.D | N034443-001B-MS | MS | 10 | 03/08/19 7:13 AM |

**INJECTION LOG: 190307B**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| B0307085.D | N034443-001B-MSD | MSD | 10 | 03/08/19 7:19 AM |
| B0307086.D | N034443-002B | SAMP | 5 | 03/08/19 7:25 AM |
| B0307087.D | N034444-001C | SAMP | 5 | 03/08/19 7:31 AM |
| B0307088.D | N034456-001C | SAMP | 5 | 03/08/19 7:37 AM |
| B0307089.D | CCV6 | CCV | 1 | 03/08/19 7:43 AM |
| B0307090.D | CCB6 | CCB | 1 | 03/08/19 7:49 AM |
| B0307091.D | N034456-001C | SAMP | 5 | 03/08/19 7:55 AM |
| B0307092.D | CCV7 | CCV | 1 | 03/08/19 8:01 AM |
| B0307093.D | CCB7 | CCB | 1 | 03/08/19 8:07 AM |
| B0307094.D | ICSA3 | ICSA | 1 | 03/08/19 8:13 AM |
| B0307095.D | ICSAB3 | ICSAB | 1 | 03/08/19 8:19 AM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/7/2019 7:07:26 A**
Prep End Date: **3/7/2019 11:30:00**
Prep Batch **72774** Prep Code: **200.8_PR**

Reviewed/ Date: 3/14/2019
Initials/ Date: 3/14/2019
Technician **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.5** | **02-19** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72774 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-72774 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034412-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034443-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034443-001B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034443-001B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034443-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034444-001C | Water | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034444-002E | Water | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034451-001A | Water | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034451-002A | Water | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034451-003A | Water | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034451-004A | Water | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034456-001C | Water | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10029 | HYDROCHLORIC ACID |
| 10235 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

# INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 7 Mar 2019 08:28:41 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | | Actual | Required | Flag |
|---|---|---|---|---|
| 9 | Be | 118695.00 | 0.00 | |
| 24 | Mg | 302461.00 | 0.00 | |
| 25 | Mg | 38915.70 | 0.00 | |
| 26 | Mg | 45294.30 | 0.00 | |
| 59 | Co | 285609.00 | 0.00 | |
| 115 | In | 468696.00 | 0.00 | |
| 206 | Pb | 167120.00 | 0.00 | |
| 207 | Pb | 146999.00 | 0.00 | |
| 208 | Pb | 362708.00 | 0.00 | |

RSD (%)

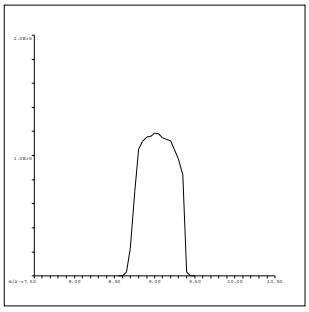
| Element | | Actual | Required | Flag |
|---|---|---|---|---|
| 9 | Be | 1.15 | 5.00 | |
| 24 | Mg | 0.58 | 5.00 | |
| 25 | Mg | 0.60 | 5.00 | |
| 26 | Mg | 2.42 | 5.00 | |
| 59 | Co | 0.61 | 5.00 | |
| 115 | In | 0.30 | 5.00 | |
| 206 | Pb | 0.99 | 5.00 | |
| 207 | Pb | 1.03 | 5.00 | |
| 208 | Pb | 0.77 | 5.00 | |

Ion Ratio

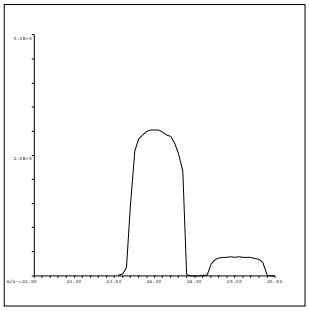
| Element | | Actual | Required | Flag |
|---|---|---|---|---|
| 9 | Be | | | |
| 24 | Mg | | | |
| 25 | Mg | | | |
| 26 | Mg | | | |
| 59 | Co | | | |
| 115 | In | | | |
| 206 | Pb | | | |
| 207 | Pb | | | |
| 208 | Pb | | | |

Maximum Bkg. Count(CPS)

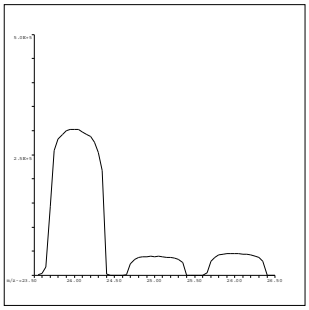
| Element | Actual | Required | Flag |
|---|---|---|---|



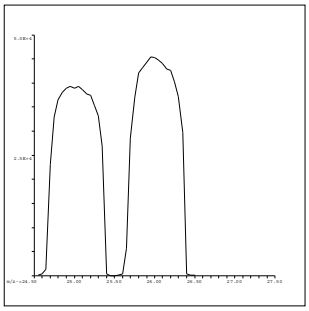
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



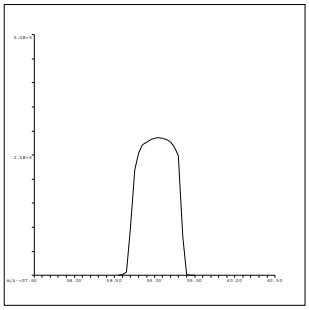
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



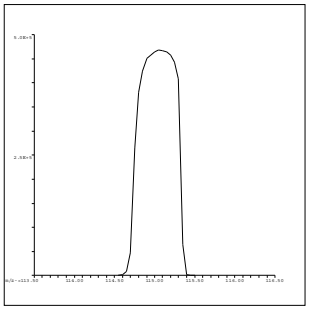
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



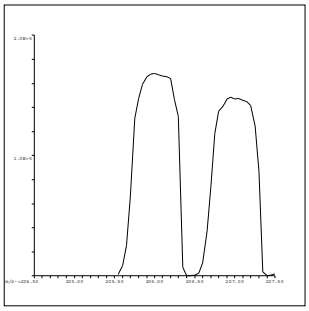
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



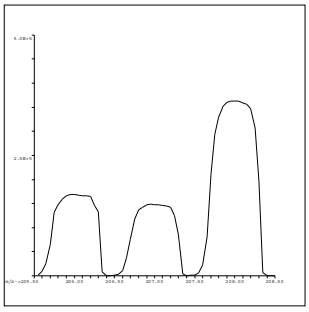
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



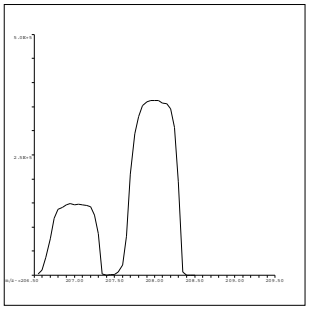
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:

QC Tune Result:Pass

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190307B**

**Instrument ID: ICPMS-02**

| Analyte | Data File | B0307002.D | B0307004.D | B0307005.D | B0307006.D | B0307007.D | B0307008.D | B0307009.D | B0307010.D | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 03/07/2019 10:59 PM | 03/07/2019 11:11 PM | 03/07/2019 11:17 PM | 03/07/2019 11:23 PM | 03/07/2019 11:29 PM | 03/07/2019 11:35 PM | 03/07/2019 11:40 PM | 03/07/2019 11:46 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 45 Sc ( ISTD ) [ 2 ] | CPS | 44110.1 | 43477.6 | 42278.8 | 41929 | 40388.5 | 40029 | 38764.8 | 36780.2 | |
| 55 Mn [ 2 ] | CPS | 115 | 857.7 | 7779.7 | 14739.3 | 29099 | 56603.9 | 135410.4 | 254609.5 | 1.0000 |
| 52 Cr [ 2 ] | CPS | 254.1 | 1747.7 | 15459.5 | 30126.3 | 57900.2 | 112268.6 | 268486.7 | 505126.4 | 1.0000 |

| Standard Code |
|---|
| ICAL: 2MSST-180608B |
| ICAL: 2MSST-180205B |
| ICAL: 2MWST-181001C |
| IS Mix: 2MWST-181126B |

Calibration Acceptance Criteria: > 0.995 Correlation

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/7/2019** | SeqNo: **3312895** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 108.310 | 0.50 | 100.0 | 0 | 108 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312900** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 0.571 | 0.50 | 0.5000 | 0 | 114 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312911** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 20.950 | 0.50 | 20.00 | 0 | 105 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312923** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 20.893 | 0.50 | 20.00 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312934** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 20.912 | 0.50 | 20.00 | 0 | 105 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312946** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 21.100 | 0.50 | 20.00 | 0 | 105 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312960** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 21.539 | 0.50 | 20.00 | 0 | 108 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312972** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 21.158 | 0.50 | 20.00 | 0 | 106 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312975** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 21.255 | 0.50 | 20.00 | 0 | 106 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/7/2019** | SeqNo: **3313002** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.762 | 1.0 | 10.00 | 0 | 108 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313004** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 1.042 | 1.0 | 1.000 | 0 | 104 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313018** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.695 | 1.0 | 20.00 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313030** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.701 | 1.0 | 20.00 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313041** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.699 | 1.0 | 20.00 | 0 | 103 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313053** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.550 | 1.0 | 20.00 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313067** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 21.070 | 1.0 | 20.00 | 0 | 105 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313079** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.645 | 1.0 | 20.00 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313082** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.847 | 1.0 | 20.00 | 0 | 104 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **ICB** | **ICB** | **200.8_WDISS** | **µg/L** | | **132392** |
| Client ID: **ICB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/7/2019** | SeqNo: **3312896** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 0.365 | 0.50 | | | | | | | | | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **CCB1** | **CCB** | **200.8_WDISS** | **µg/L** | | **132392** |
| Client ID: **CCB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312912** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **CCB2** | **CCB** | **200.8_WDISS** | **µg/L** | | **132392** |
| Client ID: **CCB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312924** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **CCB3** | **CCB** | **200.8_WDISS** | **µg/L** | | **132392** |
| Client ID: **CCB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312935** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **CCB4** | **CCB** | **200.8_WDISS** | **µg/L** | | **132392** |
| Client ID: **CCB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312947** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

Mn in ICB has detect > 1/2 RL however, samples for this analyte are > 5x the ICB detection.

3/14/2019

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312961** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312973** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312976** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/7/2019** | SeqNo: **3313003** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313019** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313031** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313042** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313054** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313068** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313080** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313083** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312898** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312899** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 20.452 | 0.50 | 20.00 | 0 | 102 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312948** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312949** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 21.436 | 0.50 | 20.00 | 0 | 107 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312977** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **200.8_WDISS** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3312978** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 18.357 | 0.50 | 20.00 | 0 | 91.8 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313005** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313006** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 21.427 | 1.0 | 20.00 | 0 | 107 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313055** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313056** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 22.346 | 1.0 | 20.00 | 0 | 112 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313084** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **200.8DIS_Cr** | Units: **µg/L** | Prep Date: | RunNo: **132392** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132392** | TestNo: **EPA 200.8** | | Analysis Date: **3/8/2019** | SeqNo: **3313085** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 21.394 | 1.0 | 20.00 | 0 | 107 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190307B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 44110.1 | 44110.1 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 44649.7 | 44110.1 | 101.22 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 43477.6 | 44110.1 | 98.57 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 42278.8 | 44110.1 | 95.85 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 41929 | 44110.1 | 95.055 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 40388.5 | 44110.1 | 91.56 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 40029 | 44110.1 | 90.75 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 38764.8 | 44110.1 | 87.88 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 36780.2 | 44110.1 | 83.38 | PASS | 70-125 |
| ICV | ICV | 1 | 44169.1 | 44110.1 | 100.13 | PASS | 70-125 |
| ICB | ICB | 1 | 43714.6 | 44110.1 | 99.1 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 51876.8 | 44110.1 | 117.61 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 43007.4 | 44110.1 | 97.5 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 38201.2 | 44110.1 | 86.6 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 43669.1 | 44110.1 | 99 | PASS | 70-125 |
| CCV1 | CCV | 1 | 37781.4 | 44110.1 | 85.65 | PASS | 70-125 |
| CCB1 | CCB | 1 | 36698.9 | 44110.1 | 83.2 | PASS | 70-125 |
| CCV2 | CCV | 1 | 49916.5 | 44110.1 | 113.16 | PASS | 70-125 |
| CCB2 | CCB | 1 | 46946.9 | 44110.1 | 106.43 | PASS | 70-125 |
| MB-72774 | MBLK | 1 | 45618.7 | 44110.1 | 103.42 | PASS | 70-125 |
| LCS-72774 | LCS | 1 | 49506.3 | 44110.1 | 112.23 | PASS | 70-125 |
| N034443-001B | SAMP | 1 | 42774.6 | 44110.1 | 96.97 | PASS | 70-125 |
| N034443-001B | SAMP | 5 | 45227.6 | 44110.1 | 102.53 | PASS | 70-125 |
| N034443-001B-PS | PS | 1 | 43027.6 | 44110.1 | 97.55 | PASS | 70-125 |
| N034443-001B-MS | MS | 1 | 44206 | 44110.1 | 100.22 | PASS | 70-125 |
| CCV3 | CCV | 1 | 49028.3 | 44110.1 | 111.15 | PASS | 70-125 |
| CCB3 | CCB | 1 | 36966.2 | 44110.1 | 83.8 | PASS | 70-125 |
| N034443-001B-MSD | MSD | 1 | 42894.9 | 44110.1 | 97.25 | PASS | 70-125 |
| N034443-002B | SAMP | 1 | 43024.1 | 44110.1 | 97.54 | PASS | 70-125 |
| N034444-001C | SAMP | 1 | 46928.9 | 44110.1 | 106.39 | PASS | 70-125 |
| N034444-002E | SAMP | 1 | 47608.6 | 44110.1 | 107.93 | PASS | 70-125 |
| N034412-001B | SAMP | 1 | 55971.2 | 44110.1 | 126.89 | NR! | 70-125 |
| N034451-001A | SAMP | 1 | 52400.8 | 44110.1 | 118.8 | PASS | 70-125 |
| N034451-002A | SAMP | 1 | 46577.9 | 44110.1 | 105.59 | PASS | 70-125 |
| N034451-003A | SAMP | 1 | 49613.6 | 44110.1 | 112.48 | PASS | 70-125 |
| N034451-004A | SAMP | 1 | 47410.4 | 44110.1 | 107.48 | PASS | 70-125 |
| N034456-001C | SAMP | 1 | 47787.1 | 44110.1 | 108.34 | PASS | 70-125 |
| CCV4 | CCV | 1 | 48875.7 | 44110.1 | 110.8 | PASS | 70-125 |
| CCB4 | CCB | 1 | 46594.7 | 44110.1 | 105.63 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 37370.4 | 44110.1 | 84.72 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 42024.9 | 44110.1 | 95.27 | PASS | 70-125 |

**INTERNAL STANDARD: 190307B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| CCV5 | CCV | 1 | 44102.4 | 44110.1 | 99.98 | PASS | 70-125 |
| CCB5 | CCB | 1 | 41698.3 | 44110.1 | 94.53 | PASS | 70-125 |
| N034443-001B | SAMP | 10 | 36897.1 | 44110.1 | 83.65 | PASS | 70-125 |
| N034443-001B | SAMP | 50 | 38544.2 | 44110.1 | 87.38 | PASS | 70-125 |
| N034443-001B-PS | PS | 10 | 38017.6 | 44110.1 | 86.19 | PASS | 70-125 |
| N034443-001B-MS | MS | 10 | 38378.4 | 44110.1 | 87.006 | PASS | 70-125 |
| N034443-001B-MSD | MSD | 10 | 37358.1 | 44110.1 | 84.69 | PASS | 70-125 |
| N034443-002B | SAMP | 5 | 37030.8 | 44110.1 | 83.95 | PASS | 70-125 |
| N034444-001C | SAMP | 5 | 36872.6 | 44110.1 | 83.59 | PASS | 70-125 |
| N034456-001C | SAMP | 5 | 38573.2 | 44110.1 | 87.45 | PASS | 70-125 |
| CCV6 | CCV | 1 | 39916.4 | 44110.1 | 90.49 | PASS | 70-125 |
| CCB6 | CCB | 1 | 37123.1 | 44110.1 | 84.16 | PASS | 70-125 |
| N034456-001C | SAMP | 5 | 6.7 | 44110.1 | 0.015 | NR! | 70-125 |
| CCV7 | CCV | 1 | 39704.7 | 44110.1 | 90.013 | PASS | 70-125 |
| CCB7 | CCB | 1 | 35871.6 | 44110.1 | 81.32 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 35924.1 | 44110.1 | 81.44 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 32944.5 | 44110.1 | 74.69 | PASS | 70-125 |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-MS-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034443
Test Method: EPA 200.8
Analysis Date: 3/7/2019

Matrix: Groundwater
Batch No.: 72774

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr. The calculated concentration is <25RL.

| Sample ID | Analyte | Symbol | Units | Calc Val | Oqual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|---|
| N034443-001B DT 50x | Manganese | Mn | µg/L | 882.0142 | PASS | 855.4662 | 3.10% | 10 |
| N034443-001B DT 5x | Chromium | Cr | µg/L | 0 | NA | 0 | | 10 |

Note: NA - Not Applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_WDISS**

Sample ID **N034443-001B-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **132392**
Client ID: **ZZZZZZ** Batch ID: **72774** TestNo: **EPA 200.8** Analysis Date: **3/8/2019** SeqNo: **3312966**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 942.313 | 5.0 | 100.0 | 855.5 | 86.8 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8DIS_CrPGE**

Sample ID **N034443-001B-PS** SampType: **PS** TestCode: **200.8DIS_Cr** Units: **µg/L** Prep Date: RunNo: **132392**
Client ID: **ZZZZZZ** Batch ID: **72774** TestNo: **EPA 200.8** Analysis Date: **3/8/2019** SeqNo: **3313039**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.208 | 1.0 | 10.00 | 0 | 102 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

# MDL STUDY

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Amount of Sample:** 25 mL
**Units:** ug/L

| Analyte | AMT SPIKED, ppb | 1 | 2 | 3 | 4 | 5 | 6 | 7 | SD | MDL | LOD | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANTIMONY | 0.50 | 0.525 | 0.514 | 0.473 | 0.500 | 0.492 | 0.486 | 0.530 | 0.0210 | 0.0660 | 0.100 | 0.50 |
| ARSENIC | 0.10 | 0.099 | 0.104 | 0.087 | 0.048 | 0.060 | 0.069 | 0.120 | 0.0259 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 1.00 | 1.041 | 1.059 | 1.052 | 1.011 | 0.967 | 0.957 | 1.023 | 0.0403 | 0.1264 | 0.250 | 1.00 |
| BERYLLIUM | 0.50 | 0.469 | 0.476 | 0.473 | 0.495 | 0.480 | 0.488 | 0.507 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.50 | 0.515 | 0.513 | 0.492 | 0.534 | 0.499 | 0.483 | 0.508 | 0.0168 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 1.00 | 0.979 | 0.986 | 0.940 | 0.990 | 0.946 | 0.978 | 0.977 | 0.0197 | 0.0618 | 0.250 | 1.00 |
| COBALT | 0.50 | 0.499 | 0.489 | 0.486 | 0.488 | 0.465 | 0.502 | 0.505 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| COPPER | 1.00 | 1.110 | 0.667 | 1.039 | 1.060 | 1.006 | 1.099 | 1.075 | 0.1544 | 0.4850 | 0.500 | 1.00 |
| IRON | 10.00 | 10.873 | 10.802 | 10.142 | 9.991 | 9.846 | 9.852 | 10.596 | 0.4463 | 1.4014 | 2.500 | 10.00 |
| LEAD | 1.00 | 0.928 | 0.931 | 0.899 | 0.996 | 0.990 | 0.987 | 0.997 | 0.0406 | 0.1274 | 0.250 | 1.00 |
| MANGANESE | 0.50 | 0.577 | 0.588 | 0.561 | 0.566 | 0.517 | 0.541 | 0.520 | 0.0276 | 0.0866 | 0.100 | 0.50 |
| MOLYBDENUM | 0.50 | 0.514 | 0.504 | 0.467 | 0.478 | 0.456 | 0.433 | 0.527 | 0.0338 | 0.1061 | 0.250 | 0.50 |
| NICKEL | 1.00 | 0.961 | 0.965 | 0.977 | 0.907 | 0.914 | 0.962 | 1.075 | 0.0551 | 0.1731 | 0.250 | 1.00 |
| SELENIUM | 0.50 | 0.450 | 0.478 | 0.419 | 0.693 | 0.707 | 0.495 | 0.555 | 0.1155 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.50 | 0.558 | 0.511 | 0.490 | 0.542 | 0.458 | 0.490 | 0.684 | 0.0745 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.50 | 0.437 | 0.428 | 0.408 | 0.538 | 0.446 | 0.438 | 0.525 | 0.0504 | 0.1583 | 0.250 | 0.50 |
| URANIUM | 0.50 | 0.478 | 0.467 | 0.461 | 0.517 | 0.510 | 0.521 | 0.521 | 0.0267 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 1.00 | 0.950 | 0.969 | 0.900 | 0.844 | 0.829 | 0.848 | 1.053 | 0.0820 | 0.2574 | 0.500 | 1.00 |
| ZINC | 10.00 | 11.259 | 11.279 | 10.915 | 9.620 | 9.849 | 9.745 | 10.241 | 0.7235 | 2.2717 | 2.500 | 10.00 |

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Units:** ug/L

| Analyte | MDLs | MDLb | MDL | LOD | PQL |
|---|---|---|---|---|---|
| ANTIMONY | 0.0660 | 0.1564 | 0.1564 | 0.300 | 0.50 |
| ARSENIC | 0.0813 | 0.0387 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 0.1264 | 0.1497 | 0.1497 | 0.300 | 1.00 |
| BERYLLIUM | 0.0424 | 0.0153 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.0527 | 0.0060 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 0.0618 | 0.1298 | 0.1298 | 0.300 | 1.00 |
| COBALT | 0.0424 | 0.0339 | 0.0424 | 0.100 | 0.50 |
| COPPER | 0.4850 | 0.5459 | 0.5459 | 0.600 | 1.00 |
| IRON | 1.4014 | 4.3484 | 4.3484 | 5.000 | 10.00 |
| LEAD | 0.1274 | 0.1008 | 0.1274 | 0.300 | 1.00 |
| MANGANESE | 0.0866 | 0.2552 | 0.2552 | 0.300 | 0.50 |
| MOLYBDENUM | 0.1061 | 0.2149 | 0.2149 | 0.300 | 0.50 |
| NICKEL | 0.1731 | 0.2606 | 0.2606 | 0.300 | 1.00 |
| SELENIUM | 0.3628 | 0.0953 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.2340 | 0.2023 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.1583 | 0.1924 | 0.1924 | 0.300 | 0.50 |
| URANIUM | 0.0838 | 0.0020 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 0.2574 | 0.2768 | 0.2768 | 0.600 | 1.00 |
| ZINC | 2.2717 | 0.4511 | 2.2717 | 3.000 | 10.00 |

# EPA 218.6

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R132383
**ASSET #:** N034443

**Instrument ID:** IC-07
**Analyst:** RBA
**Date Analyzed:** 3/8/2019

**Method:**

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | X | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | X | | |
| 3. ICV within ± 10% of expected value. | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | X | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | X | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | X | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | X | | | X | | |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | X | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | X | | | X | | |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | X | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | X | | | X | | |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | X |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | X | | | X | | |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | X |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | X | | X | | | X |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | X | | | X | | |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | X |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | X | | | X | | |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | X |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | X | | |
| 21. Are all samples analyzed within hold time? | X | | | X | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | X |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | X | | |
| 24. LCS compounds are within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | X | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | X |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | X |
| 29. All manual integrations initialed, date and reasons included. | X | | | X | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | X | | |
| 31. All samples and QC raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | X | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 34 Is the QC summary report present and complete? | X | | | X | | |

Comments:

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: RBA  Date: 3/19/2019

2nd Level Reviewer: 3/19/2019  Date: —

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 218.6
**TEST NAME:** HEXAVALENT CHROMIUM BY IC
**MATRIX:** Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N034443-002A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 5.0392 * 100$$

$$Cr^{+6}, \mu g/L = 503.9200$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 500}$$

NS 3/19/2019

# ANALYSIS RUN LOG

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 1:17 PM | Not Reported |
| 10 | ICV | ICV | 1 | Hexavalent Chromium | 02/21/19 1:28 PM | Reported |
| 11 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/21/19 1:37 PM | Reported |
| 12 | ICB | ICB | 1 | Hexavalent Chromium | 02/21/19 1:47 PM | Reported |
| 13 | MB-R132043 | MBLK | 1 | Hexavalent Chromium | 02/21/19 1:56 PM | Reported |
| 14 | LCS-R132043 | LCS | 1 | Hexavalent Chromium | 02/21/19 2:06 PM | Reported |
| 15 | N034269-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:18 PM | Not Reported |
| 16 | N034271-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:30 PM | Not Reported |
| 17 | N034271-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:39 PM | Not Reported |
| 18 | N034104-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:49 PM | Reported |
| 19 | N034107-018A | SAMP | 5 | Hexavalent Chromium | 02/21/19 2:58 PM | Reported |
| 20 | N034269-001AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:08 PM | Not Reported |
| 21 | N034271-002AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:17 PM | Not Reported |
| 22 | N034271-001A | SAMP | 100 | Hexavalent Chromium | 02/21/19 3:27 PM | Reported |
| 23 | CCV-1 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 3:36 PM | Reported |
| 24 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/21/19 3:46 PM | Reported |
| 25 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 3:55 PM | Not Reported |
| 26 | N034269-001A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:03 PM | Reported |
| 27 | N034269-001AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:14 PM | Reported |
| 28 | N034271-002A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:24 PM | Not Reported |
| 29 | N034271-002AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:33 PM | Not Reported |
| 30 | N034104-009AMS | MS | 1 | Hexavalent Chromium | 02/21/19 4:43 PM | Reported |
| 31 | N034104-009AMSD | MSD | 1 | Hexavalent Chromium | 02/21/19 4:52 PM | Reported |
| 32 | N034107-018ADUP | DUP | 5 | Hexavalent Chromium | 02/21/19 5:02 PM | Reported |
| 33 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 5:11 PM | Reported |
| 34 | N034271-002A | SAMP | 10 | Hexavalent Chromium | 02/21/19 5:20 PM | Not Reported |
| 35 | CCV-2 | CCV | 1 | Hexavalent Chromium | 02/21/19 5:30 PM | Reported |
| 36 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/21/19 5:39 PM | Reported |
| 37 | N034271-002AMS | MS | 10 | Hexavalent Chromium | 02/21/19 5:52 PM | Not Reported |
| 38 | N034121-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:03 PM | Reported |
| 39 | N034121-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:13 PM | Reported |
| 40 | N034121-003A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:22 PM | Reported |
| 41 | N034121-004A | SAMP | 50 | Hexavalent Chromium | 02/21/19 6:32 PM | Reported |
| 42 | N034121-005A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:41 PM | Reported |

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034121-006A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:50 PM | Reported |
| 44 | N034121-007A | SAMP | 20 | Hexavalent Chromium | 02/21/19 7:00 PM | Reported |
| 45 | N034121-008A | SAMP | 5 | Hexavalent Chromium | 02/21/19 7:09 PM | Not Reported |
| 46 | N034121-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:19 PM | Reported |
| 47 | CCV-3 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 7:28 PM | Reported |
| 48 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/21/19 7:38 PM | Reported |
| 49 | N034121-010A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:47 PM | Not Reported |
| 50 | N034121-011A | SAMP | 10 | Hexavalent Chromium | 02/21/19 7:57 PM | Reported |
| 51 | N034121-008A | SAMP | 10 | Hexavalent Chromium | 02/21/19 8:06 PM | Reported |
| 52 | N034121-011A | SAMP | 20 | Hexavalent Chromium | 02/21/19 8:16 PM | Not Reported |
| 53 | CCV-4 | CCV | 1 | Hexavalent Chromium | 02/21/19 8:25 PM | Reported |
| 54 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/21/19 8:35 PM | Reported |
| 55 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 8:44 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190221B** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **22/Feb/19 08:53:05** |
| *No. of Injections:* | **58** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 9 | 1000 | Unknown | | 02/21/2019 13:17 | Finished | BLANK |
| 10 | ICV,ICV,1, | 10 | 1000 | Unknown | | 02/21/2019 13:28 | Finished | ICV @5ppb, IWST-190221B |
| 11 | PQL@0.2ppb,CCV2, | 11 | 1000 | Unknown | | 02/21/2019 13:37 | Finished | PQL @ 0.2ppb |
| 12 | ICB,ICB,1, | 12 | 1000 | Unknown | | 02/21/2019 13:47 | Finished | ICB R190115A |
| 13 | MB-H2O,MBLK,1, | 13 | 1000 | Unknown | | 02/21/2019 13:56 | Finished | MB R190115A |
| 14 | LCS-H2O,LCS,1, | 14 | 1000 | Unknown | | 02/21/2019 14:06 | Finished | LCS @5ppb, IWST-190221B |
| 15 | N034269-001A,SAMP | 16 | 1000 | Unknown | | 02/21/2019 14:18 | Finished | SAMP,10mL |
| 16 | N034271-001A,SAMP | 17 | 1000 | Unknown | | 02/21/2019 14:30 | Finished | SAMP,10mL |
| 17 | N034271-002A,SAMP | 18 | 1000 | Unknown | | 02/21/2019 14:39 | Finished | SAMP,10mL |
| 18 | N034104-009A,SAMP | 19 | 1000 | Unknown | | 02/21/2019 14:49 | Finished | SAMP,10mL |
| 19 | N034107-018A,SAMP | 20 | 1000 | Unknown | | 02/21/2019 14:58 | Finished | SAMP,2>10mL |
| 20 | N034269-001AMS,MS | 21 | 1000 | Unknown | | 02/21/2019 15:08 | Finished | SAMP,10mL |
| 21 | N034271-002AMS,MS | 22 | 1000 | Unknown | | 02/21/2019 15:17 | Finished | SAMP,10mL |
| 22 | N034271-001A,SAMP | 23 | 1000 | Unknown | | 02/21/2019 15:27 | Finished | SAMP,10mL |
| 23 | CCV-1,CCV1,1, | 24 | 1000 | Unknown | | 02/21/2019 15:36 | Finished | CCV @10ppb, IWST-190221A |
| 24 | CCB-1,CCB,1, | 25 | 1000 | Unknown | | 02/21/2019 15:46 | Finished | CCB R190115A |
| 25 | N034271-001AMS,MS | 26 | 1000 | Unknown | | 02/21/2019 15:55 | Interrupted | SAMP,2>10mL |
| 26 | N034269-001A,SAMP | 27 | 1000 | Unknown | | 02/21/2019 16:03 | Finished | SAMP,2>10mL |
| 27 | N034269-001AMS,MS | 28 | 1000 | Unknown | | 02/21/2019 16:14 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 28 | N034271-002A,SAMP | 29 | 1000 | Unknown | | 02/21/2019 16:24 | Finished | SAMP,2>10mL |
| 29 | N034271-002AMS,MS | 30 | 1000 | Unknown | | 02/21/2019 16:33 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 30 | N034104-009AMS,MS | 31 | 1000 | Unknown | | 02/21/2019 16:43 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034104-009AMSD,M | 32 | 1000 | Unknown | | 02/21/2019 16:52 | Finished | MSD (1ppb), IWST-190221B,10 |
| 32 | N034107-018ADUP,D | 33 | 1000 | Unknown | | 02/21/2019 17:02 | Finished | DUP,10mL |
| 33 | N034271-001AMS,MS | 34 | 1000 | Unknown | | 02/21/2019 17:11 | Finished | SAMP,10mL |
| 34 | N034271-002A,SAMP | 35 | 1000 | Unknown | | 02/21/2019 17:20 | Finished | SAMP,1>10mL |
| 35 | CCV-2,CCV,1, | 36 | 1000 | Unknown | | 02/21/2019 17:30 | Finished | CCV @5ppb, IWST-190221A |
| 36 | CCB-2,CCB,1, | 37 | 1000 | Unknown | | 02/21/2019 17:39 | Finished | CCB R190115A |
| 37 | N034271-002AMS,MS | 1 | 1000 | Unknown | | 02/21/2019 17:52 | Finished | MS (1ppb), IWST-190221B,1>1 |
| 38 | N034121-001A,SAMP | 2 | 1000 | Unknown | | 02/21/2019 18:03 | Finished | SAMP,10mL |
| 39 | N034121-002A,SAMP | 3 | 1000 | Unknown | | 02/21/2019 18:13 | Finished | SAMP,10mL |
| 40 | N034121-003A,SAMP | 4 | 1000 | Unknown | | 02/21/2019 18:22 | Finished | SAMP,10mL |
| 41 | N034121-004A,SAMP | 5 | 1000 | Unknown | | 02/21/2019 18:32 | Finished | SAMP,10mL |
| 42 | N034121-005A,SAMP | 6 | 1000 | Unknown | | 02/21/2019 18:41 | Finished | SAMP,10mL |
| 43 | N034121-006A,SAMP | 7 | 1000 | Unknown | | 02/21/2019 18:50 | Finished | SAMP,10mL |
| 44 | N034121-007A,SAMP | 8 | 1000 | Unknown | | 02/21/2019 19:00 | Finished | SAMP,10mL |
| 45 | N034121-008A,SAMP | 9 | 1000 | Unknown | | 02/21/2019 19:09 | Finished | SAMP,10mL |
| 46 | N034121-009A,SAMP | 10 | 1000 | Unknown | | 02/21/2019 19:19 | Finished | SAMP,10mL |
| 47 | CCV-3,CCV1,1, | 11 | 1000 | Unknown | | 02/21/2019 19:28 | Finished | CCV @10ppb, IWST-190221A |
| 48 | CCB-3,CCB,1, | 12 | 1000 | Unknown | | 02/21/2019 19:38 | Finished | CCB R190115A |
| 49 | N034121-010A,SAMP | 13 | 1000 | Unknown | | 02/21/2019 19:47 | Finished | SAMP,10mL |
| 50 | N034121-011A,SAMP | 14 | 1000 | Unknown | | 02/21/2019 19:57 | Finished | SAMP,10mL |
| 51 | N034121-008A,SAMP | 15 | 1000 | Unknown | | 02/21/2019 20:06 | Finished | SAMP,1>10mL |
| 52 | N034121-011A,SAMP | 16 | 1000 | Unknown | | 02/21/2019 20:16 | Finished | SAMP,1>10mL |
| 53 | CCV-4,CCV,1, | 17 | 1000 | Unknown | | 02/21/2019 20:25 | Finished | CCV @5ppb, IWST-190221A |
| 54 | CCB-4,CCB,1, | 18 | 1000 | Unknown | | 02/21/2019 20:35 | Finished | CCB R190115A |
| 55 | BLANK | 19 | 1000 | Unknown | | 02/21/2019 20:44 | Finished | BLANK |
| 56 | SHUTDOWN | 20 | 1000 | Unknown | | 02/21/2019 20:53 | Finished | |
| 57 | Eluent: R190219B | 21 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 58 | PCR: R190220A | 22 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

**INJECTION LOG: 190308A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/08/19 8:32 AM | Not Reported |
| 10 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/08/19 8:43 AM | Not Reported |
| 11 | CCV-1 | CCV | 1 | Hexavalent Chromium | 03/08/19 8:52 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 03/08/19 9:02 AM | Reported |
| 13 | CCB-1 | CCB | 1 | Hexavalent Chromium | 03/08/19 9:11 AM | Reported |
| 14 | MB-R132383 | MBLK | 1 | Hexavalent Chromium | 03/08/19 9:21 AM | Reported |
| 15 | LCS-R132383 | LCS | 1 | Hexavalent Chromium | 03/08/19 9:30 AM | Reported |
| 16 | N034442-002A | SAMP | 1 | Hexavalent Chromium | 03/08/19 9:40 AM | Reported |
| 17 | N034442-002AMS | MS | 1 | Hexavalent Chromium | 03/08/19 9:49 AM | Reported |
| 18 | N034483-003A | SAMP | 1 | Hexavalent Chromium | 03/08/19 9:58 AM | Reported |
| 19 | N034483-003AMS | MS | 1 | Hexavalent Chromium | 03/08/19 10:08 AM | Reported |
| 20 | N034443-001A | SAMP | 1 | Hexavalent Chromium | 03/08/19 10:17 AM | Reported |
| 21 | N034443-001AMS | MS | 1 | Hexavalent Chromium | 03/08/19 10:27 AM | Reported |
| 22 | N034444-002C | SAMP | 1 | Hexavalent Chromium | 03/08/19 10:36 AM | Reported |
| 23 | N034444-002CMS | MS | 1 | Hexavalent Chromium | 03/08/19 10:46 AM | Reported |
| 24 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 03/08/19 10:55 AM | Reported |
| 25 | CCB-2 | CCB | 1 | Hexavalent Chromium | 03/08/19 11:05 AM | Reported |
| 26 | N034443-002A | SAMP | 100 | Hexavalent Chromium | 03/08/19 11:14 AM | Reported |
| 27 | N034443-002AMS | MS | 100 | Hexavalent Chromium | 03/08/19 11:24 AM | Reported |
| 28 | N034443-002AMSD | MSD | 100 | Hexavalent Chromium | 03/08/19 11:33 AM | Reported |
| 29 | N034444-001B | SAMP | 100 | Hexavalent Chromium | 03/08/19 11:43 AM | Reported |
| 30 | N034444-001BMS | MS | 100 | Hexavalent Chromium | 03/08/19 11:52 AM | Reported |
| 31 | N034437-001A | SAMP | 1 | Hexavalent Chromium | 03/08/19 12:01 PM | Reported |
| 32 | N034437-002A | SAMP | 1 | Hexavalent Chromium | 03/08/19 12:11 PM | Reported |
| 33 | N034438-001A | SAMP | 1 | Hexavalent Chromium | 03/08/19 12:20 PM | Reported |
| 34 | N034439-001A | SAMP | 1 | Hexavalent Chromium | 03/08/19 12:30 PM | Reported |
| 35 | N034439-001ADUP | DUP | 1 | Hexavalent Chromium | 03/08/19 12:39 PM | Reported |
| 36 | CCV-3 | CCV | 1 | Hexavalent Chromium | 03/08/19 12:49 PM | Reported |
| 37 | CCB-3 | CCB | 1 | Hexavalent Chromium | 03/08/19 12:58 PM | Reported |
| 38 | N034439-002A | SAMP | 1 | Hexavalent Chromium | 03/08/19 1:08 PM | Reported |
| 39 | N034439-003A | SAMP | 1 | Hexavalent Chromium | 03/08/19 1:17 PM | Reported |
| 40 | N034439-004A | SAMP | 1 | Hexavalent Chromium | 03/08/19 1:27 PM | Reported |
| 41 | N034486-001A | SAMP | 20 | Hexavalent Chromium | 03/08/19 1:36 PM | Not Reported |
| 42 | N034486-002A | SAMP | 1 | Hexavalent Chromium | 03/08/19 1:45 PM | Reported |

**INJECTION LOG: 190308A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034487-001A | SAMP | 1 | Hexavalent Chromium | 03/08/19 1:55 PM | Reported |
| 44 | N034487-002A | SAMP | 1 | Hexavalent Chromium | 03/08/19 2:04 PM | Reported |
| 45 | N034488-001A | SAMP | 1 | Hexavalent Chromium | 03/08/19 2:14 PM | Reported |
| 46 | N034488-002A | SAMP | 1 | Hexavalent Chromium | 03/08/19 2:23 PM | Reported |
| 47 | N034486-001A | SAMP | 5 | Hexavalent Chromium | 03/08/19 2:33 PM | Reported |
| 48 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 03/08/19 2:42 PM | Reported |
| 49 | CCB-4 | CCB | 1 | Hexavalent Chromium | 03/08/19 2:52 PM | Reported |
| 50 | N034408-004A | SAMP | 5 | Hexavalent Chromium | 03/08/19 3:01 PM | Not Reported |
| 51 | N034408-004AMS | MS | 5 | Hexavalent Chromium | 03/08/19 3:11 PM | Not Reported |
| 52 | CCV-5 | CCV | 1 | Hexavalent Chromium | 03/08/19 3:20 PM | Reported |
| 53 | CCB-5 | CCB | 1 | Hexavalent Chromium | 03/08/19 3:30 PM | Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190308A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **08/Mar/19 17:01:36** |
| *No. of Injections:* | **56** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 1 | 1000 | Unknown | | 03/08/2019 08:32 | Finished | BLANK |
| 10 | BLANK | 2 | 1000 | Unknown | | 03/08/2019 08:43 | Finished | BLANK |
| 11 | CCV-1,CCV,1, | 3 | 1000 | Unknown | | 03/08/2019 08:52 | Finished | CCV @5ppb, IWST-190221B |
| 12 | PQL@0.2ppb,CCV2,1 | 4 | 1000 | Unknown | | 03/08/2019 09:02 | Finished | PQL @ 0.2ppb |
| 13 | CCB-1,CCB,1, | 5 | 1000 | Unknown | | 03/08/2019 09:11 | Finished | CCB R190211C |
| 14 | MB-H2O,MBLK,1, | 6 | 1000 | Unknown | | 03/08/2019 09:21 | Finished | MB R190211C |
| 15 | LCS-H2O,LCS,1, | 7 | 1000 | Unknown | | 03/08/2019 09:30 | Finished | LCS @5ppb, IWST-190221B |
| 16 | N034442-002A,SAMP | 8 | 1000 | Unknown | | 03/08/2019 09:40 | Finished | SAMP,10mL |
| 17 | N034442-002AMS,MS | 9 | 1000 | Unknown | | 03/08/2019 09:49 | Finished | MS (1ppb), IWST-190221B,10 |
| 18 | N034483-003A,SAMP | 10 | 1000 | Unknown | | 03/08/2019 09:58 | Finished | SAMP,10mL |
| 19 | N034483-003AMS,MS | 11 | 1000 | Unknown | | 03/08/2019 10:08 | Finished | MS (1ppb), IWST-190221B,10 |
| 20 | N034443-001A,SAMP | 12 | 1000 | Unknown | | 03/08/2019 10:17 | Finished | SAMP,10mL |
| 21 | N034443-001AMS,MS | 13 | 1000 | Unknown | | 03/08/2019 10:27 | Finished | SAMP,10mL |
| 22 | N034444-002C,SAMP | 14 | 1000 | Unknown | | 03/08/2019 10:36 | Finished | MS (1ppb), IWST-190221B,10 |
| 23 | N034444-002CMS,MS | 15 | 1000 | Unknown | | 03/08/2019 10:46 | Finished | MS (1ppb), IWST-190221B,10 |
| 24 | CCV-2,CCV1,1, | 16 | 1000 | Unknown | | 03/08/2019 10:55 | Finished | CCV @10ppb, IWST-190221A |
| 25 | CCB-2,CCB,1, | 17 | 1000 | Unknown | | 03/08/2019 11:05 | Finished | CCB R190211C |
| 26 | N034443-002A,SAMP | 18 | 1000 | Unknown | | 03/08/2019 11:14 | Finished | SAMP,0.1>10mL |
| 27 | N034443-002AMS,MS | 19 | 1000 | Unknown | | 03/08/2019 11:24 | Finished | MS (5ppb), IWST-190221B,0.1 |
| 28 | N034443-002AMSD,M | 20 | 1000 | Unknown | | 03/08/2019 11:33 | Finished | MSD (5ppb), IWST-190221B,0. |
| 29 | N034444-001B,SAMP | 21 | 1000 | Unknown | | 03/08/2019 11:43 | Finished | SAMP,0.1>10mL |
| 30 | N034444-001BMS,MS | 22 | 1000 | Unknown | | 03/08/2019 11:52 | Finished | MS (5ppb), IWST-190221B,0.1 |
| 31 | N034437-001A,SAMP | 23 | 1000 | Unknown | | 03/08/2019 12:01 | Finished | SAMP,10mL |
| 32 | N034437-002A,SAMP | 24 | 1000 | Unknown | | 03/08/2019 12:11 | Finished | SAMP,10mL |
| 33 | N034438-001A,SAMP | 25 | 1000 | Unknown | | 03/08/2019 12:20 | Finished | SAMP,10mL |
| 34 | N034439-001A,SAMP | 26 | 1000 | Unknown | | 03/08/2019 12:30 | Finished | SAMP,10mL |
| 35 | N034439-001ADUP,D | 27 | 1000 | Unknown | | 03/08/2019 12:39 | Finished | DUP,10mL |
| 36 | CCV-3,CCV,1, | 28 | 1000 | Unknown | | 03/08/2019 12:49 | Finished | CCV @5ppb, IWST-190221A |
| 37 | CCB-3,CCB,1, | 29 | 1000 | Unknown | | 03/08/2019 12:58 | Finished | CCB R190211C |
| 38 | N034439-002A,SAMP | 30 | 1000 | Unknown | | 03/08/2019 13:08 | Finished | SAMP,10mL |
| 39 | N034439-003A,SAMP | 31 | 1000 | Unknown | | 03/08/2019 13:17 | Finished | SAMP,10mL |
| 40 | N034439-004A,SAMP | 32 | 1000 | Unknown | | 03/08/2019 13:27 | Finished | SAMP,10mL |
| 41 | N034486-001A,SAMP | 33 | 1000 | Unknown | | 03/08/2019 13:36 | Finished | SAMP,0.5>10mL |
| 42 | N034486-002A,SAMP | 34 | 1000 | Unknown | | 03/08/2019 13:45 | Finished | SAMP,10mL |
| 43 | N034487-001A,SAMP | 35 | 1000 | Unknown | | 03/08/2019 13:55 | Finished | SAMP,10mL |
| 44 | N034487-002A,SAMP | 36 | 1000 | Unknown | | 03/08/2019 14:04 | Finished | SAMP,10mL |
| 45 | N034488-001A,SAMP | 37 | 1000 | Unknown | | 03/08/2019 14:14 | Finished | SAMP,10mL |
| 46 | N034488-002A,SAMP | 38 | 1000 | Unknown | | 03/08/2019 14:23 | Finished | SAMP,10mL |
| 47 | N034486-001A,SAMP | 39 | 1000 | Unknown | | 03/08/2019 14:33 | Finished | SAMP,2>10mL |
| 48 | CCV-4,CCV1,1, | 40 | 1000 | Unknown | | 03/08/2019 14:42 | Finished | CCV @10ppb, IWST-190221A |
| 49 | CCB-4,CCB,1, | 41 | 1000 | Unknown | | 03/08/2019 14:52 | Finished | CCB R190211C |
| 50 | N034408-004A,SAMP | 42 | 1000 | Unknown | | 03/08/2019 15:01 | Finished | SAMP,2>10mL |
| 51 | N034408-004AMS,MS | 43 | 1000 | Unknown | | 03/08/2019 15:11 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 52 | CCV-5,CCV,1, | 44 | 1000 | Unknown | | 03/08/2019 15:20 | Finished | CCV @5ppb, IWST-190221A |
| 53 | CCB-5,CCB,1, | 45 | 1000 | Unknown | | 03/08/2019 15:30 | Finished | CCB R190115A |
| 54 | SHUTDOWN | 47 | 1000 | Unknown | | 03/08/2019 15:39 | Finished | |
| 55 | Eluent: R190307B | 48 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 56 | PCR: R190307C | 49 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# SAMPLE PREPARATION LOG

# Hexavalent Chromium Preparation and Runlog

## Sample Preparation

Date Prepared: 3/6/19
Time Prepared: 0905
Prepared By: NBA

Slope: 97.0%
pH 4: 4.04
7: 7.00
10: 10:00

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CLNN-181102A
NH4OH + NH4SO4 eluent: M903014A/M903073B
NH4OH + NH4SO4 buffer: M902HC

6N NaOH
M1809HC

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | M034437-001A | 6.87 | 9.33 | ~250ml | ~250ml | +3ml M902HC | +4 dips NaOH |
| 2) | 2A | 9.60 | - | | | | |
| 3) | M034438-1A | 9.02 | 9.32 | | | +5 dips NaOH | |
| 4) | M034439-1A | 9.65 | 9.43 | | | +4 " " | |
| 5) | 2A | 9.24 | 9.34 | | | +2 " " | |
| 6) | 3A | 9.43 | - | | | | |
| 7) | 4A | 9.36 | - | | | | |
| 8) | M034441-1A | 9.62 | - | | | | |
| 9) | M034442-2A | 9.69 | - | | | | |
| 10) | M034443-1A | 9.25 | 9.41 | | | +2 " " | |
| 11) | 2A | 9.59 7.82 | - | | | | |
| 12) | M034444-1B | ~~9.59~~ | 9.59 | | | +5ml M902HC | |
| 13) | 2C | 7.69 | 9.67 | | | +5 " " | |
| 14) | | | | | | | |
| 15) | | | | | | | |

## Sample Preparation

Date Prepared: 3/7/19
Time Prepared: 0904H
Prepared By: NBA

Slope: 96.7%
pH 4: 4.02
7: 7.00
10:

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CLNN-181102A
NH4OH + NH4SO4 eluent: M903073B/K
NH4OH + NH4SO4 buffer: M902HC

6N NaOH
M1809HC

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | M034482-001A | 9.65 | - | ~250ml | ~250ml | | |
| 2) | 2A | 8.65 | - | | | | |
| 3) | M034483-3A | 9.68 | - | | | | |
| 4) | M034484-1A | 9.67 | - | | | | |
| 5) | 2A | 8.99 | 9.46 | | | +4 dips NaOH | |
| 6) | 3A | 9.65 | - | | | | |
| 7) | M034486-1A | 9.52 | - | | | | |
| 8) | 2A | 8.70 | 9.45 | | | +6 " " | |
| 9) | M034487-1A | 9.46 | - | | | | |
| 10) | 2A | 9.42 | - | | | | |
| 11) | M034488-1A | 9.43 | - | | | | |
| 12) | 2A | 9.70 | - | | | | |
| 13) | | | | | | | |
| 14) | | | | | | | |
| 15) | | | | | | | |

Logbook No. 15

# INITIAL CALIBRATION DATA SUMMARY

**(EPA 218.6) - INITIAL CALIBRATION**

Instrument ID: IC-07
Date Calibrated: 2/21/2019

Initial Calibration:

| Hexavalent Chromium | STD1 | STD2 | STD3 | STD4 | STD5 | STD6 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0.2 | 1 | 5 | 10 | 15 | 20 | $R^2$ |
| Area,mAU*min | 0.0556 | 0.2392 | 1.2310 | 2.4655 | 3.7365 | 4.9505 | 1.0000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock | Working |
|---|---|---|
| Standard Concentration: | 1,000,000 PPB | 1,000 PPB |
| Standard ID: | ISST-170814H | IWST-190221A |

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132383** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132383** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3312455** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.126 | 0.20 | 5.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132383** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132383** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3312456** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.232 | 0.20 | 0.2000 | 0 | 116 | 80 | 120 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132383** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132383** | TestNo: **EPA 218.6** | | Analysis Date: **3/8/2019** | SeqNo: **3312458** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.120 | 0.20 | 5.000 | 0 | 102 | 95 | 105 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132383** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132383** | TestNo: **EPA 218.6** | | Analysis Date: **3/8/2019** | SeqNo: **3312459** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.226 | 0.20 | 0.2000 | 0 | 113 | 80 | 120 | | | | |

| Sample ID **CCV-2** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132383** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132383** | TestNo: **EPA 218.6** | | Analysis Date: **3/8/2019** | SeqNo: **3312471** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.197 | 0.20 | 10.00 | 0 | 102 | 95 | 105 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132383** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132383** | TestNo: **EPA 218.6** | | Analysis Date: **3/8/2019** | SeqNo: **3312483** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.051 | 0.20 | 5.000 | 0 | 101 | 95 | 105 | | | | |

| Sample ID **CCV-4** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132383** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132383** | TestNo: **EPA 218.6** | | Analysis Date: **3/8/2019** | SeqNo: **3312494** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.221 | 0.20 | 10.00 | 0 | 102 | 95 | 105 | | | | |

| Sample ID **CCV-5** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132383** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132383** | TestNo: **EPA 218.6** | | Analysis Date: **3/8/2019** | SeqNo: **3312496** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.125 | 0.20 | 5.000 | 0 | 103 | 95 | 105 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132383** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132383** | TestNo: **EPA 218.6** | | Analysis Date: **2/21/2019** | SeqNo: **3312457** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132383** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132383** | TestNo: **EPA 218.6** | | Analysis Date: **3/8/2019** | SeqNo: **3312460** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132383** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132383** | TestNo: **EPA 218.6** | | Analysis Date: **3/8/2019** | SeqNo: **3312472** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132383** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132383** | TestNo: **EPA 218.6** | | Analysis Date: **3/8/2019** | SeqNo: **3312484** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132383** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132383** | TestNo: **EPA 218.6** | | Analysis Date: **3/8/2019** | SeqNo: **3312495** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **CCB-5** SampType: **CCB** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132383**
Client ID: **CCB** Batch ID: **R132383** TestNo: **EPA 218.6** Analysis Date: **3/8/2019** SeqNo: **3312497**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

# RETENTION TIME SUMMARY

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 3/8/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.106 | |
| CCV-1 | 4.098 | |
| CCV-2 | 4.098 | |
| CCV-3 | 4.098 | |
| CCV-4 | 4.098 | |
| CCV-5 | 4.098 | |
| **Average** | 4.098 | |
| **Actual RT Window** | 4.018 - 4.178 | |
| **Applied RT Window** | 3.898 - 4.298 | |
| MB-R132383 | N.A. | N.A. |
| LCS-R132383 | 4.098 | PASS |
| N034442-002A | 4.081 | PASS |
| N034442-002AMS | 4.090 | PASS |
| N034483-003A | N.A. | N.A. |
| N034483-003AMS | 4.090 | PASS |
| N034443-001A | N.A. | N.A. |
| N034443-001AMS | 4.048 | PASS |
| N034444-002C | N.A. | N.A. |
| N034444-002CMS | 3.956 | PASS |
| N034443-002A | 4.098 | PASS |
| N034443-002AMS | 4.098 | PASS |
| N034443-002AMSD | 4.098 | PASS |
| N034444-001B | 4.098 | PASS |
| N034444-001BMS | 4.098 | PASS |
| N034437-001A | 4.015 | PASS |
| N034437-002A | 4.081 | PASS |
| N034438-001A | 4.073 | PASS |
| N034439-001A | 4.090 | PASS |
| N034439-001ADUP | 4.090 | PASS |
| N034439-002A | 4.081 | PASS |
| N034439-003A | 4.081 | PASS |

## RETENTION TIME (RT) SUMMARY

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 3/8/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.106 | |
| CCV-1 | 4.098 | |
| CCV-2 | 4.098 | |
| CCV-3 | 4.098 | |
| CCV-4 | 4.098 | |
| CCV-5 | 4.098 | |
| **Average** | 4.098 | |
| **Actual RT Window** | 4.018 - 4.178 | |
| **Applied RT Window** | 3.898 - 4.298 | |
| N034439-004A | 4.081 | PASS |
| N034486-001A | 4.098 | PASS |
| N034486-002A | 4.023 | PASS |
| N034487-001A | 4.081 | PASS |
| N034487-002A | 4.081 | PASS |
| N034488-001A | 4.090 | PASS |
| N034488-002A | N.A. | N.A. |
| N034486-001A | 4.090 | PASS |
| N034408-004A | 4.023 | PASS |
| N034408-004AMS | 4.031 | PASS |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

| Datafile | 170505 | 170508 | 170509 | 170510 | 170511 | 170512 | 170515 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte** | **#1** | **#2** | **#3** | **#4** | **#5** | **#6** | **#7** | **Spike Conc., mg/L** | **SD** | **$t_{(n-1)}$ value** | **MDL** | **PQL** | **Remarks** |
| Hexavalent Chromium | 0.1949 | 0.2135 | 0.1840 | 0.1828 | 0.2011 | 0.1936 | 0.1911 | 0.20 | 0.0105 | 3.143 | **0.0331** | **0.20** | OK,meets criteria |

Students' **t** Values at 99% CL

| # | $t_{(n-1)}$ |
|---|---|
| 10 | 2.821 |
| 9 | 2.896 |
| 8 | 2.998 |
| 7 | 3.143 |

## LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

| Compound | MDL | LOD Spike Conc., µg/L | LOD actual Conc., µg/L |
|---|---|---|---|
| Hexavalent Chromium | 0.0331 | 0.100 | 0.116 |

| Compound | PQL | PQL Spike Conc., µg/L | PQL actual Conc., µg/L | % Recovery |
|---|---|---|---|---|
| Hexavalent Chromium | 0.200 | 0.200 | 0.201 | **100** |

# RAW DATA

# INITIAL CALIBRATION

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 1:17 PM | Not Reported |
| 10 | ICV | ICV | 1 | Hexavalent Chromium | 02/21/19 1:28 PM | Reported |
| 11 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 02/21/19 1:37 PM | Reported |
| 12 | ICB | ICB | 1 | Hexavalent Chromium | 02/21/19 1:47 PM | Reported |
| 13 | MB-R132043 | MBLK | 1 | Hexavalent Chromium | 02/21/19 1:56 PM | Reported |
| 14 | LCS-R132043 | LCS | 1 | Hexavalent Chromium | 02/21/19 2:06 PM | Reported |
| 15 | N034269-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:18 PM | Not Reported |
| 16 | N034271-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:30 PM | Not Reported |
| 17 | N034271-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:39 PM | Not Reported |
| 18 | N034104-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 2:49 PM | Reported |
| 19 | N034107-018A | SAMP | 5 | Hexavalent Chromium | 02/21/19 2:58 PM | Reported |
| 20 | N034269-001AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:08 PM | Not Reported |
| 21 | N034271-002AMS | MS | 1 | Hexavalent Chromium | 02/21/19 3:17 PM | Not Reported |
| 22 | N034271-001A | SAMP | 100 | Hexavalent Chromium | 02/21/19 3:27 PM | Reported |
| 23 | CCV-1 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 3:36 PM | Reported |
| 24 | CCB-1 | CCB | 1 | Hexavalent Chromium | 02/21/19 3:46 PM | Reported |
| 25 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 3:55 PM | Not Reported |
| 26 | N034269-001A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:03 PM | Reported |
| 27 | N034269-001AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:14 PM | Reported |
| 28 | N034271-002A | SAMP | 5 | Hexavalent Chromium | 02/21/19 4:24 PM | Not Reported |
| 29 | N034271-002AMS | MS | 5 | Hexavalent Chromium | 02/21/19 4:33 PM | Not Reported |
| 30 | N034104-009AMS | MS | 1 | Hexavalent Chromium | 02/21/19 4:43 PM | Reported |
| 31 | N034104-009AMSD | MSD | 1 | Hexavalent Chromium | 02/21/19 4:52 PM | Reported |
| 32 | N034107-018ADUP | DUP | 5 | Hexavalent Chromium | 02/21/19 5:02 PM | Reported |
| 33 | N034271-001AMS | MS | 100 | Hexavalent Chromium | 02/21/19 5:11 PM | Reported |
| 34 | N034271-002A | SAMP | 10 | Hexavalent Chromium | 02/21/19 5:20 PM | Not Reported |
| 35 | CCV-2 | CCV | 1 | Hexavalent Chromium | 02/21/19 5:30 PM | Reported |
| 36 | CCB-2 | CCB | 1 | Hexavalent Chromium | 02/21/19 5:39 PM | Reported |
| 37 | N034271-002AMS | MS | 10 | Hexavalent Chromium | 02/21/19 5:52 PM | Not Reported |
| 38 | N034121-001A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:03 PM | Reported |
| 39 | N034121-002A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:13 PM | Reported |
| 40 | N034121-003A | SAMP | 1 | Hexavalent Chromium | 02/21/19 6:22 PM | Reported |
| 41 | N034121-004A | SAMP | 50 | Hexavalent Chromium | 02/21/19 6:32 PM | Reported |
| 42 | N034121-005A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:41 PM | Reported |

**INJECTION LOG: 190221B**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034121-006A | SAMP | 5 | Hexavalent Chromium | 02/21/19 6:50 PM | Reported |
| 44 | N034121-007A | SAMP | 20 | Hexavalent Chromium | 02/21/19 7:00 PM | Reported |
| 45 | N034121-008A | SAMP | 5 | Hexavalent Chromium | 02/21/19 7:09 PM | Not Reported |
| 46 | N034121-009A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:19 PM | Reported |
| 47 | CCV-3 | CCV1 | 1 | Hexavalent Chromium | 02/21/19 7:28 PM | Reported |
| 48 | CCB-3 | CCB | 1 | Hexavalent Chromium | 02/21/19 7:38 PM | Reported |
| 49 | N034121-010A | SAMP | 1 | Hexavalent Chromium | 02/21/19 7:47 PM | Not Reported |
| 50 | N034121-011A | SAMP | 10 | Hexavalent Chromium | 02/21/19 7:57 PM | Reported |
| 51 | N034121-008A | SAMP | 10 | Hexavalent Chromium | 02/21/19 8:06 PM | Reported |
| 52 | N034121-011A | SAMP | 20 | Hexavalent Chromium | 02/21/19 8:16 PM | Not Reported |
| 53 | CCV-4 | CCV | 1 | Hexavalent Chromium | 02/21/19 8:25 PM | Reported |
| 54 | CCB-4 | CCB | 1 | Hexavalent Chromium | 02/21/19 8:35 PM | Reported |
| 55 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 8:44 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190221B** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **22/Feb/19 08:53:05** |
| *No. of Injections:* | **58** | *Updated By:* | **ics 5000** |

## Injection Details

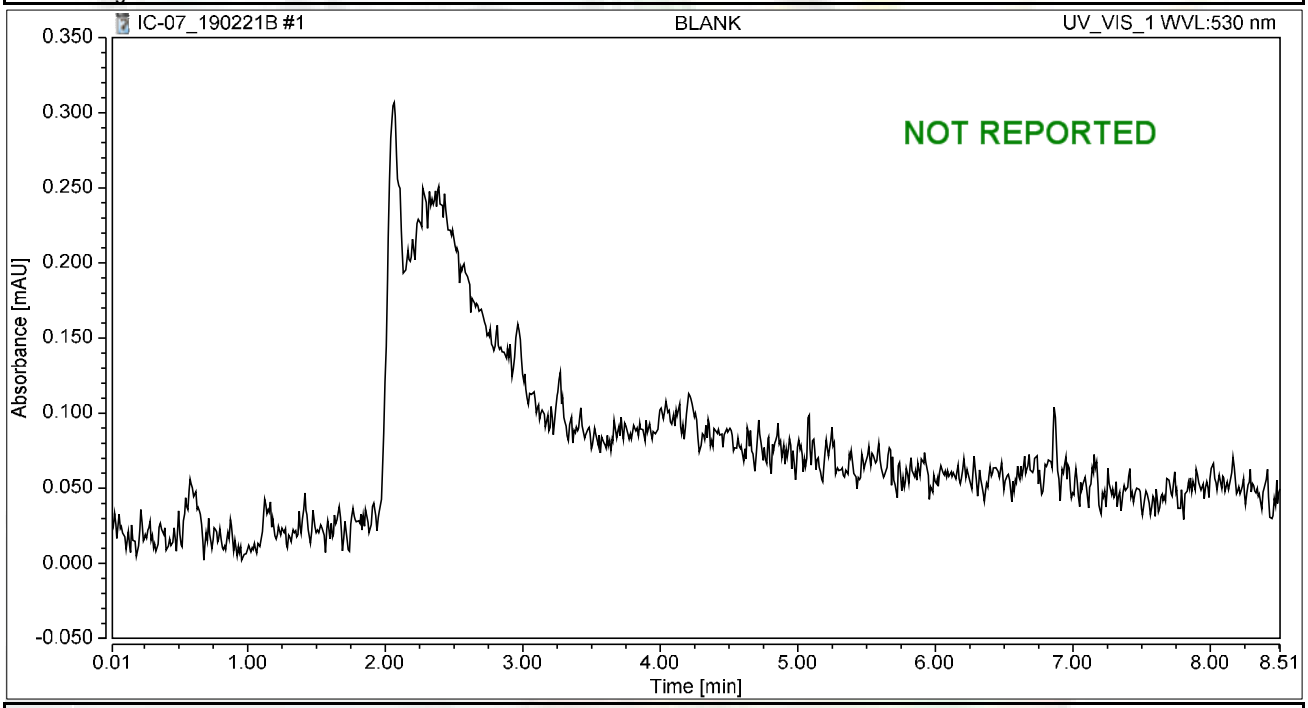
| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 9 | 1000 | Unknown | | 02/21/2019 13:17 | Finished | BLANK |
| 10 | ICV,ICV,1, | 10 | 1000 | Unknown | | 02/21/2019 13:28 | Finished | ICV @5ppb, IWST-190221B |
| 11 | PQL@0.2ppb,CCV2,1 | 11 | 1000 | Unknown | | 02/21/2019 13:37 | Finished | PQL @ 0.2ppb |
| 12 | ICB,ICB,1, | 12 | 1000 | Unknown | | 02/21/2019 13:47 | Finished | ICB R190115A |
| 13 | MB-H2O,MBLK,1, | 13 | 1000 | Unknown | | 02/21/2019 13:56 | Finished | MB R190115A |
| 14 | LCS-H2O,LCS,1, | 14 | 1000 | Unknown | | 02/21/2019 14:06 | Finished | LCS @5ppb, IWST-190221B |
| 15 | N034269-001A,SAMF | 16 | 1000 | Unknown | | 02/21/2019 14:18 | Finished | SAMP,10mL |
| 16 | N034271-001A,SAMF | 17 | 1000 | Unknown | | 02/21/2019 14:30 | Finished | SAMP,10mL |
| 17 | N034271-002A,SAMF | 18 | 1000 | Unknown | | 02/21/2019 14:39 | Finished | SAMP,10mL |
| 18 | N034104-009A,SAMF | 19 | 1000 | Unknown | | 02/21/2019 14:49 | Finished | SAMP,10mL |
| 19 | N034107-018A,SAMF | 20 | 1000 | Unknown | | 02/21/2019 14:58 | Finished | SAMP,2>10mL |
| 20 | N034269-001AMS,MS | 21 | 1000 | Unknown | | 02/21/2019 15:08 | Finished | SAMP,10mL |
| 21 | N034271-002AMS,MS | 22 | 1000 | Unknown | | 02/21/2019 15:17 | Finished | SAMP,10mL |
| 22 | N034271-001A,SAMF | 23 | 1000 | Unknown | | 02/21/2019 15:27 | Finished | SAMP,10mL |
| 23 | CCV-1,CCV1,1, | 24 | 1000 | Unknown | | 02/21/2019 15:36 | Finished | CCV @10ppb, IWST-190221A |
| 24 | CCB-1,CCB,1, | 25 | 1000 | Unknown | | 02/21/2019 15:46 | Finished | CCB R190115A |
| 25 | N034271-001AMS,MS | 26 | 1000 | Unknown | | 02/21/2019 15:55 | Interrupted | SAMP,2>10mL |
| 26 | N034269-001A,SAMF | 27 | 1000 | Unknown | | 02/21/2019 16:03 | Finished | SAMP,2>10mL |
| 27 | N034269-001AMS,MS | 28 | 1000 | Unknown | | 02/21/2019 16:14 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 28 | N034271-002A,SAMF | 29 | 1000 | Unknown | | 02/21/2019 16:24 | Finished | SAMP,2>10mL |
| 29 | N034271-002AMS,MS | 30 | 1000 | Unknown | | 02/21/2019 16:33 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 30 | N034104-009AMS,MS | 31 | 1000 | Unknown | | 02/21/2019 16:43 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034104-009AMSD,M | 32 | 1000 | Unknown | | 02/21/2019 16:52 | Finished | MSD (1ppb), IWST-190221B,10 |
| 32 | N034107-018ADUP,D | 33 | 1000 | Unknown | | 02/21/2019 17:02 | Finished | DUP,10mL |
| 33 | N034271-001AMS,MS | 34 | 1000 | Unknown | | 02/21/2019 17:11 | Finished | SAMP,10mL |
| 34 | N034271-002A,SAMF | 35 | 1000 | Unknown | | 02/21/2019 17:20 | Finished | SAMP,1>10mL |
| 35 | CCV-2,CCV,1, | 36 | 1000 | Unknown | | 02/21/2019 17:30 | Finished | CCV @5ppb, IWST-190221A |
| 36 | CCB-2,CCB,1, | 37 | 1000 | Unknown | | 02/21/2019 17:39 | Finished | CCB R190115A |
| 37 | N034271-002AMS,MS | 1 | 1000 | Unknown | | 02/21/2019 17:52 | Finished | MS (1ppb), IWST-190221B,1>1 |
| 38 | N034121-001A,SAMF | 2 | 1000 | Unknown | | 02/21/2019 18:03 | Finished | SAMP,10mL |
| 39 | N034121-002A,SAMF | 3 | 1000 | Unknown | | 02/21/2019 18:13 | Finished | SAMP,10mL |
| 40 | N034121-003A,SAMF | 4 | 1000 | Unknown | | 02/21/2019 18:22 | Finished | SAMP,10mL |
| 41 | N034121-004A,SAMF | 5 | 1000 | Unknown | | 02/21/2019 18:32 | Finished | SAMP,10mL |
| 42 | N034121-005A,SAMF | 6 | 1000 | Unknown | | 02/21/2019 18:41 | Finished | SAMP,10mL |
| 43 | N034121-006A,SAMF | 7 | 1000 | Unknown | | 02/21/2019 18:50 | Finished | SAMP,10mL |
| 44 | N034121-007A,SAMF | 8 | 1000 | Unknown | | 02/21/2019 19:00 | Finished | SAMP,10mL |
| 45 | N034121-008A,SAMF | 9 | 1000 | Unknown | | 02/21/2019 19:09 | Finished | SAMP,10mL |
| 46 | N034121-009A,SAMF | 10 | 1000 | Unknown | | 02/21/2019 19:19 | Finished | SAMP,10mL |
| 47 | CCV-3,CCV1,1, | 11 | 1000 | Unknown | | 02/21/2019 19:28 | Finished | CCV @10ppb, IWST-190221A |
| 48 | CCB-3,CCB,1, | 12 | 1000 | Unknown | | 02/21/2019 19:38 | Finished | CCB R190115A |
| 49 | N034121-010A,SAMF | 13 | 1000 | Unknown | | 02/21/2019 19:47 | Finished | SAMP,10mL |
| 50 | N034121-011A,SAMF | 14 | 1000 | Unknown | | 02/21/2019 19:57 | Finished | SAMP,10mL |
| 51 | N034121-008A,SAMF | 15 | 1000 | Unknown | | 02/21/2019 20:06 | Finished | SAMP,1>10mL |
| 52 | N034121-011A,SAMF | 16 | 1000 | Unknown | | 02/21/2019 20:16 | Finished | SAMP,1>10mL |
| 53 | CCV-4,CCV,1, | 17 | 1000 | Unknown | | 02/21/2019 20:25 | Finished | CCV @5ppb, IWST-190221A |
| 54 | CCB-4,CCB,1, | 18 | 1000 | Unknown | | 02/21/2019 20:35 | Finished | CCB R190115A |
| 55 | BLANK | 19 | 1000 | Unknown | | 02/21/2019 20:44 | Finished | BLANK |
| 56 | SHUTDOWN | 20 | 1000 | Unknown | | 02/21/2019 20:53 | Finished | |
| 57 | Eluent: R190219B | 21 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 58 | PCR: R190220A | 22 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 11:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

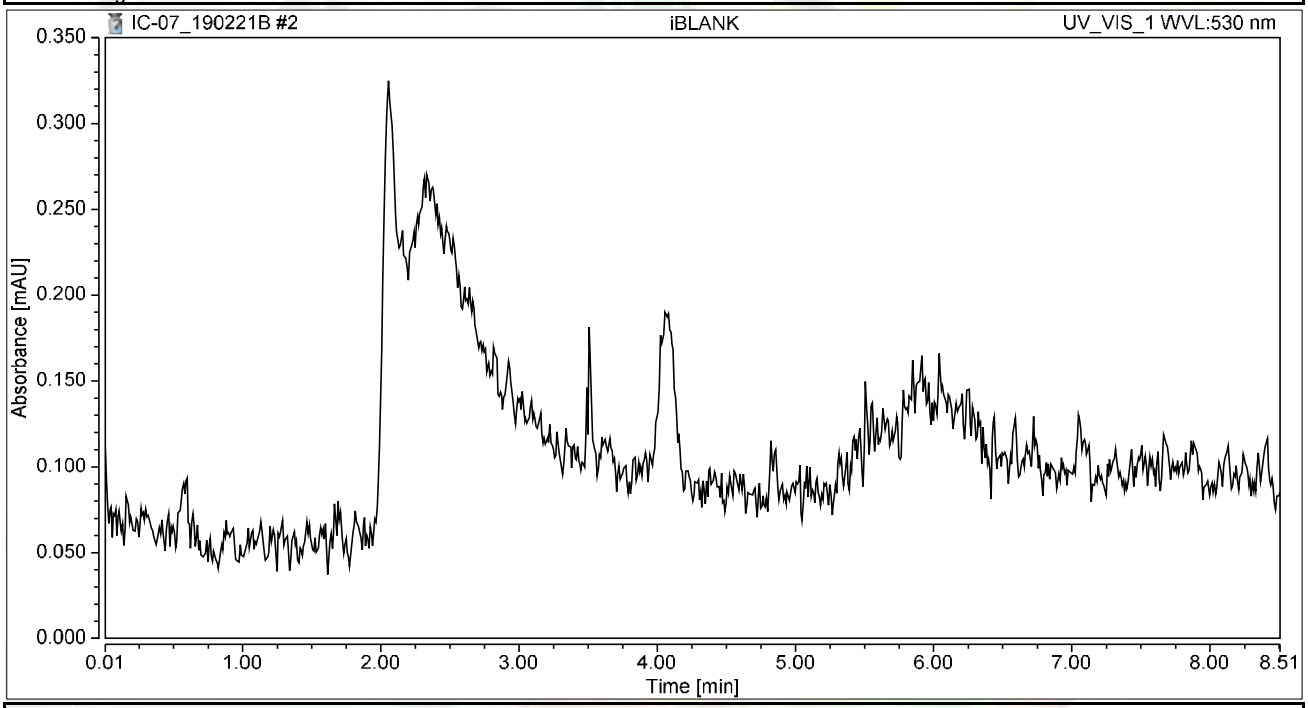
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **iBLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:04** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

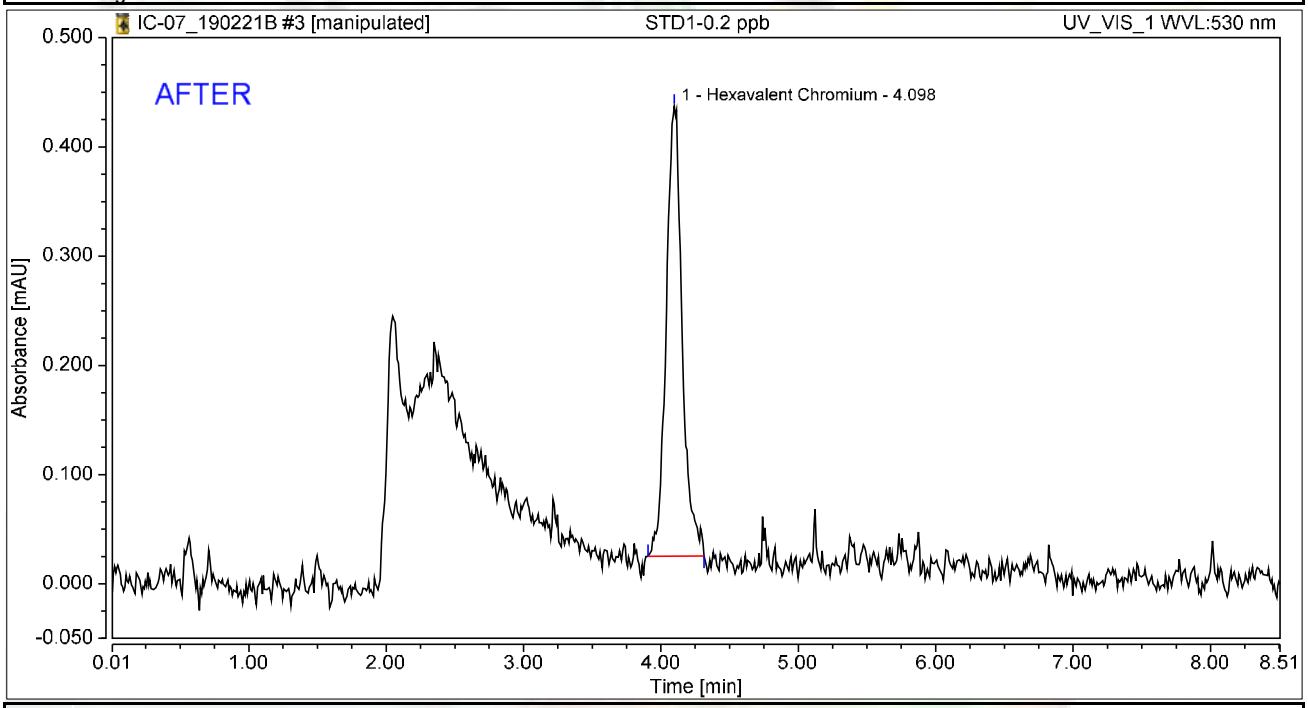
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD1-0.2 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **01** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.056 | 0.412 | 100.00 | 100.00 | 0.2243 |
| **Total:** | | | **0.056** | **0.412** | **100.00** | **100.00** | |

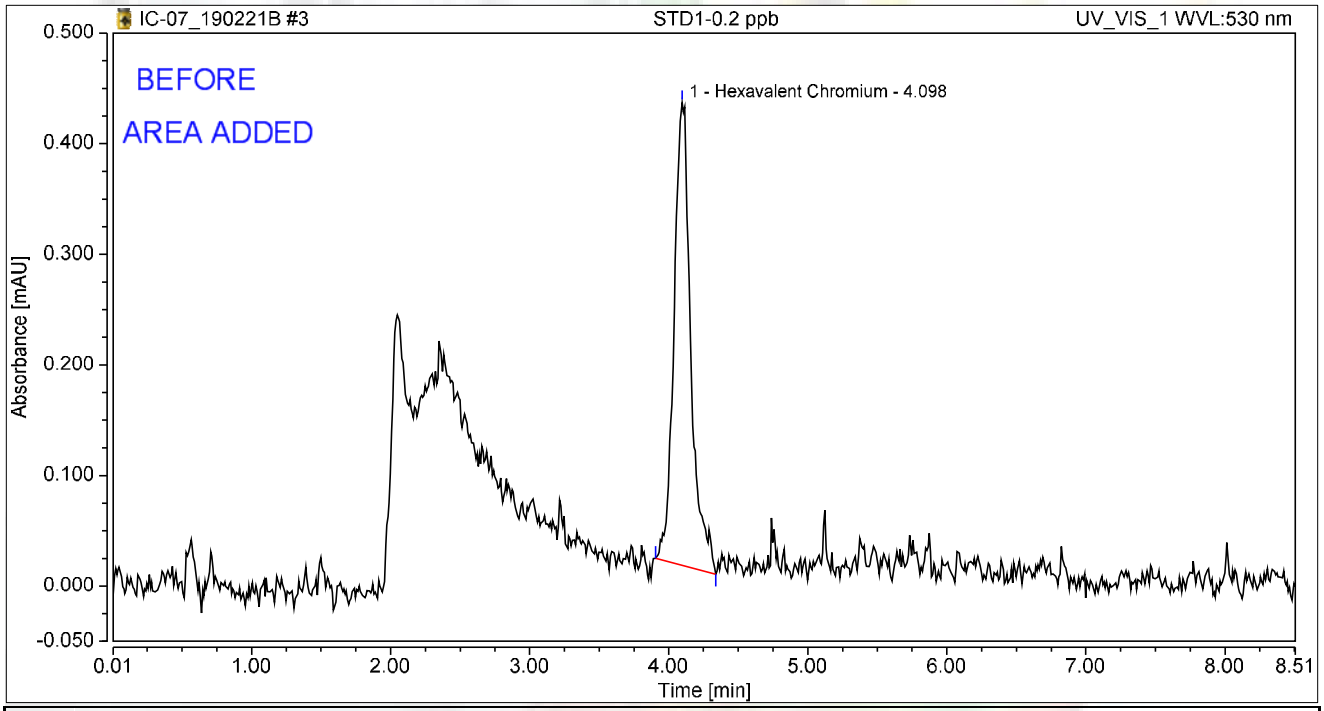
Reviewed by:
Nancy 2/28/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD1-0.2 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **01** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

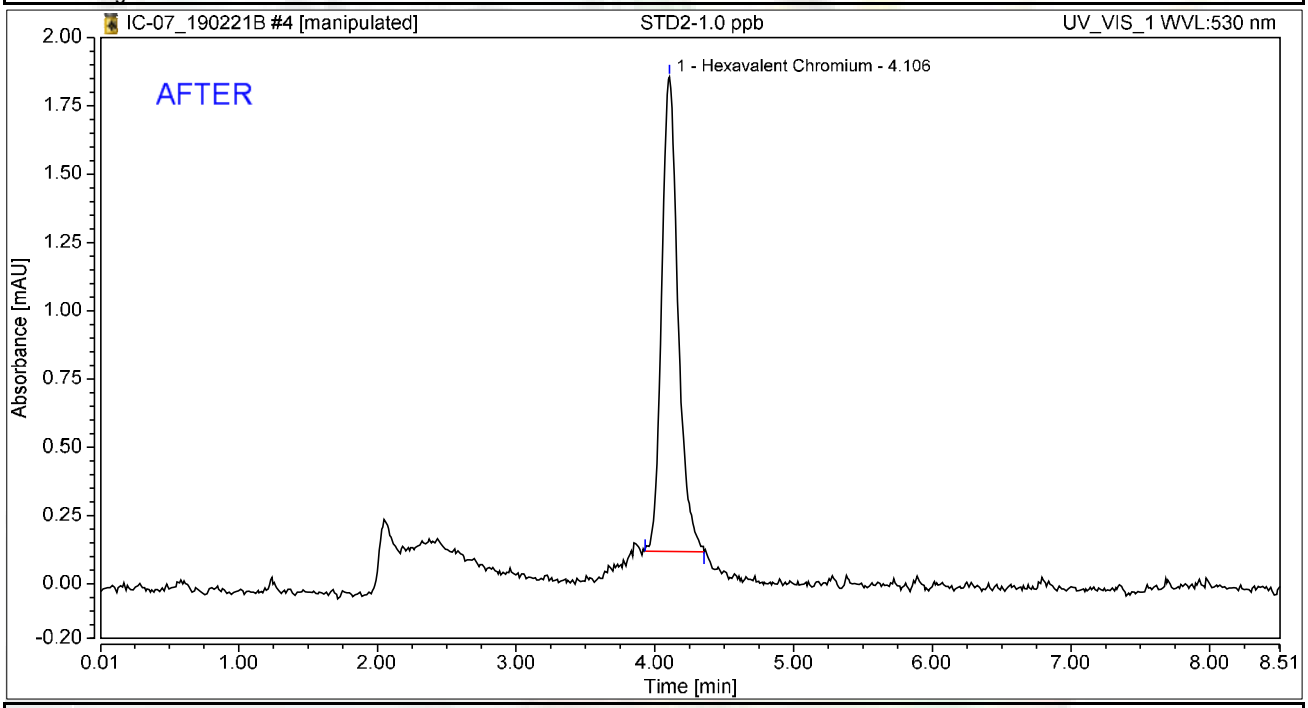
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.059 | 0.418 | 100.00 | 100.00 | 0.2356 |
| **Total:** | | | **0.059** | **0.418** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

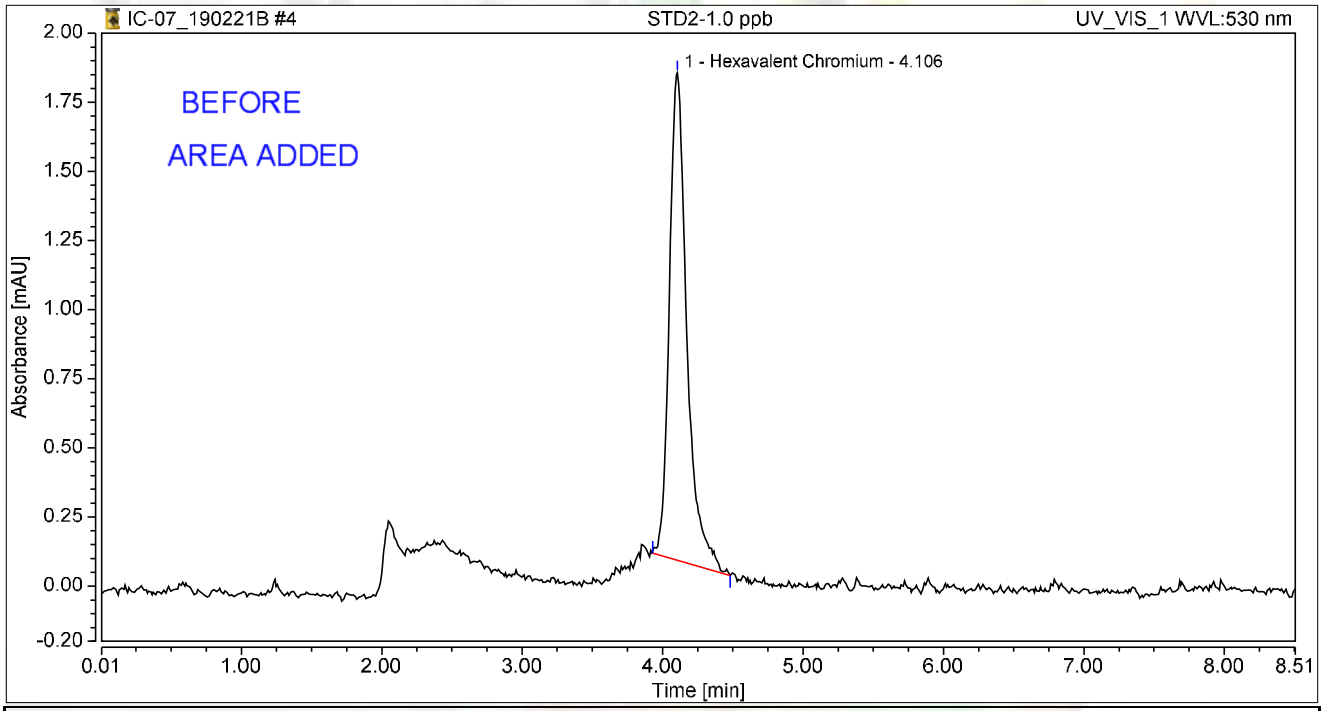
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.239 | 1.738 | 100.00 | 100.00 | 0.9651 |
| **Total:** | | | **0.239** | **1.738** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

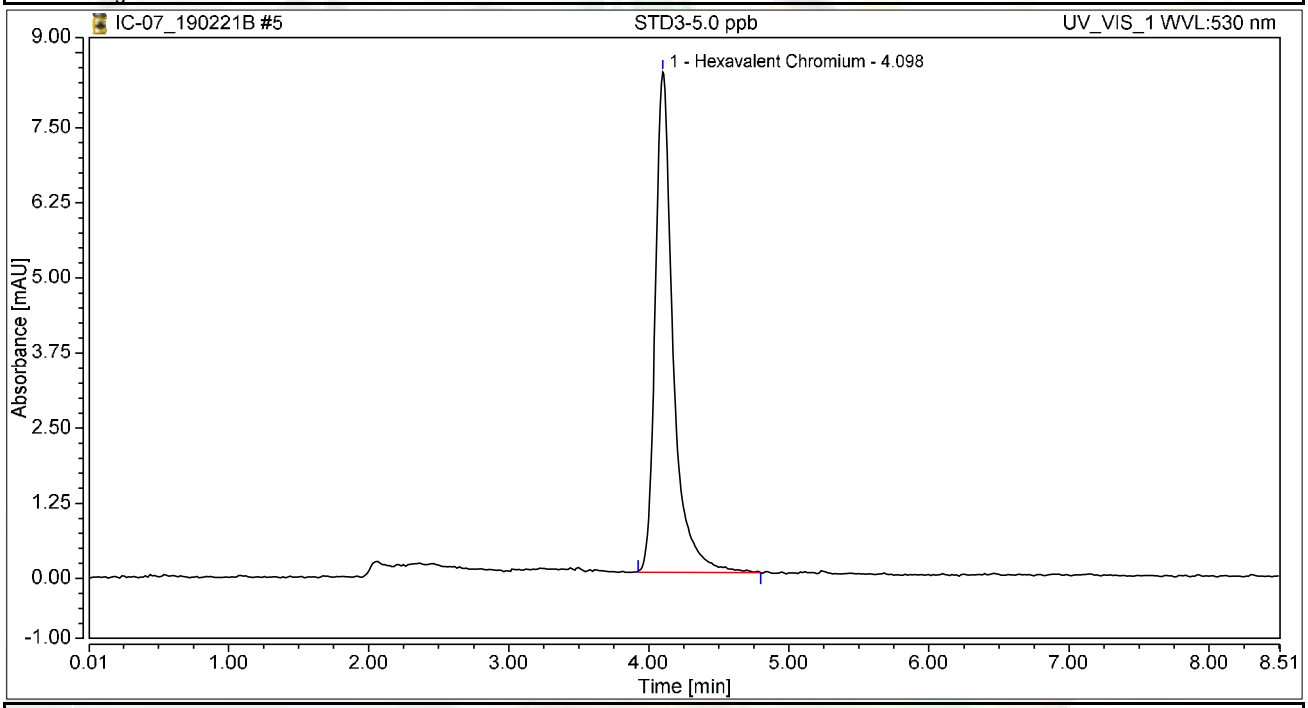
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 0.255 | 1.763 | 100.00 | 100.00 | 1.0261 |
| **Total:** | | | **0.255** | **1.763** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD3-5.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **03** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

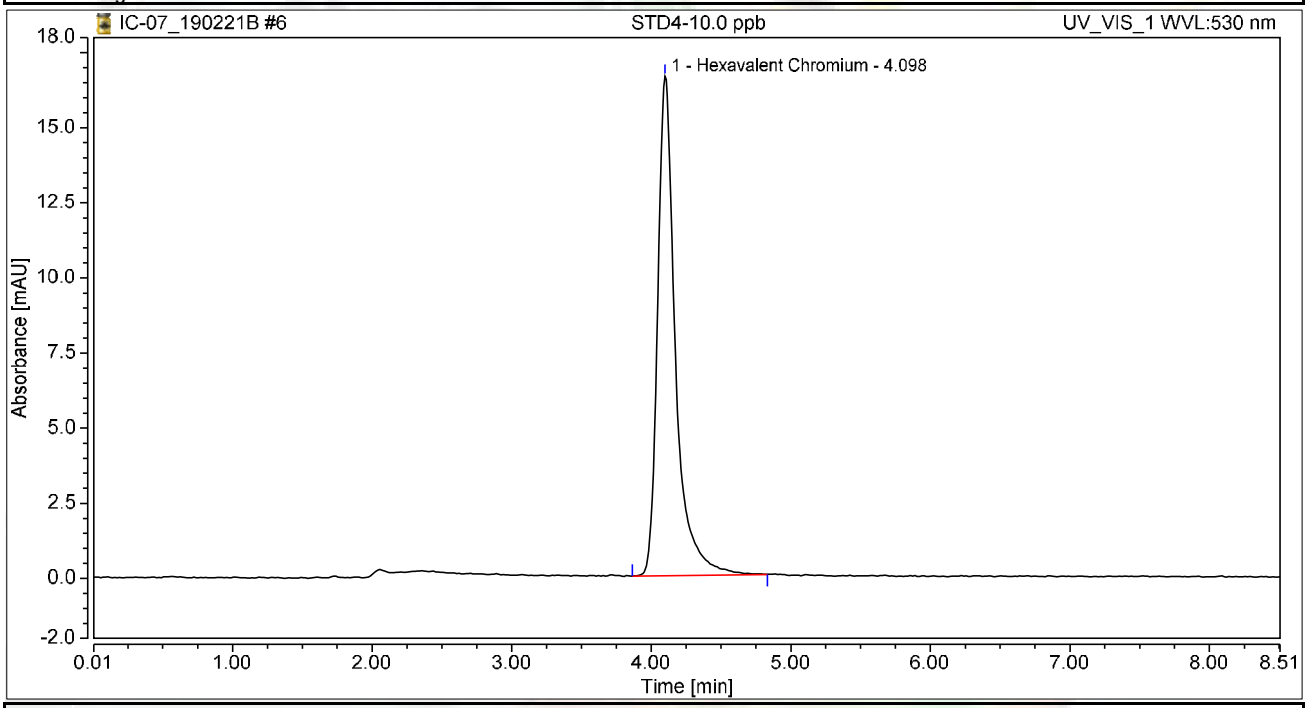
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.231 | 8.323 | 100.00 | 100.00 | 4.9676 |
| **Total:** | | | **1.231** | **8.323** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD4-10.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **04** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

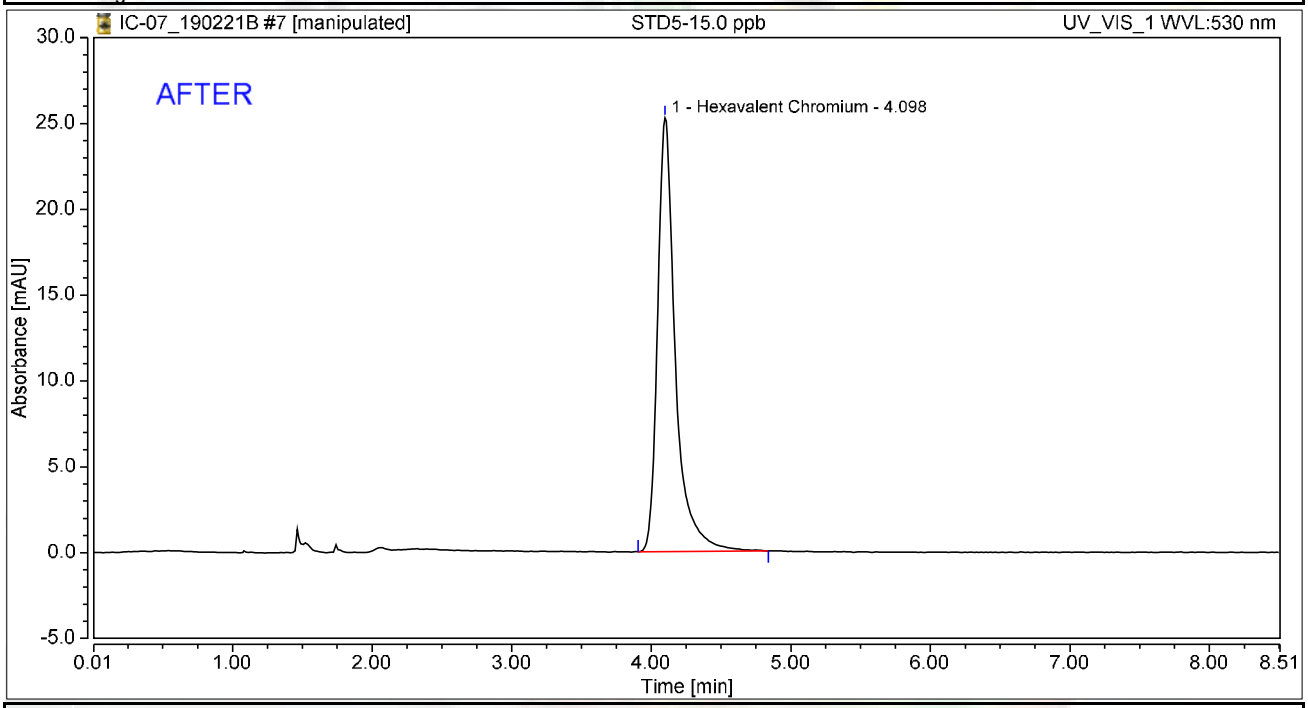
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.466 | 16.618 | 100.00 | 100.00 | 9.9491 |
| **Total:** | | | **2.466** | **16.618** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

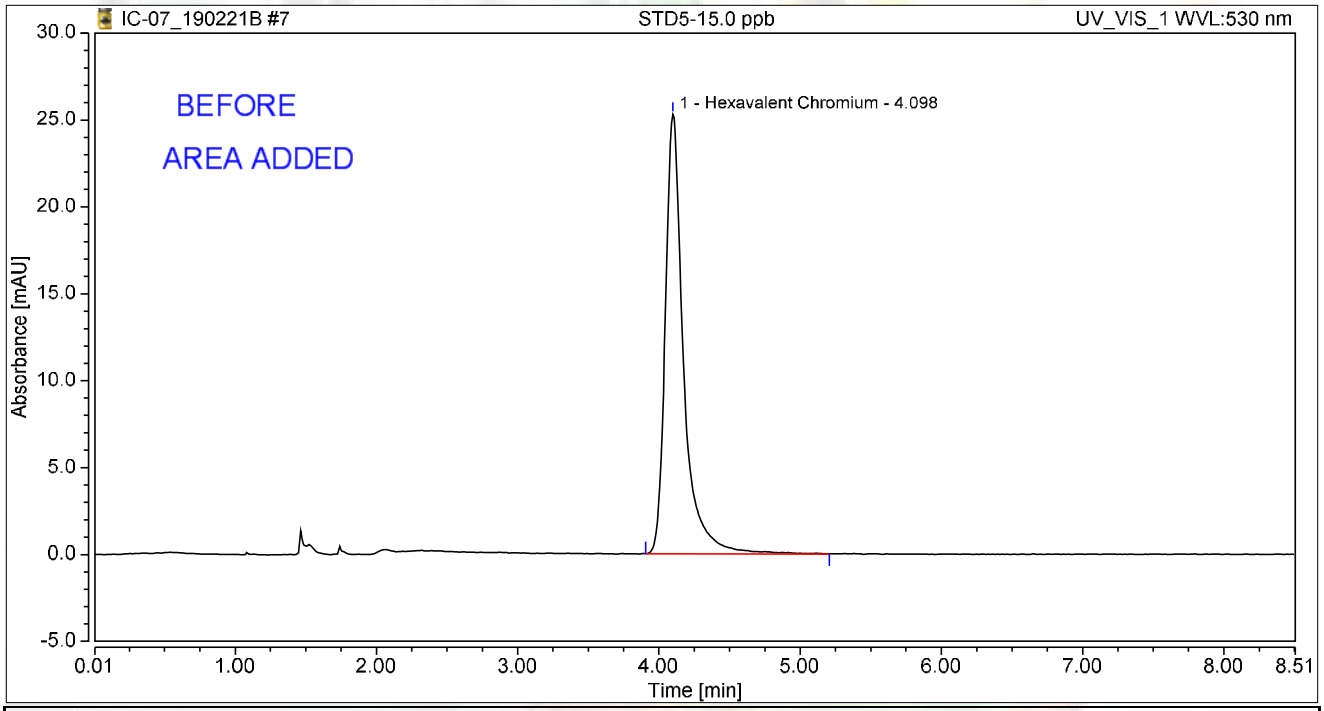
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 3.736 | 25.276 | 100.00 | 100.00 | 15.0777 |
| **Total:** | | | **3.736** | **25.276** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 12:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

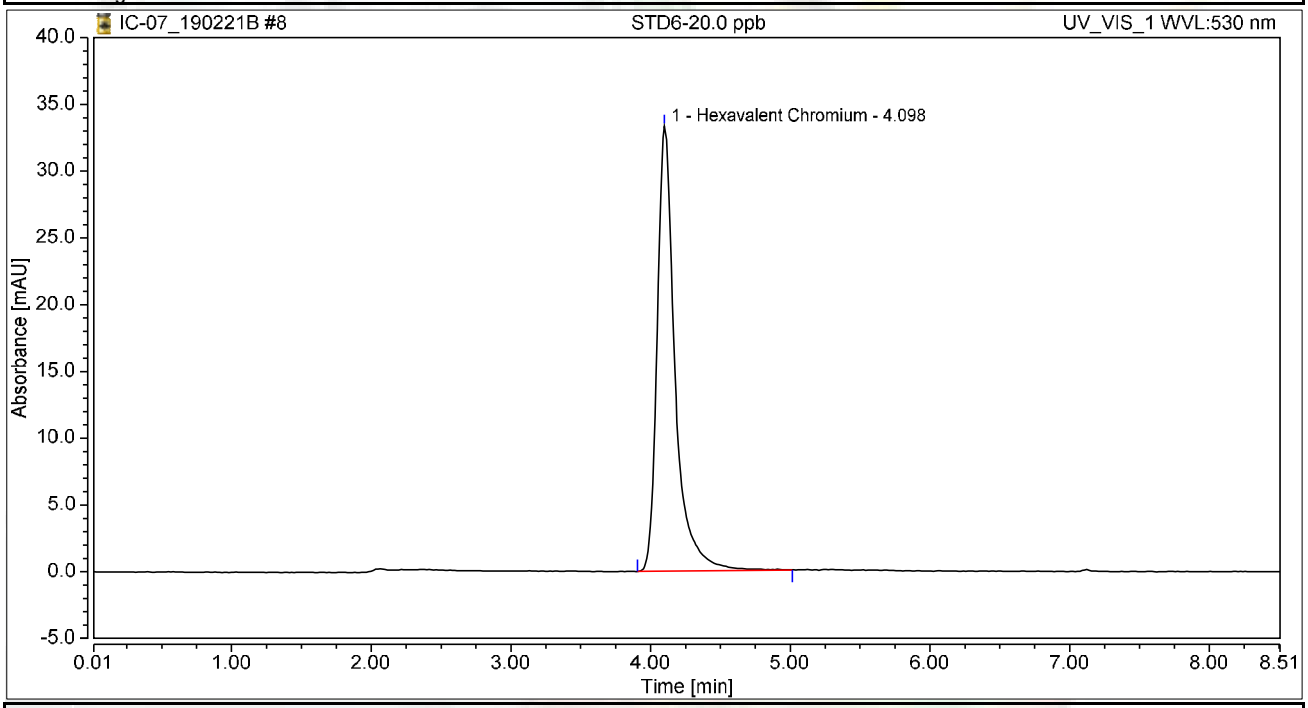
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 3.784 | 25.291 | 100.00 | 100.00 | 15.2098 |
| **Total:** | | | **3.784** | **25.291** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD6-20.0 ppb** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **06** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:03** | *Sample Weight:* | **1.0000** |

## Chromatogram



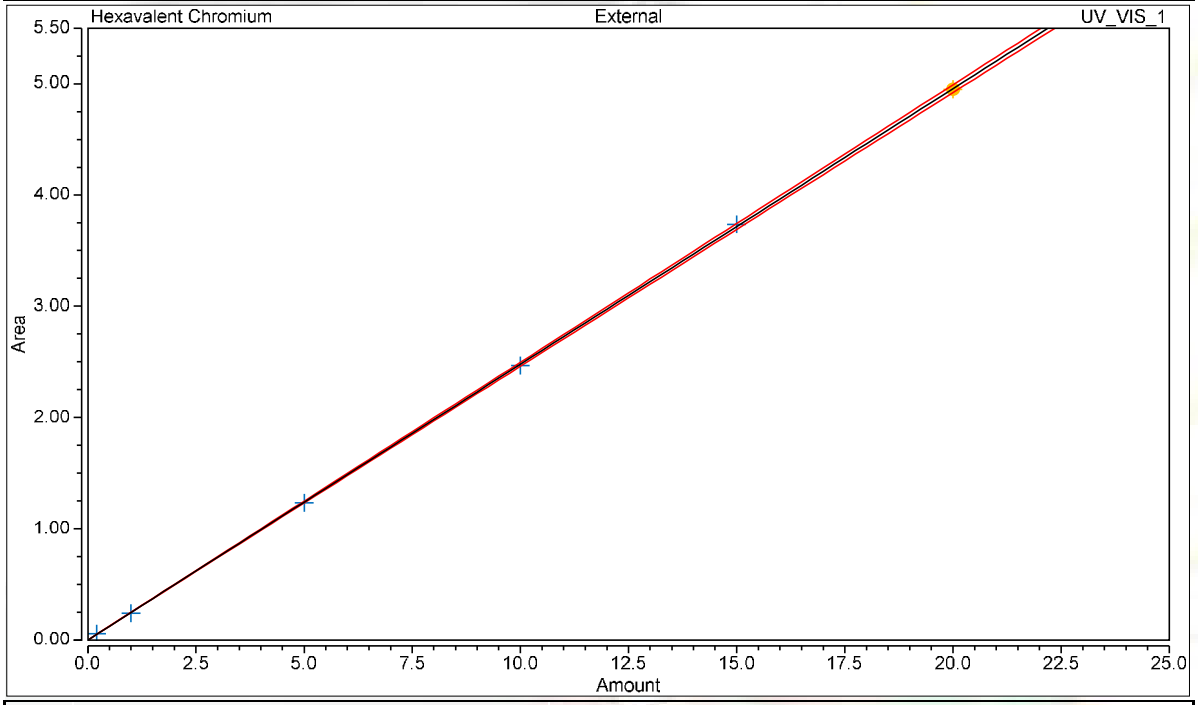

## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 4.951 | 33.317 | 100.00 | 100.00 | 19.9768 |
| **Total:** | | | **4.951** | **33.317** | **100.00** | **100.00** | |

# Initial Calibration Summary

| Calibration Details | Hexavalent Chromium | | |
|---|---|---|---|
| *Calibration Type* | Lin | *Offset (C0)* | 0.0000 |
| *Evaluation Type* | Area | *Slope (C1)* | 0.2478 |
| *Number of Calibration Points* | 6 | *Curve (C2)* | 0.0000 |
| *Number of disabled Calibration Points* | 0 | *R-Square* | 0.99996 |

Calibration Plot Hexavalent Chromium




Calibration Results Hexavalent Chromium

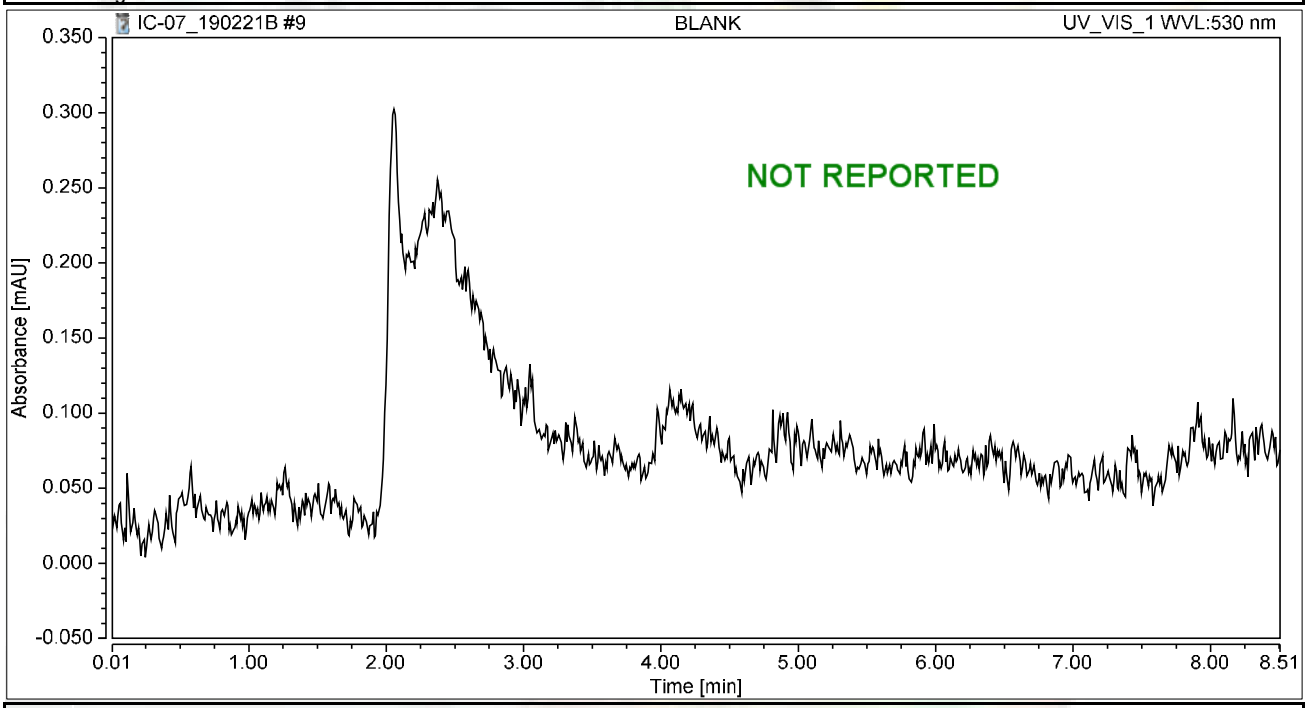
| No. | Injection Name | Calibration Level | X Value | Y Value | Area mAU*min | Height mAU |
|---|---|---|---|---|---|---|
| 3 | STD1-0.2 ppb | 01 | 0.2000 | 0.0556 | 0.056 | 0.412 |
| 4 | STD2-1.0 ppb | 02 | 1.0000 | 0.2392 | 0.239 | 1.738 |
| 5 | STD3-5.0 ppb | 03 | 5.0000 | 1.2310 | 1.231 | 8.323 |
| 6 | STD4-10.0 ppb | 04 | 10.0000 | 2.4655 | 2.466 | 16.618 |
| 7 | STD5-15.0 ppb | 05 | 15.0000 | 3.7365 | 3.736 | 25.276 |
| 8 | STD6-20.0 ppb | 06 | 20.0000 | 4.9505 | 4.951 | 33.317 |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

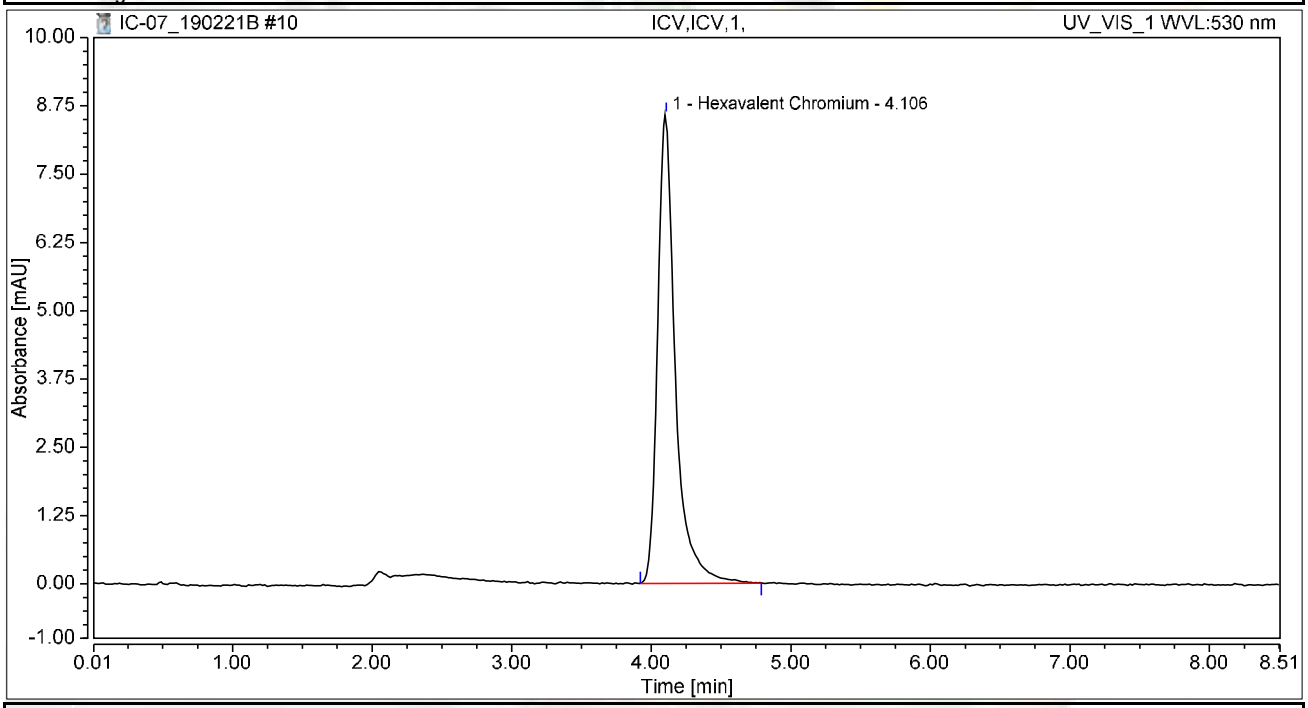
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICV,ICV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:28** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

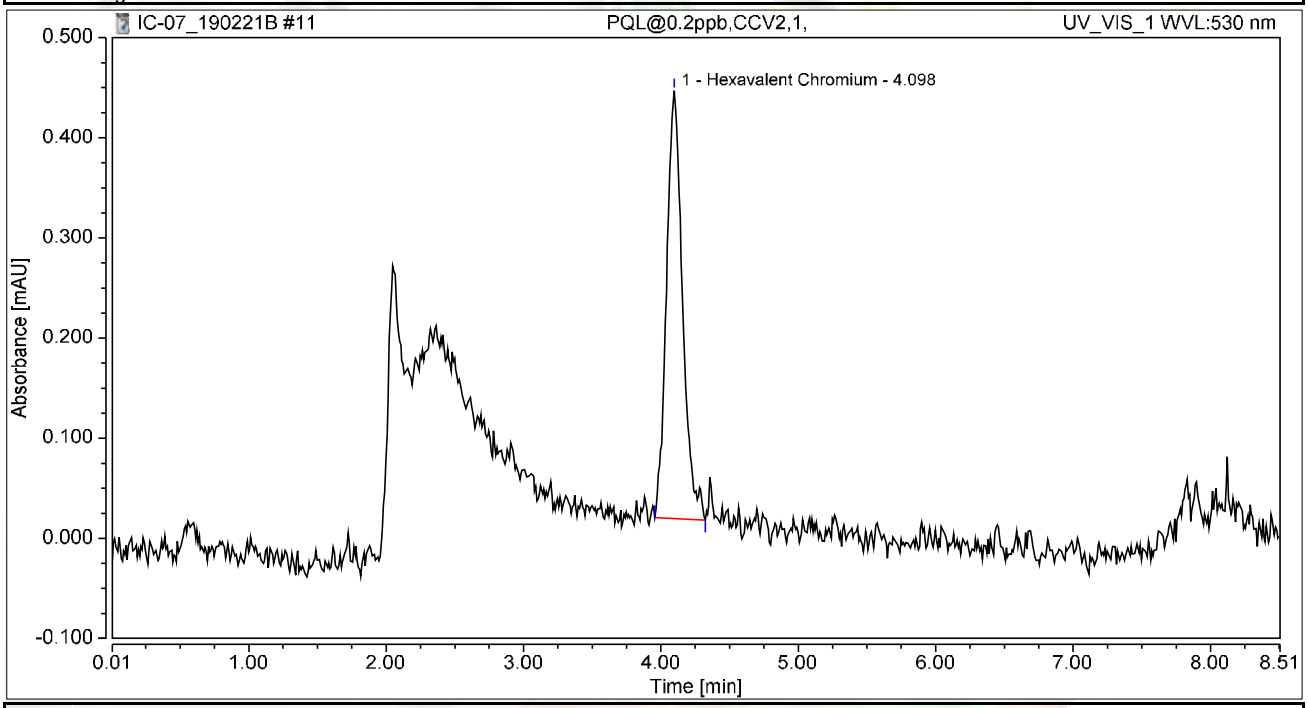
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.106 | 1.270 | 8.585 | 100.00 | 100.00 | 5.1256 |
| **Total:** | | | **1.270** | **8.585** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:37** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

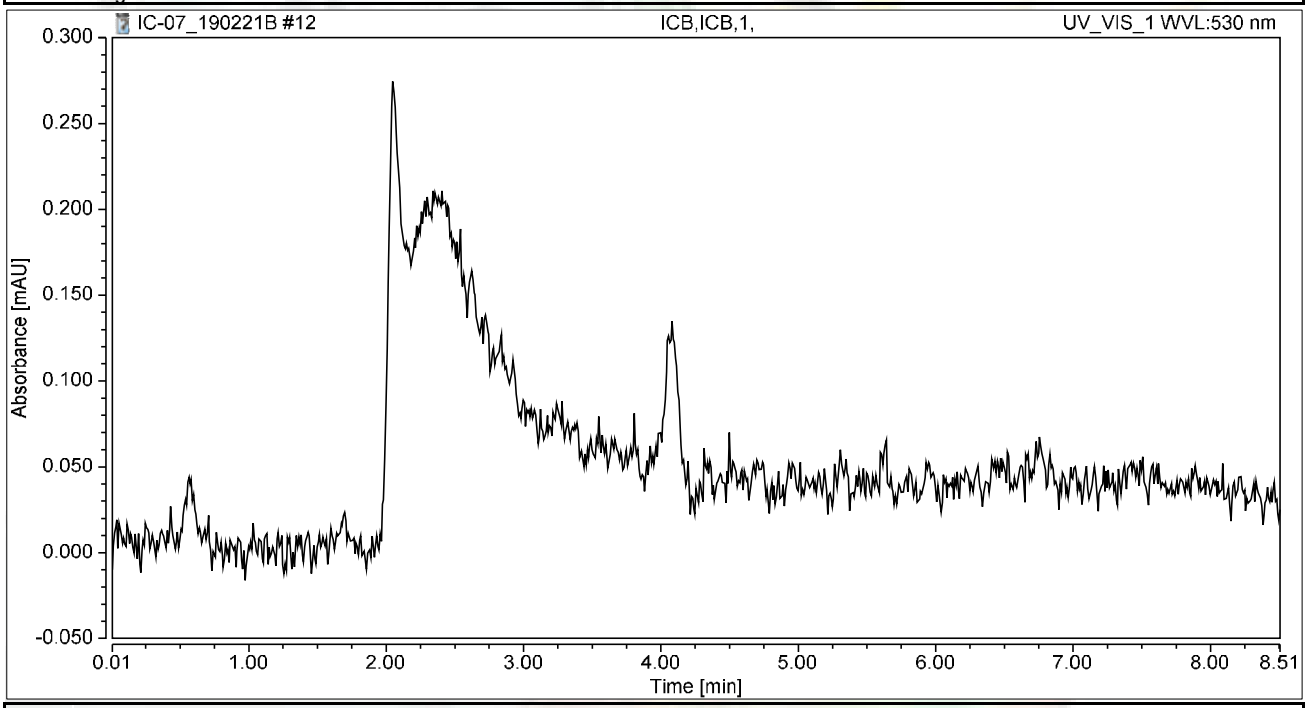
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.058 | 0.427 | 100.00 | 100.00 | 0.2324 |
| **Total:** | | | **0.058** | **0.427** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICB,ICB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Feb/19 13:47** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# RAW DATA

**INJECTION LOG: 190308A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 02/21/19 11:53 AM | Not Reported |
| 2 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 02/21/19 12:04 PM | Reported |
| 3 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:14 PM | Reported |
| 4 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:25 PM | Reported |
| 5 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:35 PM | Reported |
| 6 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:44 PM | Reported |
| 7 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 12:53 PM | Reported |
| 8 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 02/21/19 1:03 PM | Reported |
| 9 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/08/19 8:32 AM | Not Reported |
| 10 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/08/19 8:43 AM | Not Reported |
| 11 | CCV-1 | CCV | 1 | Hexavalent Chromium | 03/08/19 8:52 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 03/08/19 9:02 AM | Reported |
| 13 | CCB-1 | CCB | 1 | Hexavalent Chromium | 03/08/19 9:11 AM | Reported |
| 14 | MB-R132383 | MBLK | 1 | Hexavalent Chromium | 03/08/19 9:21 AM | Reported |
| 15 | LCS-R132383 | LCS | 1 | Hexavalent Chromium | 03/08/19 9:30 AM | Reported |
| 16 | N034442-002A | SAMP | 1 | Hexavalent Chromium | 03/08/19 9:40 AM | Reported |
| 17 | N034442-002AMS | MS | 1 | Hexavalent Chromium | 03/08/19 9:49 AM | Reported |
| 18 | N034483-003A | SAMP | 1 | Hexavalent Chromium | 03/08/19 9:58 AM | Reported |
| 19 | N034483-003AMS | MS | 1 | Hexavalent Chromium | 03/08/19 10:08 AM | Reported |
| 20 | N034443-001A | SAMP | 1 | Hexavalent Chromium | 03/08/19 10:17 AM | Reported |
| 21 | N034443-001AMS | MS | 1 | Hexavalent Chromium | 03/08/19 10:27 AM | Reported |
| 22 | N034444-002C | SAMP | 1 | Hexavalent Chromium | 03/08/19 10:36 AM | Reported |
| 23 | N034444-002CMS | MS | 1 | Hexavalent Chromium | 03/08/19 10:46 AM | Reported |
| 24 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 03/08/19 10:55 AM | Reported |
| 25 | CCB-2 | CCB | 1 | Hexavalent Chromium | 03/08/19 11:05 AM | Reported |
| 26 | N034443-002A | SAMP | 100 | Hexavalent Chromium | 03/08/19 11:14 AM | Reported |
| 27 | N034443-002AMS | MS | 100 | Hexavalent Chromium | 03/08/19 11:24 AM | Reported |
| 28 | N034443-002AMSD | MSD | 100 | Hexavalent Chromium | 03/08/19 11:33 AM | Reported |
| 29 | N034444-001B | SAMP | 100 | Hexavalent Chromium | 03/08/19 11:43 AM | Reported |
| 30 | N034444-001BMS | MS | 100 | Hexavalent Chromium | 03/08/19 11:52 AM | Reported |
| 31 | N034437-001A | SAMP | 1 | Hexavalent Chromium | 03/08/19 12:01 PM | Reported |
| 32 | N034437-002A | SAMP | 1 | Hexavalent Chromium | 03/08/19 12:11 PM | Reported |
| 33 | N034438-001A | SAMP | 1 | Hexavalent Chromium | 03/08/19 12:20 PM | Reported |
| 34 | N034439-001A | SAMP | 1 | Hexavalent Chromium | 03/08/19 12:30 PM | Reported |
| 35 | N034439-001ADUP | DUP | 1 | Hexavalent Chromium | 03/08/19 12:39 PM | Reported |
| 36 | CCV-3 | CCV | 1 | Hexavalent Chromium | 03/08/19 12:49 PM | Reported |
| 37 | CCB-3 | CCB | 1 | Hexavalent Chromium | 03/08/19 12:58 PM | Reported |
| 38 | N034439-002A | SAMP | 1 | Hexavalent Chromium | 03/08/19 1:08 PM | Reported |
| 39 | N034439-003A | SAMP | 1 | Hexavalent Chromium | 03/08/19 1:17 PM | Reported |
| 40 | N034439-004A | SAMP | 1 | Hexavalent Chromium | 03/08/19 1:27 PM | Reported |
| 41 | N034486-001A | SAMP | 20 | Hexavalent Chromium | 03/08/19 1:36 PM | Not Reported |
| 42 | N034486-002A | SAMP | 1 | Hexavalent Chromium | 03/08/19 1:45 PM | Reported |

**INJECTION LOG: 190308A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034487-001A | SAMP | 1 | Hexavalent Chromium | 03/08/19 1:55 PM | Reported |
| 44 | N034487-002A | SAMP | 1 | Hexavalent Chromium | 03/08/19 2:04 PM | Reported |
| 45 | N034488-001A | SAMP | 1 | Hexavalent Chromium | 03/08/19 2:14 PM | Reported |
| 46 | N034488-002A | SAMP | 1 | Hexavalent Chromium | 03/08/19 2:23 PM | Reported |
| 47 | N034486-001A | SAMP | 5 | Hexavalent Chromium | 03/08/19 2:33 PM | Reported |
| 48 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 03/08/19 2:42 PM | Reported |
| 49 | CCB-4 | CCB | 1 | Hexavalent Chromium | 03/08/19 2:52 PM | Reported |
| 50 | N034408-004A | SAMP | 5 | Hexavalent Chromium | 03/08/19 3:01 PM | Not Reported |
| 51 | N034408-004AMS | MS | 5 | Hexavalent Chromium | 03/08/19 3:11 PM | Not Reported |
| 52 | CCV-5 | CCV | 1 | Hexavalent Chromium | 03/08/19 3:20 PM | Reported |
| 53 | CCB-5 | CCB | 1 | Hexavalent Chromium | 03/08/19 3:30 PM | Reported |

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# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190308A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **08/Mar/19 17:01:36** |
| *No. of Injections:* | **56** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 02/21/2019 11:53 | Finished | BLANK |
| 2 | iBLANK | 2 | 1000 | Unknown | | 02/21/2019 12:04 | Finished | INSTRUMENT BLANK |
| 3 | STD1-0.2 ppb | 3 | 1000 | Calibration Standard | 01 | 02/21/2019 12:14 | Finished | 0.2 ppb, IWST-190221A |
| 4 | STD2-1.0 ppb | 4 | 1000 | Calibration Standard | 02 | 02/21/2019 12:25 | Finished | 1.0 ppb, IWST-190221A |
| 5 | STD3-5.0 ppb | 5 | 1000 | Calibration Standard | 03 | 02/21/2019 12:35 | Finished | 5.0 ppb, IWST-1190221A |
| 6 | STD4-10.0 ppb | 6 | 1000 | Calibration Standard | 04 | 02/21/2019 12:44 | Finished | 10 ppb, IWST-190221A |
| 7 | STD5-15.0 ppb | 7 | 1000 | Calibration Standard | 05 | 02/21/2019 12:53 | Finished | 15 ppb, IWST-190221A |
| 8 | STD6-20.0 ppb | 8 | 1000 | Calibration Standard | 06 | 02/21/2019 13:03 | Finished | 20 ppb, IWST-190221A |
| 9 | BLANK | 1 | 1000 | Unknown | | 03/08/2019 08:32 | Finished | BLANK |
| 10 | BLANK | 2 | 1000 | Unknown | | 03/08/2019 08:43 | Finished | BLANK |
| 11 | CCV-1,CCV,1, | 3 | 1000 | Unknown | | 03/08/2019 08:52 | Finished | CCV @5ppb, IWST-190221B |
| 12 | PQL@0.2ppb,CCV2,1 | 4 | 1000 | Unknown | | 03/08/2019 09:02 | Finished | PQL @ 0.2ppb |
| 13 | CCB-1,CCB,1, | 5 | 1000 | Unknown | | 03/08/2019 09:11 | Finished | CCB R190211C |
| 14 | MB-H2O,MBLK,1, | 6 | 1000 | Unknown | | 03/08/2019 09:21 | Finished | MB R190211C |
| 15 | LCS-H2O,LCS,1, | 7 | 1000 | Unknown | | 03/08/2019 09:30 | Finished | LCS @5ppb, IWST-190221B |
| 16 | N034442-002A,SAMF | 8 | 1000 | Unknown | | 03/08/2019 09:40 | Finished | SAMP,10mL |
| 17 | N034442-002AMS,MS | 9 | 1000 | Unknown | | 03/08/2019 09:49 | Finished | MS (1ppb), IWST-190221B,10 |
| 18 | N034483-003A,SAMF | 10 | 1000 | Unknown | | 03/08/2019 09:58 | Finished | SAMP,10mL |
| 19 | N034483-003AMS,MS | 11 | 1000 | Unknown | | 03/08/2019 10:08 | Finished | MS (1ppb), IWST-190221B,10 |
| 20 | N034443-001A,SAMF | 12 | 1000 | Unknown | | 03/08/2019 10:17 | Finished | SAMP,10mL |
| 21 | N034443-001AMS,MS | 13 | 1000 | Unknown | | 03/08/2019 10:27 | Finished | SAMP,10mL |
| 22 | N034444-002C,SAMF | 14 | 1000 | Unknown | | 03/08/2019 10:36 | Finished | MS (1ppb), IWST-190221B,10 |
| 23 | N034444-002CMS,MS | 15 | 1000 | Unknown | | 03/08/2019 10:46 | Finished | MS (1ppb), IWST-190221B,10 |
| 24 | CCV-2,CCV1,1, | 16 | 1000 | Unknown | | 03/08/2019 10:55 | Finished | CCV @10ppb, IWST-190221A |
| 25 | CCB-2,CCB,1, | 17 | 1000 | Unknown | | 03/08/2019 11:05 | Finished | CCB R190211C |
| 26 | N034443-002A,SAMF | 18 | 1000 | Unknown | | 03/08/2019 11:14 | Finished | SAMP,0.1>10mL |
| 27 | N034443-002AMS,MS | 19 | 1000 | Unknown | | 03/08/2019 11:24 | Finished | MS (5ppb), IWST-190221B,0.1 |
| 28 | N034443-002AMSD,M | 20 | 1000 | Unknown | | 03/08/2019 11:33 | Finished | MSD (5ppb), IWST-190221B,0. |
| 29 | N034444-001B,SAMF | 21 | 1000 | Unknown | | 03/08/2019 11:43 | Finished | SAMP,0.1>10mL |
| 30 | N034444-001BMS,MS | 22 | 1000 | Unknown | | 03/08/2019 11:52 | Finished | MS (5ppb), IWST-190221B,0.1 |
| 31 | N034437-001A,SAMF | 23 | 1000 | Unknown | | 03/08/2019 12:01 | Finished | SAMP,10mL |
| 32 | N034437-002A,SAMF | 24 | 1000 | Unknown | | 03/08/2019 12:11 | Finished | SAMP,10mL |
| 33 | N034438-001A,SAMF | 25 | 1000 | Unknown | | 03/08/2019 12:20 | Finished | SAMP,10mL |
| 34 | N034439-001A,SAMF | 26 | 1000 | Unknown | | 03/08/2019 12:30 | Finished | SAMP,10mL |
| 35 | N034439-001ADUP,D | 27 | 1000 | Unknown | | 03/08/2019 12:39 | Finished | DUP,10mL |
| 36 | CCV-3,CCV,1, | 28 | 1000 | Unknown | | 03/08/2019 12:49 | Finished | CCV @5ppb, IWST-190221A |
| 37 | CCB-3,CCB,1, | 29 | 1000 | Unknown | | 03/08/2019 12:58 | Finished | CCB R190211C |
| 38 | N034439-002A,SAMF | 30 | 1000 | Unknown | | 03/08/2019 13:08 | Finished | SAMP,10mL |
| 39 | N034439-003A,SAMF | 31 | 1000 | Unknown | | 03/08/2019 13:17 | Finished | SAMP,10mL |
| 40 | N034439-004A,SAMF | 32 | 1000 | Unknown | | 03/08/2019 13:27 | Finished | SAMP,10mL |
| 41 | N034486-001A,SAMF | 33 | 1000 | Unknown | | 03/08/2019 13:36 | Finished | SAMP,0.5>10mL |
| 42 | N034486-002A,SAMF | 34 | 1000 | Unknown | | 03/08/2019 13:45 | Finished | SAMP,10mL |
| 43 | N034487-001A,SAMF | 35 | 1000 | Unknown | | 03/08/2019 13:55 | Finished | SAMP,10mL |
| 44 | N034487-002A,SAMF | 36 | 1000 | Unknown | | 03/08/2019 14:04 | Finished | SAMP,10mL |
| 45 | N034488-001A,SAMF | 37 | 1000 | Unknown | | 03/08/2019 14:14 | Finished | SAMP,10mL |
| 46 | N034488-002A,SAMF | 38 | 1000 | Unknown | | 03/08/2019 14:23 | Finished | SAMP,10mL |
| 47 | N034486-001A,SAMF | 39 | 1000 | Unknown | | 03/08/2019 14:33 | Finished | SAMP,2>10mL |
| 48 | CCV-4,CCV1,1, | 40 | 1000 | Unknown | | 03/08/2019 14:42 | Finished | CCV @10ppb, IWST-190221A |
| 49 | CCB-4,CCB,1, | 41 | 1000 | Unknown | | 03/08/2019 14:52 | Finished | CCB R190211C |
| 50 | N034408-004A,SAMF | 42 | 1000 | Unknown | | 03/08/2019 15:01 | Finished | SAMP,2>10mL |
| 51 | N034408-004AMS,MS | 43 | 1000 | Unknown | | 03/08/2019 15:11 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 52 | CCV-5,CCV,1, | 44 | 1000 | Unknown | | 03/08/2019 15:20 | Finished | CCV @5ppb, IWST-190221A |
| 53 | CCB-5,CCB,1, | 45 | 1000 | Unknown | | 03/08/2019 15:30 | Finished | CCB R190115A |
| 54 | SHUTDOWN | 47 | 1000 | Unknown | | 03/08/2019 15:39 | Finished | |
| 55 | Eluent: R190307B | 48 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 56 | PCR: R190307C | 49 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

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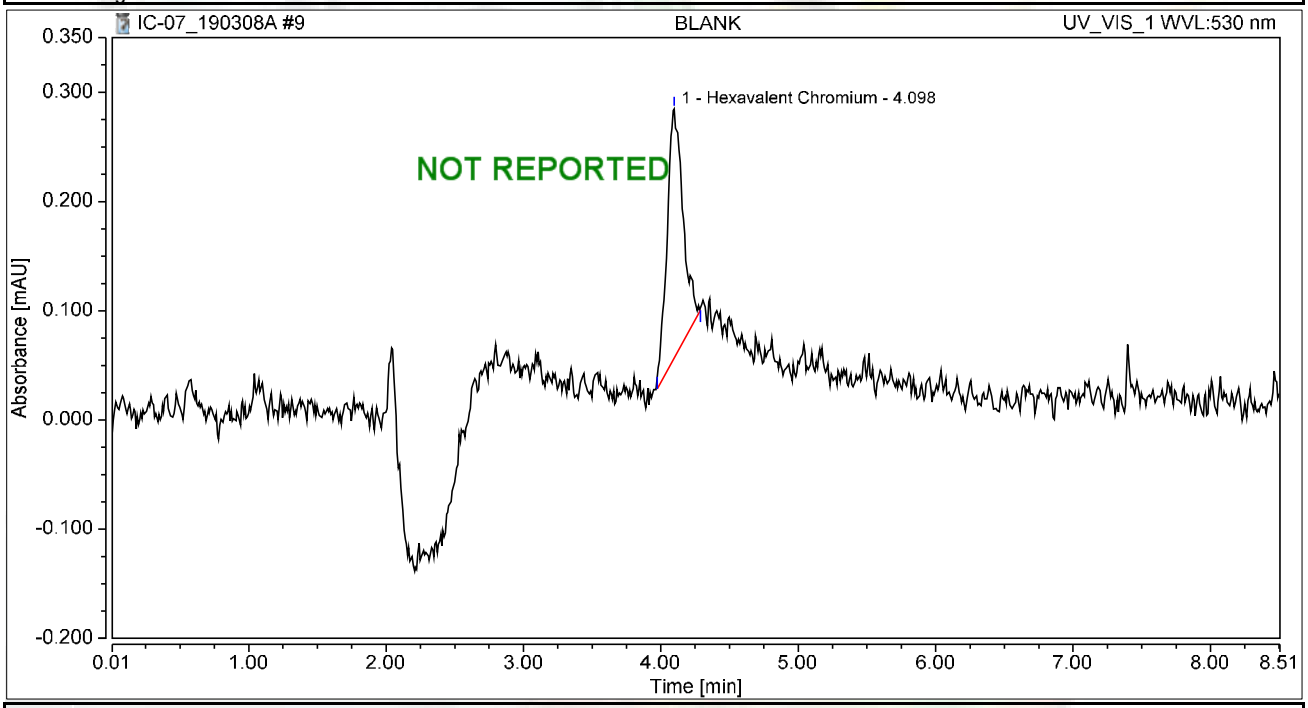
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 08:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

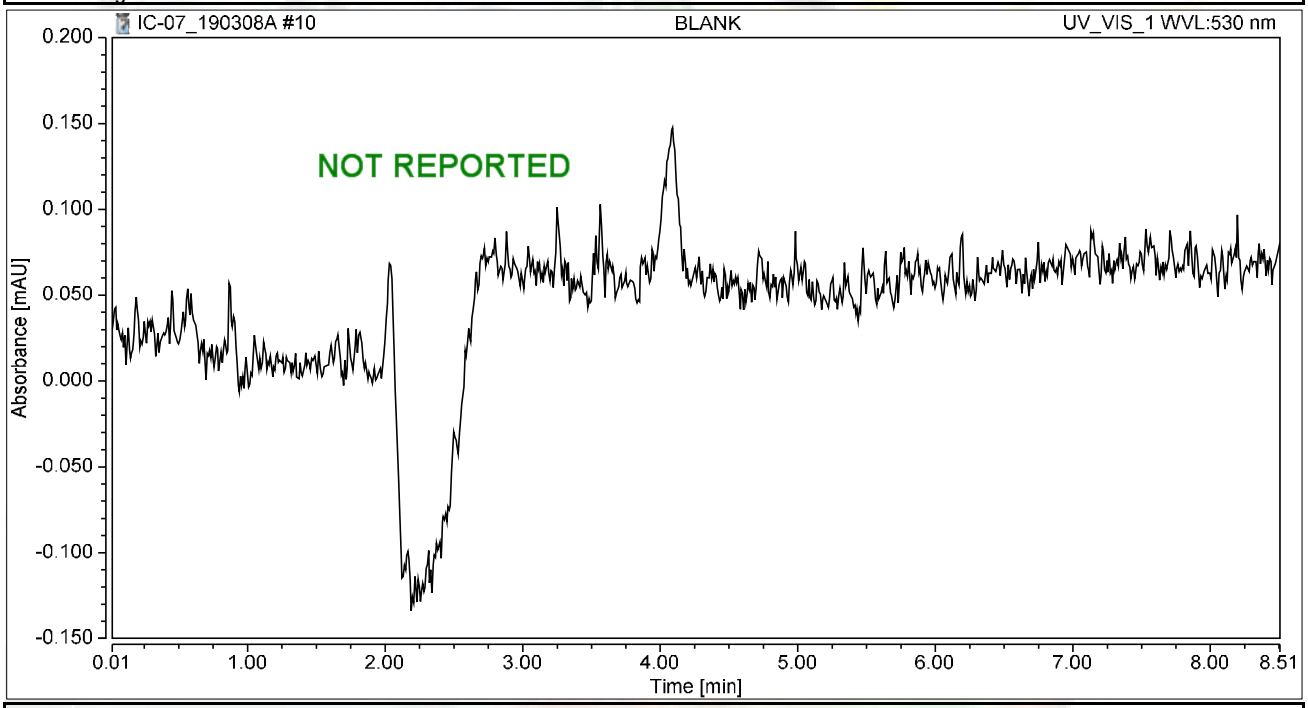
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.031 | 0.228 | 100.00 | 100.00 | 0.1236 |
| **Total:** | | | **0.031** | **0.228** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 08:43** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

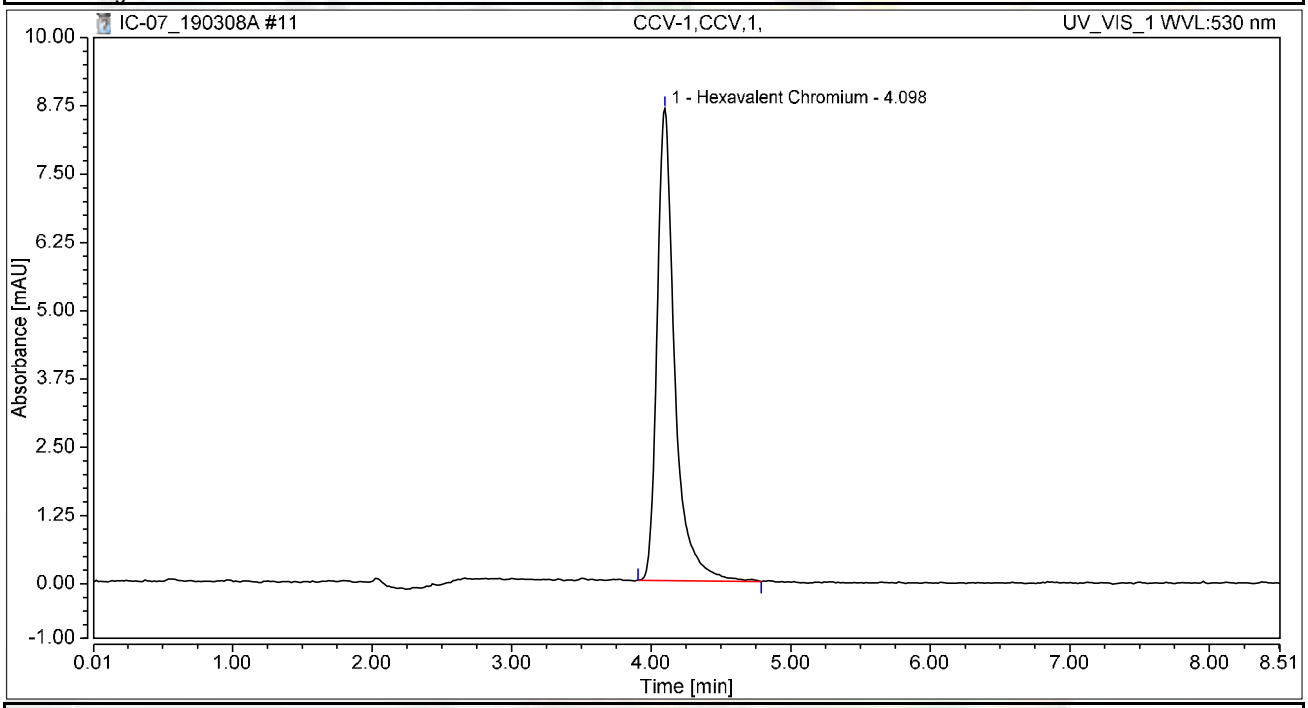
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-1,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 08:52** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

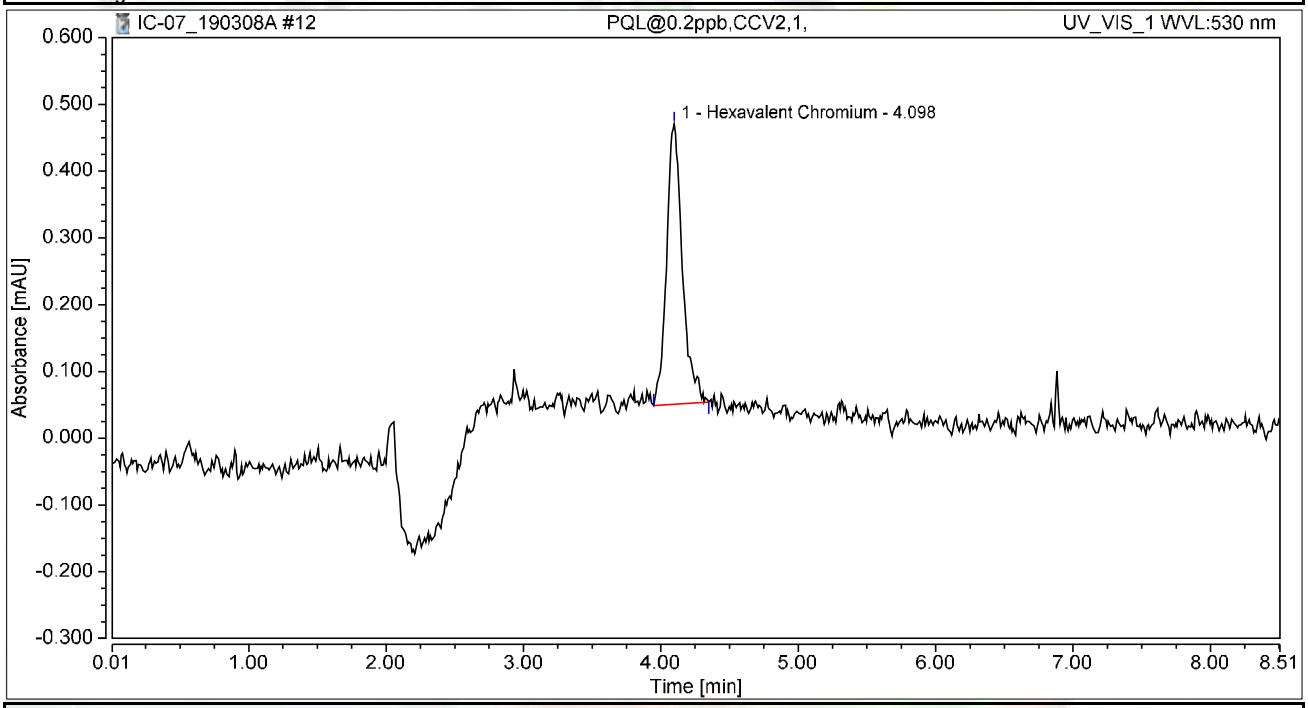
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.269 | 8.645 | 100.00 | 100.00 | 5.1197 |
| **Total:** | | | **1.269** | **8.645** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 09:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

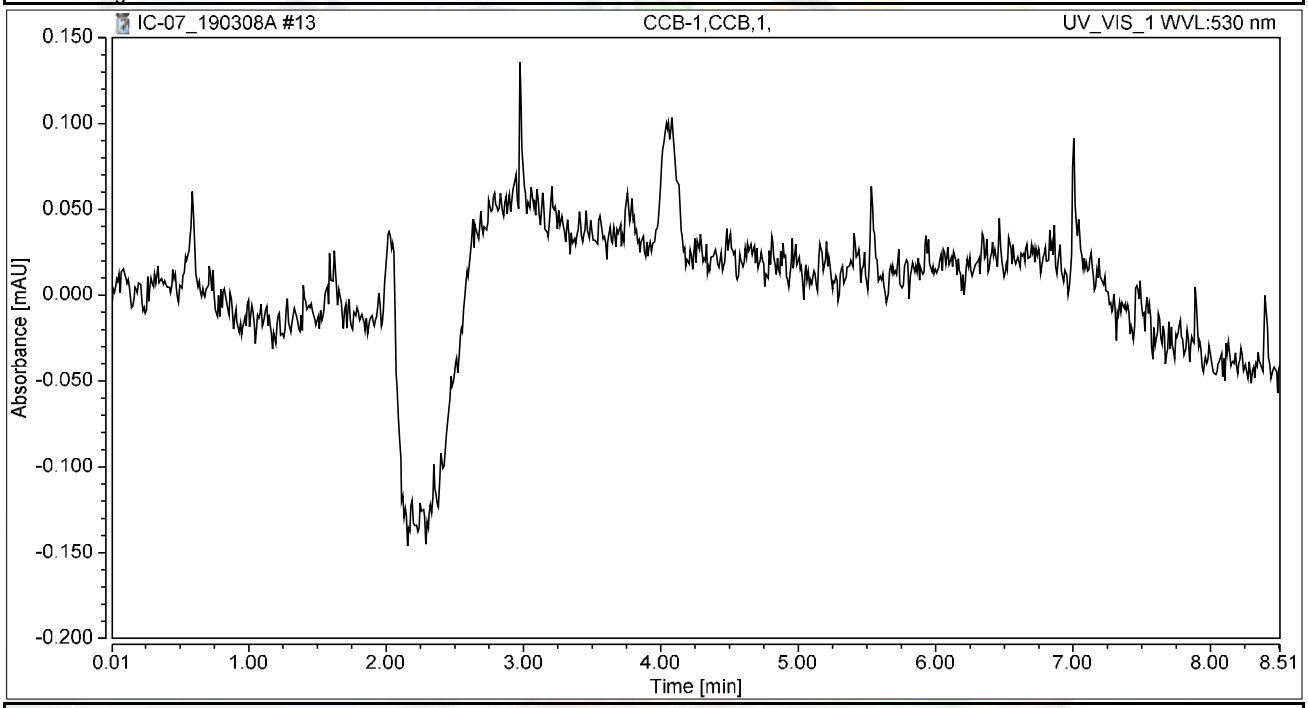
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.056 | 0.420 | 100.00 | 100.00 | 0.2255 |
| **Total:** | | | **0.056** | **0.420** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-1,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 09:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

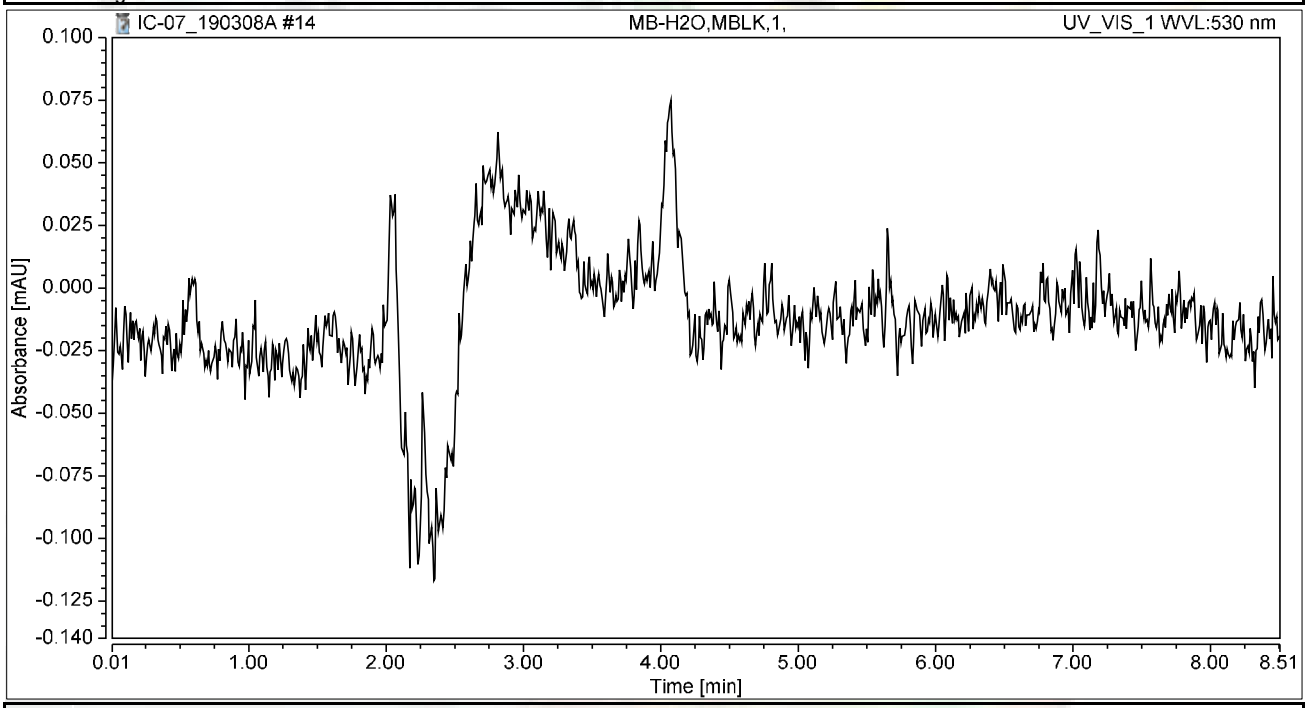
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **MB-H2O,MBLK,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 09:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

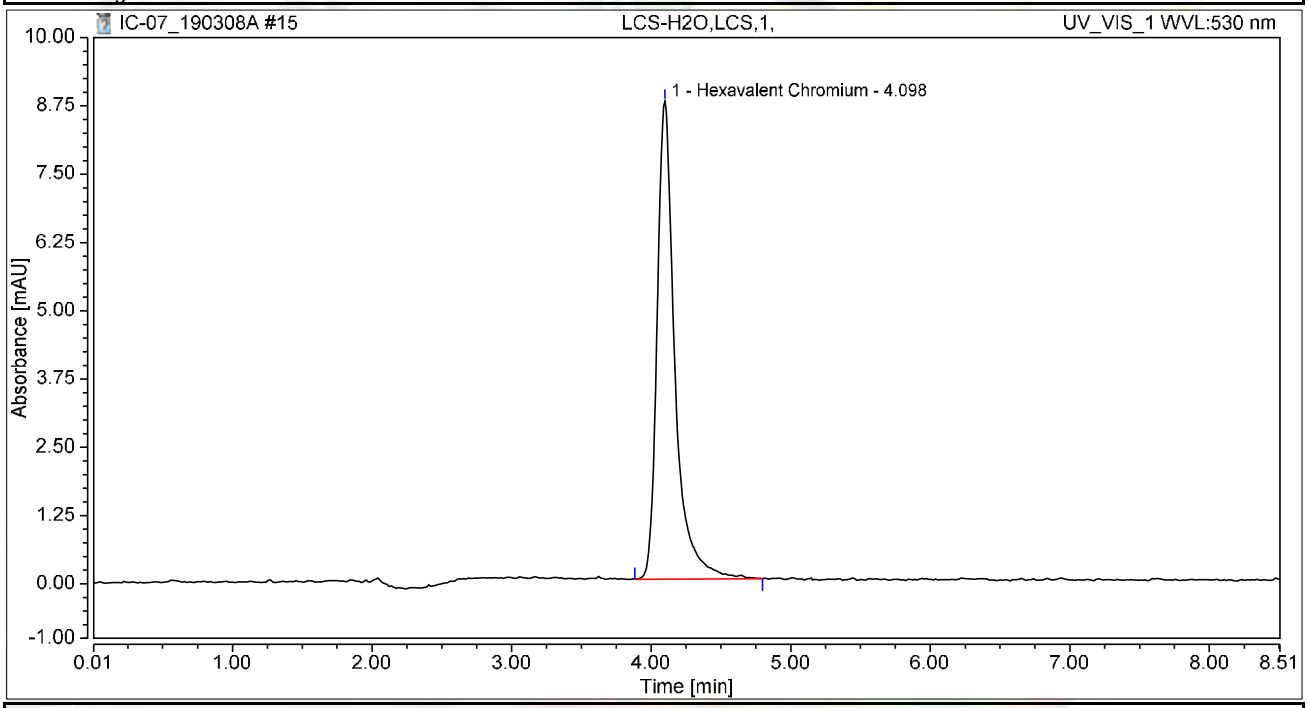
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **LCS-H2O,LCS,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 09:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

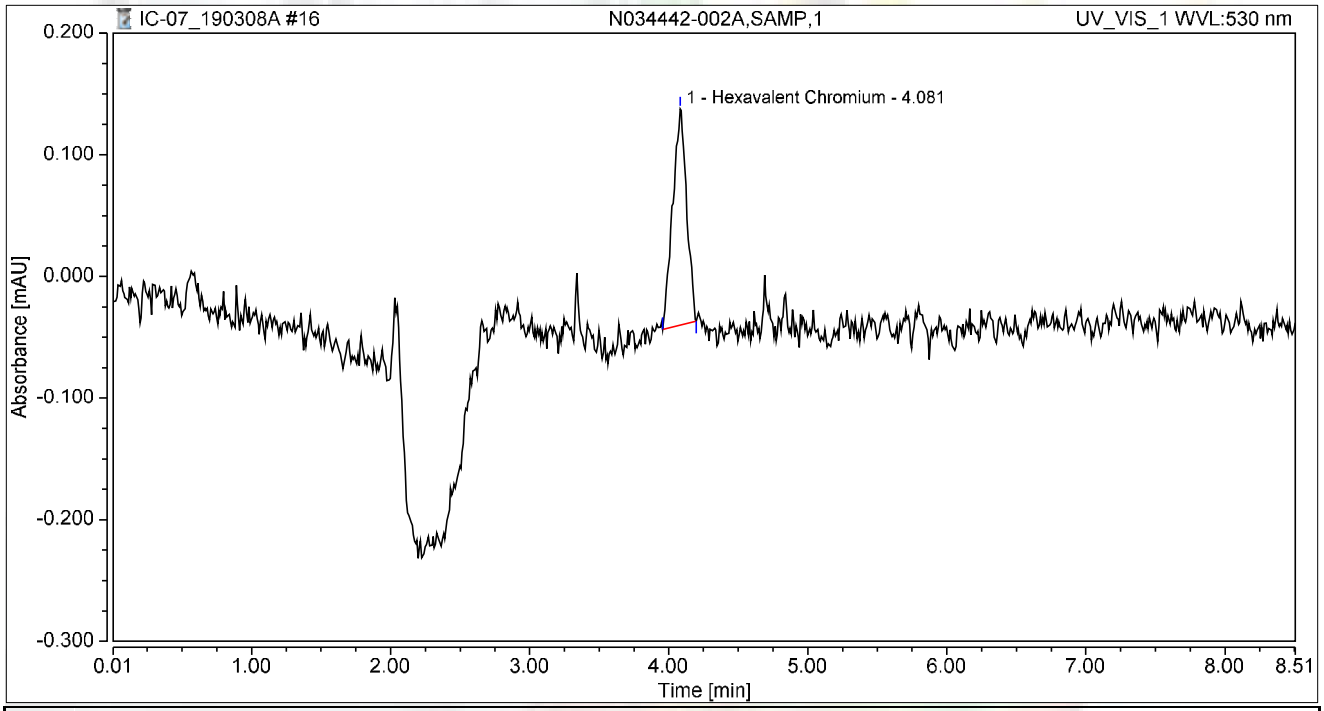
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.297 | 8.749 | 100.00 | 100.00 | 5.2351 |
| **Total:** | | | **1.297** | **8.749** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034442-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 09:40** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

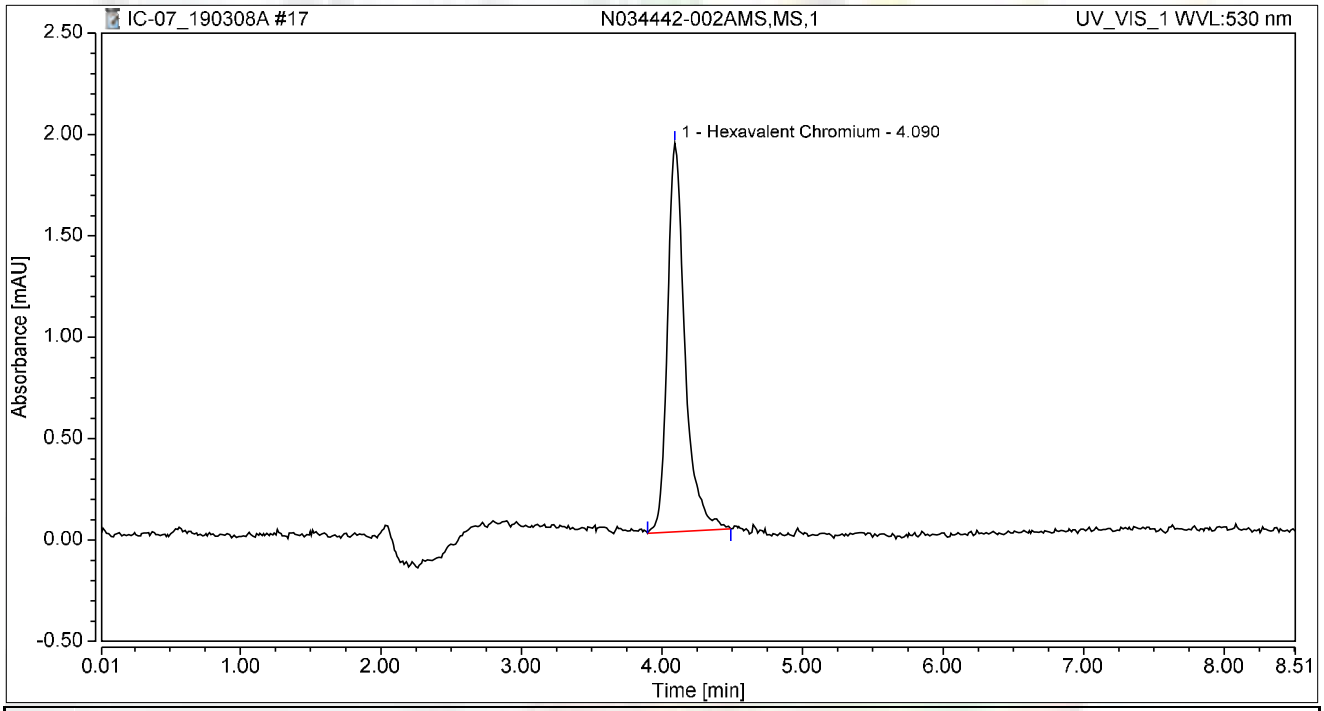
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.020 | 0.178 | 100.00 | 100.00 | 0.0824 |
| **Total:** | | | **0.020** | **0.178** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034442-002AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 09:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

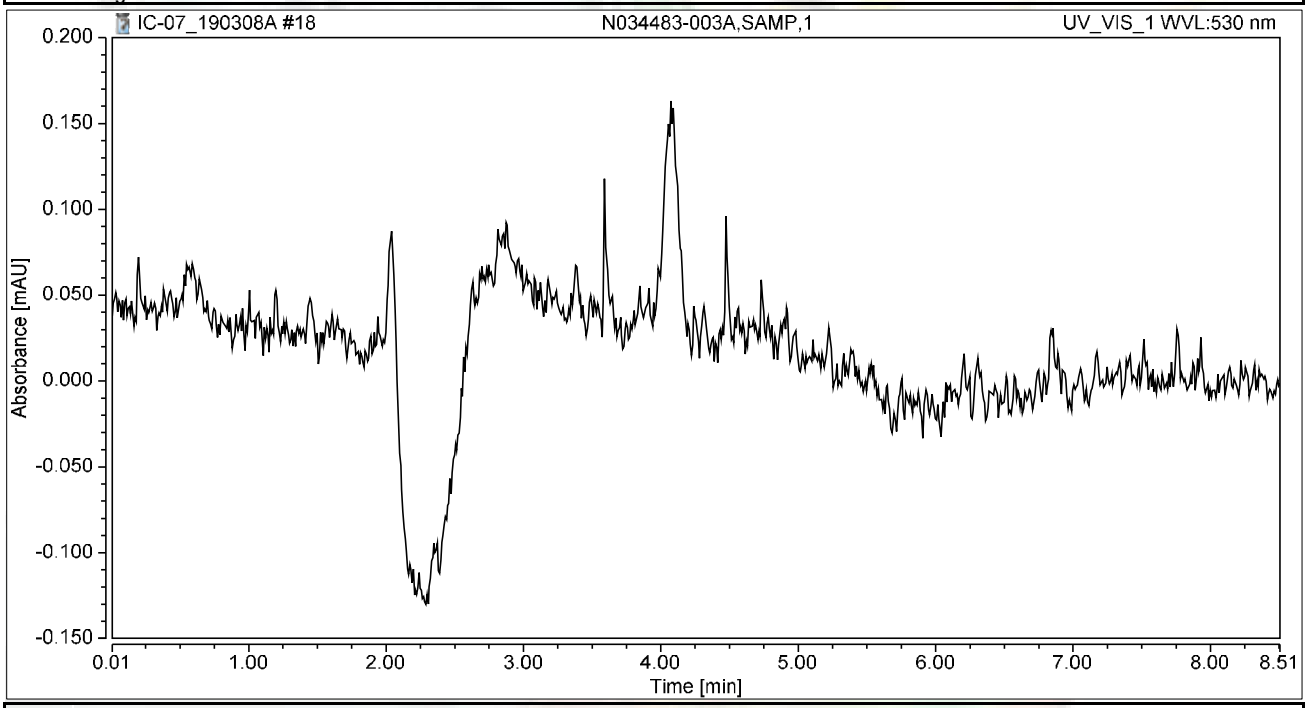
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.277 | 1.918 | 100.00 | 100.00 | 1.1161 |
| **Total:** | | | **0.277** | **1.918** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034483-003A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 09:58** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

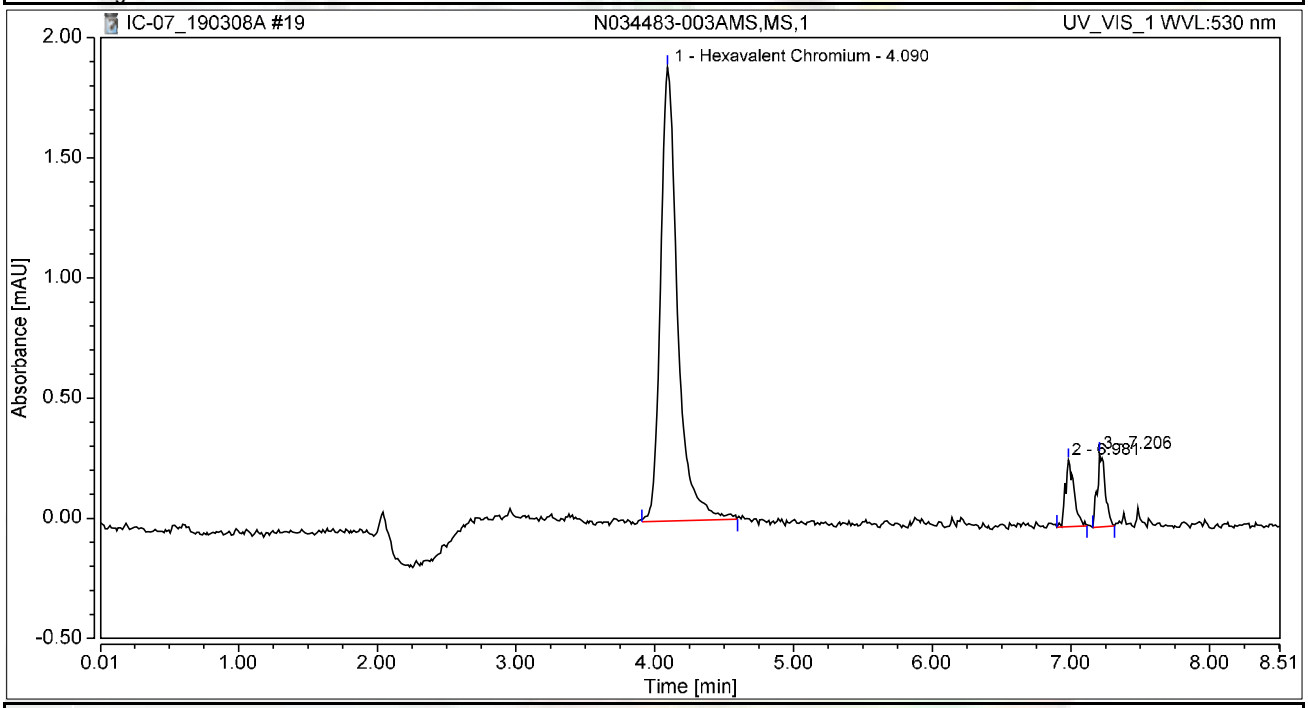
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034483-003AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 10:08** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

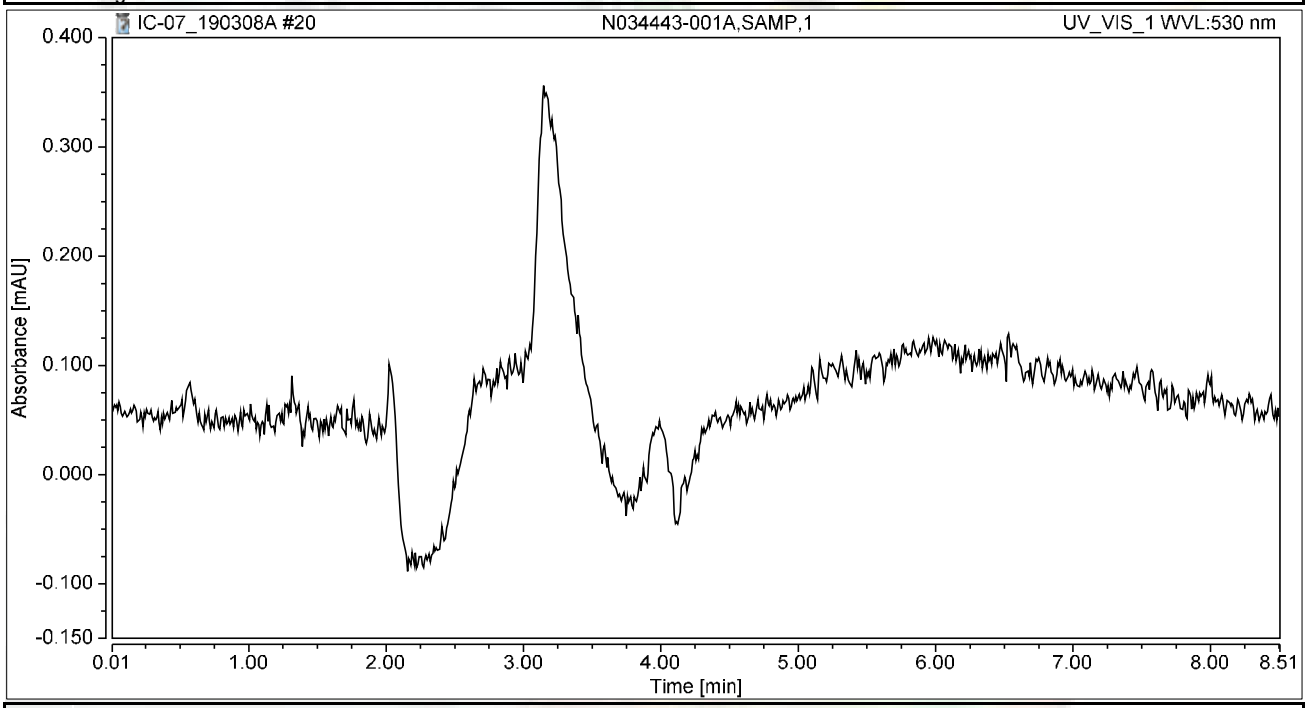
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.270 | 1.888 | 87.17 | 76.53 | 1.0904 |
| 2 | | 6.981 | 0.020 | 0.276 | 6.31 | 11.19 | n.a. |
| 3 | | 7.206 | 0.020 | 0.303 | 6.52 | 12.27 | n.a. |
| **Total:** | | | **0.310** | **2.466** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034443-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 10:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

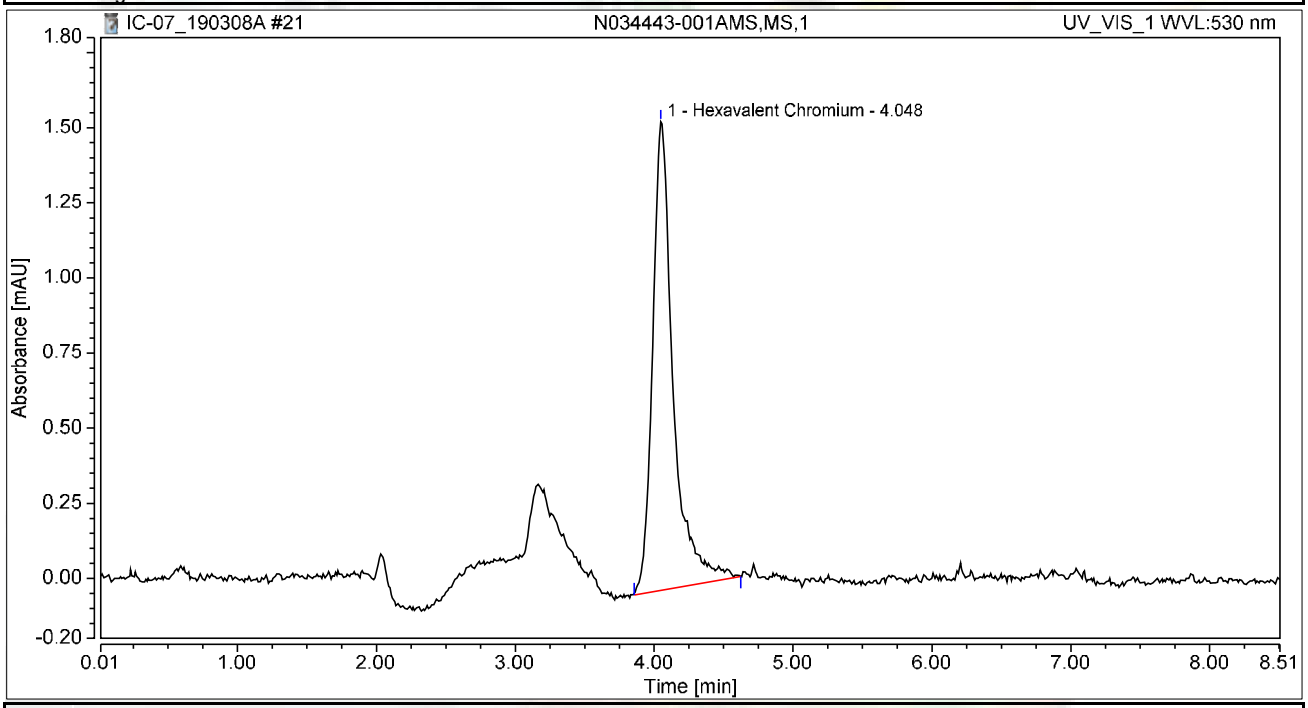
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034443-001AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 10:27** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

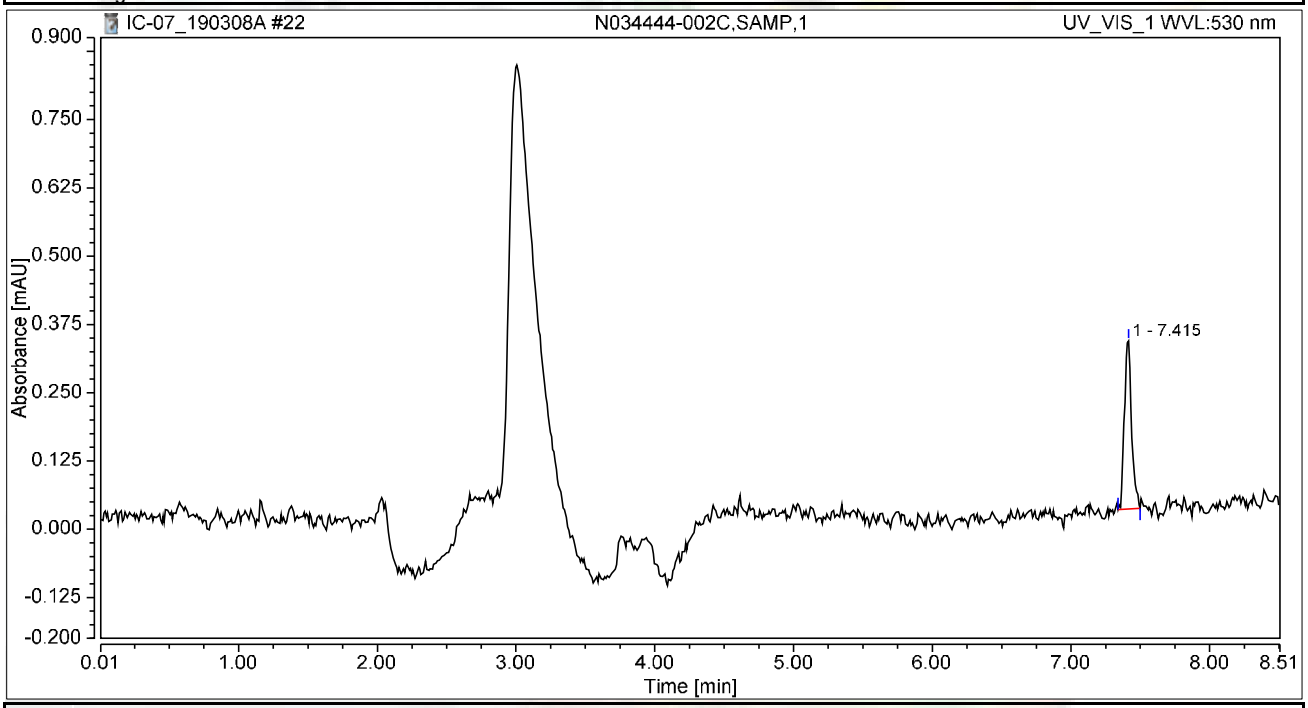
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.048 | 0.267 | 1.560 | 100.00 | 100.00 | 1.0774 |
| **Total:** | | | **0.267** | **1.560** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034444-002C,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 10:36** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

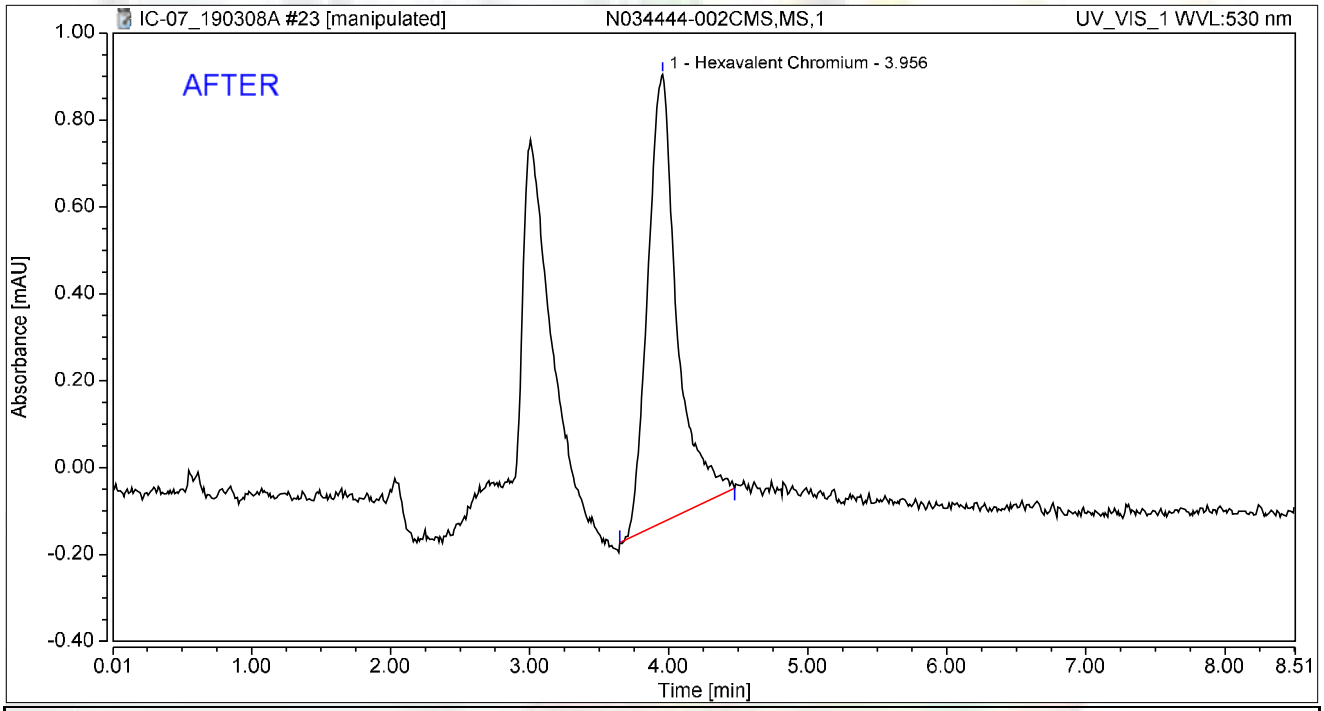
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 1 | | 7.415 | 0.019 | 0.307 | 100.00 | 100.00 | n.a. |
| **Total:** | | | **0.019** | **0.307** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034444-002CMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 10:46** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.956 | 0.252 | 1.031 | 100.00 | 100.00 | 1.0154 |
| **Total:** | | | **0.252** | **1.031** | **100.00** | **100.00** | |

rba 3/14/2019

Reviewed by:
Nancy 3/15/2019

My first report/Integration

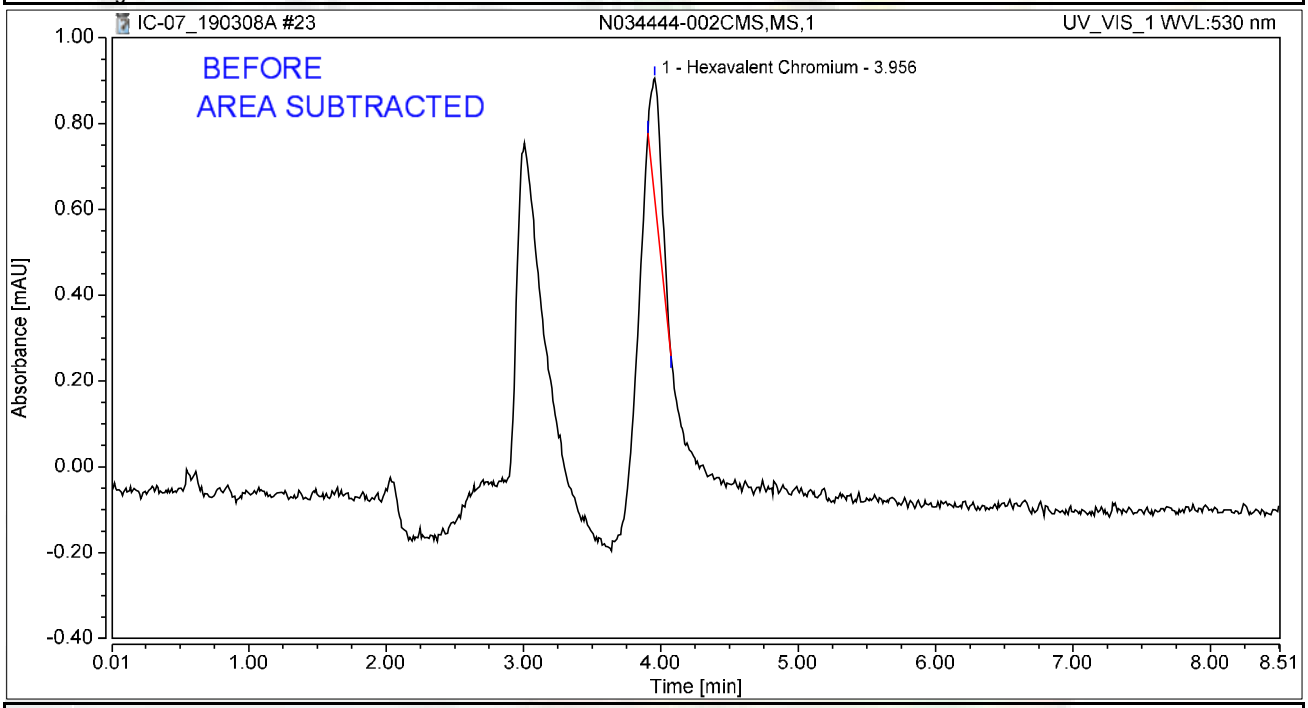
Chromeleon (c) Dionex
Version 7.1.1.1127

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034444-002CMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 10:46** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 3.956 | 0.026 | 0.283 | 100.00 | 100.00 | 0.1065 |
| **Total:** | | | **0.026** | **0.283** | **100.00** | **100.00** | |

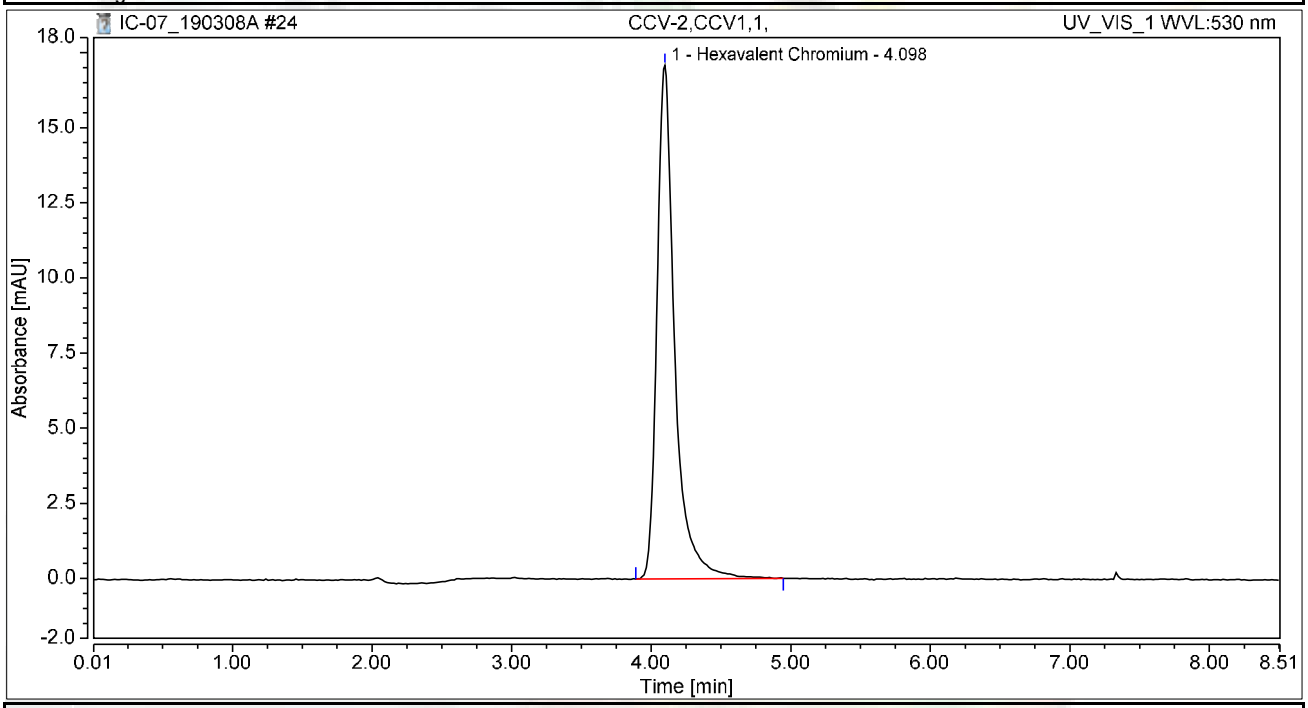
rba 3/14/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-2,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 10:55** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

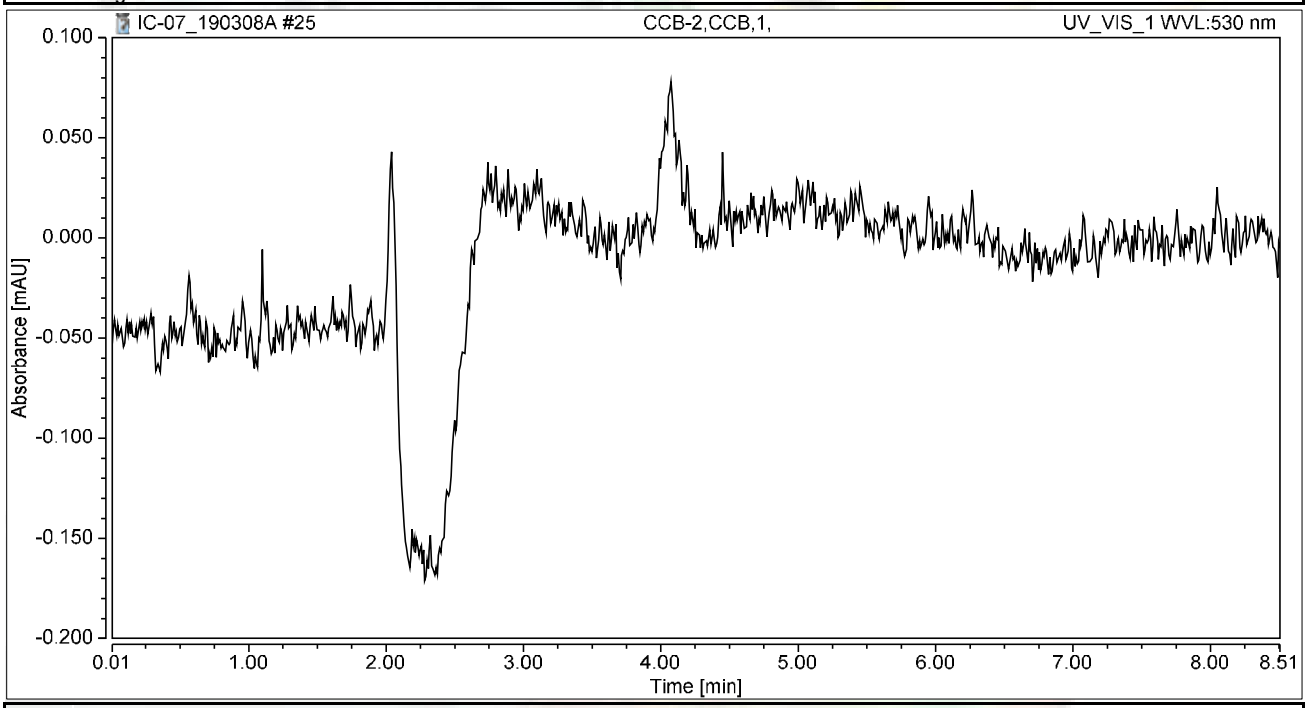
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.527 | 17.089 | 100.00 | 100.00 | 10.1966 |
| **Total:** | | | **2.527** | **17.089** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-2,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 11:05** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

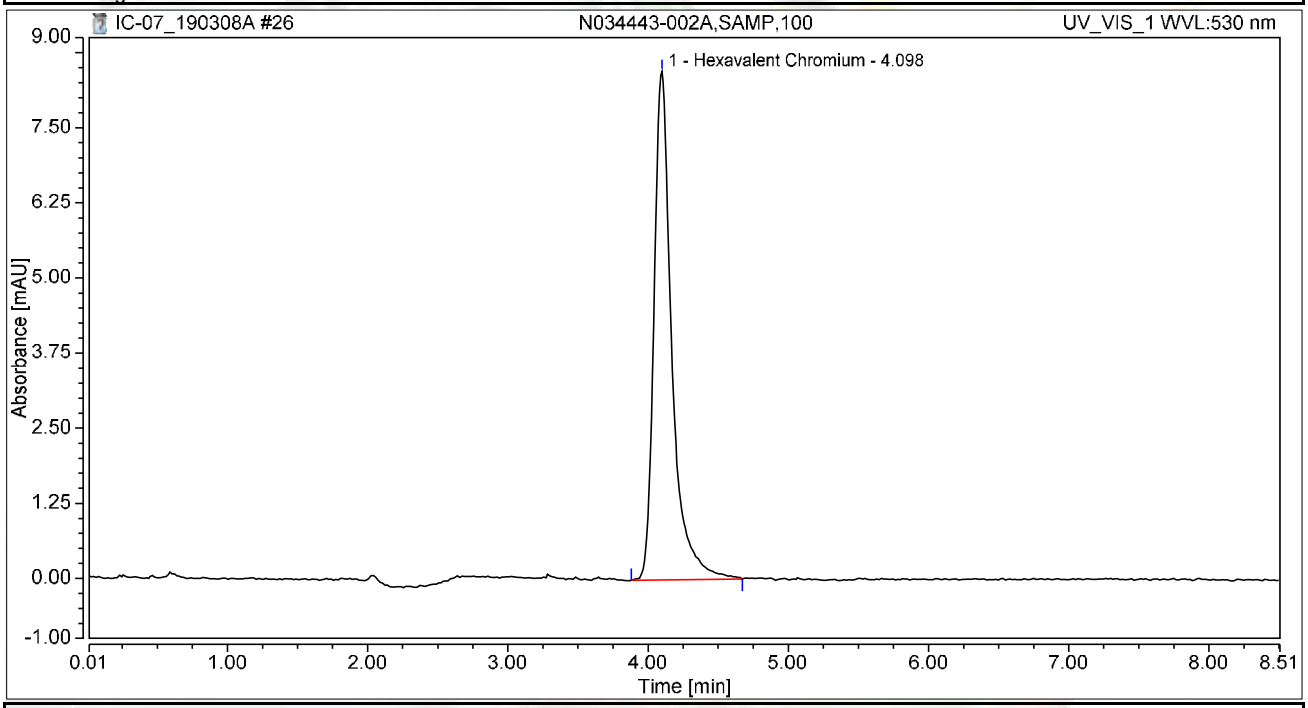
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034443-002A,SAMP,100** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 11:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

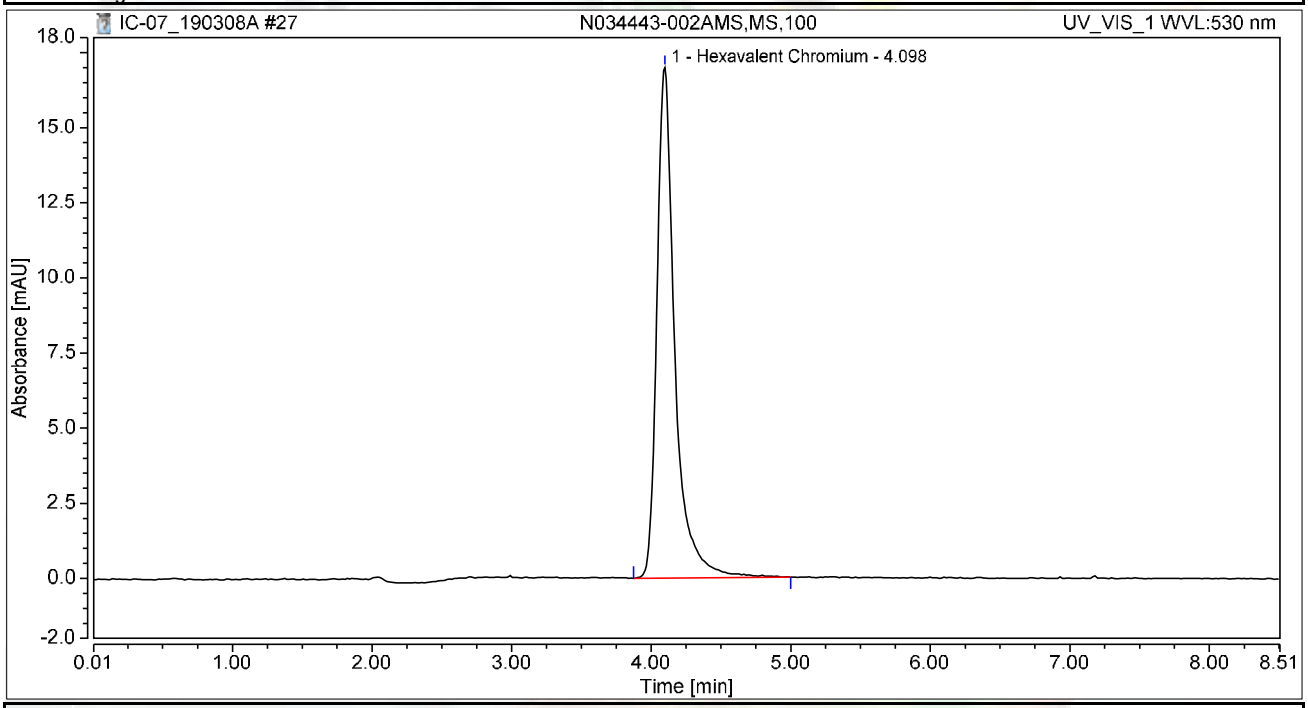
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.249 | 8.465 | 100.00 | 100.00 | 5.0392 |
| **Total:** | | | **1.249** | **8.465** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034443-002AMS,MS,100** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 11:24** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

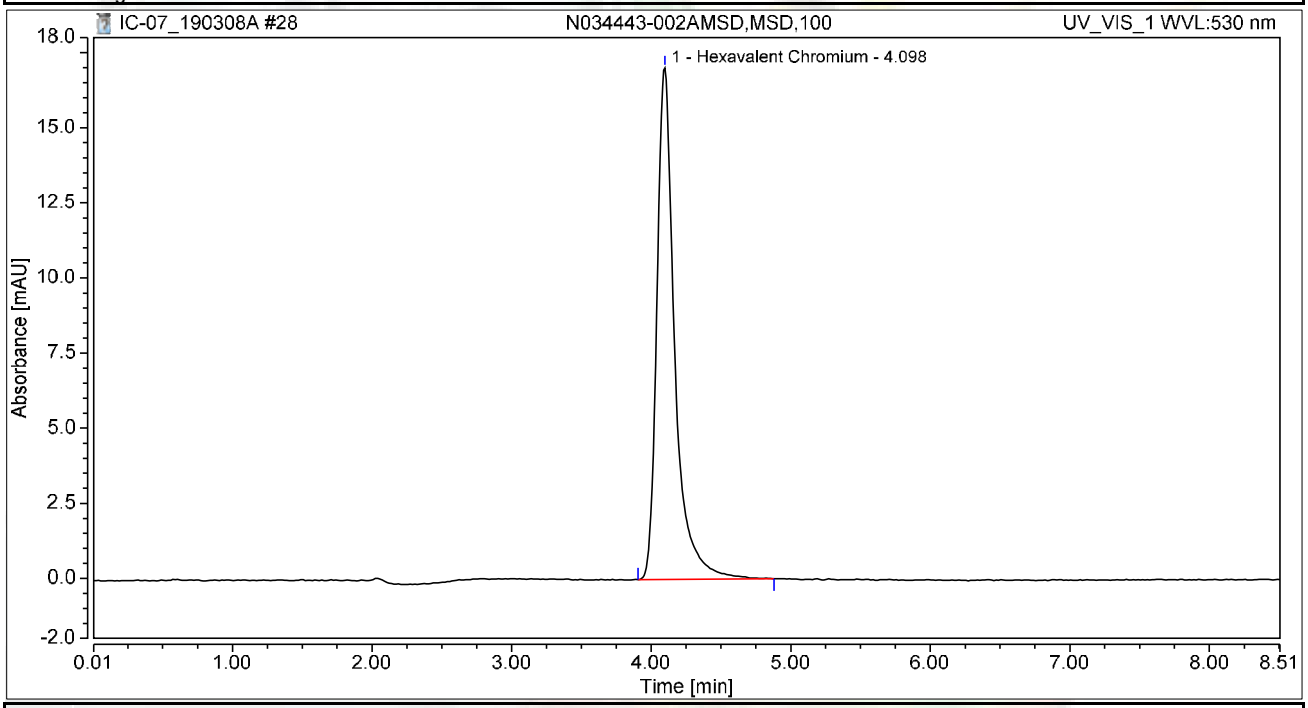
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.541 | 16.986 | 100.00 | 100.00 | 10.2552 |
| **Total:** | | | **2.541** | **16.986** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034443-002AMSD,MSD,100** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **20** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 11:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

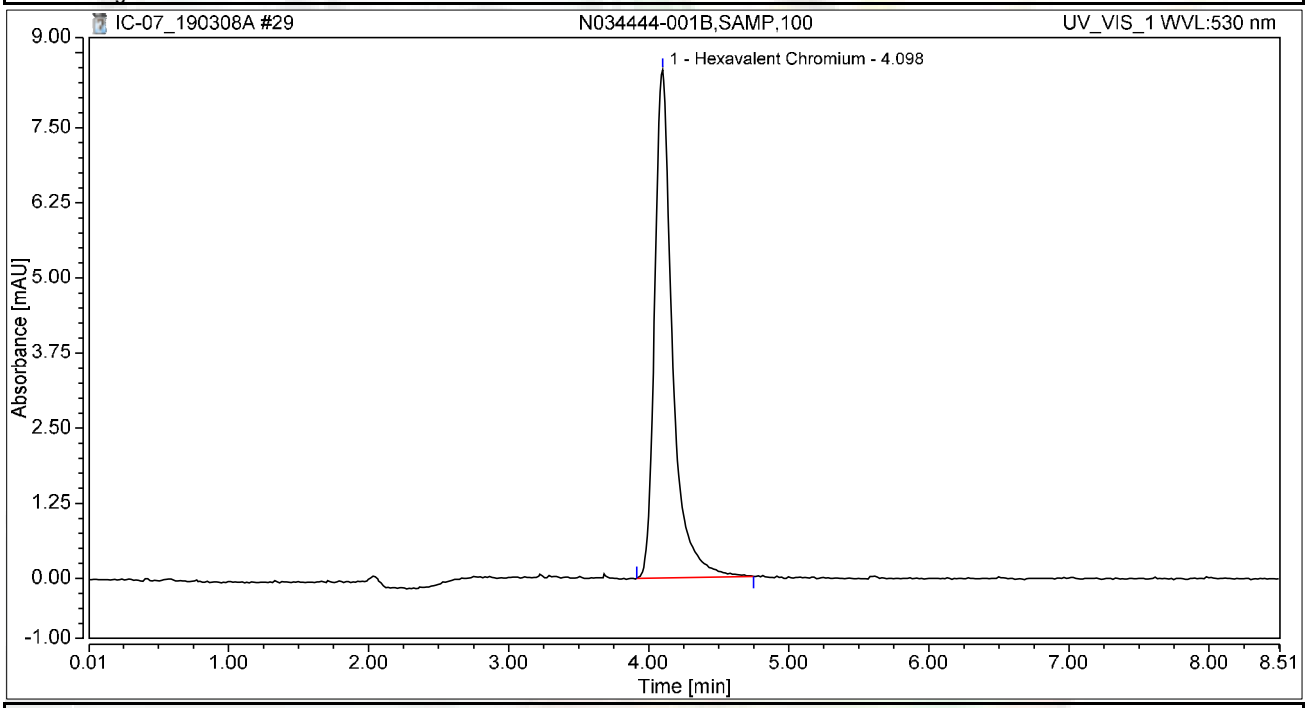
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.535 | 17.032 | 100.00 | 100.00 | 10.2284 |
| **Total:** | | | **2.535** | **17.032** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034444-001B,SAMP,100** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 11:43** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

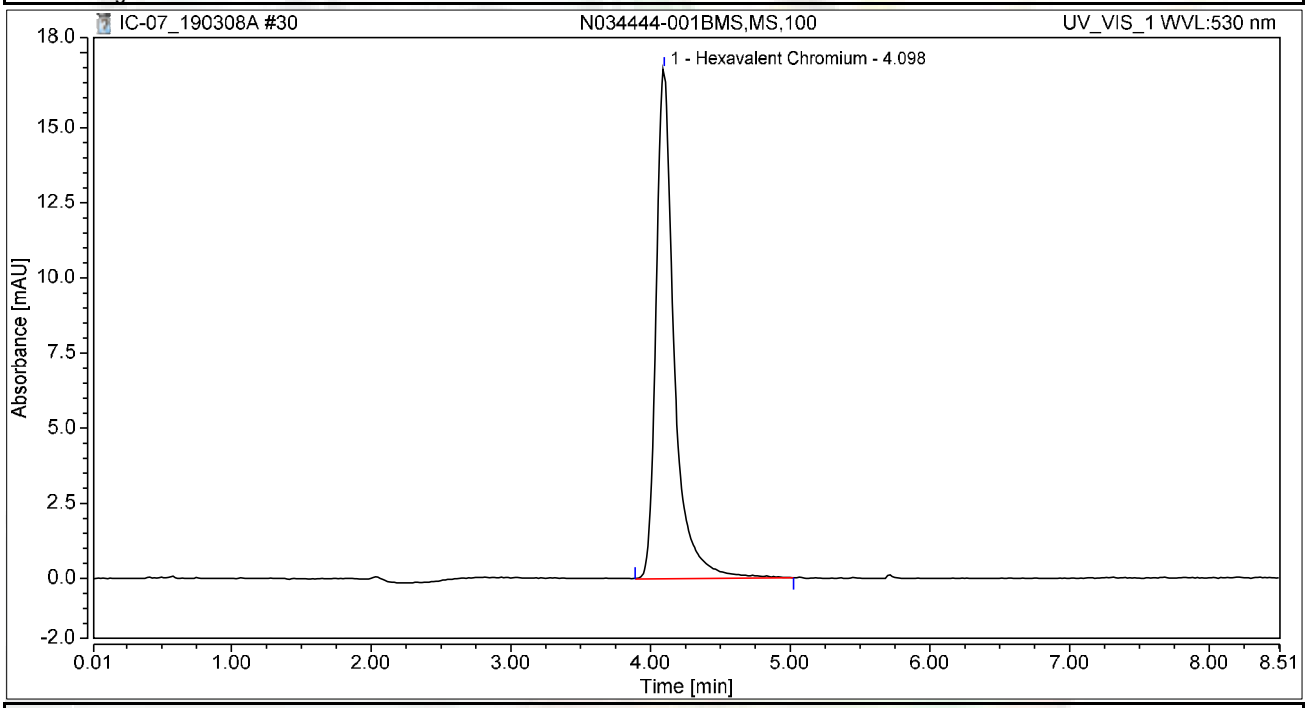
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.248 | 8.455 | 100.00 | 100.00 | 5.0349 |
| **Total:** | | | **1.248** | **8.455** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034444-001BMS,MS,100** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 11:52** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

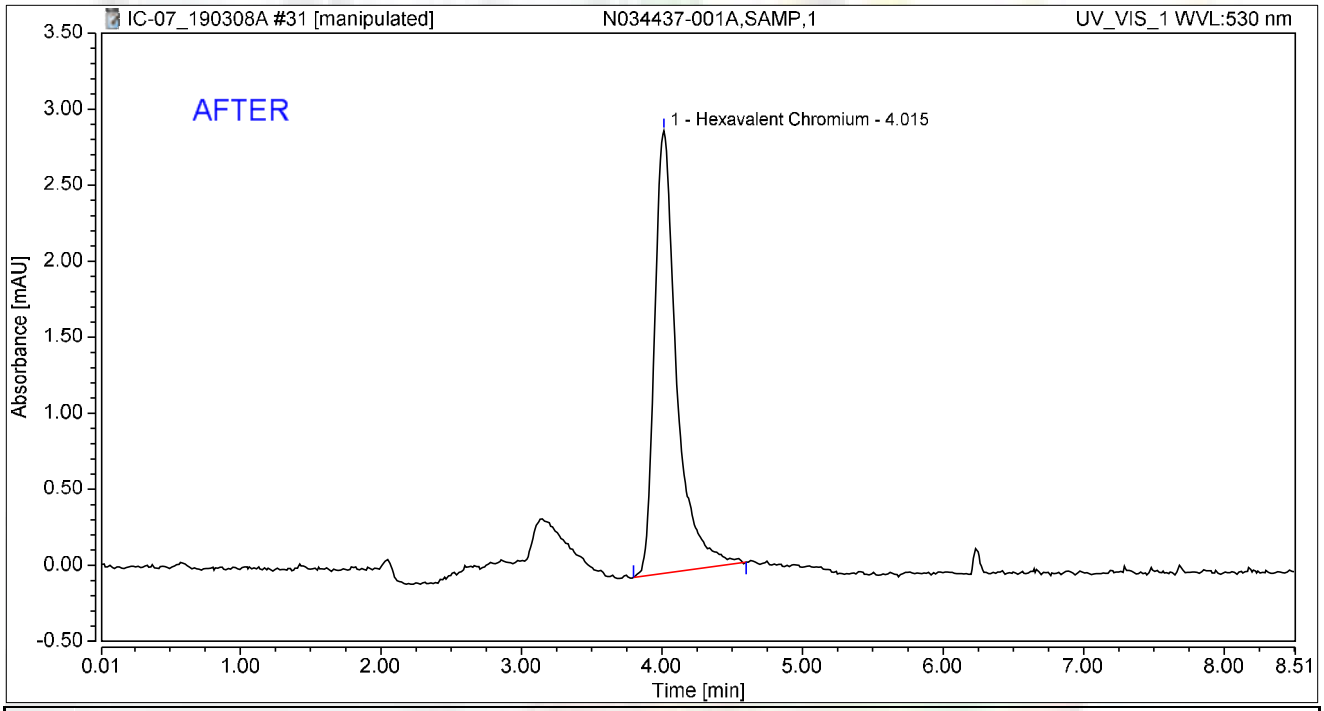
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.559 | 16.963 | 100.00 | 100.00 | 10.3282 |
| **Total:** | | | **2.559** | **16.963** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034437-001A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **23** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 12:01** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.015 | 0.530 | 2.909 | 100.00 | 100.00 | 2.1392 |
| **Total:** | | | **0.530** | **2.909** | **100.00** | **100.00** | |

rba 3/14/2019

Reviewed by:
Nancy 3/15/2019

My first report/Integration

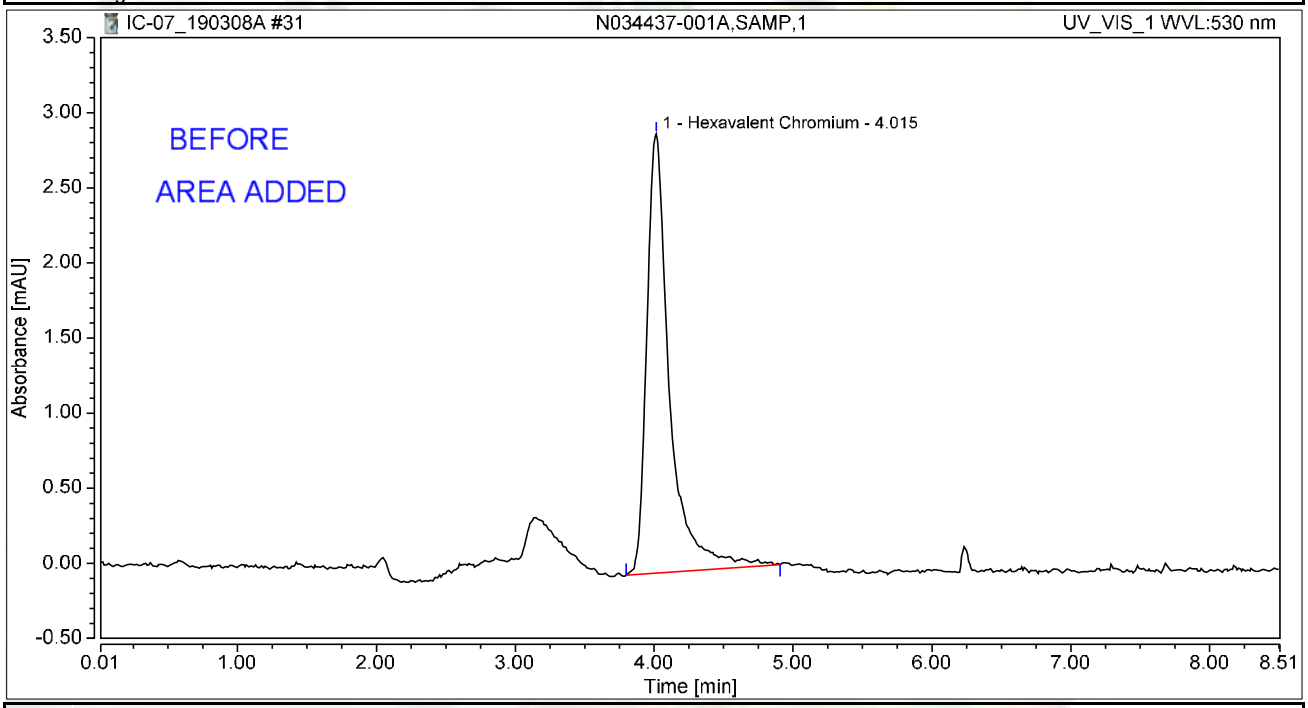
Chromeleon (c) Dionex
Version 7.1.1.1127

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034437-001A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **23** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 12:01** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.015 | 0.557 | 2.922 | 100.00 | 100.00 | 2.2497 |
| **Total:** | | | **0.557** | **2.922** | **100.00** | **100.00** | |

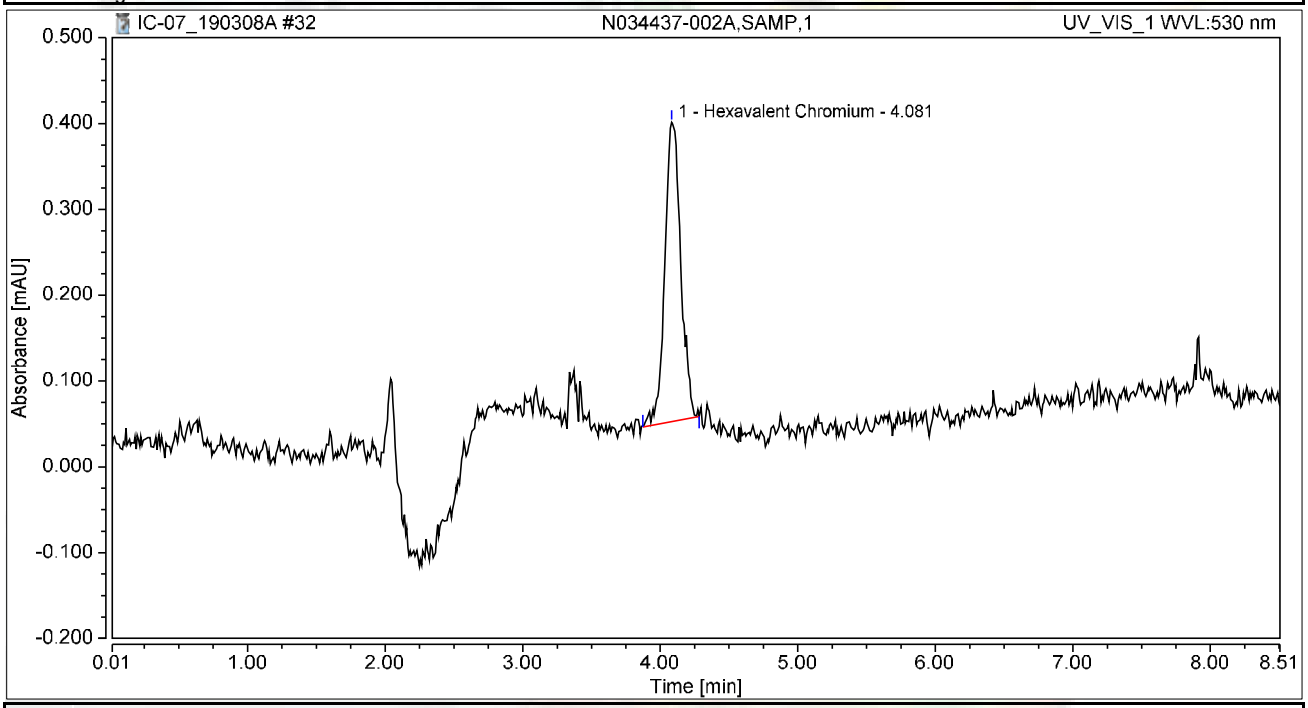
rba 3/14/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034437-002A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **24** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 12:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

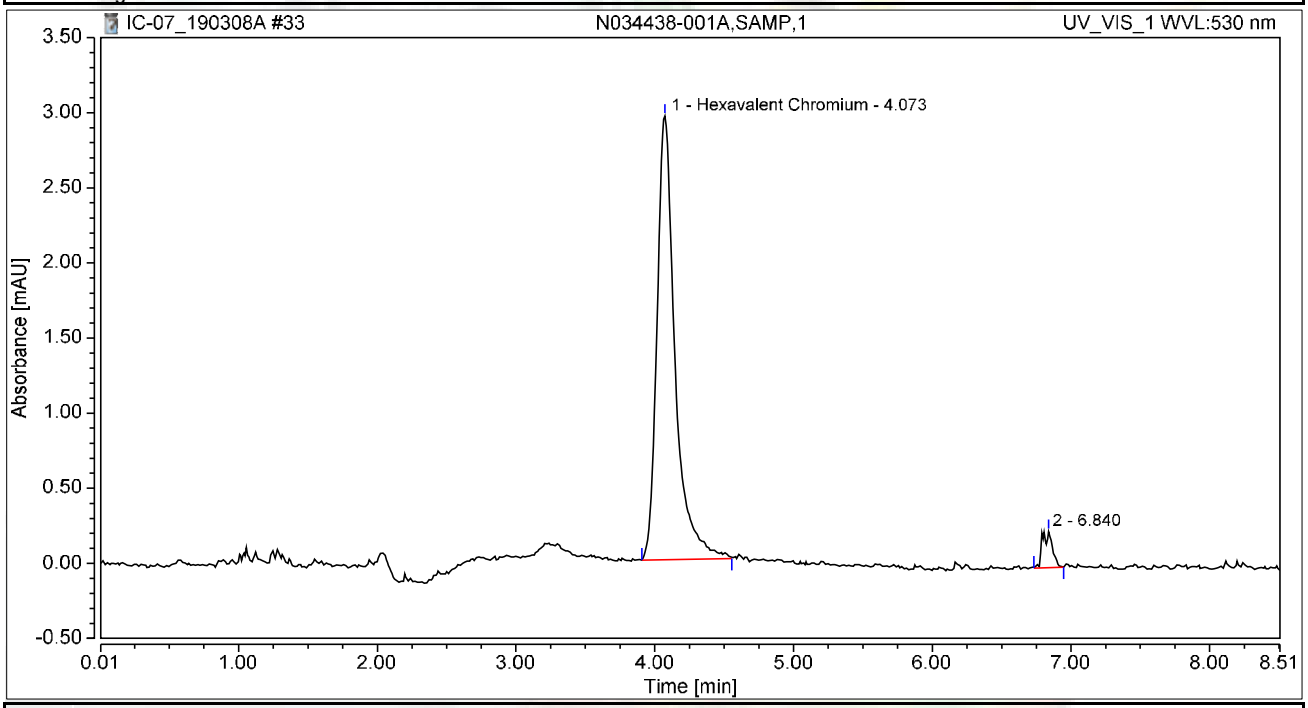
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.047 | 0.349 | 100.00 | 100.00 | 0.1887 |
| **Total:** | | | **0.047** | **0.349** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034438-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 12:20** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

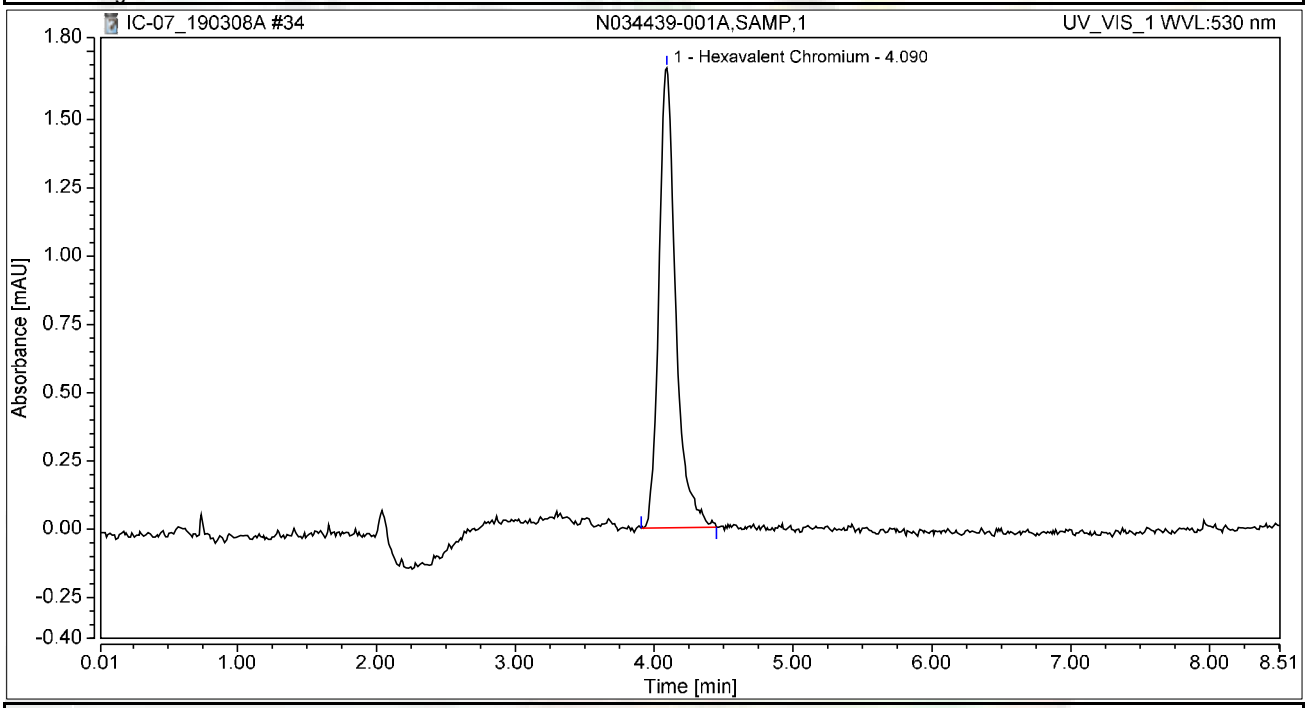
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.073 | 0.446 | 2.952 | 95.67 | 92.49 | 1.7978 |
| 2 | | 6.840 | 0.020 | 0.240 | 4.33 | 7.51 | n.a. |
| **Total:** | | | **0.466** | **3.192** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034439-001A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **26** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 12:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

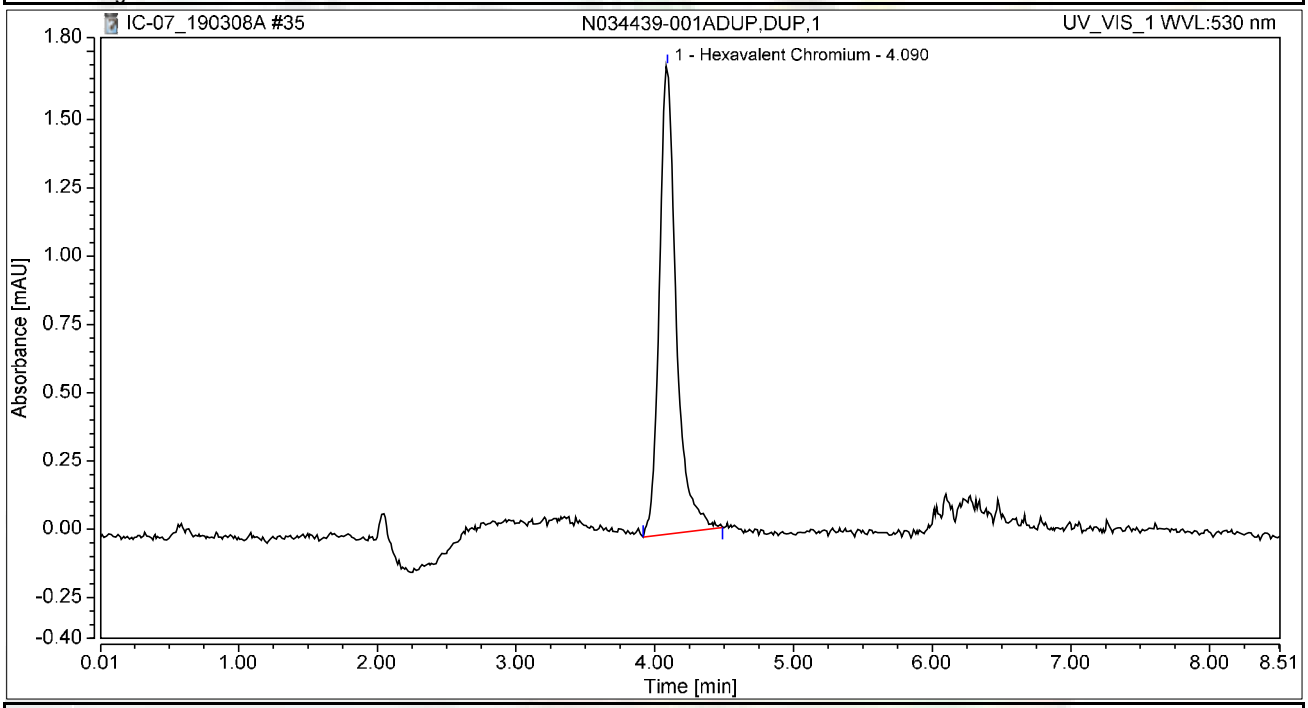
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.237 | 1.684 | 100.00 | 100.00 | 0.9571 |
| **Total:** | | | **0.237** | **1.684** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034439-001ADUP,DUP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 12:39** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

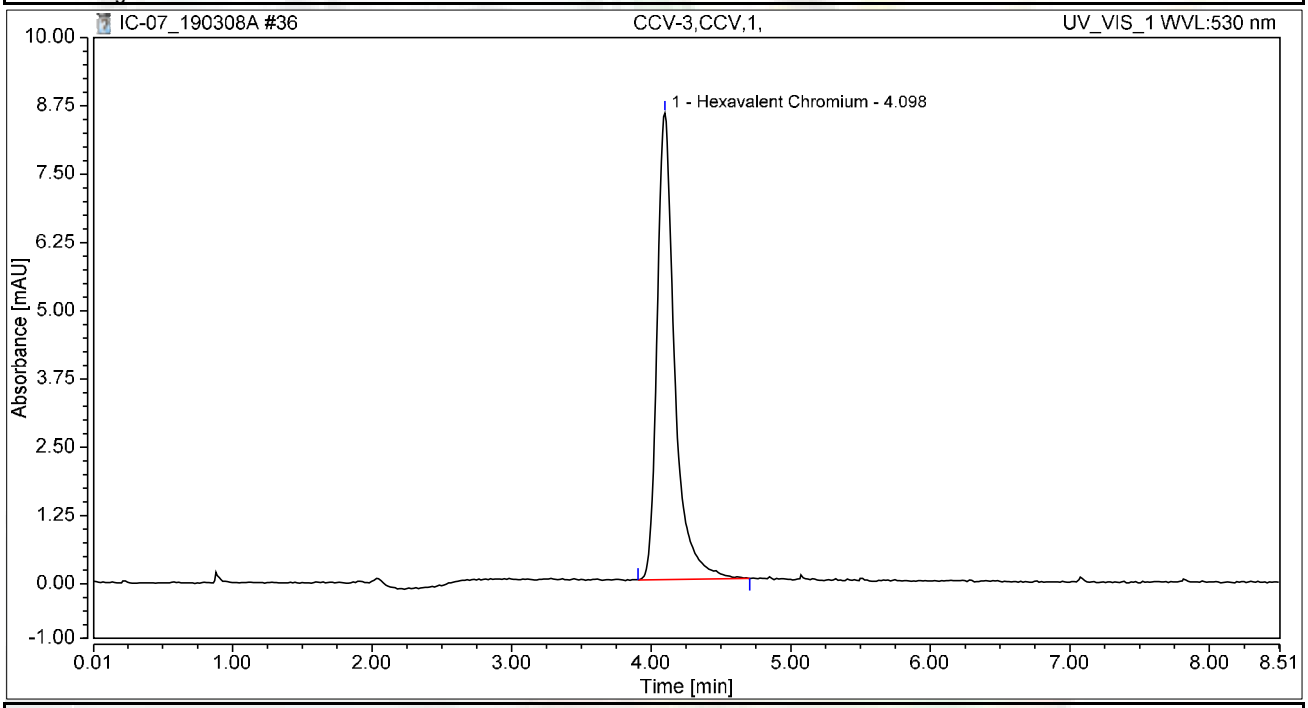
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.243 | 1.713 | 100.00 | 100.00 | 0.9814 |
| **Total:** | | | **0.243** | **1.713** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-3,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **28** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 12:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

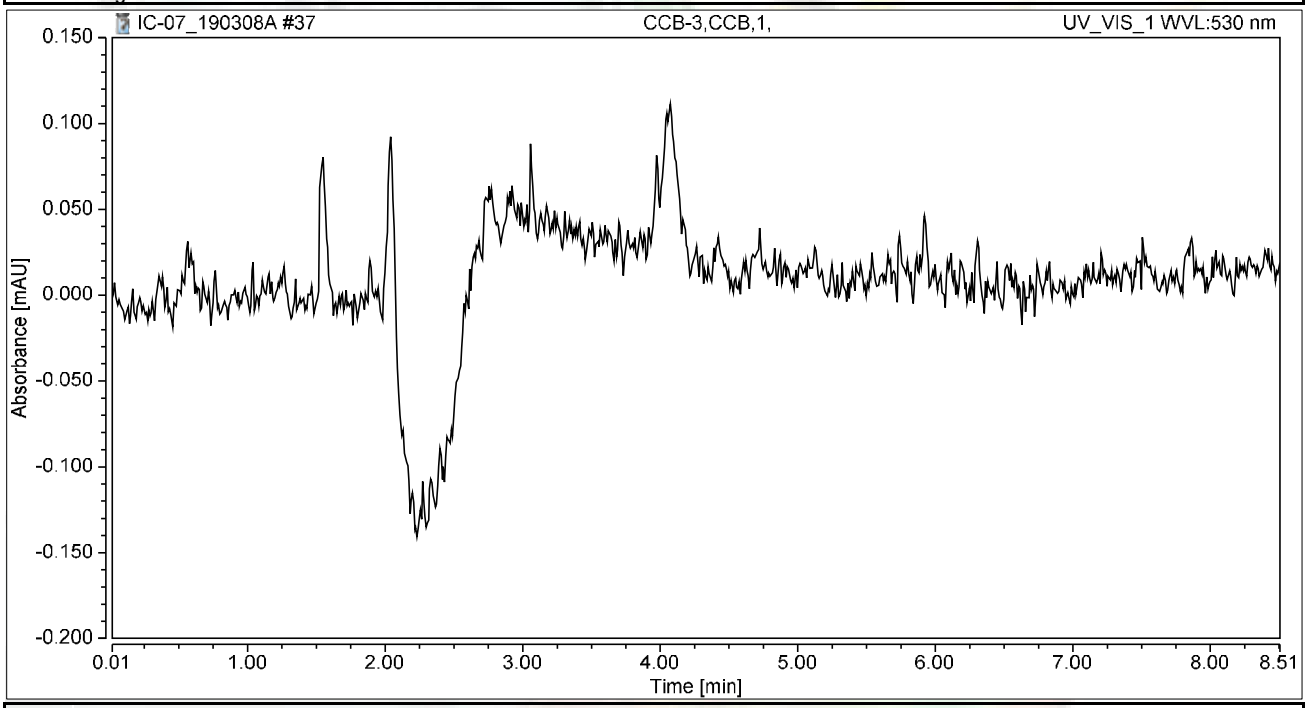
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.252 | 8.540 | 100.00 | 100.00 | 5.0512 |
| **Total:** | | | **1.252** | **8.540** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-3,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **29** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 12:58** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

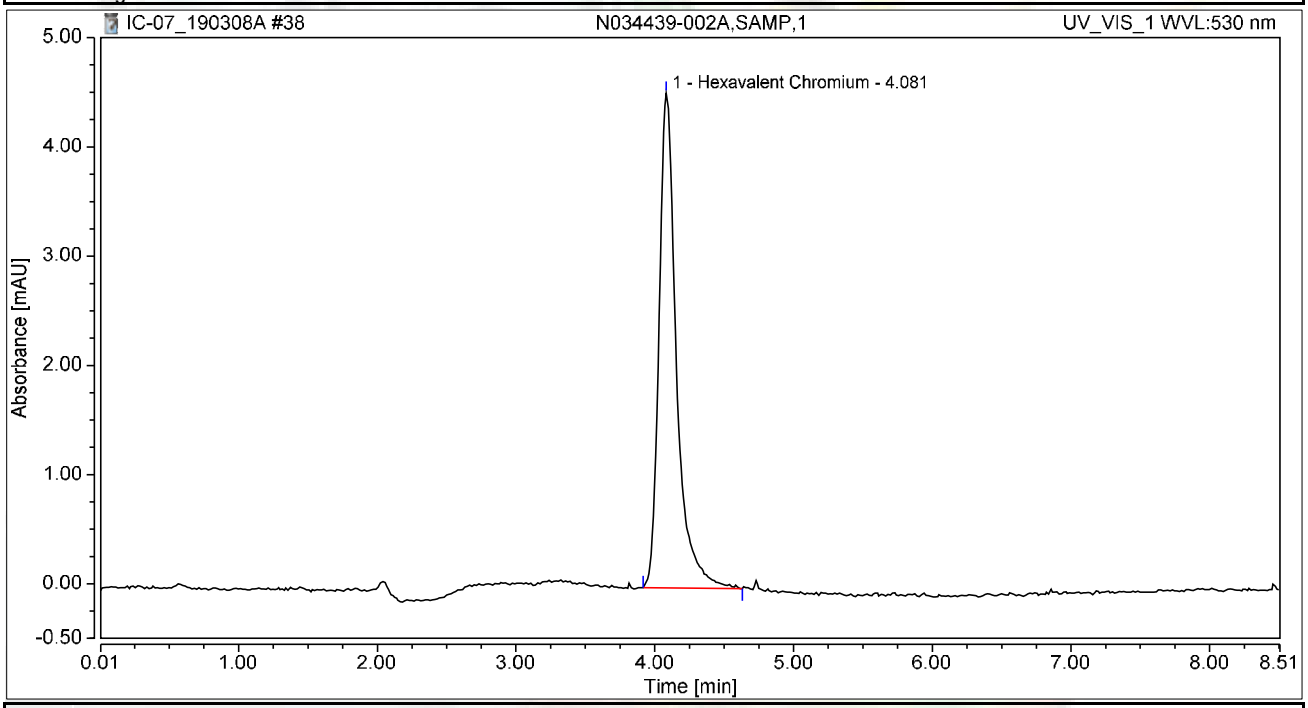
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034439-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **30** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 13:08** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

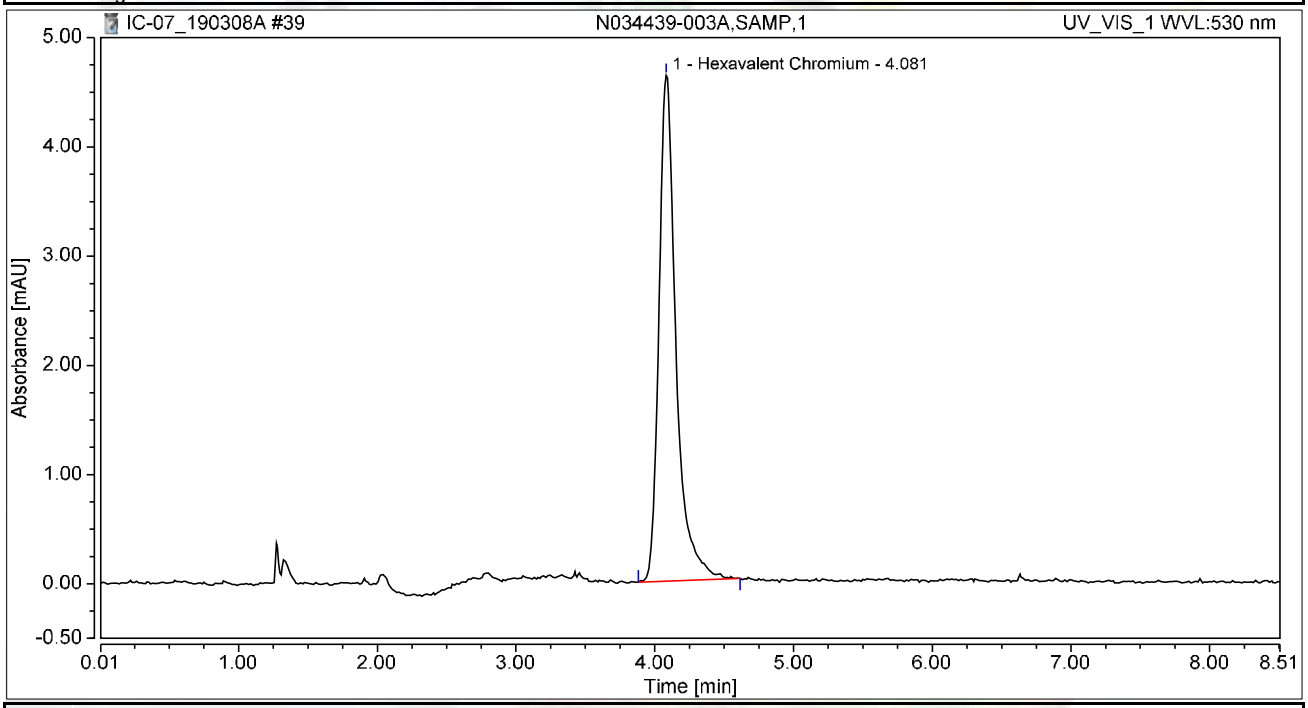
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.660 | 4.527 | 100.00 | 100.00 | 2.6622 |
| **Total:** | | | **0.660** | **4.527** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034439-003A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **31** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 13:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

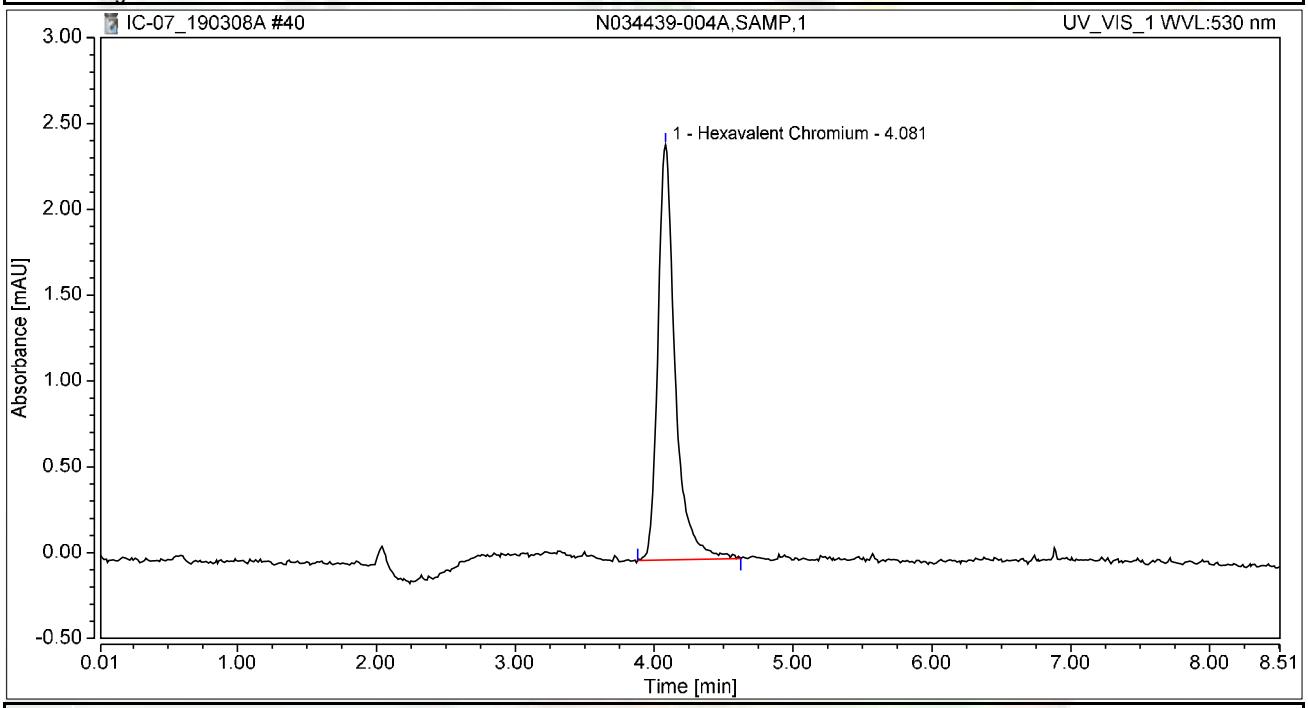
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.661 | 4.629 | 100.00 | 100.00 | 2.6685 |
| **Total:** | | | **0.661** | **4.629** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034439-004A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **32** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 13:27** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

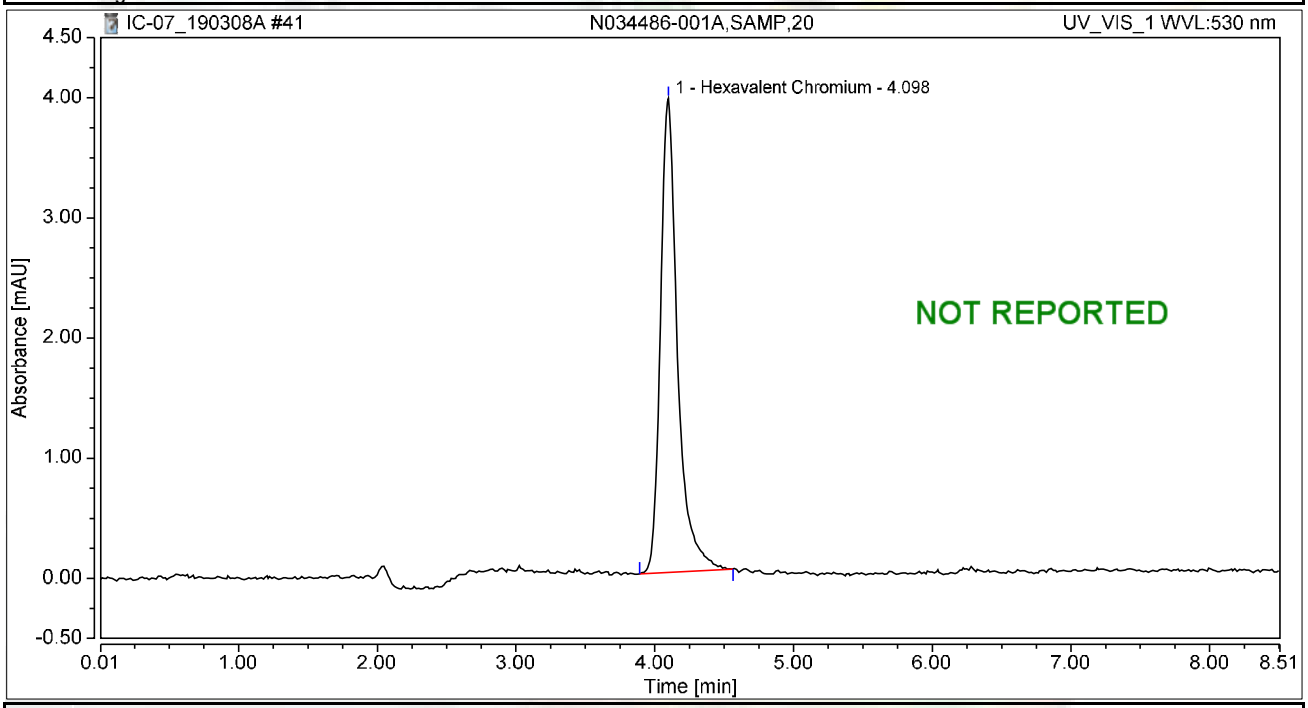
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.348 | 2.419 | 100.00 | 100.00 | 1.4046 |
| **Total:** | | | **0.348** | **2.419** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034486-001A,SAMP,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **33** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 13:36** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

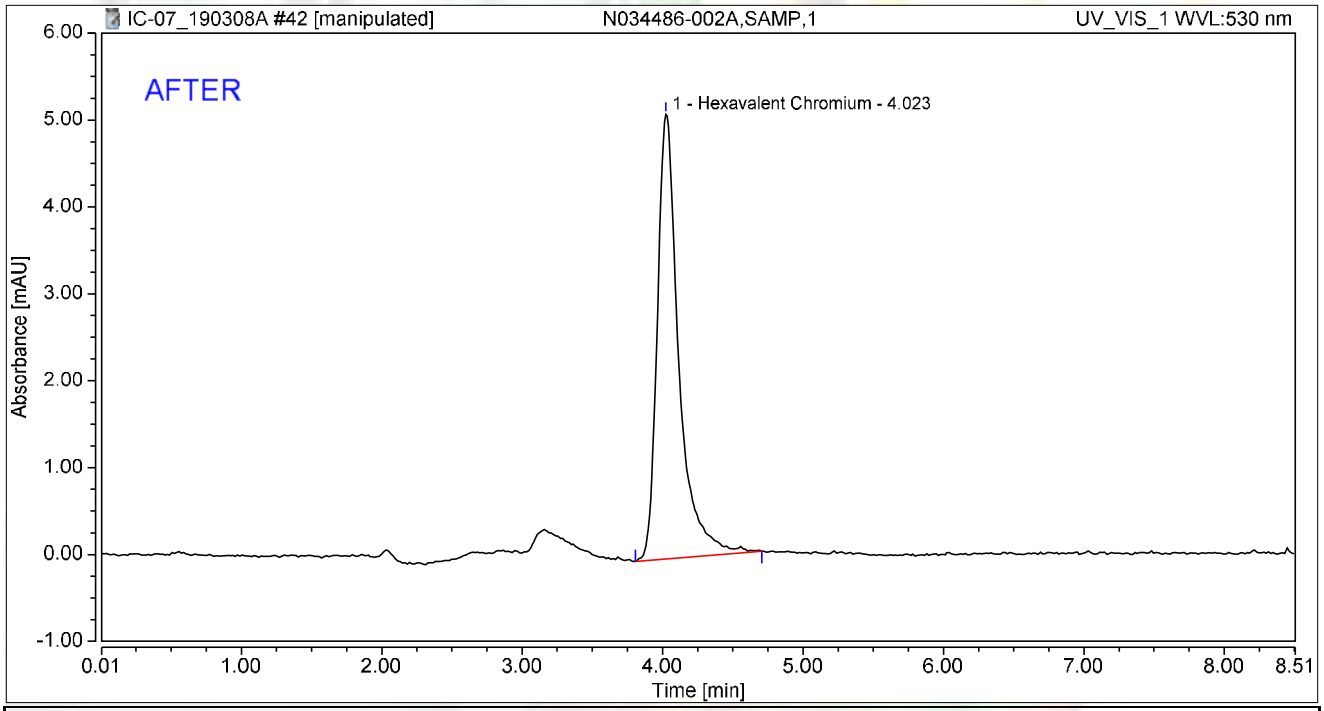
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 0.566 | 3.944 | 100.00 | 100.00 | 2.2822 |
| **Total:** | | | **0.566** | **3.944** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034486-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **34** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 13:45** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.023 | 0.908 | 5.118 | 100.00 | 100.00 | 3.6629 |
| **Total:** | | | **0.908** | **5.118** | **100.00** | **100.00** | |

rba 3/14/2019

Reviewed by:
My first report/Integration 3/15/2019

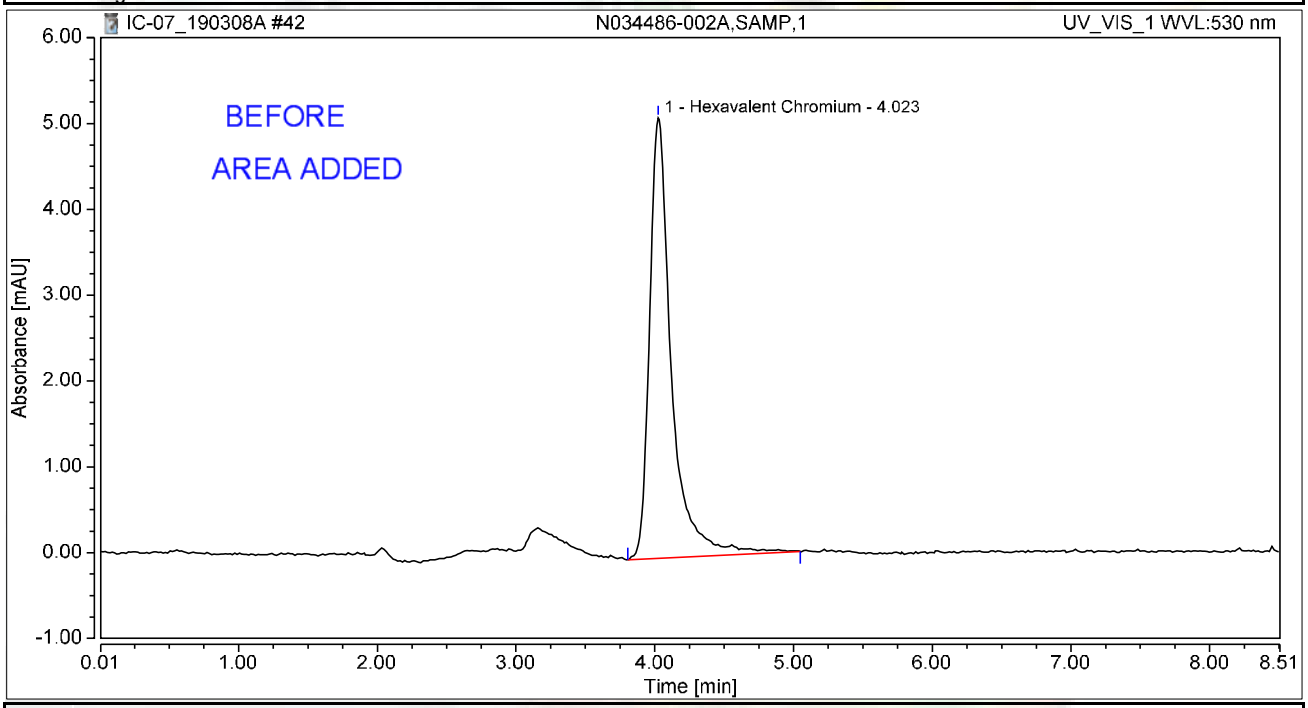
Chromeleon (c) Dionex
Version 7.1.1.1127

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034486-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **34** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 13:45** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.023 | 0.940 | 5.130 | 100.00 | 100.00 | 3.7943 |
| **Total:** | | | **0.940** | **5.130** | **100.00** | **100.00** | |

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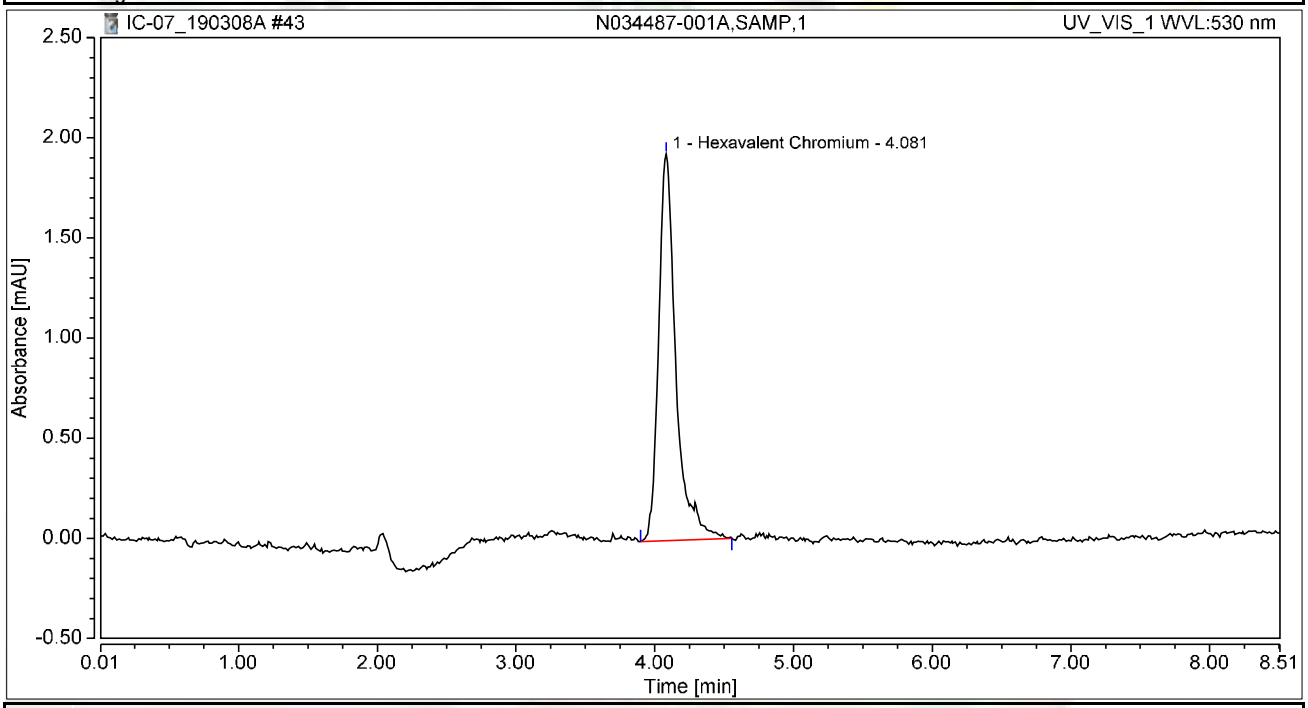
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034487-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **35** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 13:55** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

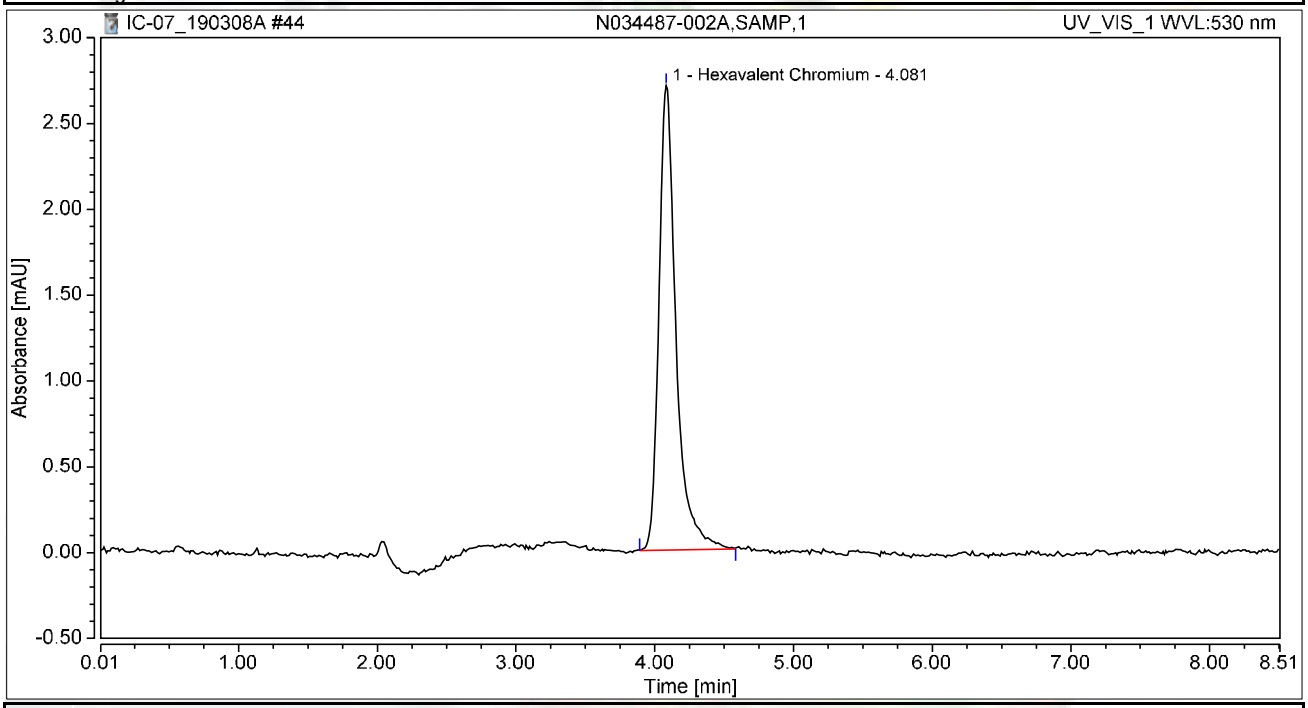
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.279 | 1.931 | 100.00 | 100.00 | 1.1258 |
| **Total:** | | | **0.279** | **1.931** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034487-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **36** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 14:04** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

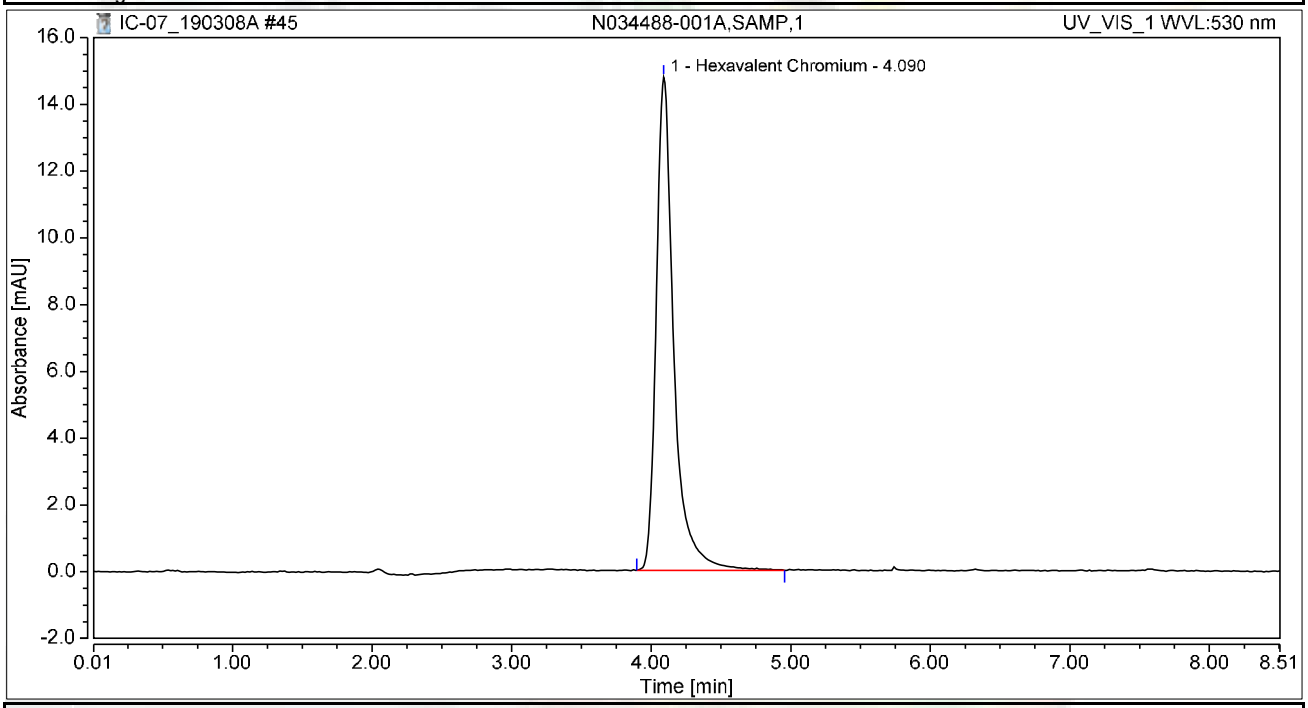
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.081 | 0.388 | 2.705 | 100.00 | 100.00 | 1.5642 |
| **Total:** | | | **0.388** | **2.705** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034488-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **37** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 14:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

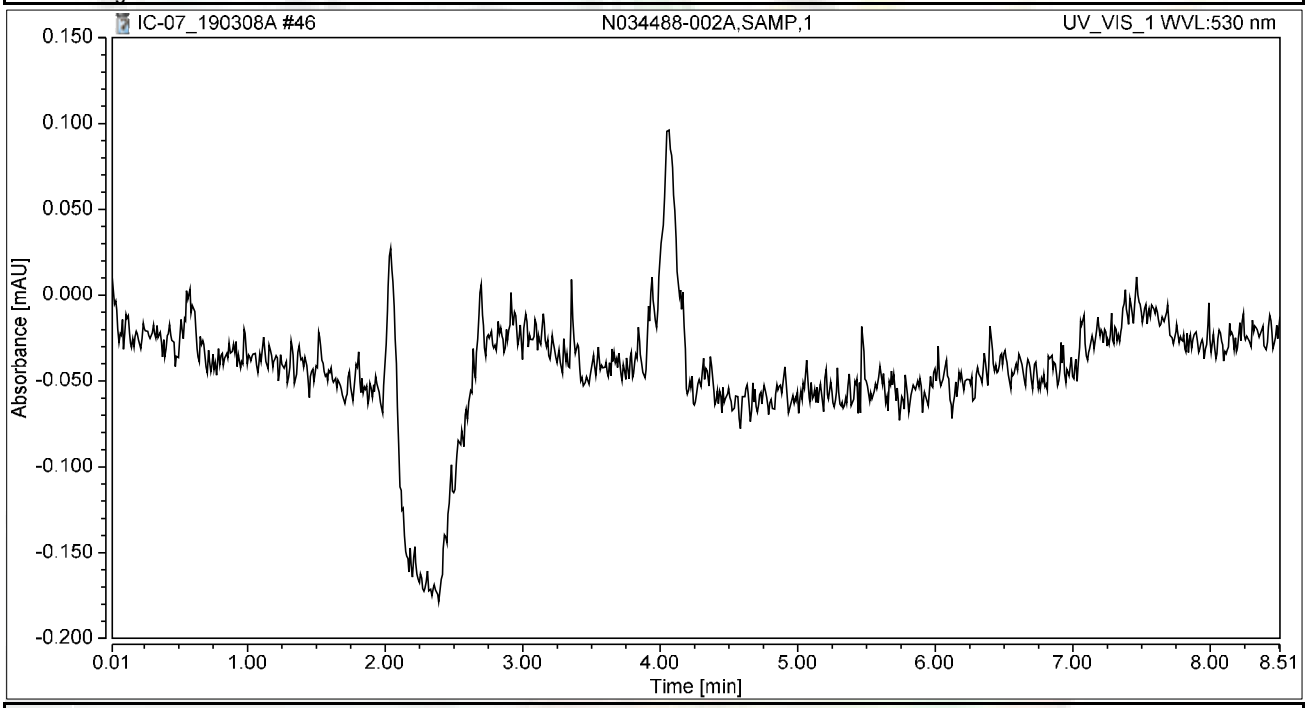
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 2.159 | 14.775 | 100.00 | 100.00 | 8.7139 |
| **Total:** | | | **2.159** | **14.775** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034488-002A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **38** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 14:23** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

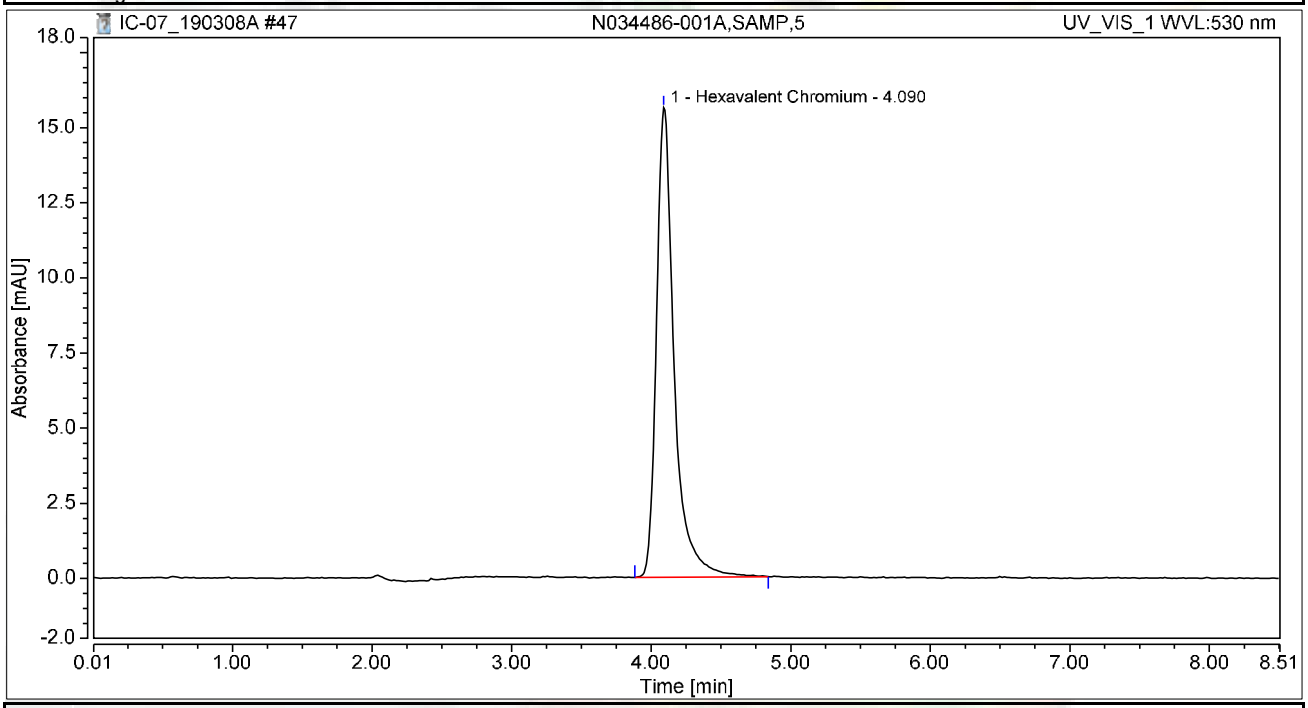
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034486-001A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **39** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 14:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

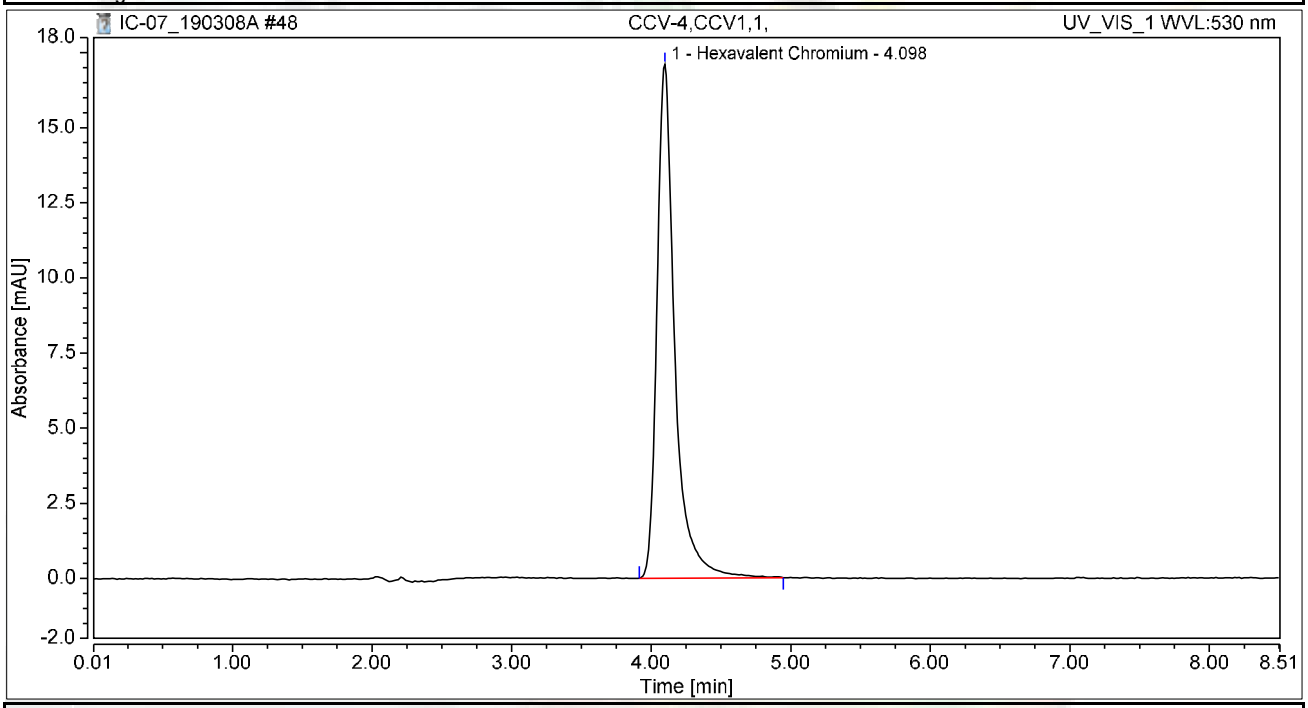
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 2.299 | 15.627 | 100.00 | 100.00 | 9.2780 |
| **Total:** | | | **2.299** | **15.627** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-4,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **40** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 14:42** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

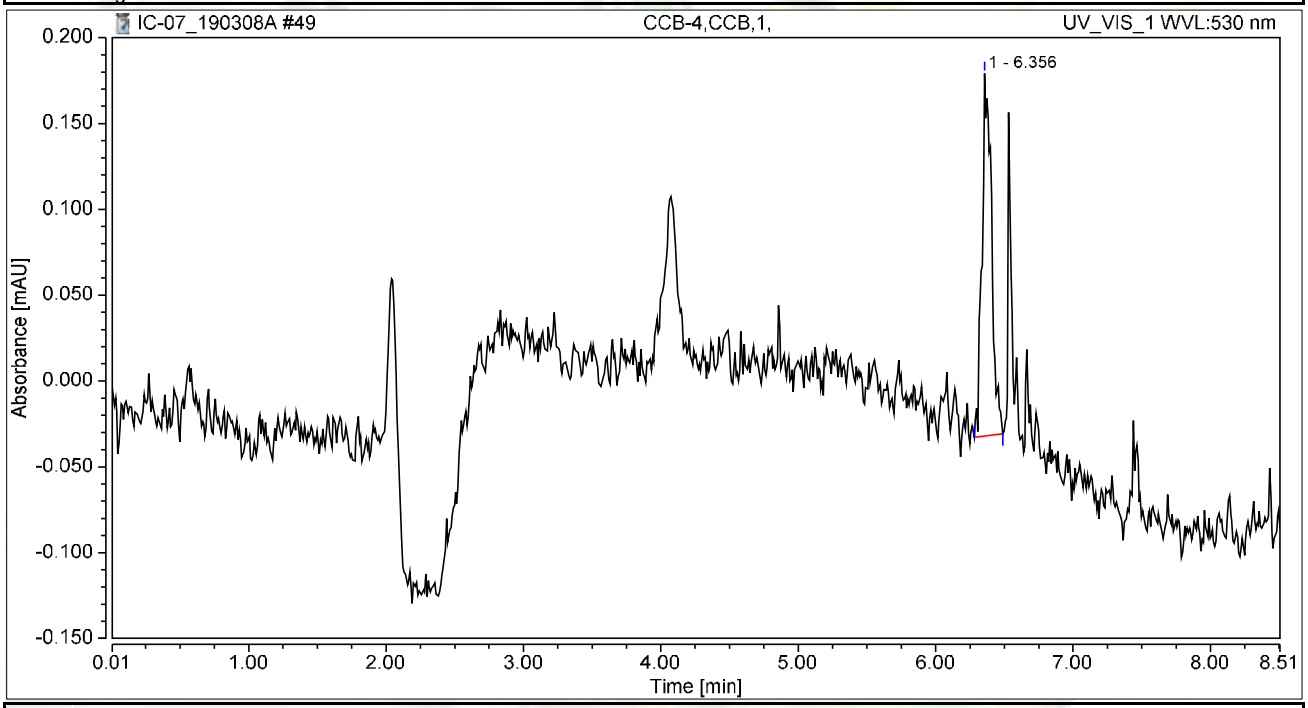
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 2.533 | 17.097 | 100.00 | 100.00 | 10.2208 |
| **Total:** | | | **2.533** | **17.097** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-4,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **41** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 14:52** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

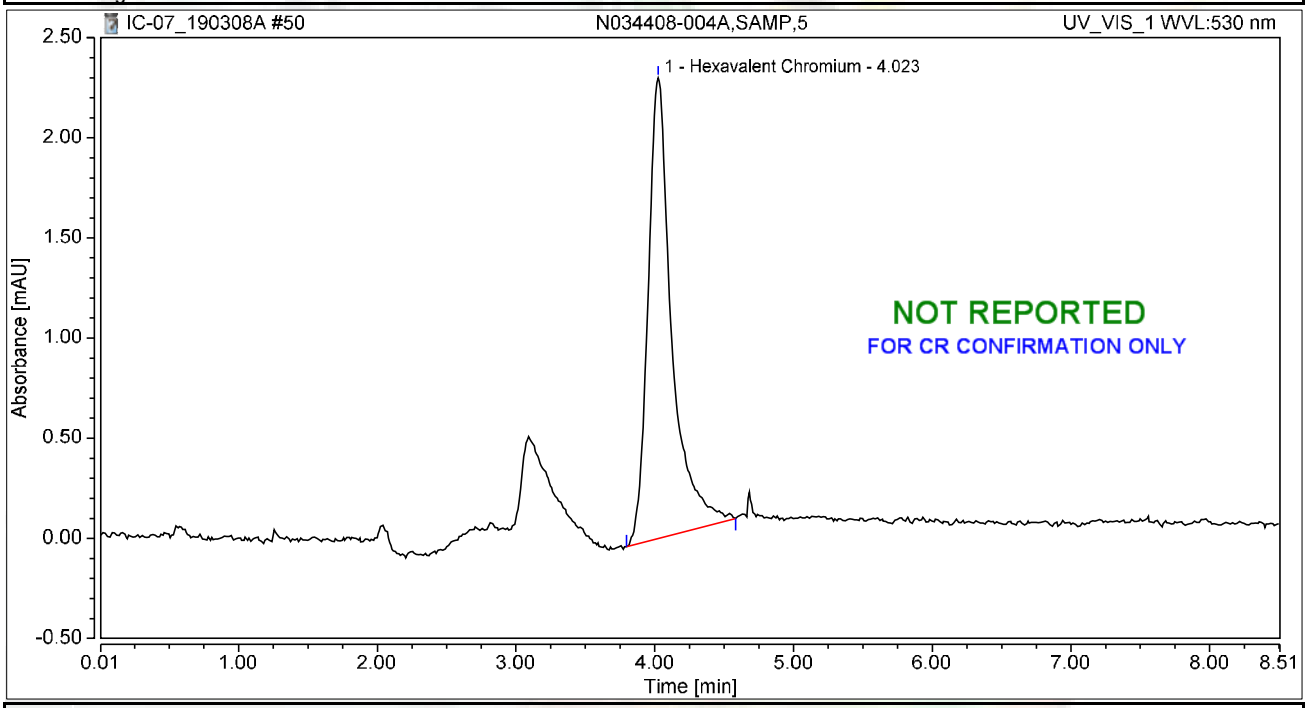
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 1 | | 6.356 | 0.017 | 0.211 | 100.00 | 100.00 | n.a. |
| **Total:** | | | **0.017** | **0.211** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034408-004A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **42** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 15:01** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

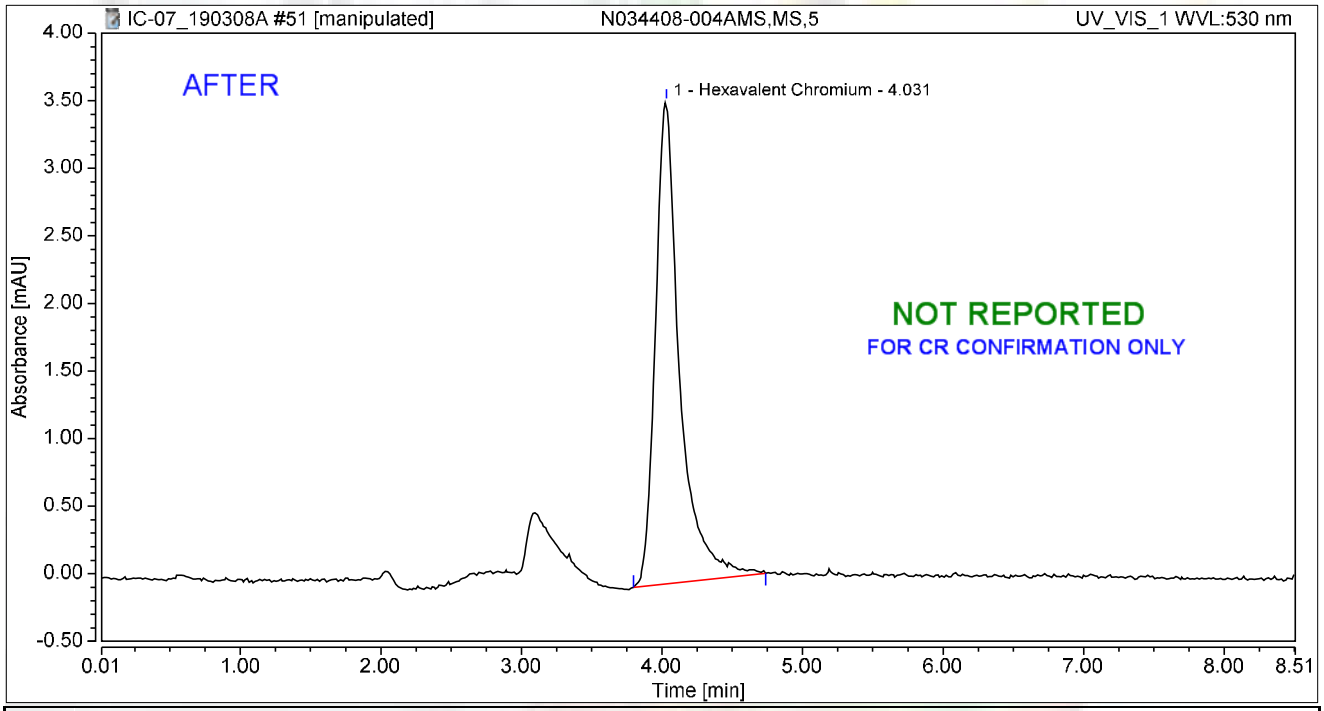
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.023 | 0.458 | 2.300 | 100.00 | 100.00 | 1.8464 |
| **Total:** | | | **0.458** | **2.300** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034408-004AMS,MS,5** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **43** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 15:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.031 | 0.716 | 3.571 | 100.00 | 100.00 | 2.8885 |
| **Total:** | | | **0.716** | **3.571** | **100.00** | **100.00** | |

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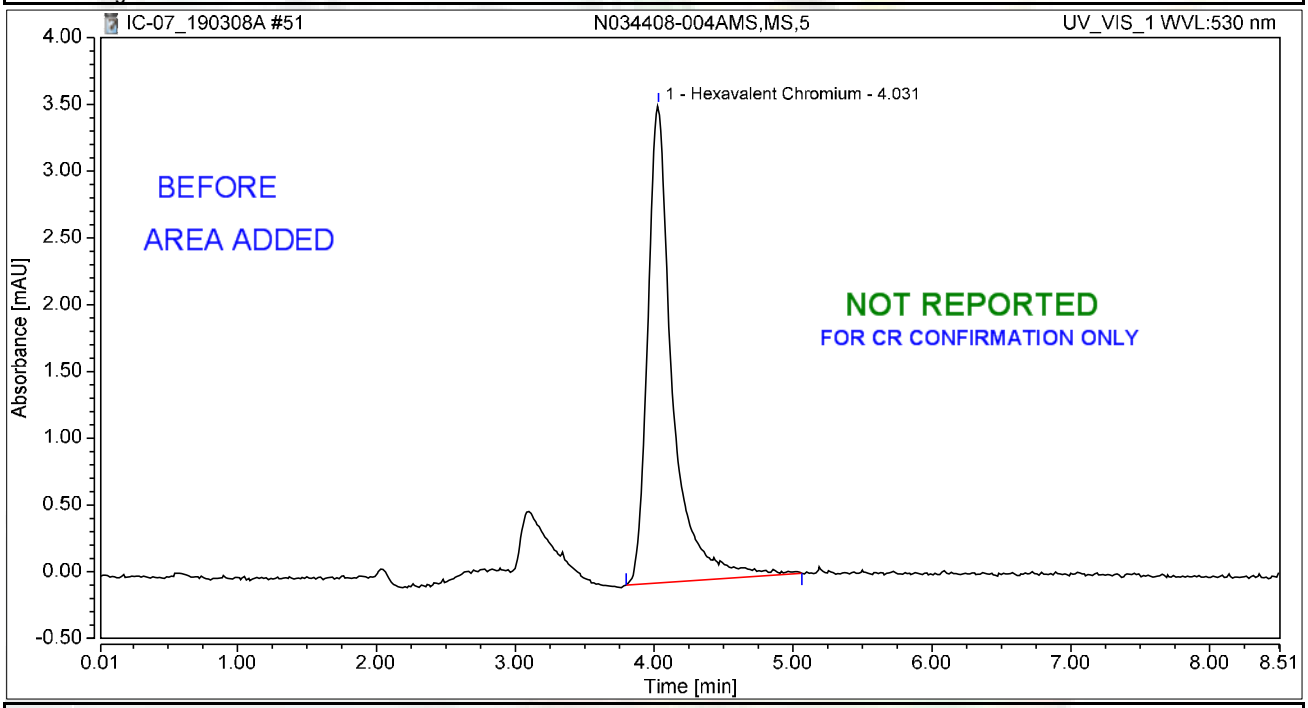
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034408-004AMS,MS,5** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **43** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 15:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.031 | 0.739 | 3.579 | 100.00 | 100.00 | 2.9837 |
| **Total:** | | | **0.739** | **3.579** | **100.00** | **100.00** | |

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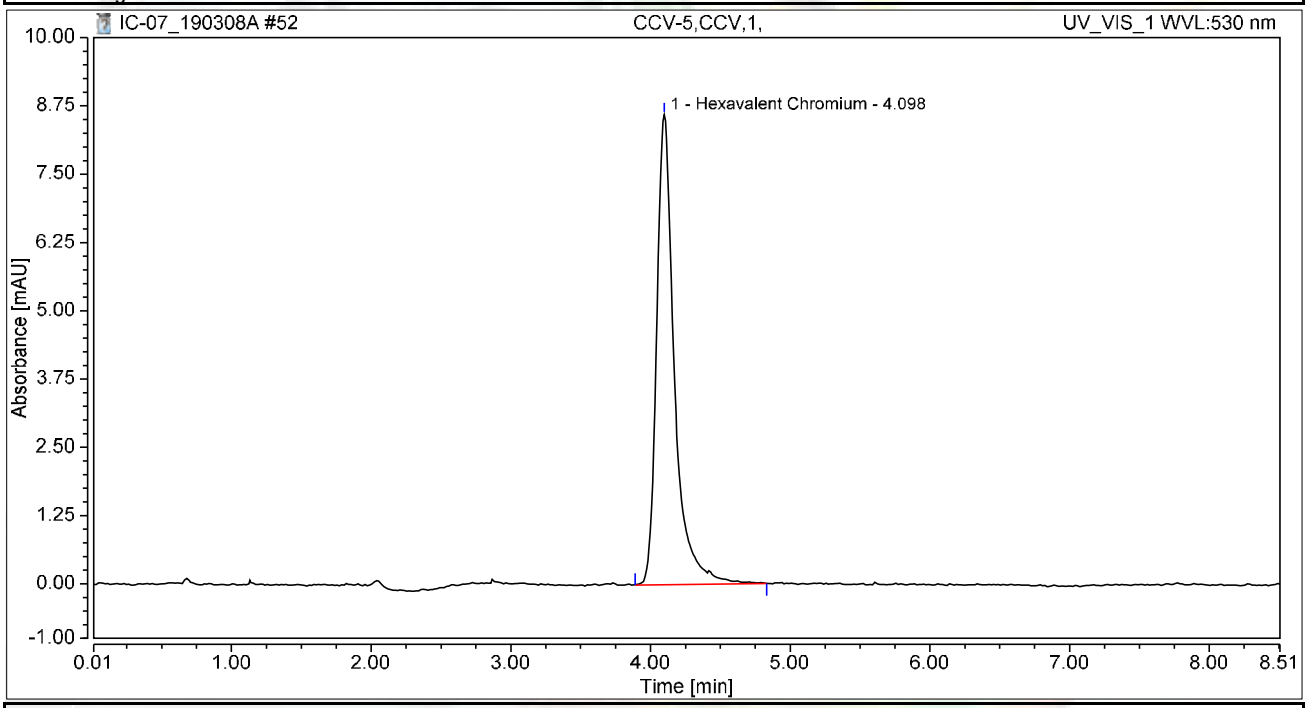
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-5,CCV,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **44** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 15:20** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

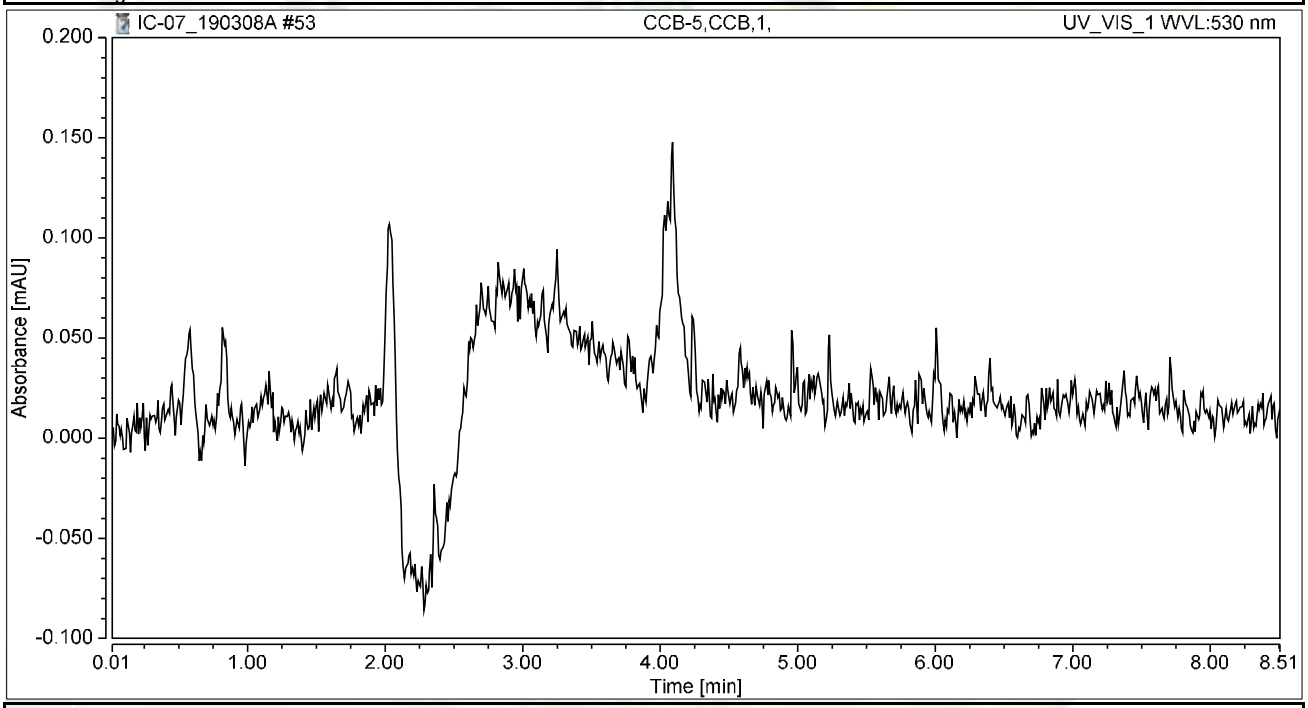
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.098 | 1.270 | 8.601 | 100.00 | 100.00 | 5.1254 |
| **Total:** | | | **1.270** | **8.601** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-5,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **45** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190221_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **08/Mar/19 15:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# SM 2320B

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R132314 **Analyst:** LSR

**ASSET #:** N034443 **Date Analyzed:** 6-Mar

**Method:** EPA 2320

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | | | |
| 11. LCS compounds within control limits. | X | | | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 3/15/2019

2nd Level Reviewer: Mary 3/19/2019 Date:

# SAMPLE CALCULATION

Sample ID: **N034443-001C @ pH 8.00**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A) (B)/ (53.00) (C)

Where:

A, grams weighed for $Na_2CO_3$ solution ($Na_2CO_3$ Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

**$Na_2CO_3$ Standardization Solution**, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of $Na_2CO_3$ in distilled water and dilute to 1 liter.

**LCS/MS/MSD Stock** $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65 g/L) (5mL) / (53.00) (11.45 mL)

= **0.02123 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N $H_2SO_4$ * DF * 1000

Where:

$M_{vol.}$ volume titrant used to reach pH 4.5, ml
N, Normality of $H_2SO_4$
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (11.90) (0.02123 N) (1) * 1000

= 252.6370 mg**/L**

Reporting results in two significant figures,

= 250 as CaCO3

Julia Ramit 3/15/2019

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N $H_2SO_4$ * DF * 1000

= (0.00) (0.02123 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N $H_2SO_4$ * DF * 1000

= (11.90 mL) (0.02123) (1) * 1000

= 252.6370 **mg/L** as CaCO3

Where:

$P_{vol.}$ - Volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - Volume titrant used to reach pH 4.5, ml
N - Normality of $H_2SO_4$
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, $CO_3$, $HCO_3$ alkalinities as $CaCO_3$ will be calculated as follows:

| **Result of Titration** | **OH Alkalinity as $CaCO_3$** | **$CO_3$ Alkalinity as $CaCO_3$** | **$HCO_3$ Alkalinity as $CaCO_3$** |
|---|---|---|---|
| P = 0 | 0 | 0 | T |
| P < ½ T | 0 | 2P | T – 2P |
| P = ½ T | 0 | 2P | 0 |
| P > ½ T | 2P – T | 2(T – P) | 0 |
| P = T | T | 0 | 0 |

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

$CO_3$ Alkalinity as $CaCO_3$ = **0**

$HCO_3$ Alkalinity as $CaCO_3$ = 252.6370 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

$CO_3$ Alkalinity as $CaCO_3$ = **0**

$HCO_3$ Alkalinity as $CaCO_3$ = **250 mg/L**

Divia Ramit 3/15/2019

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

| SAMPLE | PH SAMPLE | AMOUNT | V@8.3 | VT TO 4.5 | Sample Type |
|---|---|---|---|---|---|
| MB-1 | 5.66 | 50 | 0.00 | 0.050 | MBLK |
| LCS-1 | 8.62 | 50 | 0.05 | 4.75 | LCS |
| N034436-001H | 7.78 | 50 | 0.00 | 14.80 | SAMP |
| N034436-002H | 7.61 | 50 | 0.00 | 11.20 | SAMP |
| N034436-003H | 7.03 | 50 | 0.00 | 12.80 | SAMP |
| N034436-004H | 8.23 | 50 | 0.00 | 16.60 | SAMP |
| N034436-005H | 6.97 | 50 | 0.00 | 7.85 | SAMP |
| N034443-001C | 8.00 | 50 | 0.00 | 11.90 | SAMP |
| N034443-002C | 7.55 | 50 | 0.00 | 7.70 | SAMP |
| N034443-002CDUP | 7.62 | 50 | 0.00 | 7.70 | DUP |
| N034443-002CMS | 7.80 | 50 | 0.00 | 12.20 | MS |
| N034443-002CMSD | 7.85 | 50 | 0.00 | 12.15 | MSD |

| Standardization: | | |
|---|---|---|
| Spike amt: | **5** | ml |
| Titrant used: | **11.775** | ml |
| | | |
| N H2SO4 | **0.02123** | Normal |
| | | |
| **Date Analyzed:** | **3/6/19** | |
| **Time:** | **2:35 PM** | |
| **Analyzed By:** | **LSR** | |
| | | |
| Sodium Carbonate: | **CINV-161205A** | |
| Sodium Bicarbonate: | **CINV-180510A** | |
| Sulfuric Acid: | **R190304D** | |

Julia Ramit 3/15/2019

| Date Analyzed: | 3/6/19 | | Reagents: | | | | | Standardization: | | | | | P = 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time Started: | 2:35 PM | | | Sodium Carbonate: | | CINV-161205A | | | Spike amt: | 5 | mL | | P < 1/2 T |
| Analyzed By: | LSR | | | Hydrochloric Acid: | | 0 | | | Titrant used: | 11.775 | mL | | P = 1/2 T |
| | | | | Sulfuric Acid: | | R190304D | | | | | | | P > 1/2 T |
| | | | | | | | | | N H2SO4 | 0.02123 | N | | P = T |

| Sample ID | Sample Vol/Wt. | Sample pH | Std. Code | Spike Amount | Spike Conc. | Normality, Titrant | Vol. Used to pH 8.3, ml. | Vol. Used pH 8.3 to 4.5, ml. | Total Vol. Used, ml. | DF (50ml/Vsamp.) | P Alkalinity | T Alkalinity | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-1 | 50 | 5.66 | | | | 0.02123 | 0.00 | 0.05 | 0.05 | 1 | 0.00 | 1.06 | |
| LCS-1 | 50 | 8.62 | | | | 0.02123 | 0.05 | 4.70 | 4.75 | 1 | 1.06 | 100.85 | |
| N034436-001H | 50 | 7.78 | | | | 0.02123 | 0.00 | 14.80 | 14.80 | 1 | 0.00 | 314.23 | |
| N034436-002H | 50 | 7.61 | | | | 0.02123 | 0.00 | 11.20 | 11.20 | 1 | 0.00 | 237.79 | |
| N034436-003H | 50 | 7.03 | | | | 0.02123 | 0.00 | 12.80 | 12.80 | 1 | 0.00 | 271.76 | |
| N034436-004H | 50 | 8.23 | | | | 0.02123 | 0.00 | 16.60 | 16.60 | 1 | 0.00 | 352.44 | |
| N034436-005H | 50 | 6.97 | | | | 0.02123 | 0.00 | 7.85 | 7.85 | 1 | 0.00 | 166.67 | |
| N034443-001C | 50 | 8 | | | | 0.02123 | 0.00 | 11.90 | 11.90 | 1 | 0.00 | 252.65 | |
| N034443-002C | 50 | 7.55 | | | | 0.02123 | 0.00 | 7.70 | 7.70 | 1 | 0.00 | 163.48 | |
| N034443-002CDU | 50 | 7.62 | | | | 0.02123 | 0.00 | 7.70 | 7.70 | 1 | 0.00 | 163.48 | |
| N034443-002CMS | 50 | 7.8 | | | | 0.02123 | 0.00 | 12.20 | 12.20 | 1 | 0.00 | 259.02 | |
| N034443-002CMS | 50 | 7.85 | | | | 0.02123 | 0.00 | 12.15 | 12.15 | 1 | 0.00 | 257.96 | |

Silvia Ramit 3/15/2019

## Speciated, Alkalinity as CaCO3

**SM 2320B**

| | |
|---|---|
| **Date Analyzed:** | 3/6/19 |
| **Time:** | 2:35 PM |
| **Analyzed By:** | LSR |

| SAMPLE ID | OH | CO3 | HCO3 | TOTAL | CHECK | COMMENT | REMARKS |
|---|---|---|---|---|---|---|---|
| MB-1 | 0.00 | 0.00 | 1.06 | 1.06 | 1.06 | | P = 0 |
| LCS-1 | 0.00 | 2.12 | 98.73 | 100.85 | 100.85 | | P < 1/2 T |
| N034436-001H | 0.00 | 0.00 | 314.23 | 314.23 | 314.23 | | P = 0 |
| N034436-002H | 0.00 | 0.00 | 237.79 | 237.79 | 237.79 | | P = 0 |
| N034436-003H | 0.00 | 0.00 | 271.76 | 271.76 | 271.76 | | P = 0 |
| N034436-004H | 0.00 | 0.00 | 352.44 | 352.44 | 352.44 | | P = 0 |
| N034436-005H | 0.00 | 0.00 | 166.67 | 166.67 | 166.67 | | P = 0 |
| N034443-001C | 0.00 | 0.00 | 252.65 | 252.65 | 252.65 | | P = 0 |
| N034443-002C | 0.00 | 0.00 | 163.48 | 163.48 | 163.48 | | P = 0 |
| N034443-002CDUP | 0.00 | 0.00 | 163.48 | 163.48 | 163.48 | | P = 0 |
| N034443-002CMS | 0.00 | 0.00 | 259.02 | 259.02 | 259.02 | | P = 0 |
| N034443-002CMSD | 0.00 | 0.00 | 257.96 | 257.96 | 257.96 | | P = 0 |

Julia Ramit 3/15/2019

# Alkalinity Preparation and Runlog

**Matrix:** $H_2O$

Date Extracted: 3/6/19
Time Extracted: 1435
Extracted By: LSR

Date Analyzed: 3/6/19
Time Analyzed: 1435
Analyzed By: LSR

Reagent Lot # / Reagent ID
Sodium Carbonate: CIW-161205A
Hydrochloric Acid: -
Sulfuric Acid: R190304B
Sodium Bicarbonate: CIW-180510A

pH meter calibration
SLOPE: 97.0%
pH 7 7.00 CIW 190107A
4 4.04 B
10 10.00 CIW 190111G

| | Sample ID. | Sample Wt./Vol. | Sample pH | Std Code | Spike Amt Added | Spike Conc. | Norm. Titrant | Vol. At pH = 8.3 | Vol. At pH = 4.5 | Dilution (F/I) | Calculations | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | STANDARDIZATION | | | | | | | | | | | |
| | #1 | 50 mL | 10.82 | IWST190304A | 5 mL | 0.05N | - | - | 11.75 | 50/50 | N $H_2SO_4$ = (2.65 g/L)(5 mL) | = 0.021276595 |
| | #2 | ↓ | 10.84 | ↓ | ↓ | ↓ | - | - | 11.80 | ↓ | (53)(V titrant) | = 0.02118644 |
| 1) | MBLK | 50 mL | 5.66 | - | - | - | 0.02123 | 0 | 0.050 | 50/50 | | Ave. 0.021231517 |
| 2) | LCS | | 8.62 | IWST190304B | 1 mL | 0.05N | | 0.05 | 4.75 | | | |
| 3) | N034436-1H | | 7.78 | | | | | 0 | 14.80 | | | |
| 4) | 2H | | 7.61 | | | | | 0 | 11.20 | | | |
| 5) | 3H | | 7.03 | | | | | 0 | 12.80 | | | |
| 6) | 4H | | 8.23 | | | | | 0 | 16.60 | | | |
| 7) | 5H | | 6.97 | | | | | 0 | 7.85 | | | |
| 8) | N034443-1C | | 8.00 | | | | | 0 | 11.90 | | | |
| 9) | 2C | | 7.55 | | | | | 0 | 7.70 | | | |
| 10) | 2CDUP | | 7.62 | | | | | 0 | 7.70 | | | |
| 11) | 2CMS | | 7.80 | IWST190304B | 1 mL | 0.05N | | 0 | 12.20 | | | |
| 12) | 2CMSD | | 7.85 | ↓ | ↓ | ↓ | | 0 | 12.15 | ↓ | | |
| 13) | | | | | | | | | | | | |
| 14) | | | | | | | | | | | | |
| 15) | | | | | | | | | | | | |
| 16) | | | | | | | | | | | | |
| 17) | | | | | | | | | | | | |
| 18) | | | | | | | | | | | | |
| 19) | | | | | | | | | | | | |
| 20) | | | | | | | | | | | | |

$$= P = \frac{(V\ pH\ 8.3)(N\ H_2SO_4)(50{,}000)}{V_{sx}}$$

$$T = \frac{(V\ pH\ 4.5)(N\ H_2SO_4)(50{,}000)}{V_{sx}}$$

MS
MSD
LCS

Julia Ramit 3/15/2019



ASSET LABORATORIES
CALIFORNIA | P:562.219.7435 F:562.219.7436
NEVADA | P:702.307.2659 F:702.307.2691
2151 W. Post Rd. Las Vegas, NV 89118

# EPA 300.0

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R132421
**ASSET #:** N034443

**Instrument ID:** IC-08
**Analyst:** RBA
**Date Analyzed:** 3/8/2019

**Method:**

[X] EPA 300.0
[ ] EPA 7199
[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | X | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | X | | |
| 3. ICV within ± 10% of expected value. | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | X | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | X | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | X | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | | | X | | | X |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | X | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | | | X | | | X |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | X | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | | | X | | | X |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | X |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | | | X | | | X |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | X |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | X |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | | | X | | | X |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | X |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | X | | |
| 21. Are all samples analyzed within hold time? | X | | | X | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | X |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | X | | |
| 24. LCS compounds are within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | X | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | X |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | X |
| 29. All manual integrations initialed, date and reasons included. | X | | | X | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | X | | |
| 31. All samples and QC raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | X | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 34 Is the QC summary report present and complete? | X | | | X | | |

3/17/2019

Comments:

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: rba Date: 3/17/2019

2nd Level Reviewer: 3/19/2019 Date: ~

# SAMPLE CALCULATION

# Sample Calculation

**METHOD:** EPA 300
**TEST NAME:** INORGANIC ANIONS BY IC
**MATRIX:** GROUNDWATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the orignal sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N034443-001C** concentration in mg/L is calculated as follows:

Chloride, mg/L = 4.328 * 200

= 865.6

Reporting result in two significant values,

**Chloride, mg/L = 870**

NS 3/19/2019

# ANALYSIS RUN LOG

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 79
Created: 2/15/2019 9:47:09 AM by IC-05
Last Update: 2/16/2019 9:41:29 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 1 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 2 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 3 | Std - 0 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 4 | Std - 1 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 5 | Std - 2 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 6 | Std - 3 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 7 | Std - 4 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 8 | Std - 5 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 9 | BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 10 | ICV,ICV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 11 | ICB,ICB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 12 | ICB,ICB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 13 | MB-H2O,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 14 | LCS-H2O,LCS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 15 | N034182-002C,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 16 | N034182-003A,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 17 | N034182-004C,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 18 | N034182-007C,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 19 | N034182-011C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 20 | N034182-012C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 21 | N034182-004C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 22 | N034182-012C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 23 | CCV-1,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 24 | CCB-1,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 25 | N034183-001C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 26 | N034183-0013C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 27 | N034183-0013CMS,MS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 28 | N034183-0014C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 29 | N034183-0014CDUP,DUP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 30 | N034182-011CMS,MS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 31 | N034182-011CMSD,MSD,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 32 | N034183-012C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 33 | N034183-012CMS,MS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 34 | N034183-002A,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 35 | CCV-2,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 36 | CCB-2,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 37 | N034183-008C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 38 | N034183-009C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 39 | N034183-010C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 40 | BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 41 | MB-H2O,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 79
Created: 2/15/2019 9:47:09 AM by IC-05
Last Update: 2/16/2019 9:41:29 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 1 | BLANK,BLANK | 2/15/2019 9:48:20 AM | BLANK |
| 2 | BLANK,BLANK | 2/15/2019 10:03:08 AM | BLANK |
| 3 | Std - 0 | 2/15/2019 10:22:51 AM | BLANK |
| 4 | Std - 1 | 2/15/2019 10:37:39 AM | STD-LOW |
| 5 | Std - 2 | 2/15/2019 10:52:27 AM | STD |
| 6 | Std - 3 | 2/15/2019 11:07:14 AM | STD |
| 7 | Std - 4 | 2/15/2019 11:22:02 AM | STD |
| 8 | Std - 5 | 2/15/2019 11:36:50 AM | STD-HIGH |
| 9 | BLANK | 2/15/2019 11:51:38 AM | BLANK |
| 10 | ICV,ICV,1 | 2/15/2019 12:20:20 PM | ICV |
| 11 | ICB,ICB,1 | 2/15/2019 12:35:08 PM | ICB |
| 12 | ICB,ICB,1 | 2/15/2019 12:55:56 PM | ICB |
| 13 | MB-H2O,MBLK,1 | 2/15/2019 1:20:05 PM | METHOD BLANK |
| 14 | LCS-H2O,LCS,1 | 2/15/2019 1:34:53 PM | LCS |
| 15 | N034182-002C,SAMP,2 | 2/15/2019 1:52:21 PM | SAMP,10mL |
| 16 | N034182-003A,SAMP,5 | 2/15/2019 2:07:09 PM | SAMP,10mL |
| 17 | N034182-004C,SAMP,2 | 2/15/2019 2:21:57 PM | SAMP,10mL |
| 18 | N034182-007C,SAMP,2 | 2/15/2019 2:36:45 PM | SAMP,10mL |
| 19 | N034182-011C,SAMP,1 | 2/15/2019 2:51:32 PM | SAMP,10mL |
| 20 | N034182-012C,SAMP,1 | 2/15/2019 3:06:20 PM | SAMP,10mL |
| 21 | N034182-004C,SAMP,5 | 2/15/2019 3:21:08 PM | SAMP,10mL |
| 22 | N034182-012C,SAMP,5 | 2/15/2019 3:35:56 PM | SAMP,10mL |
| 23 | CCV-1,CCV,1 | 2/15/2019 3:50:44 PM | CCV |
| 24 | CCB-1,CCB,1 | 2/15/2019 4:05:32 PM | CCB |
| 25 | N034183-001C,SAMP,1 | 2/15/2019 4:29:25 PM | SAMP,10mL |
| 26 | N034183-0013C,SAMP,1 | 2/15/2019 4:44:13 PM | SAMP,10mL |
| 27 | N034183-0013CMS,MS,1 | 2/15/2019 4:59:00 PM | SAMP,10mL |
| 28 | N034183-0014C,SAMP,1 | 2/15/2019 5:13:48 PM | SAMP,10mL |
| 29 | N034183-0014CDUP,DUP,1 | 2/15/2019 5:28:36 PM | SAMP,10mL |
| 30 | N034182-011CMS,MS,1 | 2/15/2019 5:43:24 PM | SAMP,10mL |
| 31 | N034182-011CMSD,MSD,1 | 2/15/2019 5:58:11 PM | SAMP,10mL |
| 32 | N034183-012C,SAMP,1 | 2/15/2019 6:12:59 PM | SAMP,10mL |
| 33 | N034183-012CMS,MS,1 | 2/15/2019 6:27:47 PM | SAMP,10mL |
| 34 | N034183-002A,SAMP,1 | 2/15/2019 6:46:04 PM | SAMP,10mL |
| 35 | CCV-2,CCV,1 | 2/15/2019 7:00:53 PM | CCV |
| 36 | CCB-2,CCB,1 | 2/15/2019 7:15:40 PM | CCB |
| 37 | N034183-008C,SAMP,1 | 2/15/2019 7:30:28 PM | SAMP,10mL |
| 38 | N034183-009C,SAMP,1 | 2/15/2019 7:45:16 PM | SAMP,10mL |
| 39 | N034183-010C,SAMP,1 | 2/15/2019 8:00:04 PM | SAMP,10mL |
| 40 | BLANK | 2/15/2019 8:14:52 PM | BLANK |
| 41 | MB-H2O,MBLK,1 | 2/15/2019 8:29:40 PM | METHOD BLANK |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 79
Created: 2/15/2019 9:47:09 AM by IC-05
Last Update: 2/16/2019 9:41:29 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 42 | LCS-H2O,LCS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 43 | N034179-003B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 44 | N034179-003BDUP,DUP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 45 | N034183-007C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 46 | N034183-007CMS,MS,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 47 | CCV-3,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 48 | CCB-3,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 49 | N034182-013C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 50 | N034182-013CMS,MS,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 51 | N034182-013CMSD,MSD,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 52 | N034179-001B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 53 | N034179-002B,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 54 | N034179-004B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 55 | N034179-005B,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 56 | N034179-006B,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 57 | N034183-003C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 58 | N034183-0020C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 59 | CCV-4,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 60 | CCB-4,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 61 | N034183-004C,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 62 | N034183-005C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 63 | N034183-006C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 64 | N034183-011C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 65 | N034182-001C,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 66 | N034182-005,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 67 | N034182-006C,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 68 | N034182-009C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 69 | N034182-010C,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 70 | N034179-005B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 71 | CCV-5,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 72 | CCB-5,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 73 | N034182-008C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 74 | N034182-008C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 75 | N034182-006C,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 76 | N034183-011C,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 77 | N034183-004C,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 78 | CCV-6,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 79 | CCB-6,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 79
Created: 2/15/2019 9:47:09 AM by IC-05
Last Update: 2/16/2019 9:41:29 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 42 | LCS-H2O,LCS,1 | 2/15/2019 8:44:27 PM | LCS |
| 43 | N034179-003B,SAMP,1 | 2/15/2019 8:59:15 PM | SAMP,10mL |
| 44 | N034179-003BDUP,DUP,1 | 2/15/2019 9:14:03 PM | SAMP,10mL |
| 45 | N034183-007C,SAMP,5 | 2/15/2019 9:28:51 PM | SAMP,10mL |
| 46 | N034183-007CMS,MS,5 | 2/15/2019 9:43:39 PM | SAMP,10mL |
| 47 | CCV-3,CCV,1 | 2/15/2019 9:58:27 PM | CCV |
| 48 | CCB-3,CCB,1 | 2/15/2019 10:13:15 PM | CCB |
| 49 | N034182-013C,SAMP,5 | 2/15/2019 10:28:03 PM | SAMP,10mL |
| 50 | N034182-013CMS,MS,5 | 2/15/2019 10:42:50 PM | SAMP,10mL |
| 51 | N034182-013CMSD,MSD,5 | 2/15/2019 10:57:38 PM | SAMP,10mL |
| 52 | N034179-001B,SAMP,1 | 2/15/2019 11:12:26 PM | SAMP,10mL |
| 53 | N034179-002B,SAMP,5 | 2/15/2019 11:27:14 PM | SAMP,10mL |
| 54 | N034179-004B,SAMP,1 | 2/15/2019 11:42:02 PM | SAMP,10mL |
| 55 | N034179-005B,SAMP,2 | 2/15/2019 11:56:51 PM | SAMP,10mL |
| 56 | N034179-006B,SAMP,5 | 2/16/2019 12:11:39 AM | SAMP,10mL |
| 57 | N034183-003C,SAMP,10 | 2/16/2019 12:26:26 AM | SAMP,10mL |
| 58 | N034183-0020C,SAMP,10 | 2/16/2019 12:41:14 AM | SAMP,10mL |
| 59 | CCV-4,CCV,1 | 2/16/2019 12:56:02 AM | CCV |
| 60 | CCB-4,CCB,1 | 2/16/2019 1:10:50 AM | CCB |
| 61 | N034183-004C,SAMP,2 | | SAMP,10mL |
| 62 | N034183-005C,SAMP,5 | | SAMP,10mL |
| 63 | N034183-006C,SAMP,10 | | SAMP,10mL |
| 64 | N034183-011C,SAMP,5 | | SAMP,10mL |
| 65 | N034182-001C,SAMP,10 | | SAMP,10mL |
| 66 | N034182-005,SAMP,10 | | SAMP,10mL |
| 67 | N034182-006C,SAMP,20 | | SAMP,10mL |
| 68 | N034182-009C,SAMP,1 | | SAMP,10mL |
| 69 | N034182-010C,SAMP,2 | | SAMP,10mL |
| 70 | N034179-005B,SAMP,1 | | SAMP,10mL |
| 71 | CCV-5,CCV,1 | | CCV |
| 72 | CCB-5,CCB,1 | | CCB |
| 73 | N034182-008C,SAMP,1 | | SAMP,10mL |
| 74 | N034182-008C,SAMP,5 | | SAMP,10mL |
| 75 | N034182-006C,SAMP,20 | | SAMP,10mL |
| 76 | N034183-011C,SAMP,2 | | SAMP,10mL |
| 77 | N034183-004C,SAMP,1 | | SAMP,10mL |
| 78 | CCV-6,CCV,1 | | CCV |
| 79 | CCB-6,CCB,1 | | CCB |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 55
Created: 3/8/2019 8:30:04 AM by IC-05
Last Update: 3/8/2019 2:36:23 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 1 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 2 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 3 | Std - 0 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 4 | Std - 1 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 5 | Std - 2 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 6 | Std - 3 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 7 | Std - 4 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 8 | Std - 5 | Standard | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 9 | BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 10 | CCV-1,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 11 | CCB-1,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 12 | MB-H2O,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 13 | LCS-H2O,LCS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 14 | N034443-001C,SAMP,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 15 | N034443-002C,SAMP,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 16 | N034443-001C,SAMP,200 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 17 | N034443-001CDUP,DUP,200 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 18 | N034443-002CMS,MS,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 19 | N034443-002CMSD,MSD,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 20 | N034444-002B,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 21 | N034444-002BDUP,DUP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 22 | CCV-2,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 23 | CCB-2,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 24 | N034443-001C,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 25 | N034443-001CMS,MS,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 26 | N034443-001CMSD,MSD,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 27 | N034443-002C,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 28 | N034444-002B,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 29 | N034444-002BMS,MS,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 30 | N034444-002BMSD,MSD,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 31 | N034467-001B,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 32 | N034478-001B,SAMP,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 33 | BLAN K | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 34 | CCV-3,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 35 | CCB-3,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 36 | N034468-001B,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 37 | N034468-001BMS,MS,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 38 | N034470-001B,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 39 | N034470-001BDUP,DUP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 40 | N034475-001B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 41 | N034466-001B,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |

rba 3/17/2019

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 55
Created: 3/8/2019 8:30:04 AM by IC-05
Last Update: 3/8/2019 2:36:23 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 1 | BLANK,BLANK | 2/15/2019 9:48:20 AM | BLANK |
| 2 | BLANK,BLANK | 2/15/2019 10:03:08 AM | BLANK |
| 3 | Std - 0 | 2/15/2019 10:22:51 AM | BLANK |
| 4 | Std - 1 | 2/15/2019 10:37:39 AM | STD-LOW |
| 5 | Std - 2 | 2/15/2019 10:52:27 AM | STD |
| 6 | Std - 3 | 2/15/2019 11:07:14 AM | STD |
| 7 | Std - 4 | 2/15/2019 11:22:02 AM | STD |
| 8 | Std - 5 | 2/15/2019 11:36:50 AM | STD-HIGH |
| 9 | BLANK | 3/8/2019 8:30:27 AM | BLANK |
| 10 | CCV-1,CCV,1 | 3/8/2019 8:45:15 AM | CCV |
| 11 | CCB-1,CCB,1 | 3/8/2019 9:00:04 AM | CCB |
| 12 | MB-H2O,MBLK,1 | 3/8/2019 9:14:52 AM | METHOD BLANK |
| 13 | LCS-H2O,LCS,1 | 3/8/2019 9:29:40 AM | LCS |
| 14 | N034443-001C,SAMP,100 | 3/8/2019 9:52:20 AM | SAMP,0.1>10mL |
| 15 | N034443-002C,SAMP,500 | 3/8/2019 10:07:08 AM | SAMP,0.02>10mL |
| 16 | N034443-001C,SAMP,200 | 3/8/2019 10:22:57 AM | SAMP,0.05>10mL |
| 17 | N034443-001CDUP,DUP,200 | 3/8/2019 10:37:45 AM | DUP,0.05>10mL |
| 18 | N034443-002CMS,MS,500 | 3/8/2019 10:52:33 AM | MS,0.02>10mL |
| 19 | N034443-002CMSD,MSD,500 | 3/8/2019 11:07:20 AM | MSD,0.02>10mL |
| 20 | N034444-002B,SAMP,50 | 3/8/2019 11:22:09 AM | SAMP,0.2>10mL |
| 21 | N034444-002BDUP,DUP,50 | 3/8/2019 11:36:57 AM | DUP,0.2>10mL |
| 22 | CCV-2,CCV,1 | 3/8/2019 11:51:45 AM | CCV |
| 23 | CCB-2,CCB,1 | 3/8/2019 12:06:33 PM | CCB |
| 24 | N034443-001C,SAMP,50 | 3/8/2019 12:21:22 PM | SAMP,0.2>10mL |
| 25 | N034443-001CMS,MS,50 | 3/8/2019 12:36:10 PM | MS,0.2>10mL |
| 26 | N034443-001CMSD,MSD,50 | 3/8/2019 12:50:58 PM | MSD,0.2>10mL |
| 27 | N034443-002C,SAMP,50 | 3/8/2019 1:05:45 PM | SAMP,0.2>10mL |
| 28 | N034444-002B,SAMP,5 | 3/8/2019 1:20:33 PM | SAMP,2>10mL |
| 29 | N034444-002BMS,MS,5 | 3/8/2019 1:35:21 PM | MS,2>10mL |
| 30 | N034444-002BMSD,MSD,5 | 3/8/2019 1:50:09 PM | MSD,2>10mL |
| 31 | N034467-001B,SAMP,2 | 3/8/2019 2:10:25 PM | SAMP,5>10mL |
| 32 | N034478-001B,SAMP,100 | 3/8/2019 2:33:13 PM | SAMP,0.1>10mL |
| 33 | BLAN K | 3/8/2019 2:48:01 PM | BLANK |
| 34 | CCV-3,CCV,1 | 3/8/2019 3:02:49 PM | CCV |
| 35 | CCB-3,CCB,1 | 3/8/2019 3:17:38 PM | CCB |
| 36 | N034468-001B,SAMP,2 | 3/8/2019 3:32:26 PM | SAMP,5>10mL |
| 37 | N034468-001BMS,MS,5 | 3/8/2019 3:47:14 PM | MS,2>10mL |
| 38 | N034470-001B,SAMP,2 | 3/8/2019 4:02:02 PM | SAMP,5>10mL |
| 39 | N034470-001BDUP,DUP,2 | 3/8/2019 4:16:50 PM | DUP,5>10mL |
| 40 | N034475-001B,SAMP,1 | 3/8/2019 4:31:39 PM | SAMP,10mL |
| 41 | N034466-001B,SAMP,2 | 3/8/2019 4:46:27 PM | SAMP,5>10mL |

Chromeleon © Dionex Corporation, Version 6.80 SR10 Build 2818 (166959)

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 55
Created: 3/8/2019 8:30:04 AM by IC-05
Last Update: 3/8/2019 2:36:23 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 42 | N034469-001B,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 43 | N034471-001B,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 44 | N034472-001B,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 45 | N034473-001B,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 46 | CCV-4,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 47 | CCB-4,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 48 | N034474-001B,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 49 | N034476-001B,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 50 | N034479-001B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 51 | N034480-001B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 52 | CCV-5,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 53 | CCB-5,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 54 | BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |
| 55 | BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190215 | Finished |

rba 3/17/2019

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 55
Created: 3/8/2019 8:30:04 AM by IC-05
Last Update: 3/8/2019 2:36:23 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 42 | N034469-001B,SAMP,2 | 3/8/2019 5:01:16 PM | SAMP,5>10mL |
| 43 | N034471-001B,SAMP,2 | 3/8/2019 5:16:05 PM | SAMP,5>10mL |
| 44 | N034472-001B,SAMP,2 | 3/8/2019 5:30:53 PM | SAMP,5>10mL |
| 45 | N034473-001B,SAMP,2 | 3/8/2019 5:45:41 PM | SAMP,5>10mL |
| 46 | CCV-4,CCV,1 | 3/8/2019 6:00:29 PM | CCV |
| 47 | CCB-4,CCB,1 | 3/8/2019 6:15:17 PM | CCB |
| 48 | N034474-001B,SAMP,2 | 3/8/2019 6:30:05 PM | SAMP,5>10mL |
| 49 | N034476-001B,SAMP,2 | 3/8/2019 6:44:54 PM | SAMP,5>10mL |
| 50 | N034479-001B,SAMP,1 | 3/8/2019 6:59:41 PM | SAMP,10mL |
| 51 | N034480-001B,SAMP,1 | 3/8/2019 7:14:29 PM | SAMP,10mL |
| 52 | CCV-5,CCV,1 | 3/8/2019 7:29:17 PM | CCV |
| 53 | CCB-5,CCB,1 | 3/8/2019 7:44:06 PM | CCB |
| 54 | BLANK | 3/8/2019 7:58:55 PM | BLANK |
| 55 | BLANK | 3/8/2019 8:13:43 PM | BLANK |

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# INITIAL CALIBRATION DATA SUMMARY

**(EPA 300) - INITIAL CALIBRATION**

Instrument ID: IC-08
Date Calibrated: 2/15/2019

Initial Calibration:

| Chloride | STD0 | STD1 | STD2 | STD3 | STD4 | STD5 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0 | 0.5 | 1 | 2 | 5 | 10 | $R^2$ |
| Area,mAU*min | 0.000 | 0.0733 | 0.1509 | 0.3021 | 0.7794 | 1.6551 | 1.000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock |
|---|---|
| Standard Concentration: | 1000000 PPB |
| Standard ID: | ISST-180914B |

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

**(EPA 300) - INITIAL CALIBRATION**

Instrument ID: IC-08
Date Calibrated: 2/15/2019

Initial Calibration:

| Sulfate | STD0 | STD1 | STD2 | STD3 | STD4 | STD5 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0 | 0.5 | 2 | 4 | 10 | 20 | $R^2$ |
| Area,mAU*min | 0 | 0.0587 | 0.2301 | 0.4631 | 1.1693 | 2.4665 | 1.000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock |
|---|---|
| Standard Concentration: | 1000000 PPB |
| Standard ID: | ISST-180914G |

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **132421** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132421** | TestNo: **EPA 300.0** | | Analysis Date: **2/15/2019** | SeqNo: **3314644** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 2.019 | 0.50 | 2.000 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **132421** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132421** | TestNo: **EPA 300.0** | | Analysis Date: **3/8/2019** | SeqNo: **3314646** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.962 | 0.50 | 2.000 | 0 | 98.1 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **132421** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132421** | TestNo: **EPA 300.0** | | Analysis Date: **3/8/2019** | SeqNo: **3314655** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.974 | 0.50 | 2.000 | 0 | 98.7 | 90 | 110 | | | | |

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **132421** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132421** | TestNo: **EPA 300.0** | | Analysis Date: **3/8/2019** | SeqNo: **3314657** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.918 | 0.50 | 2.000 | 0 | 95.9 | 90 | 110 | | | | |

| Sample ID **CCV-4** | SampType: **CCV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **132421** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132421** | TestNo: **EPA 300.0** | | Analysis Date: **3/8/2019** | SeqNo: **3314659** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.952 | 0.50 | 2.000 | 0 | 97.6 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID **CCV-5** | SampType: **CCV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **132421** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132421** | TestNo: **EPA 300.0** | | Analysis Date: **3/8/2019** | SeqNo: **3314661** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.934 | 0.50 | 2.000 | 0 | 96.7 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

Sample ID **ICV** SampType: **ICV** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **132421**
Client ID: **ICV** Batch ID: **R132421** TestNo: **EPA 300.0** Analysis Date: **2/15/2019** SeqNo: **3314663**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.899 | 0.50 | 4.000 | 0 | 97.5 | 90 | 110 | | | | |

Sample ID **CCV-1** SampType: **CCV** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **132421**
Client ID: **CCV** Batch ID: **R132421** TestNo: **EPA 300.0** Analysis Date: **3/8/2019** SeqNo: **3314665**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.936 | 0.50 | 4.000 | 0 | 98.4 | 90 | 110 | | | | |

Sample ID **CCV-2** SampType: **CCV** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **132421**
Client ID: **CCV** Batch ID: **R132421** TestNo: **EPA 300.0** Analysis Date: **3/8/2019** SeqNo: **3314671**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.961 | 0.50 | 4.000 | 0 | 99.0 | 90 | 110 | | | | |

Sample ID **CCV-3** SampType: **CCV** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **132421**
Client ID: **CCV** Batch ID: **R132421** TestNo: **EPA 300.0** Analysis Date: **3/8/2019** SeqNo: **3314677**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.977 | 0.50 | 4.000 | 0 | 99.4 | 90 | 110 | | | | |

Sample ID **CCV-4** SampType: **CCV** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **132421**
Client ID: **CCV** Batch ID: **R132421** TestNo: **EPA 300.0** Analysis Date: **3/8/2019** SeqNo: **3314679**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.932 | 0.50 | 4.000 | 0 | 98.3 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID **CCV-5** | SampType: **CCV** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **132421** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132421** | TestNo: **EPA 300.0** | | Analysis Date: **3/8/2019** | SeqNo: **3314681** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.902 | 0.50 | 4.000 | 0 | 97.5 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID | **ICB** | SampType: | **ICB** | TestCode: | **300_W_CLP** | Units: | **mg/L** | Prep Date: | | RunNo: | **132421** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ICB** | Batch ID: | **R132421** | TestNo: | **EPA 300.0** | | | Analysis Date: | **2/15/2019** | SeqNo: | **3314645** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | 0.50 | | | | | | | | | |

| Sample ID | **CCB-1** | SampType: | **CCB** | TestCode: | **300_W_CLP** | Units: | **mg/L** | Prep Date: | | RunNo: | **132421** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **CCB** | Batch ID: | **R132421** | TestNo: | **EPA 300.0** | | | Analysis Date: | **3/8/2019** | SeqNo: | **3314647** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.166 | 0.50 | | | | | | | | | |

| Sample ID | **CCB-2** | SampType: | **CCB** | TestCode: | **300_W_CLP** | Units: | **mg/L** | Prep Date: | | RunNo: | **132421** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **CCB** | Batch ID: | **R132421** | TestNo: | **EPA 300.0** | | | Analysis Date: | **3/8/2019** | SeqNo: | **3314656** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.155 | 0.50 | | | | | | | | | |

| Sample ID | **CCB-3** | SampType: | **CCB** | TestCode: | **300_W_CLP** | Units: | **mg/L** | Prep Date: | | RunNo: | **132421** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **CCB** | Batch ID: | **R132421** | TestNo: | **EPA 300.0** | | | Analysis Date: | **3/8/2019** | SeqNo: | **3314658** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.152 | 0.50 | | | | | | | | | |

| Sample ID | **CCB-4** | SampType: | **CCB** | TestCode: | **300_W_CLP** | Units: | **mg/L** | Prep Date: | | RunNo: | **132421** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **CCB** | Batch ID: | **R132421** | TestNo: | **EPA 300.0** | | | Analysis Date: | **3/8/2019** | SeqNo: | **3314660** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.151 | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID **CCB-5** | SampType: **CCB** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **132421** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132421** | TestNo: **EPA 300.0** | | Analysis Date: **3/8/2019** | SeqNo: **3314662** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **132421** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132421** | TestNo: **EPA 300.0** | | Analysis Date: **2/15/2019** | SeqNo: **3314664** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **132421** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132421** | TestNo: **EPA 300.0** | | Analysis Date: **3/8/2019** | SeqNo: **3314666** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **132421** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132421** | TestNo: **EPA 300.0** | | Analysis Date: **3/8/2019** | SeqNo: **3314672** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **132421** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132421** | TestNo: **EPA 300.0** | | Analysis Date: **3/8/2019** | SeqNo: **3314678** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.215 | 0.50 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **132421** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132421** | TestNo: **EPA 300.0** | | Analysis Date: **3/8/2019** | SeqNo: **3314680** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID **CCB-5** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **132421** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132421** | TestNo: **EPA 300.0** | | Analysis Date: **3/8/2019** | SeqNo: **3314682** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.218 | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# RETENTION TIME SUMMARY

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-08

**Analytical Sequence**

Date Analyzed: 3/8/2019

| Sample Name | | Retention Time | | Evaluation |
|---|---|---|---|---|
| ICV | Chloride | 4.100 | | |
| CCV-1 | Chloride | 4.117 | | |
| CCV-2 | Chloride | 4.114 | | |
| CCV-3 | Chloride | 4.110 | | |
| CCV-4 | Chloride | 4.110 | | |
| CCV-5 | Chloride | 4.110 | | |
| | **Average** | 4.112 | | |
| | **Applied RT Window** | 3.912 - | 4.312 | |
| MB-R132421_CL | Chloride | 4.117 | | PASS |
| LCS-R132421_CL | Chloride | 4.114 | | PASS |
| N034443-002C | Chloride | 4.113 | | PASS |
| N034443-001C | Chloride | 4.117 | | PASS |
| N034443-001CDUP | Chloride | 4.117 | | PASS |
| N034443-002CMS | Chloride | 4.114 | | PASS |
| N034443-002CMSD | Chloride | 4.114 | | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-08

**Analytical Sequence**

Date Analyzed: 3/8/2019

| Sample Name | | Retention Time | | Evaluation |
|---|---|---|---|---|
| ICV | Sulfate | 8.790 | | |
| CCV-1 | Sulfate | 9.477 | | |
| CCV-2 | Sulfate | 9.464 | | |
| CCV-3 | Sulfate | 9.463 | | |
| CCV-4 | Sulfate | 9.444 | | |
| CCV-5 | Sulfate | 9.434 | | |
| | **Average** | 9.456 | | |
| | **Applied RT Window** | 9.256 - | 9.656 | |
| MB-R132421_SO4 | Sulfate | 9.567 | | PASS |
| LCS-R132421_SO4 | Sulfate | 9.467 | | PASS |
| N034444-002BDUP | Sulfate | 9.463 | | PASS |
| N034443-001C | Sulfate | 9.460 | | PASS |
| N034443-001CMS | Sulfate | 9.464 | | PASS |
| N034443-001CMSD | Sulfate | 9.460 | | PASS |
| N034443-002C | Sulfate | 9.463 | | PASS |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **INORGANIC IONS by Ion Chromatography**
Method Number: EPA 300.0
Analysis Date(s): 5/23/2017 ; 5/24/2017; 5/25/2017
Analyst/Technician: Ria Abes

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

**Acceptance Criteria:** MDL < spike < 10XMDL

| Datafile | 170523A D36 | 170523A D37 | 170523A D38 | 170524A D17 | 170524A D18 | 170525A D45 | 170525A D46 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte** | **#1** | **#2** | **#3** | **#4** | **#5** | **#6** | **#7** | **Spike Conc., mg/L** | **SD** | **MDL** | **LOD** | **PQL** |
| Fluoride | 0.020 | 0.022 | 0.021 | 0.020 | 0.023 | 0.026 | 0.024 | 0.020 | 0.0021 | **0.0065** | 0.020 | 0.10 |
| Chloride | 0.133 | 0.136 | 0.136 | 0.133 | 0.141 | 0.133 | 0.136 | 0.025 | 0.0029 | **0.0091** | 0.020 | 0.50 |
| Nitrite | 0.030 | 0.028 | 0.027 | 0.028 | 0.028 | 0.027 | 0.027 | 0.020 | 0.0010 | **0.0030** | 0.010 | 0.05 |
| Bromide | 0.037 | 0.042 | 0.043 | 0.038 | 0.040 | 0.032 | 0.025 | 0.040 | 0.0062 | **0.0196** | 0.040 | 0.20 |
| Nitrate | 0.035 | 0.034 | 0.033 | 0.033 | 0.033 | 0.031 | 0.030 | 0.020 | 0.0016 | **0.0050** | 0.010 | 0.05 |
| Phosphate | 0.047 | 0.051 | 0.049 | 0.046 | 0.052 | 0.047 | 0.059 | 0.040 | 0.0043 | **0.0135** | 0.030 | 0.10 |
| Sulfate | 0.213 | 0.199 | 0.208 | 0.216 | 0.199 | 0.201 | 0.198 | 0.050 | 0.0073 | **0.0229** | 0.050 | 0.50 |

# MDL/LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Inorganic Ions by Ion Chromatography (Low Level)**
Method Number: EPA Method 300.0
Analysis Date(s): 3/29-30/2018
Analyst: Ria B. Abes

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

| Compound | MDL | LOD Spike Conc., mg/L | LOD Actual Conc., mg/L | PQL Spike Conc., mg/L | PQL Actual Conc., mg/L | %Recovery |
|---|---|---|---|---|---|---|
| Fluoride | **0.0065** | 0.020 | 0.0252 | 0.10 | 0.087 | **87** |
| Chloride | **0.0091** | 0.020 | 0.1193 | 0.50 | 0.5757 | **115** |
| Nitrite | **0.0030** | 0.010 | 0.0237 | 0.05 | 0.0638 | **128** |
| Bromide | **0.0196** | 0.040 | 0.0405 | 0.20 | 0.1993 | **100** |
| Nitrate | **0.0050** | 0.010 | 0.0191 | 0.05 | 0.0561 | **112** |
| Phosphate | **0.0135** | 0.030 | 0.0415 | 0.10 | 0.1216 | **122** |
| Sulfate | **0.0229** | 0.050 | 0.3682 | 0.50 | 0.6549 | **131** |

# SM 4500-NO3F

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R132358 **Analyst:** QBM

**ASSET #:** N034443 **Date Analyzed:** 3/7/2019

**Method:** 4500_N03

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | X | | | X | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 3. ICV within ± 15% of expected value. | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | X | | | X | | |
| 5. CCV within ± 15% of expected value. | X | | | X | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | X | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< PQL) | X | | | X | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | X | | | X | | |
| 9. Are all samples analyzed within hold time. | X | | | X | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 11. LCS compounds within control limits. | X | | | X | | |
| 12. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | X |
| 14. Runlog complete and included in package. | X | | | X | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | X |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | X |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | X | | |
| 18. Are analytical results correct? | X | | | X | | |
| 19. Is the QC summary report present and complete? | X | | | X | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer QBM Date:

2nd Level Reviewer 3/19/2019 Date:

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 4500N03F
**TEST NAME:** Nitrate/Nitrite-N by Automated Cadmium Reduction
**MATRIX:** Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

**Nitrate/Nitrite-N, mg/L= A * DF**

where:

A = mg/L, instrument calculated concentration
DF = dilution factor BGLE

For: **N034443-002D**

The concentration in mg/L is calculated as follows:

| | | | | |
|---|---|---|---|---|
| **Nitrate/Nitrite-N** | = | 0.5873 | * | 5 |
| | = | 2.9365 | mg/L | |

Reporting result in two significant figures,

**Nitrate/Nitrite-N = 2.9 mg/L**

# INITIAL CALIBRATION DATA SUMMARY

## EPA 353.2 NO3 as N (NO3CD) - Endpoint

### General setup

| | |
|---|---|
| **Measuring unit** | **ppm** |
| **Number of decimals** | 4 |
| **Stabilization time (sec)** | 26 |
| **Measurement time (sec)** | 3 |
| **Sample volume (µl)** | 450 |
| **Filter** | 546 |
| **Reagent prime** | No |
| **CD Reduction** | Yes |

### Limits and dilution

| | |
|---|---|
| **Low level** | **-0.2** |
| **High level** | 4 |
| **Max linearity** | 4 |
| **Blank min** | 0 |
| **Blank max** | 0.049 |
| **Postdilution factor %** | 10 |
| **Factor Calculations** | No |

### Washes

| | |
|---|---|
| **Number of final washes** | 6 |
| **Wash every** | R1, R2 |

### O.D.Corrections

| | |
|---|---|
| **Carry Over** | **No** |
| **Carry Over value** | 0.0000 |
| **Blank** | No |
| **Gain** | No |

### Reagents

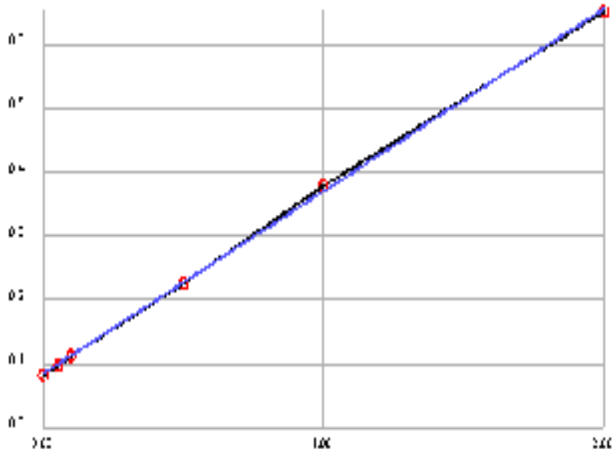
| N. | Volume (µl) | Incubation time (sec) |
|---|---|---|
| **1** | 200 | 102 |
| **2** | 300 | 663 |
| **3** | 0 | 0 |

### QC

| N. | Value | Tolerance |
|---|---|---|
| **1** | 1 | 0.1 |

## Calibration

| | |
|---|---|
| **Curve type** | Linear (Calibrants) |
| **Curve forced to zero** | No |
| **Blank inclusion** | No |



| | |
|---|---|
| **Formula** | y = 0.286x + 0.0847 |
| **Correlation** | .999786 |

| Calibrant | Energy | Set | Conc |
|---|---|---|---|
| **1** | 0.0829 | 0.0000 | -0.0062 |
| **2** | 0.0969 | 0.0500 | 0.0428 |
| **3** | 0.1130 | 0.1000 | 0.0991 |
| **4** | 0.2270 | 0.5000 | 0.4978 |
| **5** | 0.3796 | 1.0000 | 1.0314 |
| **6** | 0.6523 | 2.0000 | 1.9851 |

**Notes:**

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132358** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132358** | TestNo: **SM4500-NO3** | | Analysis Date: **3/7/2019** | SeqNo: **3310832** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.489 | 0.050 | 0.5000 | 0 | 97.7 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132358** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132358** | TestNo: **SM4500-NO3** | | Analysis Date: **3/7/2019** | SeqNo: **3310843** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.500 | 0.050 | 0.5000 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132358** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132358** | TestNo: **SM4500-NO3** | | Analysis Date: **3/7/2019** | SeqNo: **3310850** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.476 | 0.050 | 0.5000 | 0 | 95.2 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034443
**Project:** PG&E Topock - PMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132358** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132358** | TestNo: **SM4500-NO3** | | Analysis Date: **3/7/2019** | SeqNo: **3310833** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132358** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132358** | TestNo: **SM4500-NO3** | | Analysis Date: **3/7/2019** | SeqNo: **3310844** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132358** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132358** | TestNo: **SM4500-NO3** | | Analysis Date: **3/7/2019** | SeqNo: **3310851** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

**Advanced Technology Laboratories, Inc.**

**3151 W. Post Rd.**
**Las Vegas, NV. 89118**
**702-307-2659**
**702-307-2691**
**www.atl-labs.com**

**Time start: 03-07-2019 15:27**
**Time end: 03-07-2019 17:33**

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 1 | <BLANK> | 17:05:53 | -0.0170 | | 0.0798 |
| 2 | <BLANK> | 17:06:48 | -0.0114 | | 0.0814 |
| 3 | <BLANK> | 17:07:48 | -0.0149 | | 0.0804 |
| 4 | <CAL1> | 17:08:43 | -0.0062 | [0] | 0.0829 |
| 5 | <CAL2> | 17:09:39 | 0.0428 | [0.05] | 0.0969 |
| 6 | <CAL3> | 17:10:40 | 0.0991 | [0.1] | 0.1130 |
| 7 | <CAL4> | 17:11:34 | 0.4978 | [0.5] | 0.2270 |
| 8 | <CAL5> | 17:12:30 | 1.0314 | [1] | 0.3796 |
| 9 | <CAL6> | 17:13:31 | 1.9851 | [2] | 0.6523 |
| 10 | ,BLANK,BLANK,1, NOT REPORTED | 17:14:25 | 0.0512 | | 0.0993 |
| 11 | ,ICV,ICV,1, | 17:15:20 | 0.4887 | | 0.2244 |
| 12 | ,ICB,ICB,1, | 17:16:22 | 0.0120 | | 0.0881 |
| 13 | ,MB-H2O,MBLK,1, | 17:17:17 | -0.0072 | | 0.0826 |
| 14 | ,LCS-H2O,LCS,1, | 17:18:05 | 0.5048 | | 0.2290 |
| 15 | ,N034412-001C,SAMP,1, | 17:18:49 | 0.1645 | | 0.1317 |
| 16 | ,N034443-001D,SAMP,1, | 17:19:37 | 0.0400 | | 0.0961 |
| 17 | ,N034443-002D,SAMP,5, | 17:20:20 | 0.5873 | | 0.2526 |
| 18 | ,N034443-002DDUP,DUP,5, | 17:21:08 | 0.5813 | | 0.2509 |
| 19 | ,N034444-002D,SAMP,5, | 17:21:52 | 0.6051 | | 0.2577 |
| 20 | ,N034444-002DMS,MS,5, | 17:22:35 | 1.0989 | | 0.3989 |
| 21 | ,N034444-002DMSD,MSD,5, | 17:23:23 | 1.0667 | | 0.3897 |
| 22 | ,BLANK, NOT REPORTED | 17:24:07 | 0.0313 | | 0.0936 |
| 23 | ,CCV-1,CCV,1, | 17:24:49 | 0.4999 | | 0.2276 |
| 24 | ,CCB-1,CCB,1, | 17:25:32 | 0.0120 | | 0.0881 |
| 25 | ,N034451-005A,SAMP,1, | 17:26:20 | 0.0659 | | 0.1035 |
| 26 | ,N034451-006A,SAMP,1, | 17:27:03 | 0.1411 | | 0.1250 |

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 27 | ,N034451-007A,SAMP,1, | 17:27:53 | 0.2033 | | 0.1428 |
| 28 | ,N034456-001D,SAMP,1, | 17:28:35 | 0.2460 | | 0.1550 |
| 29 | ,N034451-008A,SAMP,2, | 17:29:18 | 0.6653 | | 0.2749 |
| 30 | ,BLANK, NOT REPORTED | 17:30:06 | 0.0012 | | 0.0850 |
| 31 | ,CCV-2,CCV,1, | 17:30:49 | 0.4761 | | 0.2208 |
| 32 | ,CCB-2,CCB,1, | 17:31:31 | 0.0047 | | 0.0860 |

**Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog**

## Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 3/7/2019
Time Analyzed: 3:27 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190221D
Color reagent: R190221E
2% Copper Sulfate: R190221C
Ammonium Hydroxide: CINV-190124B

| Sample ID. | Sample Wt./Vol. | Sample pH | Std Code | Spike Amt Added (mL) | Spike Conc.(PPM) | Final Volume (mL) | Dilution (F/I) | Reading & Calculations (mg/L) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| N034412-001C | | 8.38 | | | | | | | |
| N034443-001D | | 8.08 | | | | | | | |
| N034443-002D | | 8.22 | | | | | | | |
| N034444-002D | | 8.47 | | | | | | | |
| N034451-005A | | 7.91 | | | | | | | |
| N034451-006A | | 8.33 | | | | | | | |
| N034451-007A | | 7.84 | | | | | | | |
| N034451-008A | | 8.44 | | | | | | | |
| N034456-001D | | 8.74 | | | | | | | |
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Advanced Technology Laboratories, Inc.
Book # 1

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

| Analyte | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Ave | SD | $t_{(n-1)}$ value | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.0573 | 0.0562 | 0.0500 | 0.0730 | 0.0698 | 0.0637 | 0.0564 | 0.0609 | 0.0082 | 3.143 | 0.0259 | 0.05 |
| **Method Blank** | | | | | | | | | | | | |
| Nitrate/Nitrite as N | 0.0160 | 0.0067 | 0.0064 | 0.0204 | 0.0173 | 0.0036 | 0.0083 | 0.0112 | 0.0065 | 3.143 | 0.0317 | 0.05 |

**MDL:** **0.0317** **mg/L**

April 02, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034662

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on March 18, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

# CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 300.0:

Dilution was necessary for all samples due to precipitation upon the addition of eluent.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes in QC samples N034662-001D-MS1 and N034662-001D-MSD1 possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes in QC samples N034661-001AMS and N034661-001AMSD possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Manganese in QC samples N034661-001AMS and N034661-001AMSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed and both passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab Order:** N034662
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034662-001A | MW-09-Q119 | Groundwater | 3/18/2019 12:40:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-001B | MW-09-Q119 | Groundwater | 3/18/2019 12:40:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-001C | MW-09-Q119 | Groundwater | 3/18/2019 12:40:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-001D | MW-09-Q119 | Groundwater | 3/18/2019 12:40:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-002A | MW-10-Q119 | Groundwater | 3/18/2019 1:38:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-002B | MW-10-Q119 | Groundwater | 3/18/2019 1:38:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-002C | MW-10-Q119 | Groundwater | 3/18/2019 1:38:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-002D | MW-10-Q119 | Groundwater | 3/18/2019 1:38:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-003A | MW-922-Q119 | Groundwater | 3/18/2019 1:48:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-003B | MW-922-Q119 | Groundwater | 3/18/2019 1:48:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-003C | MW-922-Q119 | Groundwater | 3/18/2019 1:48:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-003D | MW-922-Q119 | Groundwater | 3/18/2019 1:48:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-004A | MW-11-Q119 | Groundwater | 3/18/2019 2:26:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-004B | MW-11-Q119 | Groundwater | 3/18/2019 2:26:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-004C | MW-11-Q119 | Groundwater | 3/18/2019 2:26:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-004D | MW-11-Q119 | Groundwater | 3/18/2019 2:26:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-005A | MW-780-Q119 | Groundwater | 3/18/2019 2:45:00 PM | 3/18/2019 | 4/2/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-09-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 12:40:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190319A** | QC Batch: **R132593** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 2700 | 0.10 | 0.10 | | umhos/cm | 1 | 3/19/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-10-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 1:38:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190319A** | QC Batch: **R132593** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 2500 | 0.10 | 0.10 | | umhos/cm | 1 | 3/19/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-922-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 1:48:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190319A** | QC Batch: **R132593** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 2600 | 0.10 | 0.10 | | umhos/cm | 1 | 3/19/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-11-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 2:26:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190319A** | QC Batch: **R132593** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 2100 | 0.10 | 0.10 | | umhos/cm | 1 | 3/19/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID | **N034662-001BDUP** | SampType: | **DUP** | TestCode: | **120.1_WPGE** | Units: | **umhos/cm** | Prep Date: | | RunNo: | **132593** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: | **R132593** | TestNo: | **EPA 120.1** | | | Analysis Date: | **3/19/2019** | SeqNo: | **3321627** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 2710.000 | 0.10 | | | | | | 2690 | 0.741 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-09-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 12:40:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190319E** | QC Batch: **72983** | | | | PrepDate | **3/19/2019** | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 1800 | 20 | 20 | | mg/L | 1 | 3/19/2019 01:09 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-10-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 1:38:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190319E** | QC Batch: **72983** | | | PrepDate | **3/19/2019** | | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 1700 | 20 | 20 | | mg/L | 1 | 3/19/2019 01:09 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-922-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 1:48:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190319E** | QC Batch: **72983** | | | | PrepDate | **3/19/2019** | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 1700 | 20 | 20 | | mg/L | 1 | 3/19/2019 01:09 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-11-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 2:26:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190319E** | QC Batch: **72983** | | | PrepDate | **3/19/2019** | | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 1400 | 17 | 17 | | mg/L | 1 | 3/19/2019 01:09 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.1_2540C_W**

| Sample ID **LCS-72983** | SampType: **LCS** | TestCode: **160.1_2540C** | Units: **mg/L** | Prep Date: **3/19/2019** | RunNo: **132627** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **72983** | TestNo: **SM2540C** | | Analysis Date: **3/19/2019** | SeqNo: **3323293** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 979.000 | 10 | 1000 | 0 | 97.9 | 80 | 120 | | | | |

| Sample ID **MB-72983** | SampType: **MBLK** | TestCode: **160.1_2540C** | Units: **mg/L** | Prep Date: **3/19/2019** | RunNo: **132627** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **72983** | TestNo: **SM2540C** | | Analysis Date: **3/19/2019** | SeqNo: **3323294** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | ND | 10 | | | | | | | | | |

| Sample ID **N034662-001BDUP** | SampType: **DUP** | TestCode: **160.1_2540C** | Units: **mg/L** | Prep Date: **3/19/2019** | RunNo: **132627** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **72983** | TestNo: **SM2540C** | | Analysis Date: **3/19/2019** | SeqNo: **3323296** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 1744.000 | 20 | | | | | | 1764 | 1.14 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-001

**Client Sample ID:** MW-09-Q119
**Collection Date:** 3/18/2019 12:40:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190319A** | QC Batch: **R132596** | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | 140 | 0.66 | 4.0 | | µg/L | 20 | 3/19/2019 10:12 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190328D** | QC Batch: **73031** | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | 130 | 0.13 | 1.0 | | µg/L | 1 | 3/28/2019 09:59 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-002

**Client Sample ID:** MW-10-Q119
**Collection Date:** 3/18/2019 1:38:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190319A** QC Batch: **R132596** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | 150 | 0.66 | 4.0 | | µg/L | 20 | 3/19/2019 12:22 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190328D** QC Batch: **73031** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | 140 | 0.13 | 1.0 | | µg/L | 1 | 3/28/2019 10:16 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-922-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 1:48:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190319A** | QC Batch: **R132596** | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | 150 | 0.66 | 4.0 | | µg/L | 20 | 3/19/2019 12:31 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190328D** | QC Batch: **73031** | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | 140 | 0.13 | 1.0 | | µg/L | 1 | 3/28/2019 10:34 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-11-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 2:26:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190319A** QC Batch: **R132596** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | 42 | 0.33 | 2.0 | | µg/L | 10 | 3/19/2019 12:50 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190328D** QC Batch: **73031** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | 43 | 0.13 | 1.0 | | µg/L | 1 | 3/28/2019 11:04 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-780-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 2:45:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190319A** | QC Batch: **R132596** | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/19/2019 01:09 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **MB-R132596** | SampType: **MBLK** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/19/2019** | SeqNo: **3321665** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **LCS-R132596** | SampType: **LCS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/19/2019** | SeqNo: **3321666** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.223 | 0.20 | 5.000 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **N034660-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/19/2019** | SeqNo: **3321670** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.774 | 1.0 | 5.000 | 0 | 95.5 | 90 | 110 | | | | |

| Sample ID **N034662-001ADUP** | SampType: **DUP** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/19/2019** | SeqNo: **3321671** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 142.286 | 4.0 | | | | | | 141.2 | 0.755 | 20 | |

| Sample ID **N034660-001AMSD** | SampType: **MSD** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/19/2019** | SeqNo: **3321672** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.840 | 1.0 | 5.000 | 0 | 96.8 | 90 | 110 | 4.774 | 1.36 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034661-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132596 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132596 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/19/2019 | SeqNo: | 3321859 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.096 | 0.20 | 1.000 | 0 | 110 | 90 | 110 | | | | |

| Sample ID | N034662-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132596 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132596 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/19/2019 | SeqNo: | 3321860 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 237.798 | 4.0 | 100.0 | 141.2 | 96.6 | 90 | 110 | | | | |

| Sample ID | N034662-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132596 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132596 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/19/2019 | SeqNo: | 3321861 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 255.260 | 4.0 | 100.0 | 154.1 | 101 | 90 | 110 | | | | |

| Sample ID | N034662-003AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132596 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132596 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/19/2019 | SeqNo: | 3321864 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 253.278 | 4.0 | 100.0 | 154.5 | 98.8 | 90 | 110 | | | | |

| Sample ID | N034662-004AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132596 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132596 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/19/2019 | SeqNo: | 3321866 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 92.585 | 2.0 | 50.00 | 42.42 | 100 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034662-005AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132596 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132596 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/19/2019 | SeqNo: | 3321870 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.039 | 0.20 | 1.000 | 0 | 104 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | MB-73031 | SampType: | MBLK | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132859 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73031 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333636 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-73031 | SampType: | LCS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132859 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73031 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333637 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.997 | 1.0 | 10.00 | 0 | 100 | 85 | 115 | | | | |

| Sample ID | N034661-001AMS | SampType: | MS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132859 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73031 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333642 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.151 | 1.0 | 10.00 | 0 | 91.5 | 75 | 125 | | | | |

| Sample ID | N034661-001AMSD | SampType: | MSD | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132859 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73031 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333643 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.265 | 1.0 | 10.00 | 0 | 92.6 | 75 | 125 | 9.151 | 1.23 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-09-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 12:40:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190319C** | QC Batch: **R132603** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 130 | 1.2 | 5.0 | | mg/L | 1 | 3/19/2019 01:30 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-10-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 1:38:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190319C** | QC Batch: **R132603** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 120 | 1.2 | 5.0 | | mg/L | 1 | 3/19/2019 01:30 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-922-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 1:48:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190319C** | QC Batch: **R132603** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 130 | 1.2 | 5.0 | | mg/L | 1 | 3/19/2019 01:30 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-11-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 2:26:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190319C** | QC Batch: **R132603** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 96 | 1.2 | 5.0 | | mg/L | 1 | 3/19/2019 01:30 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 2320_W_SP**

| Sample ID **LCS-R132603** | SampType: **LCS** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | RunNo: **132603** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R132603** | TestNo: **SM 2320 B** | | Analysis Date: **3/19/2019** | SeqNo: **3321807** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 94.714 | 5.0 | 100.0 | 0 | 94.7 | 85 | 115 | | | | |

| Sample ID **MB-R132603** | SampType: **MBLK** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | RunNo: **132603** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R132603** | TestNo: **SM 2320 B** | | Analysis Date: **3/19/2019** | SeqNo: **3321808** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | ND | 5.0 | | | | | | | | | |

| Sample ID **N034662-001BDUP** | SampType: **DUP** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | RunNo: **132603** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132603** | TestNo: **SM 2320 B** | | Analysis Date: **3/19/2019** | SeqNo: **3321810** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 132.159 | 5.0 | | | | | | 132.2 | 0 | 30 | |

| Sample ID **N034662-001BMS** | SampType: **MS** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | RunNo: **132603** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132603** | TestNo: **SM 2320 B** | | Analysis Date: **3/19/2019** | SeqNo: **3321811** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 233.480 | 5.0 | 100.0 | 132.2 | 101 | 75 | 125 | | | | |

| Sample ID **N034662-001BMSD** | SampType: **MSD** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | RunNo: **132603** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132603** | TestNo: **SM 2320 B** | | Analysis Date: **3/19/2019** | SeqNo: **3321812** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 230.176 | 5.0 | 100.0 | 132.2 | 98.0 | 75 | 125 | 233.5 | 1.43 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-001

**Client Sample ID:** MW-09-Q119
**Collection Date:** 3/18/2019 12:40:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190321A** QC Batch: **R132689** | | | PrepDate | | | | Analyst: **RAB** |
| Bromide | ND | 0.039 | 1.0 | | mg/L | 2 | 3/21/2019 05:07 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190322A** QC Batch: **R132731** | | | PrepDate | | | | Analyst: **RAB** |
| Chloride | 720 | 1.8 | 100 | | mg/L | 200 | 3/22/2019 10:09 AM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190322A** QC Batch: **R132731** | | | PrepDate | | | | Analyst: **RAB** |
| Sulfate | 240 | 0.46 | 10 | | mg/L | 20 | 3/22/2019 11:08 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-002

**Client Sample ID:** MW-10-Q119
**Collection Date:** 3/18/2019 1:38:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190321A** QC Batch: **R132689** | | | | PrepDate | | | Analyst: **RAB** |
| Bromide | ND | 0.039 | 1.0 | | mg/L | 2 | 3/21/2019 05:22 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190322A** QC Batch: **R132731** | | | | PrepDate | | | Analyst: **RAB** |
| Chloride | 660 | 1.8 | 100 | | mg/L | 200 | 3/22/2019 10:23 AM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190322A** QC Batch: **R132731** | | | | PrepDate | | | Analyst: **RAB** |
| Sulfate | 270 | 0.46 | 10 | | mg/L | 20 | 3/22/2019 11:23 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-003

**Client Sample ID:** MW-922-Q119
**Collection Date:** 3/18/2019 1:48:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190321A** QC Batch: **R132689** | | | | PrepDate | | | Analyst: **RAB** |
| Bromide | ND | 0.039 | 1.0 | | mg/L | 2 | 3/21/2019 05:36 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190322A** QC Batch: **R132731** | | | | PrepDate | | | Analyst: **RAB** |
| Chloride | 660 | 1.8 | 100 | | mg/L | 200 | 3/22/2019 10:38 AM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190322A** QC Batch: **R132731** | | | | PrepDate | | | Analyst: **RAB** |
| Sulfate | 270 | 0.46 | 10 | | mg/L | 20 | 3/22/2019 11:37 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-004

**Client Sample ID:** MW-11-Q119
**Collection Date:** 3/18/2019 2:26:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190321A** QC Batch: **R132689** | | | | PrepDate | | | Analyst: **RAB** |
| Bromide | ND | 0.039 | 1.0 | | mg/L | 2 | 3/21/2019 05:51 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190322A** QC Batch: **R132731** | | | | PrepDate | | | Analyst: **RAB** |
| Chloride | 540 | 1.8 | 100 | | mg/L | 200 | 3/22/2019 10:53 AM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190322A** QC Batch: **R132731** | | | | PrepDate | | | Analyst: **RAB** |
| Sulfate | 180 | 0.46 | 10 | | mg/L | 20 | 3/22/2019 11:52 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_BRPGE**

| Sample ID | MB-R132689_BR | SampType: | MBLK | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132689 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132689 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3326193 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | ND | 0.50 | | | | | | | | | |

| Sample ID | LCS-R132689_BR | SampType: | LCS | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132689 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132689 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3326194 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 1.235 | 0.50 | 1.250 | 0 | 98.8 | 90 | 110 | | | | |

| Sample ID | N034689-006GMS | SampType: | MS | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132689 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132689 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3326213 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 6.762 | 2.5 | 6.250 | 0.5920 | 98.7 | 80 | 120 | | | | |

| Sample ID | N034689-006GMSD | SampType: | MSD | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132689 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132689 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3326214 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 6.748 | 2.5 | 6.250 | 0.5920 | 98.5 | 80 | 120 | 6.762 | 0.207 | 20 | |

| Sample ID | N034707-001BMS | SampType: | MS | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132689 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132689 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3326215 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 13.366 | 5.0 | 12.50 | 0.9840 | 99.1 | 80 | 120 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_BRPGE**

| Sample ID | N034707-003BDUP | SampType: | DUP | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132689 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132689 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3326216 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 0.671 | 2.5 | | | | | | 0.6675 | 0 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID | MB-R132731_CL | SampType: | MBLK | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327463 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.146 | 0.50 | | | | | | | | | |

| Sample ID | LCS-R132731_CL | SampType: | LCS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327464 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 2.036 | 0.50 | 2.000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID | N034689-002GMS | SampType: | MS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327485 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 548.370 | 50 | 200.0 | 352.9 | 97.7 | 80 | 120 | | | | |

| Sample ID | N034689-002GMSD | SampType: | MSD | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327486 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 551.650 | 50 | 200.0 | 352.9 | 99.4 | 80 | 120 | 548.4 | 0.596 | 20 | |

| Sample ID | N034662-001BMS | SampType: | MS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327487 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1117.660 | 100 | 400.0 | 718.5 | 99.8 | 80 | 120 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID | N034689-004GDUP | SampType: | DUP | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327488 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 254.670 | 25 | | | | | | 254.0 | 0.248 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID | MB-R132731_SO4 | SampType: | MBLK | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327495 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | ND | 0.50 | | | | | | | | | |

| Sample ID | LCS-R132731_SO4 | SampType: | LCS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327496 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.962 | 0.50 | 4.000 | 0 | 99.1 | 90 | 110 | | | | |

| Sample ID | N034662-001BMS | SampType: | MS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327517 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 324.354 | 10 | 80.00 | 241.4 | 104 | 80 | 120 | | | | |

| Sample ID | N034662-001BMSD | SampType: | MSD | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327518 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 324.096 | 10 | 80.00 | 241.4 | 103 | 80 | 120 | 324.4 | 0.0796 | 20 | |

| Sample ID | N034689-002GMS | SampType: | MS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327519 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 265.588 | 10 | 80.00 | 184.8 | 101 | 80 | 120 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID | N034662-003BDUP | SampType: | DUP | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327520 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 273.108 | 10 | | | | | | 273.0 | 0.0264 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-001

**Client Sample ID:** MW-09-Q119
**Collection Date:** 3/18/2019 12:40:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190322E** | QC Batch: **R132714** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 12 | 0.63 | 1.0 | | mg/L | 20 | 3/22/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-10-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 1:38:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190322E** | QC Batch: **R132714** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 12 | 0.63 | 1.0 | | mg/L | 20 | 3/22/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-922-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 1:48:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190322E** | QC Batch: **R132714** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 12 | 0.63 | 1.0 | | mg/L | 20 | 3/22/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-11-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 2:26:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190322E** | QC Batch: **R132714** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 5.6 | 0.32 | 0.50 | | mg/L | 10 | 3/22/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **MB-R132714** | SampType: **MBLK** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132714** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R132714** | TestNo: **SM4500-NO3** | | Analysis Date: **3/22/2019** | SeqNo: **3326879** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **LCS-R132714** | SampType: **LCS** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132714** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R132714** | TestNo: **SM4500-NO3** | | Analysis Date: **3/22/2019** | SeqNo: **3326880** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.566 | 0.050 | 0.5000 | 0 | 113 | 85 | 115 | | | | |

| Sample ID **N034662-003CDUP** | SampType: **DUP** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132714** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132714** | TestNo: **SM4500-NO3** | | Analysis Date: **3/22/2019** | SeqNo: **3326884** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 11.798 | 1.0 | | | | | | 11.83 | 0.254 | 20 | |

| Sample ID **N034662-004CMS** | SampType: **MS** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132714** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132714** | TestNo: **SM4500-NO3** | | Analysis Date: **3/22/2019** | SeqNo: **3326886** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 10.329 | 0.50 | 5.000 | 5.624 | 94.1 | 75 | 125 | | | | |

| Sample ID **N034662-004CMSD** | SampType: **MSD** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132714** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132714** | TestNo: **SM4500-NO3** | | Analysis Date: **3/22/2019** | SeqNo: **3326887** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 10.666 | 0.50 | 5.000 | 5.624 | 101 | 75 | 125 | 10.33 | 3.21 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-001

**Client Sample ID:** MW-09-Q119
**Collection Date:** 3/18/2019 12:40:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190326D** | QC Batch: **73017** | | | PrepDate | **3/21/2019** | Analyst: **CEI** | |
| Boron | 790 | 74 | 100 | | ug/L | 1 | 3/26/2019 07:59 PM |
| Calcium | 120000 | 85 | 500 | | ug/L | 1 | 3/26/2019 07:59 PM |
| Iron | 43 | 18 | 20 | | ug/L | 1 | 3/26/2019 07:59 PM |
| Magnesium | 28000 | 48 | 100 | | ug/L | 1 | 3/26/2019 07:59 PM |
| Sodium | 470000 | 2400 | 12000 | | ug/L | 25 | 3/27/2019 03:18 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-002

**Client Sample ID:** MW-10-Q119
**Collection Date:** 3/18/2019 1:38:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190326D** | QC Batch: **73017** | | | PrepDate | **3/21/2019** | Analyst: **CEI** | |
| Boron | 950 | 74 | 100 | | ug/L | 1 | 3/26/2019 08:32 PM |
| Calcium | 130000 | 85 | 500 | | ug/L | 1 | 3/26/2019 08:32 PM |
| Iron | 110 | 18 | 20 | | ug/L | 1 | 3/26/2019 08:32 PM |
| Magnesium | 18000 | 48 | 100 | | ug/L | 1 | 3/26/2019 08:32 PM |
| Sodium | 460000 | 2400 | 12000 | | ug/L | 25 | 3/27/2019 03:48 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-003

**Client Sample ID:** MW-922-Q119
**Collection Date:** 3/18/2019 1:48:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190326D** | QC Batch: **73017** | | | PrepDate | **3/21/2019** | Analyst: **CEI** | |
| Boron | 960 | 74 | 100 | | ug/L | 1 | 3/26/2019 08:39 PM |
| Calcium | 130000 | 85 | 500 | | ug/L | 1 | 3/26/2019 08:39 PM |
| Iron | 64 | 18 | 20 | | ug/L | 1 | 3/26/2019 08:39 PM |
| Magnesium | 18000 | 48 | 100 | | ug/L | 1 | 3/26/2019 08:39 PM |
| Sodium | 480000 | 2400 | 12000 | | ug/L | 25 | 3/27/2019 04:05 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-004

**Client Sample ID:** MW-11-Q119
**Collection Date:** 3/18/2019 2:26:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190326D** | QC Batch: **73017** | | | PrepDate | **3/21/2019** | Analyst: **CEI** | |
| Boron | 470 | 74 | 100 | | ug/L | 1 | 3/26/2019 08:58 PM |
| Calcium | 140000 | 85 | 500 | | ug/L | 1 | 3/26/2019 08:58 PM |
| Iron | 62 | 18 | 20 | | ug/L | 1 | 3/26/2019 08:58 PM |
| Magnesium | 21000 | 48 | 100 | | ug/L | 1 | 3/26/2019 08:58 PM |
| Sodium | 290000 | 2400 | 12000 | | ug/L | 25 | 3/27/2019 04:08 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID | LCS1-73017 | SampType: | LCS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132788 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73017 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/26/2019 | SeqNo: | 3329868 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 1003.806 | 100 | 1000 | 0 | 100 | 85 | 115 | | | | |
| Calcium | 4921.813 | 500 | 5000 | 0 | 98.4 | 85 | 115 | | | | |
| Iron | 103.051 | 20 | 100.0 | 0 | 103 | 85 | 115 | | | | |
| Magnesium | 5068.888 | 100 | 5000 | 0 | 101 | 85 | 115 | | | | |

| Sample ID | MB-73017 | SampType: | MBLK | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132788 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73017 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/26/2019 | SeqNo: | 3329869 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | ND | 100 | | | | | | | | | |
| Calcium | ND | 500 | | | | | | | | | |
| Iron | ND | 20 | | | | | | | | | |
| Magnesium | ND | 100 | | | | | | | | | |

| Sample ID | N034662-001D-MS1 | SampType: | MS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132788 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73017 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/26/2019 | SeqNo: | 3329873 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 2118.530 | 100 | 1000 | 788.5 | 133 | 75 | 125 | | | | S |
| Calcium | 128828.828 | 500 | 5000 | 123900 | 97.7 | 75 | 125 | | | | |
| Iron | 154.039 | 20 | 100.0 | 43.26 | 111 | 75 | 125 | | | | |
| Magnesium | 33565.943 | 100 | 5000 | 27780 | 116 | 75 | 125 | | | | |

| Sample ID | N034662-001D-MSD | SampType: | MSD | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132788 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73017 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/26/2019 | SeqNo: | 3329874 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 2086.835 | 100 | 1000 | 788.5 | 130 | 75 | 125 | 2119 | 1.51 | 20 | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID | N034662-001D-MSD | SampType: | MSD | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132788 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73017 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/26/2019 | SeqNo: | 3329874 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 126597.138 | 500 | 5000 | 123900 | 53.1 | 75 | 125 | 128800 | 1.75 | 20 | S |
| Iron | 151.163 | 20 | 100.0 | 43.26 | 108 | 75 | 125 | 154.0 | 1.88 | 20 | |
| Magnesium | 31919.903 | 100 | 5000 | 27780 | 82.8 | 75 | 125 | 33570 | 5.03 | 20 | |

| Sample ID | MB-73017 | SampType: | MBLK | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132794 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73017 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/27/2019 | SeqNo: | 3330280 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | ND | 500 | | | | | | | | | |

| Sample ID | LCS2-73017 | SampType: | LCS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132794 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73017 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/27/2019 | SeqNo: | 3330281 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 19599.655 | 500 | 20000 | 0 | 98.0 | 85 | 115 | | | | |

| Sample ID | N034662-002D-MS2 | SampType: | MS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132794 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73017 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/27/2019 | SeqNo: | 3330309 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 486284.030 | 12000 | 20000 | 463300 | 115 | 75 | 125 | | | | |

| Sample ID | N034662-002D-MSD | SampType: | MSD | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132794 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73017 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/27/2019 | SeqNo: | 3330310 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 488152.071 | 12000 | 20000 | 463300 | 124 | 75 | 125 | 486300 | 0.383 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID | N034662-001D-PS | SampType: | PS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | | RunNo: | 132788 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73017 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/26/2019 | SeqNo: | 3329872 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 2109.447 | 100 | 1000 | 788.5 | 132 | 80 | 120 | | | | S |
| Calcium | 128437.115 | 500 | 5000 | 123900 | 89.9 | 80 | 120 | | | | |
| Iron | 171.900 | 20 | 100.0 | 43.26 | 129 | 80 | 120 | | | | S |
| Magnesium | 33562.081 | 100 | 5000 | 27780 | 116 | 80 | 120 | | | | |

| Sample ID | N034662-002D-PS | SampType: | PS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | | RunNo: | 132794 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73017 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/27/2019 | SeqNo: | 3330308 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 491764.582 | 12000 | 20000 | 463300 | 142 | 80 | 120 | | | | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-001

**Client Sample ID:** MW-09-Q119
**Collection Date:** 3/18/2019 12:40:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190331B** | QC Batch: **73031** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 1.8 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 01:32 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 01:32 AM |
| Molybdenum | 3.6 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 01:32 AM |
| Selenium | 5.7 | 0.36 | 0.50 | | µg/L | 1 | 4/1/2019 01:32 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-002

**Client Sample ID:** MW-10-Q119
**Collection Date:** 3/18/2019 1:38:00 PM
**Matrix:** GROUNDWATER

## DISSOLVED METALS BY ICP-MS

**EPA 3010A** **EPA 6020**

RunID: **NV00922-ICP7_190331B** QC Batch: **73031** PrepDate **3/22/2019** Analyst: **CEI**

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.16 | 0.50 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Arsenic | 2.4 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Barium | 47 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Beryllium | ND | 0.042 | 0.50 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Cadmium | ND | 0.053 | 0.50 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Cobalt | ND | 0.042 | 0.50 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Copper | ND | 0.55 | 1.0 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Lead | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Manganese | 5.1 | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Molybdenum | 19 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Nickel | 2.7 | 0.26 | 1.0 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Selenium | 7.2 | 0.36 | 0.50 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Silver | ND | 0.23 | 0.50 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Thallium | ND | 0.19 | 0.50 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Vanadium | 17 | 0.28 | 1.0 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Zinc | ND | 2.3 | 10 | | µg/L | 1 | 4/1/2019 01:44 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-003

**Client Sample ID:** MW-922-Q119
**Collection Date:** 3/18/2019 1:48:00 PM
**Matrix:** GROUNDWATER

## DISSOLVED METALS BY ICP-MS

**EPA 3010A** **EPA 6020**

RunID: **NV00922-ICP7_190331B** QC Batch: **73031** PrepDate **3/22/2019** Analyst: **CEI**

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.16 | 0.50 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Arsenic | 2.5 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Barium | 48 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Beryllium | ND | 0.042 | 0.50 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Cadmium | ND | 0.053 | 0.50 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Cobalt | ND | 0.042 | 0.50 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Copper | ND | 0.55 | 1.0 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Lead | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Manganese | 4.4 | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Molybdenum | 20 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Nickel | 2.9 | 0.26 | 1.0 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Selenium | 6.7 | 0.36 | 0.50 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Silver | ND | 0.23 | 0.50 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Thallium | ND | 0.19 | 0.50 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Vanadium | 17 | 0.28 | 1.0 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Zinc | ND | 2.3 | 10 | | µg/L | 1 | 4/1/2019 01:56 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-004

**Client Sample ID:** MW-11-Q119
**Collection Date:** 3/18/2019 2:26:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190331B** | QC Batch: **73031** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 1.5 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 02:07 AM |
| Manganese | 0.68 | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 05:07 PM |
| Molybdenum | 5.8 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 02:07 AM |
| Selenium | 5.5 | 0.36 | 0.50 | | µg/L | 1 | 4/1/2019 02:07 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **MB-73031** | SampType: **MBLK** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **73031** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3333752** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

| Sample ID **LCS-73031** | SampType: **LCS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **73031** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3333753** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 9.996 | 0.50 | 10.00 | 0 | 100 | 85 | 115 | | | | |
| Arsenic | 9.655 | 0.10 | 10.00 | 0 | 96.6 | 85 | 115 | | | | |
| Barium | 9.949 | 1.0 | 10.00 | 0 | 99.5 | 85 | 115 | | | | |
| Beryllium | 9.539 | 0.50 | 10.00 | 0 | 95.4 | 85 | 115 | | | | |
| Cadmium | 10.135 | 0.50 | 10.00 | 0 | 101 | 85 | 115 | | | | |
| Cobalt | 9.733 | 0.50 | 10.00 | 0 | 97.3 | 85 | 115 | | | | |
| Copper | 9.262 | 1.0 | 10.00 | 0 | 92.6 | 85 | 115 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | LCS-73031 | SampType: | LCS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132861 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73031 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333753 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead | 9.565 | 1.0 | 10.00 | 0 | 95.7 | 85 | 115 | | | | |
| Manganese | 104.749 | 0.50 | 100.0 | 0 | 105 | 85 | 115 | | | | |
| Molybdenum | 9.067 | 0.50 | 10.00 | 0 | 90.7 | 85 | 115 | | | | |
| Nickel | 10.019 | 1.0 | 10.00 | 0 | 100 | 85 | 115 | | | | |
| Selenium | 9.774 | 0.50 | 10.00 | 0 | 97.7 | 85 | 115 | | | | |
| Silver | 10.185 | 0.50 | 10.00 | 0 | 102 | 85 | 115 | | | | |
| Thallium | 9.443 | 0.50 | 10.00 | 0 | 94.4 | 85 | 115 | | | | |
| Vanadium | 9.876 | 1.0 | 10.00 | 0 | 98.8 | 85 | 115 | | | | |
| Zinc | 9.673 | 10 | 10.00 | 0 | 96.7 | 85 | 115 | | | | |

| Sample ID | N034661-001AMS | SampType: | MS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132861 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73031 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333758 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 10.365 | 0.50 | 10.00 | 0.2248 | 101 | 75 | 125 | | | | |
| Arsenic | 11.311 | 0.10 | 10.00 | 0.9391 | 104 | 75 | 125 | | | | |
| Barium | 77.528 | 1.0 | 10.00 | 68.17 | 93.6 | 75 | 125 | | | | |
| Beryllium | 12.225 | 0.50 | 10.00 | 0 | 122 | 75 | 125 | | | | |
| Cadmium | 9.494 | 0.50 | 10.00 | 0 | 94.9 | 75 | 125 | | | | |
| Cobalt | 9.072 | 0.50 | 10.00 | 0.5536 | 85.2 | 75 | 125 | | | | |
| Copper | 3.971 | 1.0 | 10.00 | 0 | 39.7 | 75 | 125 | | | | S |
| Lead | 9.610 | 1.0 | 10.00 | 0 | 96.1 | 75 | 125 | | | | |
| Molybdenum | 32.269 | 0.50 | 10.00 | 19.51 | 128 | 75 | 125 | | | | S |
| Nickel | 10.797 | 1.0 | 10.00 | 1.342 | 94.6 | 75 | 125 | | | | |
| Selenium | 34.585 | 0.50 | 10.00 | 25.11 | 94.7 | 75 | 125 | | | | |
| Silver | 8.916 | 0.50 | 10.00 | 0 | 89.2 | 75 | 125 | | | | |
| Thallium | 8.716 | 0.50 | 10.00 | 0.3494 | 83.7 | 75 | 125 | | | | |
| Vanadium | 9.364 | 1.0 | 10.00 | 0 | 93.6 | 75 | 125 | | | | |
| Zinc | 8.243 | 10 | 10.00 | 0 | 82.4 | 75 | 125 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **N034661-001AMSD** | SampType: **MSD** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73031** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3333759** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 10.325 | 0.50 | 10.00 | 0.2248 | 101 | 75 | 125 | 10.36 | 0.381 | 20 | |
| Arsenic | 11.224 | 0.10 | 10.00 | 0.9391 | 103 | 75 | 125 | 11.31 | 0.777 | 20 | |
| Barium | 78.710 | 1.0 | 10.00 | 68.17 | 105 | 75 | 125 | 77.53 | 1.51 | 20 | |
| Beryllium | 11.997 | 0.50 | 10.00 | 0 | 120 | 75 | 125 | 12.23 | 1.88 | 20 | |
| Cadmium | 9.554 | 0.50 | 10.00 | 0 | 95.5 | 75 | 125 | 9.494 | 0.628 | 20 | |
| Cobalt | 9.228 | 0.50 | 10.00 | 0.5536 | 86.7 | 75 | 125 | 9.072 | 1.71 | 20 | |
| Copper | 3.883 | 1.0 | 10.00 | 0 | 38.8 | 75 | 125 | 3.971 | 2.23 | 20 | S |
| Lead | 9.696 | 1.0 | 10.00 | 0 | 97.0 | 75 | 125 | 9.610 | 0.890 | 20 | |
| Molybdenum | 31.589 | 0.50 | 10.00 | 19.51 | 121 | 75 | 125 | 32.27 | 2.13 | 20 | |
| Nickel | 10.860 | 1.0 | 10.00 | 1.342 | 95.2 | 75 | 125 | 10.80 | 0.576 | 20 | |
| Selenium | 34.361 | 0.50 | 10.00 | 25.11 | 92.5 | 75 | 125 | 34.59 | 0.650 | 20 | |
| Silver | 8.864 | 0.50 | 10.00 | 0 | 88.6 | 75 | 125 | 8.916 | 0.579 | 20 | |
| Thallium | 8.782 | 0.50 | 10.00 | 0.3494 | 84.3 | 75 | 125 | 8.716 | 0.760 | 20 | |
| Vanadium | 9.538 | 1.0 | 10.00 | 0 | 95.4 | 75 | 125 | 9.364 | 1.84 | 20 | |
| Zinc | 8.111 | 10 | 10.00 | 0 | 81.1 | 75 | 125 | 8.243 | 0 | 20 | |

| Sample ID **N034661-001AMS** | SampType: **MS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73031** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3333781** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 886.533 | 2.5 | 100.0 | 741.7 | 145 | 75 | 125 | | | | S |

| Sample ID **N034661-001AMSD** | SampType: **MSD** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73031** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3333782** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 876.254 | 2.5 | 100.0 | 741.7 | 135 | 75 | 125 | 886.5 | 1.17 | 20 | S |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | **N034661-001A-PS** | SampType: **PS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **73031** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3333760** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 10.371 | 0.50 | 10.00 | 0.2248 | 101 | 80 | 120 | | | | |
| Arsenic | 11.235 | 0.10 | 10.00 | 0.9391 | 103 | 80 | 120 | | | | |
| Barium | 76.292 | 1.0 | 10.00 | 68.17 | 81.3 | 80 | 120 | | | | |
| Beryllium | 12.236 | 0.50 | 10.00 | 0 | 122 | 80 | 120 | | | | S |
| Cadmium | 9.574 | 0.50 | 10.00 | 0 | 95.7 | 80 | 120 | | | | |
| Cobalt | 9.248 | 0.50 | 10.00 | 0.5536 | 86.9 | 80 | 120 | | | | |
| Copper | 4.046 | 1.0 | 10.00 | 0 | 40.5 | 80 | 120 | | | | S |
| Lead | 9.714 | 1.0 | 10.00 | 0 | 97.1 | 80 | 120 | | | | |
| Molybdenum | 31.098 | 0.50 | 10.00 | 19.51 | 116 | 80 | 120 | | | | |
| Nickel | 11.126 | 1.0 | 10.00 | 1.342 | 97.8 | 80 | 120 | | | | |
| Selenium | 32.328 | 0.50 | 10.00 | 25.11 | 72.2 | 80 | 120 | | | | S |
| Silver | 8.831 | 0.50 | 10.00 | 0 | 88.3 | 80 | 120 | | | | |
| Thallium | 8.842 | 0.50 | 10.00 | 0.3494 | 84.9 | 80 | 120 | | | | |
| Vanadium | 9.573 | 1.0 | 10.00 | 0 | 95.7 | 80 | 120 | | | | |
| Zinc | 8.483 | 10 | 10.00 | 0 | 84.8 | 80 | 120 | | | | |

| Sample ID | **N034661-001A-PS** | SampType: **PS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **73031** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3333780** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 844.464 | 2.5 | 100.0 | 741.7 | 103 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-10-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 1:38:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE** | | | | | | | |
| | | | **EPA 7470A** | | | | |
| RunID: **NV00922-AA1_190320D** QC Batch: **72995** | | | | PrepDate | **3/20/2019** | | Analyst: **MG** |
| Mercury | ND | 0.13 | 0.20 | | µg/L | 1 | 3/20/2019 04:09 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-922-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 1:48:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE** | | | | | | | |
| | | | **EPA 7470A** | | | | |
| RunID: **NV00922-AA1_190320D** QC Batch: **72995** | | | | PrepDate | **3/20/2019** | | Analyst: **MG** |
| Mercury | ND | 0.13 | 0.20 | | µg/L | 1 | 3/20/2019 04:11 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 7470_W_DISSPGE**

| Sample ID | **MB-72995** | SampType: **MBLK** | TestCode: **7470_W_DIS** | Units: **µg/L** | Prep Date: **3/20/2019** | RunNo: **132653** |
|---|---|---|---|---|---|---|
| Client ID: | **PBW** | Batch ID: **72995** | TestNo: **EPA 7470A** | | Analysis Date: **3/20/2019** | SeqNo: **3324468** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | 0.20 | | | | | | | | | |

| Sample ID | **LCS-72995** | SampType: **LCS** | TestCode: **7470_W_DIS** | Units: **µg/L** | Prep Date: **3/20/2019** | RunNo: **132653** |
|---|---|---|---|---|---|---|
| Client ID: | **LCSW** | Batch ID: **72995** | TestNo: **EPA 7470A** | | Analysis Date: **3/20/2019** | SeqNo: **3324469** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 4.339 | 0.20 | 5.000 | 0 | 86.8 | 85 | 115 | | | | |

| Sample ID | **N034689-002F-MS** | SampType: **MS** | TestCode: **7470_W_DIS** | Units: **µg/L** | Prep Date: **3/20/2019** | RunNo: **132653** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **72995** | TestNo: **EPA 7470A** | | Analysis Date: **3/20/2019** | SeqNo: **3324470** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 4.823 | 0.20 | 5.000 | 0 | 96.5 | 75 | 125 | | | | |

| Sample ID | **N034689-002F-MSD** | SampType: **MSD** | TestCode: **7470_W_DIS** | Units: **µg/L** | Prep Date: **3/20/2019** | RunNo: **132653** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **72995** | TestNo: **EPA 7470A** | | Analysis Date: **3/20/2019** | SeqNo: **3324471** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 4.521 | 0.20 | 5.000 | 0 | 90.4 | 75 | 125 | 4.823 | 6.47 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement: Others ✓ |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | QA/QC: RWQCB ✓ |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: | Specify: RWQCB |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661 | Email to: mbloes@pivox.com | P.O.# SWA-ASSET-C9817-051 |
| Submitted By: Jason Mahn | Phone: 916-786-3302 Fax: | Phone: 949-727-1400, ext 200 | Fax: |
| Title: Project Manager | | | Global ID: |
| Signature: Date: 3/18/19 | Sampled By: Nara Tep | | |
| I hereby authorize ASSET Labs to perform the tests indicated below. | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally misleading the sample location, date or time of collection is considered fraud and may be grounds for | | |
| Project Name: PG&E Topock - GMP | Signature: Date: 3/18/19 | | |
| Project Number: RC000753.801D | | | |

Matrix: Ground x | Sediment; Potable | Soil; NPDES | Other Solid; Surface

Sample Receipt Condition: 1. Chilled ✓ | 2. Headspace | 3. Container Intact ✓ | 4. Seal Present ✓ | 5. IR number 2 | 6. Method of Cooling: ICE | Sample Temp: 2.0°C

Courier:

Tracking No.:

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly) | Oxygen and Deuterium Isotopes (CFIRM), Ice (250 mL poly) | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly) | Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly) | Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly) | Fluoride (EPA 300.0) (1 liter poly) | Specific Conductance (EPA 120.1) (1 liter poly) | Total Dissolved Solids (SM92540) (1 liter poly) | Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly) | Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly) | Dissolved metals (SW 6020), HNO3 As, Cr, Mg, Mn, Mo, Se (500 mL poly) | Dissolved Metals (SW 6010B); HNO3 B, Ca, Fe, Na (500 mL poly) | Dissolved metals (SW 6020), HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn (500 mL poly) | Dissolved Metals (SW 6010B); HNO3 B, Ca, Cu, Fe, Na, Ni, (500 mL poly) | Metals Dissolved (EPA7470A FF) Hg; HNO3 (500 mL poly) | Dissolved Metals (SW 6010B); HNO3 Potassium (500 mL poly) | Total metals, Chromium (Cr+6+3) (EPA 200.8), HNO3 (500 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034662-01 | MW-09-Q119 | 3/18/2019 | 12:40 | | X | | | X | X | | X | X | X | | X | X | | | | | | | E | 4 | PV | BNS | |
| 2 | -02 | MW-10-Q119 | 3/18/2019 | 13:38 | | X | | | X | X | | X | X | X | | | | X | X | X | | | | E | 4 | PV | BNS | |
| 3 | -03 | MW-922-Q119 | 3/18/2019 | 13:48 | | X | | | X | X | | X | X | X | | | | X | X | X | | | | E | 4 | PV | BNS | |
| 4 | -04 | MW-11-Q119 | 3/18/2019 | 14:26 | | X | | | X | X | | X | X | X | | X | X | | | | | | | E | 4 | PV | BNS | |
| 5 | -05 | MW-780-Q119 | 3/18/2019 | 14:45 | | X | | | | | | | | | | | | | | | | | | E | 1 | PV | BNS | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Relinquished by (Signature and Printed Name) | Date/Time | Received by (Signature and Printed Name) | Date/Time |
|---|---|---|---|
| Nara Tep | 3/18/19 1515 | SEAN MCGRANE | 3/18/19 1515 |
| SEAN MCGRANE | 3/18/19 1603 | LAN NGUYEN | 3/18/19 1603 |
| LAN NGUYEN | 3/18/19 1905 | LAN NGUYEN | 3/18/19 1905 |

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next-Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable samples.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

| Preservatives: | | | | Container Type: | | |
|---|---|---|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C | T=Tube | V=VOA | P=Pint |
| Z=Zn(AC)$_2$ | O=NaOH | T=$Na_2S_2O_3$ | | J=Jar | B=Tedlar | G=Glass |
| Others/Specify: | B (NH4)2SO4/NH4OH | | | M=Metal | M=Metal | C=Can |

White=Laboratory Copy

Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 3/18/2019 | Workorder: | N034662 |
| Rep sample Temp (Deg C): | 2.0 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | NA | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☑ | No ☐ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☐ | No ☐ | NA ☑ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments:

Checklist Completed By: For: RM 3/19/2019

Reviewed By: LG 032019

**Subject:** RE: Method for Cu and Ni
**From:** "Madsen, Laura" <Laura.Madsen@arcadis.com>
**Date:** 12/12/2018 1:22 PM
**To:** "marlon@assetlaboratories.com" <marlon@assetlaboratories.com>
**CC:** 'Yoandra Rodriguez' <yoandra@assetlaboratories.com>

6020 is acceptable.

-----Original Message-----
From: Marlon B. Cartin <marlon@assetlaboratories.com>
Sent: Wednesday, December 12, 2018 2:53 PM
To: Madsen, Laura <Laura.Madsen@arcadis.com>
Cc: 'Yoandra Rodriguez' <yoandra@assetlaboratories.com>
Subject: FW: Method for Cu and Ni
Importance: High

Hi Laura,

Please see below question regarding method for Cu and Ni.

Thanks,

Marlon B. Cartin
Project Manager
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 Ext. 410 I F: 702.307.2691 I M: 702.439.0421

-----Original Message-----
From: Yoandra Rodriguez [mailto:yoandra@assetlaboratories.com]
Sent: Wednesday, December 12, 2018 11:52 AM
To: 'Marlon B. Cartin'
Cc: nancy@assetlaboratories.com; maryann.balilu@assetlaboratoriesph.com; 'Sonny. Lorenzo'; 'Andreafe. Gallardo'
Subject: Method for Cu and Ni
Importance: High

Hi Marlon,

Please kindly confirm which method to use for Cu and Ni for the attached COCs from Arcadis.

6020 has been used per history, but the request on the COCs is 6010.

Please also advise how to proceed moving forward.

Thanks!

--
Yoandra Rodriguez
Sample Control Officer
Asset Laboratories

---
This email has been checked for viruses by Avast antivirus software.
https://www.avast.com/antivirus
This email and any files transmitted with it are the property of Arcadis and its affiliates. All rights, including without limitation copyright, are reserved. This email contains information that may be confidential and may also be privileged. It is for the exclusive use of the intended recipient(s). If you are not an intended recipient, please

# ASSET Laboratories

## WORK ORDER Summary

*19-Mar-19*

**WorkOrder:** N034662

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/18/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034662-001A | MW-09-Q119 | 3/18/2019 12:40:00 PM | 4/1/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034662-001B | | | 4/1/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | WW |
| N034662-001C | | | 4/1/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034662-001D | | | 4/1/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034662-002A | MW-10-Q119 | 3/18/2019 1:38:00 PM | 4/1/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034662-002B | | | 4/1/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*19-Mar-19*

**WorkOrder:** N034662

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/18/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034662-002B | MW-10-Q119 | 3/18/2019 1:38:00 PM | 4/1/2019 | Groundwater | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | WW |
| N034662-002C | | | 4/1/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034662-002D | | | 4/1/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | | DISSOLVED MERCURY PREP | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 7470A | DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE | ☐ | ☐ | ☐ | WW |
| N034662-003A | MW-922-Q119 | 3/18/2019 1:48:00 PM | 4/1/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034662-003B | | | 4/1/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | WW |
| N034662-003C | | | 4/1/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034662-003D | | | 4/1/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*19-Mar-19*

**WorkOrder:** N034662

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/18/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034662-003D | MW-922-Q119 | 3/18/2019 1:48:00 PM | 4/1/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | | DISSOLVED MERCURY PREP | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 7470A | DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE | ☐ | ☐ | ☐ | WW |
| N034662-004A | MW-11-Q119 | 3/18/2019 2:26:00 PM | 4/1/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034662-004B | | | 4/1/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | WW |
| N034662-004C | | | 4/1/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034662-004D | | | 4/1/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*19-Mar-19*

**WorkOrder:** N034662

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/18/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034662-005A | MW-780-Q119 | 3/18/2019 2:45:00 PM | 4/1/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034662-006A | FOLDER | 4/1/2019 | 4/1/2019 | | EDD | Client specific project | ☐ | ☐ | ☐ | LAB |
| | | | 4/1/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 4/1/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# *ARCADIS*

Project: PG&E Topock - GMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N034662

## *ANALYTICAL and QC RESULTS*
## *SAMPLE RECEIVING ITEMS*

*PRIVILEGED AND CONFIDENTIAL*

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## ASSET Laboratories Work Order: N034662


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April 02, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034662

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on March 18, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab Order:** N034662

# CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 300.0:

Dilution was necessary for all samples due to precipitation upon the addition of eluent.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes in QC samples N034662-001D-MS1 and N034662-001D-MSD1 possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes in QC samples N034661-001AMS and N034661-001AMSD possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Manganese in QC samples N034661-001AMS and N034661-001AMSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed and both passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

## ASSET Laboratories

**Date:** *02-Apr-19*

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab Order:** N034662
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034662-001A | MW-09-Q119 | Groundwater | 3/18/2019 12:40:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-001B | MW-09-Q119 | Groundwater | 3/18/2019 12:40:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-001C | MW-09-Q119 | Groundwater | 3/18/2019 12:40:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-001D | MW-09-Q119 | Groundwater | 3/18/2019 12:40:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-002A | MW-10-Q119 | Groundwater | 3/18/2019 1:38:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-002B | MW-10-Q119 | Groundwater | 3/18/2019 1:38:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-002C | MW-10-Q119 | Groundwater | 3/18/2019 1:38:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-002D | MW-10-Q119 | Groundwater | 3/18/2019 1:38:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-003A | MW-922-Q119 | Groundwater | 3/18/2019 1:48:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-003B | MW-922-Q119 | Groundwater | 3/18/2019 1:48:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-003C | MW-922-Q119 | Groundwater | 3/18/2019 1:48:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-003D | MW-922-Q119 | Groundwater | 3/18/2019 1:48:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-004A | MW-11-Q119 | Groundwater | 3/18/2019 2:26:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-004B | MW-11-Q119 | Groundwater | 3/18/2019 2:26:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-004C | MW-11-Q119 | Groundwater | 3/18/2019 2:26:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-004D | MW-11-Q119 | Groundwater | 3/18/2019 2:26:00 PM | 3/18/2019 | 4/2/2019 |
| N034662-005A | MW-780-Q119 | Groundwater | 3/18/2019 2:45:00 PM | 3/18/2019 | 4/2/2019 |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-001

**Client Sample ID:** MW-09-Q119
**Collection Date:** 3/18/2019 12:40:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190319A** | QC Batch: **R132593** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 2700 | 0.10 | 0.10 | | umhos/cm | 1 | 3/19/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-10-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 1:38:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190319A** | QC Batch: **R132593** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 2500 | 0.10 | 0.10 | | umhos/cm | 1 | 3/19/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-003

**Client Sample ID:** MW-922-Q119
**Collection Date:** 3/18/2019 1:48:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190319A** | QC Batch: **R132593** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 2600 | 0.10 | 0.10 | | umhos/cm | 1 | 3/19/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-004

**Client Sample ID:** MW-11-Q119
**Collection Date:** 3/18/2019 2:26:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190319A** | QC Batch: **R132593** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 2100 | 0.10 | 0.10 | | umhos/cm | 1 | 3/19/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID | **N034662-001BDUP** | SampType: | **DUP** | TestCode: | **120.1_WPGE** | Units: | **umhos/cm** | Prep Date: | | RunNo: | **132593** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: | **R132593** | TestNo: | **EPA 120.1** | | | Analysis Date: | **3/19/2019** | SeqNo: | **3321627** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 2710.000 | 0.10 | | | | | | 2690 | 0.741 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-09-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 12:40:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190319E** | QC Batch: **72983** | | | | PrepDate | **3/19/2019** | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 1800 | 20 | 20 | | mg/L | 1 | 3/19/2019 01:09 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-10-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 1:38:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190319E** | QC Batch: **72983** | | | PrepDate | **3/19/2019** | | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 1700 | 20 | 20 | | mg/L | 1 | 3/19/2019 01:09 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-922-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 1:48:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190319E** | QC Batch: **72983** | | | PrepDate | **3/19/2019** | | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 1700 | 20 | 20 | | mg/L | 1 | 3/19/2019 01:09 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-11-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 2:26:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_190319E** | QC Batch: **72983** | | | PrepDate | **3/19/2019** | | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 1400 | 17 | 17 | | mg/L | 1 | 3/19/2019 01:09 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.1_2540C_W**

| Sample ID | LCS-72983 | SampType: | LCS | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 3/19/2019 | RunNo: | 132627 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72983 | TestNo: | SM2540C | | | Analysis Date: | 3/19/2019 | SeqNo: | 3323293 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 979.000 | 10 | 1000 | 0 | 97.9 | 80 | 120 | | | | |

| Sample ID | MB-72983 | SampType: | MBLK | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 3/19/2019 | RunNo: | 132627 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72983 | TestNo: | SM2540C | | | Analysis Date: | 3/19/2019 | SeqNo: | 3323294 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | ND | 10 | | | | | | | | | |

| Sample ID | N034662-001BDUP | SampType: | DUP | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 3/19/2019 | RunNo: | 132627 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72983 | TestNo: | SM2540C | | | Analysis Date: | 3/19/2019 | SeqNo: | 3323296 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 1744.000 | 20 | | | | | | 1764 | 1.14 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-001

**Client Sample ID:** MW-09-Q119
**Collection Date:** 3/18/2019 12:40:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190319A** QC Batch: **R132596** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | 140 | 0.66 | 4.0 | | µg/L | 20 | 3/19/2019 10:12 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190328D** QC Batch: **73031** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | 130 | 0.13 | 1.0 | | µg/L | 1 | 3/28/2019 09:59 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-002

**Client Sample ID:** MW-10-Q119
**Collection Date:** 3/18/2019 1:38:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190319A** QC Batch: **R132596** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | 150 | 0.66 | 4.0 | | µg/L | 20 | 3/19/2019 12:22 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190328D** QC Batch: **73031** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | 140 | 0.13 | 1.0 | | µg/L | 1 | 3/28/2019 10:16 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-922-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 1:48:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190319A** | QC Batch: **R132596** | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | 150 | 0.66 | 4.0 | | µg/L | 20 | 3/19/2019 12:31 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190328D** | QC Batch: **73031** | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | 140 | 0.13 | 1.0 | | µg/L | 1 | 3/28/2019 10:34 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-004

**Client Sample ID:** MW-11-Q119
**Collection Date:** 3/18/2019 2:26:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190319A** QC Batch: **R132596** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | 42 | 0.33 | 2.0 | | µg/L | 10 | 3/19/2019 12:50 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190328D** QC Batch: **73031** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | 43 | 0.13 | 1.0 | | µg/L | 1 | 3/28/2019 11:04 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-780-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 2:45:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190319A** | QC Batch: **R132596** | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/19/2019 01:09 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **MB-R132596** | SampType: **MBLK** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/19/2019** | SeqNo: **3321665** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **LCS-R132596** | SampType: **LCS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/19/2019** | SeqNo: **3321666** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.223 | 0.20 | 5.000 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **N034660-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/19/2019** | SeqNo: **3321670** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.774 | 1.0 | 5.000 | 0 | 95.5 | 90 | 110 | | | | |

| Sample ID **N034662-001ADUP** | SampType: **DUP** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/19/2019** | SeqNo: **3321671** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 142.286 | 4.0 | | | | | | 141.2 | 0.755 | 20 | |

| Sample ID **N034660-001AMSD** | SampType: **MSD** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/19/2019** | SeqNo: **3321672** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.840 | 1.0 | 5.000 | 0 | 96.8 | 90 | 110 | 4.774 | 1.36 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **N034661-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132596**
Client ID: **ZZZZZZ** Batch ID: **R132596** TestNo: **EPA 218.6** Analysis Date: **3/19/2019** SeqNo: **3321859**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.096 | 0.20 | 1.000 | 0 | 110 | 90 | 110 | | | | |

Sample ID **N034662-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132596**
Client ID: **ZZZZZZ** Batch ID: **R132596** TestNo: **EPA 218.6** Analysis Date: **3/19/2019** SeqNo: **3321860**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 237.798 | 4.0 | 100.0 | 141.2 | 96.6 | 90 | 110 | | | | |

Sample ID **N034662-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132596**
Client ID: **ZZZZZZ** Batch ID: **R132596** TestNo: **EPA 218.6** Analysis Date: **3/19/2019** SeqNo: **3321861**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 255.260 | 4.0 | 100.0 | 154.1 | 101 | 90 | 110 | | | | |

Sample ID **N034662-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132596**
Client ID: **ZZZZZZ** Batch ID: **R132596** TestNo: **EPA 218.6** Analysis Date: **3/19/2019** SeqNo: **3321864**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 253.278 | 4.0 | 100.0 | 154.5 | 98.8 | 90 | 110 | | | | |

Sample ID **N034662-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132596**
Client ID: **ZZZZZZ** Batch ID: **R132596** TestNo: **EPA 218.6** Analysis Date: **3/19/2019** SeqNo: **3321866**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 92.585 | 2.0 | 50.00 | 42.42 | 100 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034662-005AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132596 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132596 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/19/2019 | SeqNo: | 3321870 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.039 | 0.20 | 1.000 | 0 | 104 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | MB-73031 | SampType: | MBLK | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132859 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73031 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333636 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-73031 | SampType: | LCS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132859 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73031 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333637 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.997 | 1.0 | 10.00 | 0 | 100 | 85 | 115 | | | | |

| Sample ID | N034661-001AMS | SampType: | MS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132859 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73031 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333642 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.151 | 1.0 | 10.00 | 0 | 91.5 | 75 | 125 | | | | |

| Sample ID | N034661-001AMSD | SampType: | MSD | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132859 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73031 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333643 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.265 | 1.0 | 10.00 | 0 | 92.6 | 75 | 125 | 9.151 | 1.23 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-09-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 12:40:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190319C** | QC Batch: **R132603** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 130 | 1.2 | 5.0 | | mg/L | 1 | 3/19/2019 01:30 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-10-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 1:38:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190319C** | QC Batch: **R132603** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 120 | 1.2 | 5.0 | | mg/L | 1 | 3/19/2019 01:30 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-922-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 1:48:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190319C** | QC Batch: **R132603** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 130 | 1.2 | 5.0 | | mg/L | 1 | 3/19/2019 01:30 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-11-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 2:26:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY, SPECIATED** | | | | | | | |
| | | | **SM 2320 B** | | | | |
| RunID: **NV00922-WC_190319C** | QC Batch: **R132603** | | | PrepDate | | | Analyst: **LR** |
| Alkalinity, Total (As CaCO3) | 96 | 1.2 | 5.0 | | mg/L | 1 | 3/19/2019 01:30 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 2320_W_SP**

| Sample ID **LCS-R132603** | SampType: **LCS** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | RunNo: **132603** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R132603** | TestNo: **SM 2320 B** | | Analysis Date: **3/19/2019** | SeqNo: **3321807** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 94.714 | 5.0 | 100.0 | 0 | 94.7 | 85 | 115 | | | | |

| Sample ID **MB-R132603** | SampType: **MBLK** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | RunNo: **132603** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R132603** | TestNo: **SM 2320 B** | | Analysis Date: **3/19/2019** | SeqNo: **3321808** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | ND | 5.0 | | | | | | | | | |

| Sample ID **N034662-001BDUP** | SampType: **DUP** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | RunNo: **132603** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132603** | TestNo: **SM 2320 B** | | Analysis Date: **3/19/2019** | SeqNo: **3321810** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 132.159 | 5.0 | | | | | | 132.2 | 0 | 30 | |

| Sample ID **N034662-001BMS** | SampType: **MS** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | RunNo: **132603** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132603** | TestNo: **SM 2320 B** | | Analysis Date: **3/19/2019** | SeqNo: **3321811** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 233.480 | 5.0 | 100.0 | 132.2 | 101 | 75 | 125 | | | | |

| Sample ID **N034662-001BMSD** | SampType: **MSD** | TestCode: **2320_W_SP** | Units: **mg/L** | Prep Date: | RunNo: **132603** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132603** | TestNo: **SM 2320 B** | | Analysis Date: **3/19/2019** | SeqNo: **3321812** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 230.176 | 5.0 | 100.0 | 132.2 | 98.0 | 75 | 125 | 233.5 | 1.43 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-001

**Client Sample ID:** MW-09-Q119
**Collection Date:** 3/18/2019 12:40:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190321A** QC Batch: **R132689** | | | | PrepDate | | | Analyst: **RAB** |
| Bromide | ND | 0.039 | 1.0 | | mg/L | 2 | 3/21/2019 05:07 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190322A** QC Batch: **R132731** | | | | PrepDate | | | Analyst: **RAB** |
| Chloride | 720 | 1.8 | 100 | | mg/L | 200 | 3/22/2019 10:09 AM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190322A** QC Batch: **R132731** | | | | PrepDate | | | Analyst: **RAB** |
| Sulfate | 240 | 0.46 | 10 | | mg/L | 20 | 3/22/2019 11:08 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-002

**Client Sample ID:** MW-10-Q119
**Collection Date:** 3/18/2019 1:38:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190321A** QC Batch: **R132689** | | | | PrepDate | | | Analyst: **RAB** |
| Bromide | ND | 0.039 | 1.0 | | mg/L | 2 | 3/21/2019 05:22 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190322A** QC Batch: **R132731** | | | | PrepDate | | | Analyst: **RAB** |
| Chloride | 660 | 1.8 | 100 | | mg/L | 200 | 3/22/2019 10:23 AM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190322A** QC Batch: **R132731** | | | | PrepDate | | | Analyst: **RAB** |
| Sulfate | 270 | 0.46 | 10 | | mg/L | 20 | 3/22/2019 11:23 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-003

**Client Sample ID:** MW-922-Q119
**Collection Date:** 3/18/2019 1:48:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190321A** QC Batch: **R132689** | | | | PrepDate | | | Analyst: **RAB** |
| Bromide | ND | 0.039 | 1.0 | | mg/L | 2 | 3/21/2019 05:36 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190322A** QC Batch: **R132731** | | | | PrepDate | | | Analyst: **RAB** |
| Chloride | 660 | 1.8 | 100 | | mg/L | 200 | 3/22/2019 10:38 AM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190322A** QC Batch: **R132731** | | | | PrepDate | | | Analyst: **RAB** |
| Sulfate | 270 | 0.46 | 10 | | mg/L | 20 | 3/22/2019 11:37 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-004

**Client Sample ID:** MW-11-Q119
**Collection Date:** 3/18/2019 2:26:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190321A** QC Batch: **R132689** | | | | PrepDate | | | Analyst: **RAB** |
| Bromide | ND | 0.039 | 1.0 | | mg/L | 2 | 3/21/2019 05:51 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190322A** QC Batch: **R132731** | | | | PrepDate | | | Analyst: **RAB** |
| Chloride | 540 | 1.8 | 100 | | mg/L | 200 | 3/22/2019 10:53 AM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_190322A** QC Batch: **R132731** | | | | PrepDate | | | Analyst: **RAB** |
| Sulfate | 180 | 0.46 | 10 | | mg/L | 20 | 3/22/2019 11:52 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_BRPGE**

| Sample ID | MB-R132689_BR | SampType: | MBLK | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132689 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132689 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3326193 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | ND | 0.50 | | | | | | | | | |

| Sample ID | LCS-R132689_BR | SampType: | LCS | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132689 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132689 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3326194 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 1.235 | 0.50 | 1.250 | 0 | 98.8 | 90 | 110 | | | | |

| Sample ID | N034689-006GMS | SampType: | MS | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132689 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132689 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3326213 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 6.762 | 2.5 | 6.250 | 0.5920 | 98.7 | 80 | 120 | | | | |

| Sample ID | N034689-006GMSD | SampType: | MSD | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132689 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132689 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3326214 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 6.748 | 2.5 | 6.250 | 0.5920 | 98.5 | 80 | 120 | 6.762 | 0.207 | 20 | |

| Sample ID | N034707-001BMS | SampType: | MS | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132689 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132689 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3326215 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 13.366 | 5.0 | 12.50 | 0.9840 | 99.1 | 80 | 120 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_BRPGE**

| Sample ID | N034707-003BDUP | SampType: | DUP | TestCode: | 300_W_BRP | Units: | mg/L | Prep Date: | | RunNo: | 132689 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132689 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3326216 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 0.671 | 2.5 | | | | | | 0.6675 | 0 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID | MB-R132731_CL | SampType: | MBLK | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327463 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.146 | 0.50 | | | | | | | | | |

| Sample ID | LCS-R132731_CL | SampType: | LCS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327464 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 2.036 | 0.50 | 2.000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID | N034689-002GMS | SampType: | MS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327485 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 548.370 | 50 | 200.0 | 352.9 | 97.7 | 80 | 120 | | | | |

| Sample ID | N034689-002GMSD | SampType: | MSD | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327486 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 551.650 | 50 | 200.0 | 352.9 | 99.4 | 80 | 120 | 548.4 | 0.596 | 20 | |

| Sample ID | N034662-001BMS | SampType: | MS | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327487 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1117.660 | 100 | 400.0 | 718.5 | 99.8 | 80 | 120 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID | N034689-004GDUP | SampType: | DUP | TestCode: | 300_W_CLP | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327488 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 254.670 | 25 | | | | | | 254.0 | 0.248 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID | MB-R132731_SO4 | SampType: | MBLK | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327495 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | ND | 0.50 | | | | | | | | | |

| Sample ID | LCS-R132731_SO4 | SampType: | LCS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327496 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.962 | 0.50 | 4.000 | 0 | 99.1 | 90 | 110 | | | | |

| Sample ID | N034662-001BMS | SampType: | MS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327517 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 324.354 | 10 | 80.00 | 241.4 | 104 | 80 | 120 | | | | |

| Sample ID | N034662-001BMSD | SampType: | MSD | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327518 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 324.096 | 10 | 80.00 | 241.4 | 103 | 80 | 120 | 324.4 | 0.0796 | 20 | |

| Sample ID | N034689-002GMS | SampType: | MS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327519 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 265.588 | 10 | 80.00 | 184.8 | 101 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID | N034662-003BDUP | SampType: | DUP | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 132731 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132731 | TestNo: | EPA 300.0 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3327520 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 273.108 | 10 | | | | | | 273.0 | 0.0264 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-001

**Client Sample ID:** MW-09-Q119
**Collection Date:** 3/18/2019 12:40:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190322E** | QC Batch: **R132714** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 12 | 0.63 | 1.0 | | mg/L | 20 | 3/22/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-002

**Client Sample ID:** MW-10-Q119
**Collection Date:** 3/18/2019 1:38:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190322E** | QC Batch: **R132714** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 12 | 0.63 | 1.0 | | mg/L | 20 | 3/22/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-922-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 1:48:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190322E** | QC Batch: **R132714** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 12 | 0.63 | 1.0 | | mg/L | 20 | 3/22/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-11-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 2:26:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190322E** | QC Batch: **R132714** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 5.6 | 0.32 | 0.50 | | mg/L | 10 | 3/22/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | MB-R132714 | SampType: | MBLK | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132714 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132714 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3326879 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID | LCS-R132714 | SampType: | LCS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132714 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132714 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3326880 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.566 | 0.050 | 0.5000 | 0 | 113 | 85 | 115 | | | | |

| Sample ID | N034662-003CDUP | SampType: | DUP | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132714 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132714 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3326884 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 11.798 | 1.0 | | | | | | 11.83 | 0.254 | 20 | |

| Sample ID | N034662-004CMS | SampType: | MS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132714 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132714 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3326886 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 10.329 | 0.50 | 5.000 | 5.624 | 94.1 | 75 | 125 | | | | |

| Sample ID | N034662-004CMSD | SampType: | MSD | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132714 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132714 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/22/2019 | SeqNo: | 3326887 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 10.666 | 0.50 | 5.000 | 5.624 | 101 | 75 | 125 | 10.33 | 3.21 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-001

**Client Sample ID:** MW-09-Q119
**Collection Date:** 3/18/2019 12:40:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190326D** | QC Batch: **73017** | | | PrepDate | **3/21/2019** | Analyst: **CEI** | |
| Boron | 790 | 74 | 100 | | ug/L | 1 | 3/26/2019 07:59 PM |
| Calcium | 120000 | 85 | 500 | | ug/L | 1 | 3/26/2019 07:59 PM |
| Iron | 43 | 18 | 20 | | ug/L | 1 | 3/26/2019 07:59 PM |
| Magnesium | 28000 | 48 | 100 | | ug/L | 1 | 3/26/2019 07:59 PM |
| Sodium | 470000 | 2400 | 12000 | | ug/L | 25 | 3/27/2019 03:18 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-002

**Client Sample ID:** MW-10-Q119
**Collection Date:** 3/18/2019 1:38:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190326D** | QC Batch: **73017** | | | PrepDate | **3/21/2019** | Analyst: **CEI** | |
| Boron | 950 | 74 | 100 | | ug/L | 1 | 3/26/2019 08:32 PM |
| Calcium | 130000 | 85 | 500 | | ug/L | 1 | 3/26/2019 08:32 PM |
| Iron | 110 | 18 | 20 | | ug/L | 1 | 3/26/2019 08:32 PM |
| Magnesium | 18000 | 48 | 100 | | ug/L | 1 | 3/26/2019 08:32 PM |
| Sodium | 460000 | 2400 | 12000 | | ug/L | 25 | 3/27/2019 03:48 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-003

**Client Sample ID:** MW-922-Q119
**Collection Date:** 3/18/2019 1:48:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190326D** | QC Batch: **73017** | | | PrepDate | **3/21/2019** | Analyst: **CEI** | |
| Boron | 960 | 74 | 100 | | ug/L | 1 | 3/26/2019 08:39 PM |
| Calcium | 130000 | 85 | 500 | | ug/L | 1 | 3/26/2019 08:39 PM |
| Iron | 64 | 18 | 20 | | ug/L | 1 | 3/26/2019 08:39 PM |
| Magnesium | 18000 | 48 | 100 | | ug/L | 1 | 3/26/2019 08:39 PM |
| Sodium | 480000 | 2400 | 12000 | | ug/L | 25 | 3/27/2019 04:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-004

**Client Sample ID:** MW-11-Q119
**Collection Date:** 3/18/2019 2:26:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190326D** | QC Batch: **73017** | | | PrepDate | **3/21/2019** | Analyst: **CEI** | |
| Boron | 470 | 74 | 100 | | ug/L | 1 | 3/26/2019 08:58 PM |
| Calcium | 140000 | 85 | 500 | | ug/L | 1 | 3/26/2019 08:58 PM |
| Iron | 62 | 18 | 20 | | ug/L | 1 | 3/26/2019 08:58 PM |
| Magnesium | 21000 | 48 | 100 | | ug/L | 1 | 3/26/2019 08:58 PM |
| Sodium | 290000 | 2400 | 12000 | | ug/L | 25 | 3/27/2019 04:08 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

Sample ID **LCS1-73017** SampType: **LCS** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **3/21/2019** RunNo: **132788**
Client ID: **LCSW** Batch ID: **73017** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **3/26/2019** SeqNo: **3329868**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 1003.806 | 100 | 1000 | 0 | 100 | 85 | 115 | | | | |
| Calcium | 4921.813 | 500 | 5000 | 0 | 98.4 | 85 | 115 | | | | |
| Iron | 103.051 | 20 | 100.0 | 0 | 103 | 85 | 115 | | | | |
| Magnesium | 5068.888 | 100 | 5000 | 0 | 101 | 85 | 115 | | | | |

Sample ID **MB-73017** SampType: **MBLK** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **3/21/2019** RunNo: **132788**
Client ID: **PBW** Batch ID: **73017** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **3/26/2019** SeqNo: **3329869**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | ND | 100 | | | | | | | | | |
| Calcium | ND | 500 | | | | | | | | | |
| Iron | ND | 20 | | | | | | | | | |
| Magnesium | ND | 100 | | | | | | | | | |

Sample ID **N034662-001D-MS1** SampType: **MS** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **3/21/2019** RunNo: **132788**
Client ID: **ZZZZZZ** Batch ID: **73017** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **3/26/2019** SeqNo: **3329873**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 2118.530 | 100 | 1000 | 788.5 | 133 | 75 | 125 | | | | S |
| Calcium | 128828.828 | 500 | 5000 | 123900 | 97.7 | 75 | 125 | | | | |
| Iron | 154.039 | 20 | 100.0 | 43.26 | 111 | 75 | 125 | | | | |
| Magnesium | 33565.943 | 100 | 5000 | 27780 | 116 | 75 | 125 | | | | |

Sample ID **N034662-001D-MSD** SampType: **MSD** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **3/21/2019** RunNo: **132788**
Client ID: **ZZZZZZ** Batch ID: **73017** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **3/26/2019** SeqNo: **3329874**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 2086.835 | 100 | 1000 | 788.5 | 130 | 75 | 125 | 2119 | 1.51 | 20 | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID | N034662-001D-MSD | SampType: | MSD | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132788 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73017 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/26/2019 | SeqNo: | 3329874 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 126597.138 | 500 | 5000 | 123900 | 53.1 | 75 | 125 | 128800 | 1.75 | 20 | S |
| Iron | 151.163 | 20 | 100.0 | 43.26 | 108 | 75 | 125 | 154.0 | 1.88 | 20 | |
| Magnesium | 31919.903 | 100 | 5000 | 27780 | 82.8 | 75 | 125 | 33570 | 5.03 | 20 | |

| Sample ID | MB-73017 | SampType: | MBLK | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132794 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73017 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/27/2019 | SeqNo: | 3330280 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | ND | 500 | | | | | | | | | |

| Sample ID | LCS2-73017 | SampType: | LCS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132794 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73017 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/27/2019 | SeqNo: | 3330281 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 19599.655 | 500 | 20000 | 0 | 98.0 | 85 | 115 | | | | |

| Sample ID | N034662-002D-MS2 | SampType: | MS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132794 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73017 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/27/2019 | SeqNo: | 3330309 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 486284.030 | 12000 | 20000 | 463300 | 115 | 75 | 125 | | | | |

| Sample ID | N034662-002D-MSD | SampType: | MSD | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132794 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73017 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/27/2019 | SeqNo: | 3330310 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 488152.071 | 12000 | 20000 | 463300 | 124 | 75 | 125 | 486300 | 0.383 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID | **N034662-001D-PS** | SampType: **PS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132788** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **73017** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/26/2019** | SeqNo: **3329872** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 2109.447 | 100 | 1000 | 788.5 | 132 | 80 | 120 | | | | S |
| Calcium | 128437.115 | 500 | 5000 | 123900 | 89.9 | 80 | 120 | | | | |
| Iron | 171.900 | 20 | 100.0 | 43.26 | 129 | 80 | 120 | | | | S |
| Magnesium | 33562.081 | 100 | 5000 | 27780 | 116 | 80 | 120 | | | | |

| Sample ID | **N034662-002D-PS** | SampType: **PS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132794** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **73017** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/27/2019** | SeqNo: **3330308** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 491764.582 | 12000 | 20000 | 463300 | 142 | 80 | 120 | | | | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-001

**Client Sample ID:** MW-09-Q119
**Collection Date:** 3/18/2019 12:40:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190331B** | QC Batch: **73031** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 1.8 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 01:32 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 01:32 AM |
| Molybdenum | 3.6 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 01:32 AM |
| Selenium | 5.7 | 0.36 | 0.50 | | µg/L | 1 | 4/1/2019 01:32 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-002

**Client Sample ID:** MW-10-Q119
**Collection Date:** 3/18/2019 1:38:00 PM
**Matrix:** GROUNDWATER

## DISSOLVED METALS BY ICP-MS

**EPA 3010A** **EPA 6020**

RunID: **NV00922-ICP7_190331B** QC Batch: **73031** PrepDate **3/22/2019** Analyst: **CEI**

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.16 | 0.50 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Arsenic | 2.4 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Barium | 47 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Beryllium | ND | 0.042 | 0.50 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Cadmium | ND | 0.053 | 0.50 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Cobalt | ND | 0.042 | 0.50 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Copper | ND | 0.55 | 1.0 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Lead | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Manganese | 5.1 | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Molybdenum | 19 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Nickel | 2.7 | 0.26 | 1.0 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Selenium | 7.2 | 0.36 | 0.50 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Silver | ND | 0.23 | 0.50 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Thallium | ND | 0.19 | 0.50 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Vanadium | 17 | 0.28 | 1.0 | | µg/L | 1 | 4/1/2019 01:44 AM |
| Zinc | ND | 2.3 | 10 | | µg/L | 1 | 4/1/2019 01:44 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-003

**Client Sample ID:** MW-922-Q119
**Collection Date:** 3/18/2019 1:48:00 PM
**Matrix:** GROUNDWATER

## DISSOLVED METALS BY ICP-MS

**EPA 3010A** **EPA 6020**

RunID: **NV00922-ICP7_190331B** QC Batch: **73031** PrepDate **3/22/2019** Analyst: **CEI**

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.16 | 0.50 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Arsenic | 2.5 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Barium | 48 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Beryllium | ND | 0.042 | 0.50 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Cadmium | ND | 0.053 | 0.50 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Cobalt | ND | 0.042 | 0.50 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Copper | ND | 0.55 | 1.0 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Lead | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Manganese | 4.4 | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Molybdenum | 20 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Nickel | 2.9 | 0.26 | 1.0 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Selenium | 6.7 | 0.36 | 0.50 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Silver | ND | 0.23 | 0.50 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Thallium | ND | 0.19 | 0.50 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Vanadium | 17 | 0.28 | 1.0 | | µg/L | 1 | 4/1/2019 01:56 AM |
| Zinc | ND | 2.3 | 10 | | µg/L | 1 | 4/1/2019 01:56 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D
**Lab ID:** N034662-004

**Client Sample ID:** MW-11-Q119
**Collection Date:** 3/18/2019 2:26:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190331B** | QC Batch: **73031** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 1.5 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 02:07 AM |
| Manganese | 0.68 | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 05:07 PM |
| Molybdenum | 5.8 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 02:07 AM |
| Selenium | 5.5 | 0.36 | 0.50 | | µg/L | 1 | 4/1/2019 02:07 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **MB-73031** | SampType: **MBLK** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **73031** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3333752** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

| Sample ID **LCS-73031** | SampType: **LCS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **73031** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3333753** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 9.996 | 0.50 | 10.00 | 0 | 100 | 85 | 115 | | | | |
| Arsenic | 9.655 | 0.10 | 10.00 | 0 | 96.6 | 85 | 115 | | | | |
| Barium | 9.949 | 1.0 | 10.00 | 0 | 99.5 | 85 | 115 | | | | |
| Beryllium | 9.539 | 0.50 | 10.00 | 0 | 95.4 | 85 | 115 | | | | |
| Cadmium | 10.135 | 0.50 | 10.00 | 0 | 101 | 85 | 115 | | | | |
| Cobalt | 9.733 | 0.50 | 10.00 | 0 | 97.3 | 85 | 115 | | | | |
| Copper | 9.262 | 1.0 | 10.00 | 0 | 92.6 | 85 | 115 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | LCS-73031 | SampType: | LCS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132861 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73031 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333753 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead | 9.565 | 1.0 | 10.00 | 0 | 95.7 | 85 | 115 | | | | |
| Manganese | 104.749 | 0.50 | 100.0 | 0 | 105 | 85 | 115 | | | | |
| Molybdenum | 9.067 | 0.50 | 10.00 | 0 | 90.7 | 85 | 115 | | | | |
| Nickel | 10.019 | 1.0 | 10.00 | 0 | 100 | 85 | 115 | | | | |
| Selenium | 9.774 | 0.50 | 10.00 | 0 | 97.7 | 85 | 115 | | | | |
| Silver | 10.185 | 0.50 | 10.00 | 0 | 102 | 85 | 115 | | | | |
| Thallium | 9.443 | 0.50 | 10.00 | 0 | 94.4 | 85 | 115 | | | | |
| Vanadium | 9.876 | 1.0 | 10.00 | 0 | 98.8 | 85 | 115 | | | | |
| Zinc | 9.673 | 10 | 10.00 | 0 | 96.7 | 85 | 115 | | | | |

| Sample ID | N034661-001AMS | SampType: | MS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132861 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73031 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333758 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 10.365 | 0.50 | 10.00 | 0.2248 | 101 | 75 | 125 | | | | |
| Arsenic | 11.311 | 0.10 | 10.00 | 0.9391 | 104 | 75 | 125 | | | | |
| Barium | 77.528 | 1.0 | 10.00 | 68.17 | 93.6 | 75 | 125 | | | | |
| Beryllium | 12.225 | 0.50 | 10.00 | 0 | 122 | 75 | 125 | | | | |
| Cadmium | 9.494 | 0.50 | 10.00 | 0 | 94.9 | 75 | 125 | | | | |
| Cobalt | 9.072 | 0.50 | 10.00 | 0.5536 | 85.2 | 75 | 125 | | | | |
| Copper | 3.971 | 1.0 | 10.00 | 0 | 39.7 | 75 | 125 | | | | S |
| Lead | 9.610 | 1.0 | 10.00 | 0 | 96.1 | 75 | 125 | | | | |
| Molybdenum | 32.269 | 0.50 | 10.00 | 19.51 | 128 | 75 | 125 | | | | S |
| Nickel | 10.797 | 1.0 | 10.00 | 1.342 | 94.6 | 75 | 125 | | | | |
| Selenium | 34.585 | 0.50 | 10.00 | 25.11 | 94.7 | 75 | 125 | | | | |
| Silver | 8.916 | 0.50 | 10.00 | 0 | 89.2 | 75 | 125 | | | | |
| Thallium | 8.716 | 0.50 | 10.00 | 0.3494 | 83.7 | 75 | 125 | | | | |
| Vanadium | 9.364 | 1.0 | 10.00 | 0 | 93.6 | 75 | 125 | | | | |
| Zinc | 8.243 | 10 | 10.00 | 0 | 82.4 | 75 | 125 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | N034661-001AMSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132861 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73031 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333759 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 10.325 | 0.50 | 10.00 | 0.2248 | 101 | 75 | 125 | 10.36 | 0.381 | 20 | |
| Arsenic | 11.224 | 0.10 | 10.00 | 0.9391 | 103 | 75 | 125 | 11.31 | 0.777 | 20 | |
| Barium | 78.710 | 1.0 | 10.00 | 68.17 | 105 | 75 | 125 | 77.53 | 1.51 | 20 | |
| Beryllium | 11.997 | 0.50 | 10.00 | 0 | 120 | 75 | 125 | 12.23 | 1.88 | 20 | |
| Cadmium | 9.554 | 0.50 | 10.00 | 0 | 95.5 | 75 | 125 | 9.494 | 0.628 | 20 | |
| Cobalt | 9.228 | 0.50 | 10.00 | 0.5536 | 86.7 | 75 | 125 | 9.072 | 1.71 | 20 | |
| Copper | 3.883 | 1.0 | 10.00 | 0 | 38.8 | 75 | 125 | 3.971 | 2.23 | 20 | S |
| Lead | 9.696 | 1.0 | 10.00 | 0 | 97.0 | 75 | 125 | 9.610 | 0.890 | 20 | |
| Molybdenum | 31.589 | 0.50 | 10.00 | 19.51 | 121 | 75 | 125 | 32.27 | 2.13 | 20 | |
| Nickel | 10.860 | 1.0 | 10.00 | 1.342 | 95.2 | 75 | 125 | 10.80 | 0.576 | 20 | |
| Selenium | 34.361 | 0.50 | 10.00 | 25.11 | 92.5 | 75 | 125 | 34.59 | 0.650 | 20 | |
| Silver | 8.864 | 0.50 | 10.00 | 0 | 88.6 | 75 | 125 | 8.916 | 0.579 | 20 | |
| Thallium | 8.782 | 0.50 | 10.00 | 0.3494 | 84.3 | 75 | 125 | 8.716 | 0.760 | 20 | |
| Vanadium | 9.538 | 1.0 | 10.00 | 0 | 95.4 | 75 | 125 | 9.364 | 1.84 | 20 | |
| Zinc | 8.111 | 10 | 10.00 | 0 | 81.1 | 75 | 125 | 8.243 | 0 | 20 | |

| Sample ID | N034661-001AMS | SampType: | MS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132861 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73031 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333781 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 886.533 | 2.5 | 100.0 | 741.7 | 145 | 75 | 125 | | | | S |

| Sample ID | N034661-001AMSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132861 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73031 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333782 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 876.254 | 2.5 | 100.0 | 741.7 | 135 | 75 | 125 | 886.5 | 1.17 | 20 | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **N034661-001A-PS** | SampType: **PS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73031** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3333760** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 10.371 | 0.50 | 10.00 | 0.2248 | 101 | 80 | 120 | | | | |
| Arsenic | 11.235 | 0.10 | 10.00 | 0.9391 | 103 | 80 | 120 | | | | |
| Barium | 76.292 | 1.0 | 10.00 | 68.17 | 81.3 | 80 | 120 | | | | |
| Beryllium | 12.236 | 0.50 | 10.00 | 0 | 122 | 80 | 120 | | | | S |
| Cadmium | 9.574 | 0.50 | 10.00 | 0 | 95.7 | 80 | 120 | | | | |
| Cobalt | 9.248 | 0.50 | 10.00 | 0.5536 | 86.9 | 80 | 120 | | | | |
| Copper | 4.046 | 1.0 | 10.00 | 0 | 40.5 | 80 | 120 | | | | S |
| Lead | 9.714 | 1.0 | 10.00 | 0 | 97.1 | 80 | 120 | | | | |
| Molybdenum | 31.098 | 0.50 | 10.00 | 19.51 | 116 | 80 | 120 | | | | |
| Nickel | 11.126 | 1.0 | 10.00 | 1.342 | 97.8 | 80 | 120 | | | | |
| Selenium | 32.328 | 0.50 | 10.00 | 25.11 | 72.2 | 80 | 120 | | | | S |
| Silver | 8.831 | 0.50 | 10.00 | 0 | 88.3 | 80 | 120 | | | | |
| Thallium | 8.842 | 0.50 | 10.00 | 0.3494 | 84.9 | 80 | 120 | | | | |
| Vanadium | 9.573 | 1.0 | 10.00 | 0 | 95.7 | 80 | 120 | | | | |
| Zinc | 8.483 | 10 | 10.00 | 0 | 84.8 | 80 | 120 | | | | |

| Sample ID **N034661-001A-PS** | SampType: **PS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73031** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3333780** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 844.464 | 2.5 | 100.0 | 741.7 | 103 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**ASSET Laboratories**

# ANALYTICAL RESULTS

**Print Date:** *02-Apr-19*

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-10-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 1:38:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE** | | | | | | | |
| | | | **EPA 7470A** | | | | |
| RunID: **NV00922-AA1_190320D** | QC Batch: **72995** | | | PrepDate | **3/20/2019** | | Analyst: **MG** |
| Mercury | ND | 0.13 | 0.20 | | µg/L | 1 | 3/20/2019 04:09 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-922-Q119 |
| **Lab Order:** | N034662 | **Collection Date:** | 3/18/2019 1:48:00 PM |
| **Project:** | PG&E Topock - GMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034662-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE** | | | | | | | |
| | | | **EPA 7470A** | | | | |
| RunID: **NV00922-AA1_190320D** | QC Batch: **72995** | | | PrepDate | **3/20/2019** | | Analyst: **MG** |
| Mercury | ND | 0.13 | 0.20 | | µg/L | 1 | 3/20/2019 04:11 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 7470_W_DISSPGE**

| Sample ID | MB-72995 | SampType: | MBLK | TestCode: | 7470_W_DIS | Units: | µg/L | Prep Date: | 3/20/2019 | RunNo: | 132653 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 72995 | TestNo: | EPA 7470A | | | Analysis Date: | 3/20/2019 | SeqNo: | 3324468 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | 0.20 | | | | | | | | | |

| Sample ID | LCS-72995 | SampType: | LCS | TestCode: | 7470_W_DIS | Units: | µg/L | Prep Date: | 3/20/2019 | RunNo: | 132653 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 72995 | TestNo: | EPA 7470A | | | Analysis Date: | 3/20/2019 | SeqNo: | 3324469 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 4.339 | 0.20 | 5.000 | 0 | 86.8 | 85 | 115 | | | | |

| Sample ID | N034689-002F-MS | SampType: | MS | TestCode: | 7470_W_DIS | Units: | µg/L | Prep Date: | 3/20/2019 | RunNo: | 132653 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72995 | TestNo: | EPA 7470A | | | Analysis Date: | 3/20/2019 | SeqNo: | 3324470 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 4.823 | 0.20 | 5.000 | 0 | 96.5 | 75 | 125 | | | | |

| Sample ID | N034689-002F-MSD | SampType: | MSD | TestCode: | 7470_W_DIS | Units: | µg/L | Prep Date: | 3/20/2019 | RunNo: | 132653 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 72995 | TestNo: | EPA 7470A | | | Analysis Date: | 3/20/2019 | SeqNo: | 3324471 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 4.521 | 0.20 | 5.000 | 0 | 90.4 | 75 | 125 | 4.823 | 6.47 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement: Others ✓ |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | Specify: RWQCB |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: | Global ID: |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@pivox.com | P.O.# SWA-ASSET-C9817-051 |
| Submitted By: Jason Mahn | Phone: 916-786-3302 Fax: | Phone: 949-727-1400, ext 200 | Fax: |
| Title: Project Manager | | | |

QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:

Sample Receipt Condition (Y / N):
1. Chilled
2. Headspace
3. Container Intact
4. Seal Present
5. IR number 2
6. Method of Cooling: ICE
Sample Temp: 2.0°C

Signature: Date: 3/18/19
*I hereby authorize ASSET Labs to perform the tests indicated below.*

Sampled By: Nara Tep
*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally misleading the sample location, date or time of collection is considered fraud and may be grounds for*
Signature: Date: 3/18/19

Project Name: PG&E Topock - GMP
Project Number: RC000753.801D

Courier:
Tracking No.:

**Matrix**: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly) | Oxygen and Deuterium Isotopes (CFIRM), Ice (250 mL poly) | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly) | Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly) | Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly) | Fluoride (EPA 300.0) (1 liter poly) | Specific Conductance (EPA 120.1) (1 liter poly) | Total Dissolved Solids (SM92540) (1 liter poly) | Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly) | Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly) | Dissolved metals (SW 6020), HNO3 As, Cr, Mg, Mn, Mo, Se (500 mL poly) | Dissolved Metals (SW 6010B); HNO3 B, Ca, Fe, Na (500 mL poly) | Dissolved metals (SW 6020), HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn (500 mL poly) | Dissolved Metals (SW 6010B); HNO3 B, Ca, Cu, Fe, Na, Ni, (500 mL poly) | Metals Dissolved (EPA7470A FF) Hg; HNO3 (500 mL poly) | Dissolved Metals (SW 6010B); HNO3 Potassium (500 mL poly) | Total metals, Chromium (Cr+6+3) (EPA 200.8), HNO3 (500 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034662-01 | MW-09-Q119 | 3/18/2019 | 12:40 | | X | | | X | X | | X | X | X | | X | X | | | | | | E | 4 | PV | BNS | |
| 2 | -02 | MW-10-Q119 | 3/18/2019 | 13:38 | | X | | | X | X | | X | X | X | | | | X | X | X | | | E | 4 | PV | BNS | |
| 3 | -03 | MW-922-Q119 | 3/18/2019 | 13:48 | | X | | | X | X | | X | X | X | | | | X | X | X | | | E | 4 | PV | BNS | |
| 4 | -04 | MW-11-Q119 | 3/18/2019 | 14:26 | | X | | | X | X | | X | X | X | | X | X | | | | | | E | 4 | PV | BNS | |
| 5 | -05 | MW-780-Q119 | 3/18/2019 | 14:45 | | X | | | | | | | | | | | | | | | | | E | 1 | PV | BNS | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Relinquished by (Signature and Printed Name) | Date/Time | Received by (Signature and Printed Name) | Date/Time |
|---|---|---|---|
| Nara Tep | 3/18/19 1515 | SEAN MCGRANE SAFC | 3/18/19 1515 |
| SEAN MCGRANE ICON | 3/18/19 | LAN NGUYEN ASSET | 3/18/19 1603 |
| LAN NGUYEN ASSET | 3/18/19 1905 | LAN NGUYEN ASSET | 3/18/19 1905 |

**Turn Around Time (TAT)**

| | | |
|---|---|---|
| | A | < 24 Hrs or Same Day TAT |
| | B | = Next Workday |
| | C | = 2 Workdays |
| | D | = 3 Workdays |
| X | E | = Routine 5-7 Workdays |

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

**Terms**
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next-Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable samples.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

**Preservatives:**

| | | | | |
|---|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C | |
| Z=Zn(AC)$_2$ | O=NaOH | T=$Na_2S_2O_3$ | | |
| Others/Specify: | B | (NH4)2SO4/NH4OH | | |

**Container Type:**

| | | |
|---|---|---|
| T=Tube | V=VOA | P=Pint |
| J=Jar | B=Tedlar | G=Glass |
| M=Metal | M=Metal | C=Can |

White=Laboratory Copy
Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 3/18/2019 | Workorder: | N034662 |
| Rep sample Temp (Deg C): | 2.0 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | NA | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☑ | No ☐ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☐ | No ☐ | NA ☑ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments:

Checklist Completed By: For: RM 3/19/2019

Reviewed By: LG 032019

**Subject:** RE: Method for Cu and Ni
**From:** "Madsen, Laura" <Laura.Madsen@arcadis.com>
**Date:** 12/12/2018 1:22 PM
**To:** "marlon@assetlaboratories.com" <marlon@assetlaboratories.com>
**CC:** 'Yoandra Rodriguez' <yoandra@assetlaboratories.com>

6020 is acceptable.

-----Original Message-----
From: Marlon B. Cartin <marlon@assetlaboratories.com>
Sent: Wednesday, December 12, 2018 2:53 PM
To: Madsen, Laura <Laura.Madsen@arcadis.com>
Cc: 'Yoandra Rodriguez' <yoandra@assetlaboratories.com>
Subject: FW: Method for Cu and Ni
Importance: High

Hi Laura,

Please see below question regarding method for Cu and Ni.

Thanks,

Marlon B. Cartin
Project Manager
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 Ext. 410 I F: 702.307.2691 I M: 702.439.0421

-----Original Message-----
From: Yoandra Rodriguez [mailto:yoandra@assetlaboratories.com]
Sent: Wednesday, December 12, 2018 11:52 AM
To: 'Marlon B. Cartin'
Cc: nancy@assetlaboratories.com; maryann.balilu@assetlaboratoriesph.com; 'Sonny. Lorenzo'; 'Andreafe. Gallardo'
Subject: Method for Cu and Ni
Importance: High

Hi Marlon,

Please kindly confirm which method to use for Cu and Ni for the attached COCs from Arcadis.

6020 has been used per history, but the request on the COCs is 6010.

Please also advise how to proceed moving forward.

Thanks!

--
Yoandra Rodriguez
Sample Control Officer
Asset Laboratories

---
This email has been checked for viruses by Avast antivirus software.
https://www.avast.com/antivirus
This email and any files transmitted with it are the property of Arcadis and its affiliates. All rights, including without limitation copyright, are reserved. This email contains information that may be confidential and may also be privileged. It is for the exclusive use of the intended recipient(s). If you are not an intended recipient, please

# ASSET Laboratories

## WORK ORDER Summary

*19-Mar-19*

**WorkOrder:** N034662

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/18/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034662-001A | MW-09-Q119 | 3/18/2019 12:40:00 PM | 4/1/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034662-001B | | | 4/1/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | WW |
| N034662-001C | | | 4/1/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034662-001D | | | 4/1/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034662-002A | MW-10-Q119 | 3/18/2019 1:38:00 PM | 4/1/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034662-002B | | | 4/1/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |

## WORK ORDER Summary

*19-Mar-19*

**WorkOrder:** N034662

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/18/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034662-002B | MW-10-Q119 | 3/18/2019 1:38:00 PM | 4/1/2019 | Groundwater | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | WW |
| N034662-002C | | | 4/1/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034662-002D | | | 4/1/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | | DISSOLVED MERCURY PREP | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 7470A | DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE | ☐ | ☐ | ☐ | WW |
| N034662-003A | MW-922-Q119 | 3/18/2019 1:48:00 PM | 4/1/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034662-003B | | | 4/1/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | WW |
| N034662-003C | | | 4/1/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034662-003D | | | 4/1/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

## WORK ORDER Summary

*19-Mar-19*

**WorkOrder:** N034662

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/18/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034662-003D | MW-922-Q119 | 3/18/2019 1:48:00 PM | 4/1/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | | DISSOLVED MERCURY PREP | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 7470A | DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE | ☐ | ☐ | ☐ | WW |
| N034662-004A | MW-11-Q119 | 3/18/2019 2:26:00 PM | 4/1/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034662-004B | | | 4/1/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM 2320 B | ALKALINITY, SPECIATED | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | SM 1030F1 | Cation-Anion Balance Calculation | ☐ | ☐ | ☐ | WW |
| N034662-004C | | | 4/1/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034662-004D | | | 4/1/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/1/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |

## ASSET Laboratories

## WORK ORDER Summary

*19-Mar-19*

**WorkOrder:** N034662

**Client ID:** ARCUS02

**Project:** PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/18/2019

**Comments:** Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034662-005A | MW-780-Q119 | 3/18/2019 2:45:00 PM | 4/1/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034662-006A | FOLDER | 4/1/2019 | 4/1/2019 | | EDD | Client specific project | ☐ | ☐ | ☐ | LAB |
| | | | 4/1/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 4/1/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# List of Analysts

## ASSET Laboratories Work Order: N034662

| NAME | TEST METHOD |
|---|---|
| Quennie Manimtim | SM 4500-NO3F |
| Claire Ignacio | EPA 6010B_Dissolved, EPA 6020_Dissolved |
| Ria Abes | EPA 218.6, EPA 300.0 |
| Lilia Ramit | EPA 120.1, SM 2540C, SM 2320 B |
| Mark Gesmundo | EPA 7470A_Dissolved |

# EPA 120.1

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R132593 **Analyst:** LSR

**ASSET #:** N034662 **Date Analyzed:** 19-Mar

**Method:** EPA 120.1

| Initial Calibration | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | | | X | | | |
| 11. LCS compounds within control limits. | | | X | | | |
| 12. MS/MSD RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer Julia Ramit Date: 3/26/2019

2nd Level Reviewer Mary 4/1/2019 Date: —

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

# Conductivity Logbook

**Date:** 3/19/19 1005
**Analyst:** LSR

| Standard | Std ID | Reading | Comments |
|---|---|---|---|
| 11.26 us/cm | CNV-181011A | 11.35 @18.9°C | % Rec: (90-110%) |
| 1410 | 190107D | 1415 @19.0°C | |
| 9988 | 180731I | 10070 @18.9°C | |
| 99661 | 181218 | 100850 @18.8°C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | NB34662-001B | H2O | 2690 @17.9°C | |
| 2 | MBDUP | | 2710 @17.5°C | |
| 3 | 2B | | 2530 @17.4°C | |
| 4 | 3B | | 2550 @17.7°C | |
| 5 | 4B | | 2410 @17.7°C | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | 1413 us/cm | CNV-181022A | 1445 @18.8°C | |
| 10 | 10000 | B | 9870 @18.9°C | |
| Dup | 99922 | CNV-190111H | 96100 @18.9°C | RPD Criteria: 2% |
| | Std Chk: | | | % Rec: (90-110%) |

**Date:** 3/20/19 1045
**Analyst:** LSR

Julia Ramit 3/26/2019

| Standard | Std ID | Reading | Comments |
|---|---|---|---|
| 11.26 us/cm | CNV-181011A | 11.50 @19.6°C | % Rec: (90-110%) |
| 1410 | 190107D | 1405 @19.4°C | |
| 9965 | 190218B | 9940 @19.4°C | |
| 99661 | 181218 | 103400 @19.2°C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | NB34688-1D | H2O | 815 @18.4°C | |
| 2 | 1DDUP | | 809 @18.1°C | STD CHECK |
| 3 | 2D | | 821 @17.6°C | 1413 CNV181022A |
| 4 | 3D | | 893 @17.9°C | = 1434 @18.4°C |
| 5 | 4D | | 814 @17.6°C | 10000 CNV181022B |
| 6 | 5D | | 817 @17.4°C | = 9890 @19.0°C |
| 7 | 6D | | 819 @17.4°C | 99922 CNV190111H |
| 8 | 7D | | 819 @17.6°C | = 97700 @19.1°C |
| 9 | 8D | | 820 @17.8°C | |
| 10 | 9D | | 813 @17.4°C | |
| Dup | 10D | | 826 @17.5°C | RPD Criteria: 2% |
| | Std Chk: | | | % Rec: (90-110%) |

Logbook # 7

# SM 2540C

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72983 **Analyst:** LSR

**ASSET #:** N034662 **Date Analyzed:** 19-Mar

**Method:** EPA 160.1 / SM 2540C

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | | | |
| 11. LCS compounds within control limits. | X | | | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 3/21/2019

2nd Level Reviewer: 4/1/2019 Date:

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** SM 2540C
**TEST NAME:** Total Filterable Residue
**MATRIX:** Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N034662-001B,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(46.1173-46.0291)*1000000}{50}$$

= 1764 mg/L

Reporting result in two significant figures,

TDS= 1800 mg/L

Silvia Ramit 3/21/2019

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/19/2019 1:09:33 P**
Prep End Date: **3/20/2019 11:15:00**
Reviewed/ Date: 4/1/2019
Initials/ Date: Lilia Ramit 3/21/2019
Prep Batch **72983** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**
Prep Factor Units: **mL / mL** Temp. (°C): **180**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72983 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-72983 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034662-001B | Groundwater | | 50 | ☐ | 0 | 0 | 100 | 2.000 | | |
| N034662-001B-DU | Groundwater | | 50 | ☐ | 0 | 0 | 100 | 2.000 | | |
| N034662-002B | Groundwater | | 50 | ☐ | 0 | 0 | 100 | 2.000 | | |
| N034662-003B | Groundwater | | 50 | ☐ | 0 | 0 | 100 | 2.000 | | |
| N034662-004B | Groundwater | | 60 | ☐ | 0 | 0 | 100 | 1.667 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10404 | Glass Fiber Filter, 47mm |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| IWST190219A | 1000 ppm NaCl | LCS | 100 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/19/2019 1:09:33 P**
Prep End Date:

Reviewed/ Date: Julia Ramit
Initials/ Date: 3/21/2019

Prep Batch **72983** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units
mL / mL

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72983 | Water | 1WST19 0219A | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-72983 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034662-001B | Groundwater | 2690 | 100 / ~~2690~~ 50 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034662-001B-DU | Groundwater | ↓ | 100 / 50 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034662-002B | Groundwater | 2520 | 100 / 50 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034662-003B | Groundwater | 2550 | 100 / 50 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034662-004B | Groundwater | 2110 | 100 / 60 | ☐ | 0 | 0 | 100 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10404

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

## SOLIDS RAW DATA

TEST :TSS/ TDS/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 3/19/19 130g AQ | MB 72983 | 100 | 68.2804 68.2807 | 68.2804 68.2809 | |
| LA | LCS 172983 | 100 | 76.4439 76.4442 | 76.5418 76.5421 | |
| T | NO34662-1B | 90 | 46.0287 46.0291 | 46.1170 46.1173 | |
| V | 1B DUP | 50 | 48.8703 48.8706 | 48.9575 48.9578 | |
| IB | 2B | 50 | 60.5882 60.5881 | 60.6730 60.6735 | 1 |
| IE | 3B | 50 | 60.7520 60.7519 | 60.8378 60.8380 | |
| IG | 4B | 60 | 60.9509 60.9512 | 61.0376 61.0373 | |
| | | | | | |
| | Julia Paint | | 3/21/2019 | | |
| | 49.9995 | 2 | 1115 3/20/19 | LR | |



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ELAP Cert 2921 EPA ID CA01638
NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV0922
ORELAP/NELAP Cert 4045

# TOTAL DISSOLVED SOLIDS, TDS

## TDS, mg/L = (A-B) X 10000*PF

where:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
PF = 100/volume of sample used in mL

| Date Finished: | vol of sample (mL) | weight of dish in grams (B) | weight in grams of dish + residue after drying (A) | (A-B)*10000 | prep fact (PF) | TDS, mg/L | CONDUCTIVITY | RATIO | Sample Type |
|---|---|---|---|---|---|---|---|---|---|
| 3/20/2019 | | | | | | | | | |
| MB-72983 | 100 | 68.2807 | 68.2809 | 2 | 1 | 2 | | | MBLK |
| LCS-72983 | 100 | 76.4442 | 76.5421 | 979 | 1 | 979 | | | LCS |
| N034662-001B | 50 | 46.0291 | 46.1173 | 882 | 2 | 1764 | 2690 | 0.656 | SAMP |
| N034662-001BDUP | 50 | 48.8706 | 48.9578 | 872 | 2 | 1744 | 2690 | 0.648 | DUP |
| N034662-002B | 50 | 60.5881 | 60.6735 | 854 | 2 | 1708 | 2520 | 0.678 | SAMP |
| N034662-003B | 50 | 60.7519 | 60.838 | 861 | 2 | 1722 | 2550 | 0.675 | SAMP |
| N034662-004B | 60 | 60.9512 | 61.0373 | 861 | 1.66666667 | 1435 | 2110 | 0.680 | SAMP |

Julia Ramit 3/21/2019

# EPA 218.6

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R132596
**ASSET #:** N034662

**Instrument ID:** IC-07
**Analyst:** RBA
**Date Analyzed:** 3/19/2019

**Method:**

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | | | |
| 3. ICV within ± 10% of expected value. | X | | | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | X | | | | | |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | X | | | | | |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | X | | | | | |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | X | | | | | |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | ~~X~~ | | X | | | |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | X | | | | | |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | X | | | | | |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | | | |
| 21. Are all samples analyzed within hold time? | X | | | | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | | | |
| 24. LCS compounds are within control limits. | X | | | | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | |
| 29. All manual integrations initialed, date and reasons included. | X | | | | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | | | |
| 31. All samples and QC raw data present in package. | X | | | | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | | | |
| 34 Is the QC summary report present and complete? | X | | | | | |

Comments:

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer rba Date: 3/22/2019

2nd Level Reviewer 3/28/2019 Date: _____

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 218.6
**TEST NAME:** HEXAVALENT CHROMIUM BY IC
**MATRIX:** Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N034662-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 7.0608 * 20$$

$$Cr^{+6}, \mu g/L = 141.2160$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 140}$$

rba 3/22/2019

# ANALYSIS RUN LOG

**INJECTION LOG: 190313A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:00 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:11 AM | Not Reported |
| 3 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 03/13/19 9:21 AM | Reported |
| 4 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:30 AM | Reported |
| 5 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:41 AM | Not Reported |
| 6 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:53 AM | Reported |
| 7 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:02 AM | Reported |
| 8 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:12 AM | Reported |
| 9 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:21 AM | Reported |
| 10 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:31 AM | Reported |
| 11 | ICV | ICV | 1 | Hexavalent Chromium | 03/13/19 10:49 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 03/13/19 11:00 AM | Reported |
| 13 | ICB | ICB | 1 | Hexavalent Chromium | 03/13/19 11:10 AM | Reported |
| 14 | MB-R132461 | MBLK | 1 | Hexavalent Chromium | 03/13/19 11:19 AM | Reported |
| 15 | LCS-R132461 | LCS | 1 | Hexavalent Chromium | 03/13/19 11:29 AM | Reported |
| 16 | N034570-001A | SAMP | 1 | Hexavalent Chromium | 03/13/19 11:38 AM | Not Reported |
| 17 | N034572-001A | SAMP | 1 | Hexavalent Chromium | 03/13/19 11:48 AM | Not Reported |
| 18 | N034573-002A | SAMP | 1 | Hexavalent Chromium | 03/13/19 11:57 AM | Not Reported |
| 19 | N034570-001AMS | MS | 5 | Hexavalent Chromium | 03/13/19 12:07 PM | Reported |
| 20 | N034572-001AMS | MS | 5 | Hexavalent Chromium | 03/13/19 12:16 PM | Not Reported |
| 21 | N034572-001AMS | MS | 10 | Hexavalent Chromium | 03/13/19 12:33 PM | Reported |
| 22 | N034570-001A | SAMP | 5 | Hexavalent Chromium | 03/13/19 12:45 PM | Reported |
| 23 | N034572-001A | SAMP | 10 | Hexavalent Chromium | 03/13/19 12:54 PM | Reported |
| 24 | CCV-1 | CCV1 | 1 | Hexavalent Chromium | 03/13/19 1:04 PM | Reported |
| 25 | CCB-1 | CCB | 1 | Hexavalent Chromium | 03/13/19 1:13 PM | Reported |
| 26 | N034570-001AMSD | MSD | 5 | Hexavalent Chromium | 03/13/19 1:23 PM | Reported |
| 27 | N034570-001ADUP | DUP | 5 | Hexavalent Chromium | 03/13/19 1:32 PM | Reported |
| 28 | N034570-001AMS | MS | 1 | Hexavalent Chromium | 03/13/19 1:42 PM | Not Reported |
| 29 | N034572-001A | SAMP | 5 | Hexavalent Chromium | 03/13/19 1:51 PM | Not Reported |
| 30 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 2:00 PM | Not Reported |
| 31 | N034573-002A | SAMP | 1 | Hexavalent Chromium | 03/13/19 2:10 PM | Reported |
| 32 | N034573-002AMS | MS | 1 | Hexavalent Chromium | 03/13/19 2:19 PM | Reported |
| 33 | CCV-2 | CCV | 1 | Hexavalent Chromium | 03/13/19 2:29 PM | Reported |
| 34 | CCB-2 | CCB | 1 | Hexavalent Chromium | 03/13/19 2:53 PM | Reported |
| 35 | N034558-001A | SAMP | 5000 | Hexavalent Chromium | 03/13/19 3:14 PM | Reported |
| 36 | N034558-001AREP | DUP | 5000 | Hexavalent Chromium | 03/13/19 3:24 PM | Reported |
| 37 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 3:34 PM | Not Reported |
| 38 | CCV-3 | CCV1 | 1 | Hexavalent Chromium | 03/13/19 3:43 PM | Reported |
| 39 | CCB-3 | CCB | 1 | Hexavalent Chromium | 03/13/19 3:53 PM | Reported |
| 40 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 4:02 PM | Not Reported |
| 41 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 4:12 PM | Not Reported |

jnba 3/17/2019

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190313A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **14/Mar/19 08:23:03** |
| *No. of Injections:* | **44** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 03/13/2019 09:00 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 03/13/2019 09:11 | Finished | BLANK |
| 3 | iBLANK | 3 | 1000 | Unknown | | 03/13/2019 09:21 | Finished | INSTRUMENT BLANK |
| 4 | STD1-0.2 ppb | 4 | 1000 | Calibration Standard | 01 | 03/13/2019 09:30 | Finished | 0.2 ppb, IWST-190221A |
| 5 | STD2-1.0 ppb | 5 | 1000 | Unknown | | 03/13/2019 09:41 | Finished | 1.0 ppb, IWST-190221A |
| 6 | STD3-5.0 ppb | 6 | 1000 | Calibration Standard | 03 | 03/13/2019 09:53 | Finished | 5.0 ppb, IWST-1190221A |
| 7 | STD4-10.0 ppb | 7 | 1000 | Calibration Standard | 04 | 03/13/2019 10:02 | Finished | 10 ppb, IWST-190221A |
| 8 | STD5-15.0 ppb | 8 | 1000 | Calibration Standard | 05 | 03/13/2019 10:12 | Finished | 15 ppb, IWST-190221A |
| 9 | STD6-20.0 ppb | 9 | 1000 | Calibration Standard | 06 | 03/13/2019 10:21 | Finished | 20 ppb, IWST-190221A |
| 10 | STD2-1.0 ppb | 10 | 1000 | Calibration Standard | 02 | 03/13/2019 10:31 | Finished | 1.0 ppb, IWST-190221A |
| 11 | ICV,ICV,1, | 12 | 1000 | Unknown | | 03/13/2019 10:49 | Finished | ICV @5ppb, IWST-190221B |
| 12 | PQL@0.2ppb,CCV2,1 | 13 | 1000 | Unknown | | 03/13/2019 11:00 | Finished | PQL @ 0.2ppb |
| 13 | ICB,ICB,1, | 14 | 1000 | Unknown | | 03/13/2019 11:10 | Finished | ICB R190211C |
| 14 | MB-H2O,MBLK,1, | 15 | 1000 | Unknown | | 03/13/2019 11:19 | Finished | MB R190211C |
| 15 | LCS-H2O,LCS,1, | 16 | 1000 | Unknown | | 03/13/2019 11:29 | Finished | LCS @5ppb, IWST-190221B |
| 16 | N034570-001A,SAMF | 17 | 1000 | Unknown | | 03/13/2019 11:38 | Finished | SAMP,10mL |
| 17 | N034572-001A,SAMF | 18 | 1000 | Unknown | | 03/13/2019 11:48 | Finished | SAMP,10mL |
| 18 | N034573-002A,SAMF | 19 | 1000 | Unknown | | 03/13/2019 11:57 | Finished | SAMP,10mL |
| 19 | N034570-001AMS,MS | 20 | 1000 | Unknown | | 03/13/2019 12:07 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 20 | N034572-001AMS,MS | 21 | 1000 | Unknown | | 03/13/2019 12:16 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 21 | N034572-001AMS,MS | 23 | 1000 | Unknown | | 03/13/2019 12:33 | Finished | MS (1ppb), IWST-190221B,1>1 |
| 22 | N034570-001A,SAMF | 24 | 1000 | Unknown | | 03/13/2019 12:45 | Finished | SAMP,2>10mL |
| 23 | N034572-001A,SAMF | 25 | 1000 | Unknown | | 03/13/2019 12:54 | Finished | SAMP,1>10mL |
| 24 | CCV-1,CCV1,1, | 26 | 1000 | Unknown | | 03/13/2019 13:04 | Finished | CCV @10ppb, IWST-190221A |
| 25 | CCB-1,CCB,1, | 27 | 1000 | Unknown | | 03/13/2019 13:13 | Finished | CCB R190211C |
| 26 | N034570-001AMSD,M | 28 | 1000 | Unknown | | 03/13/2019 13:23 | Finished | MSD (1ppb), IWST-190221B,2 |
| 27 | N034570-001ADUP,D | 29 | 1000 | Unknown | | 03/13/2019 13:32 | Finished | SAMP,10mL |
| 28 | N034570-001AMS,MS | 30 | 1000 | Unknown | | 03/13/2019 13:42 | Finished | MS (1ppb), IWST-190221B,10 |
| 29 | N034572-001A,SAMF | 31 | 1000 | Unknown | | 03/13/2019 13:51 | Finished | SAMP,2>10mL |
| 30 | BLANK | 32 | 1000 | Unknown | | 03/13/2019 14:00 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034573-002A,SAMF | 33 | 1000 | Unknown | | 03/13/2019 14:10 | Finished | SAMP,10mL |
| 32 | N034573-002AMS,MS | 34 | 1000 | Unknown | | 03/13/2019 14:19 | Finished | MS (1ppb), IWST-190221B,10 |
| 33 | CCV-2,CCV,1, | 35 | 1000 | Unknown | | 03/13/2019 14:29 | Finished | CCV @5ppb, IWST-190221A |
| 34 | CCB-2,CCB,1, | 37 | 1000 | Unknown | | 03/13/2019 14:53 | Finished | CCB R190211C |
| 35 | N034558-001A,SAMF | 1 | 1000 | Unknown | | 03/13/2019 15:14 | Finished | SAMP,0.002>10mL |
| 36 | N034558-001AREP,D | 2 | 1000 | Unknown | | 03/13/2019 15:24 | Finished | REP,0.002>10mL |
| 37 | BLANK | 3 | 1000 | Unknown | | 03/13/2019 15:34 | Finished | BLANK |
| 38 | CCV-3,CCV1,1, | 4 | 1000 | Unknown | | 03/13/2019 15:43 | Finished | CCV @10ppb, IWST-190221A |
| 39 | CCB-3,CCB,1, | 5 | 1000 | Unknown | | 03/13/2019 15:53 | Finished | CCB R190211C |
| 40 | BLANK | 6 | 1000 | Unknown | | 03/13/2019 16:02 | Finished | BLANK |
| 41 | BLANK | 7 | 1000 | Unknown | | 03/13/2019 16:12 | Finished | BLANK |
| 42 | SHUTDOWN | 8 | 1000 | Unknown | | 03/13/2019 16:21 | Finished | |
| 43 | Eluent: R190312D | 9 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 44 | PCR: R190312E | 10 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

rba 3/17/2019

**INJECTION LOG: 190319A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:00 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:11 AM | Not Reported |
| 3 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 03/13/19 9:21 AM | Reported |
| 4 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:30 AM | Reported |
| 10 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:31 AM | Not Reported |
| 6 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:53 AM | Reported |
| 7 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:02 AM | Reported |
| 8 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:12 AM | Reported |
| 9 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:21 AM | Reported |
| 11 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/19/19 8:55 AM | Not Reported |
| 12 | CCV-1 | CCV | 1 | Hexavalent Chromium | 03/19/19 9:06 AM | Reported |
| 13 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 03/19/19 9:15 AM | Reported |
| 14 | CCB-1 | CCB | 1 | Hexavalent Chromium | 03/19/19 9:25 AM | Reported |
| 15 | MB-R132596 | MBLK | 1 | Hexavalent Chromium | 03/19/19 9:34 AM | Reported |
| 16 | LCS-R132596 | LCS | 1 | Hexavalent Chromium | 03/19/19 9:44 AM | Reported |
| 17 | N034660-001AMS | MS | 5 | Hexavalent Chromium | 03/19/19 9:53 AM | Not Reported |
| 18 | N034661-002A | SAMP | 1 | Hexavalent Chromium | 03/19/19 10:03 AM | Reported |
| 19 | N034662-001A | SAMP | 20 | Hexavalent Chromium | 03/19/19 10:12 AM | Reported |
| 20 | N034660-001A | SAMP | 5 | Hexavalent Chromium | 03/19/19 10:22 AM | Reported |
| 21 | N034660-001AMS | MS | 1 | Hexavalent Chromium | 03/19/19 10:31 AM | Not Reported |
| 22 | N034660-001AMS | MS | 5 | Hexavalent Chromium | 03/19/19 10:48 AM | Reported |
| 23 | N034662-001ADUP | DUP | 20 | Hexavalent Chromium | 03/19/19 11:00 AM | Reported |
| 24 | N034660-001AMSD | MSD | 5 | Hexavalent Chromium | 03/19/19 11:14 AM | Reported |
| 25 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 03/19/19 11:25 AM | Reported |
| 26 | CCB-2 | CCB | 1 | Hexavalent Chromium | 03/19/19 11:34 AM | Reported |
| 27 | N034660-001A | SAMP | 1 | Hexavalent Chromium | 03/19/19 11:44 AM | Not Reported |
| 28 | N034661-002AMS | MS | 1 | Hexavalent Chromium | 03/19/19 11:53 AM | Reported |
| 29 | N034662-001AMS | MS | 20 | Hexavalent Chromium | 03/19/19 12:03 PM | Reported |
| 30 | N034662-002AMS | MS | 20 | Hexavalent Chromium | 03/19/19 12:12 PM | Reported |
| 31 | N034662-002A | SAMP | 20 | Hexavalent Chromium | 03/19/19 12:22 PM | Reported |
| 32 | N034662-003A | SAMP | 20 | Hexavalent Chromium | 03/19/19 12:31 PM | Reported |
| 33 | N034662-003AMS | MS | 20 | Hexavalent Chromium | 03/19/19 12:41 PM | Reported |
| 34 | N034662-004A | SAMP | 10 | Hexavalent Chromium | 03/19/19 12:50 PM | Reported |
| 35 | N034662-004AMS | MS | 10 | Hexavalent Chromium | 03/19/19 1:00 PM | Reported |
| 36 | N034662-005A | SAMP | 1 | Hexavalent Chromium | 03/19/19 1:09 PM | Reported |
| 37 | CCV-3 | CCV | 1 | Hexavalent Chromium | 03/19/19 1:18 PM | Reported |
| 38 | CCB-3 | CCB | 1 | Hexavalent Chromium | 03/19/19 1:28 PM | Reported |
| 39 | N034662-005AMS | MS | 1 | Hexavalent Chromium | 03/19/19 1:37 PM | Reported |
| 40 | N034662-001A | SAMP | 20 | Hexavalent Chromium | 03/19/19 1:51 PM | Not Reported |
| 41 | N034662-002A | SAMP | 20 | Hexavalent Chromium | 03/19/19 2:02 PM | Not Reported |
| 42 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 03/19/19 2:12 PM | Reported |
| 43 | CCB-4 | CCB | 1 | Hexavalent Chromium | 03/19/19 2:21 PM | Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190319A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **19/Mar/19 14:52:13** |
| *No. of Injections:* | **46** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 03/13/2019 09:00 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 03/13/2019 09:11 | Finished | BLANK |
| 3 | iBLANK | 3 | 1000 | Unknown | | 03/13/2019 09:21 | Finished | INSTRUMENT BLANK |
| 4 | STD1-0.2 ppb | 4 | 1000 | Calibration Standard | 01 | 03/13/2019 09:30 | Finished | 0.2 ppb, IWST-190221A |
| 5 | STD2-1.0 ppb | 5 | 1000 | Unknown | | 03/13/2019 09:41 | Finished | 1.0 ppb, IWST-190221A |
| 6 | STD3-5.0 ppb | 6 | 1000 | Calibration Standard | 03 | 03/13/2019 09:53 | Finished | 5.0 ppb, IWST-1190221A |
| 7 | STD4-10.0 ppb | 7 | 1000 | Calibration Standard | 04 | 03/13/2019 10:02 | Finished | 10 ppb, IWST-190221A |
| 8 | STD5-15.0 ppb | 8 | 1000 | Calibration Standard | 05 | 03/13/2019 10:12 | Finished | 15 ppb, IWST-190221A |
| 9 | STD6-20.0 ppb | 9 | 1000 | Calibration Standard | 06 | 03/13/2019 10:21 | Finished | 20 ppb, IWST-190221A |
| 10 | STD2-1.0 ppb | 10 | 1000 | Calibration Standard | 02 | 03/13/2019 10:31 | Finished | 1.0 ppb, IWST-190221A |
| 11 | BLANK | 1 | 1000 | Unknown | | 03/19/2019 08:55 | Finished | BLANK |
| 12 | CCV-1,CCV,1, | 2 | 1000 | Unknown | | 03/19/2019 09:06 | Finished | ICV @5ppb, IWST-190221B |
| 13 | PQL@0.2ppb,CCV2,1 | 3 | 1000 | Unknown | | 03/19/2019 09:15 | Finished | PQL @ 0.2ppb |
| 14 | CCB-1,CCB,1, | 4 | 1000 | Unknown | | 03/19/2019 09:25 | Finished | ICB R190211C |
| 15 | MB-H2O,MBLK,1, | 5 | 1000 | Unknown | | 03/19/2019 09:34 | Finished | MB R190211C |
| 16 | LCS-H2O,LCS,1, | 6 | 1000 | Unknown | | 03/19/2019 09:44 | Finished | LCS @5ppb, IWST-190221B |
| 17 | N034660-001AMS,MS | 7 | 1000 | Unknown | | 03/19/2019 09:53 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 18 | N034661-002A,SAMP | 8 | 1000 | Unknown | | 03/19/2019 10:03 | Finished | SAMP,10mL |
| 19 | N034662-001A,SAMP | 9 | 1000 | Unknown | | 03/19/2019 10:12 | Finished | SAMP,0.5>10mL |
| 20 | N034660-001A,SAMP | 10 | 1000 | Unknown | | 03/19/2019 10:22 | Finished | SAMP,2>10mL |
| 21 | N034660-001AMS,MS | 11 | 1000 | Unknown | | 03/19/2019 10:31 | Finished | MS (1ppb), IWST-190221B,10 |
| 22 | N034660-001AMS,MS | 13 | 1000 | Unknown | | 03/19/2019 10:48 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 23 | N034662-001ADUP,D | 14 | 1000 | Unknown | | 03/19/2019 11:00 | Finished | DUP,0.5>10mL |
| 24 | N034660-001AMSD,M | 16 | 1000 | Unknown | | 03/19/2019 11:14 | Finished | MSD (1ppb), IWST-190221B,2> |
| 25 | CCV-2,CCV1,1, | 17 | 1000 | Unknown | | 03/19/2019 11:25 | Finished | CCV @10ppb, IWST-190221A |
| 26 | CCB-2,CCB,1, | 18 | 1000 | Unknown | | 03/19/2019 11:34 | Finished | CCB R190211C |
| 27 | N034660-001A,SAMP | 19 | 1000 | Unknown | | 03/19/2019 11:44 | Finished | SAMP,10mL |
| 28 | N034661-002AMS,MS | 20 | 1000 | Unknown | | 03/19/2019 11:53 | Finished | MS (1ppb), IWST-190221B,10 |
| 29 | N034662-001AMS,MS | 21 | 1000 | Unknown | | 03/19/2019 12:03 | Finished | MS (5ppb), IWST-190221B,0.5 |
| 30 | N034662-002AMS,MS | 22 | 1000 | Unknown | | 03/19/2019 12:12 | Finished | MS (5ppb), IWST-190221B,0.5 |
| 31 | N034662-002A,SAMP | 23 | 1000 | Unknown | | 03/19/2019 12:22 | Finished | SAMP,0.5>10mL |
| 32 | N034662-003A,SAMP | 24 | 1000 | Unknown | | 03/19/2019 12:31 | Finished | SAMP,0.5>10mL |
| 33 | N034662-003AMS,MS | 25 | 1000 | Unknown | | 03/19/2019 12:41 | Finished | MS (5ppb), IWST-190221B,0.5 |
| 34 | N034662-004A,SAMP | 26 | 1000 | Unknown | | 03/19/2019 12:50 | Finished | SAMP,1>10mL |
| 35 | N034662-004AMS,MS | 27 | 1000 | Unknown | | 03/19/2019 13:00 | Finished | MS (5ppb), IWST-190221B,1>1 |
| 36 | N034662-005A,SAMP | 28 | 1000 | Unknown | | 03/19/2019 13:09 | Finished | SAMP,10mL |
| 37 | CCV-3,CCV,1, | 29 | 1000 | Unknown | | 03/19/2019 13:18 | Finished | CCV @5ppb, IWST-190221A |
| 38 | CCB-3,CCB,1, | 30 | 1000 | Unknown | | 03/19/2019 13:28 | Finished | CCB R190211C |
| 39 | N034662-005AMS,MS | 31 | 1000 | Unknown | | 03/19/2019 13:37 | Finished | MS (1ppb), IWST-190221B,10 |
| 40 | N034662-001A,SAMP | 33 | 1000 | Unknown | | 03/19/2019 13:51 | Finished | SAMP,0.5>10mL |
| 41 | N034662-002A,SAMP | 34 | 1000 | Unknown | | 03/19/2019 14:02 | Finished | SAMP,0.5>10mL |
| 42 | CCV-4,CCV1,1, | 35 | 1000 | Unknown | | 03/19/2019 14:12 | Finished | CCV @10ppb, IWST-190221A |
| 43 | CCB-4,CCB,1, | 36 | 1000 | Unknown | | 03/19/2019 14:21 | Finished | CCB R190211C |
| 44 | SHUTDOWN | 37 | 1000 | Unknown | | 03/19/2019 14:31 | Finished | |
| 45 | Eluent: R190318A | 38 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 46 | PCR: R190318B | 39 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# SAMPLE PREPARATION LOG

# Hexavalent Chromium Preparation and Runlog

## Sample Preparation

Date Prepared: 3/18/19
Time Prepared: 0959H
Prepared By: MSA

Slope: 97.12
pH4: 4.02
7: 7.02
10: 10.03

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CLNV-181102A
NH4OH + NH4SO4 eluent: M190318A
NH4OH + NH4SO4 buffer: M190211C

6N NaOH: M180911C

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | NO34644-001A | 9.37 | - | ~250mL | ~250mL | | 1/2 |
| 2) | 1A | 9.38 | - | | | | 2/2 |
| 3) | NO34644-2A | 9.46 | - | | | | |
| 4) | 3A | 9.39 | - | | | | |
| 5) | NO34645-1A | 9.18 | 9.28 | | | +5drps NaOH | |
| 6) | NO34625-1G | 9.15 | | | 700 mL | | |
| 7) | 2G | 9.21 | | | | | |
| 8) | 3G | 9.05 | | | | | |
| 9) | | | | | | | |
| 10) | | | | | | | |
| 11) | | | | | | | |
| 12) | | | | | | | |
| 13) | | | | | | | |
| 14) | | | | | | | |
| 15) | | | | | | | |

## Sample Preparation

Date Prepared: 3/19/19
Time Prepared: 0911
Prepared By: MSA

Slope: 96.42
pH4: 4.01
7: 7.00
10: 10.02

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CLNV-181102A
NH4OH + NH4SO4 eluent: M190318A
NH4OH + NH4SO4 buffer: M190211C

6N NaOH: M180911C

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | NO34660-001A | 9.17 | 9.55 | ~250mL | ~250mL | +5drps 6N NaOH | 1/2 |
| 2) | NO34661-2A | 9.66 | - | | | | |
| 3) | NO34662-1A | 9.54 | - | | | | |
| 4) | 2A | 9.53 | - | | | | |
| 5) | 3A | 9.54 | - | | | | |
| 6) | 4A | 9.57 | - | | | | |
| 7) | 5A | 9.69 | - | | | | |
| 8) | NO34660-1A | 9.17 | 9.58 | | | +5drps 6N NaOH | 2/2 |
| 9) | | | | | | | |
| 10) | | | | | | | |
| 11) | | | | | | | |
| 12) | | | | | | | |
| 13) | | | | | | | |
| 14) | | | | | | | |
| 15) | | | | | | | |

Logbook No. 16

# INITIAL CALIBRATION DATA SUMMARY

**(EPA 218.6) - INITIAL CALIBRATION**

Instrument ID: IC-07
Date Calibrated: 3/13/2019

Initial Calibration:

| Hexavalent Chromium | STD1 | STD2 | STD3 | STD4 | STD5 | STD6 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0.2 | 1 | 5 | 10 | 15 | 20 | $R^2$ |
| Area,mAU*min | 0.0471 | 0.2238 | 1.1057 | 2.1988 | 3.2845 | 4.4091 | 1.0000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock | Working |
|---|---|---|
| Standard Concentration: | 1,000,000 PPB | 1,000 PPB |
| Standard ID: | ISST-170814H | IWST-190221A |

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/13/2019** | SeqNo: **3321659** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.154 | 0.20 | 5.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/13/2019** | SeqNo: **3321660** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.235 | 0.20 | 0.2000 | 0 | 117 | 80 | 120 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/19/2019** | SeqNo: **3321662** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.130 | 0.20 | 5.000 | 0 | 103 | 95 | 105 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/19/2019** | SeqNo: **3321663** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.240 | 0.20 | 0.2000 | 0 | 120 | 80 | 120 | | | | |

| Sample ID **CCV-2** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/19/2019** | SeqNo: **3321673** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 9.995 | 0.20 | 10.00 | 0 | 99.9 | 95 | 105 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/19/2019** | SeqNo: **3321868** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.980 | 0.20 | 5.000 | 0 | 99.6 | 95 | 105 | | | | |

| Sample ID **CCV-4** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/19/2019** | SeqNo: **3321871** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.024 | 0.20 | 10.00 | 0 | 100 | 95 | 105 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/13/2019** | SeqNo: **3321661** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/19/2019** | SeqNo: **3321664** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/19/2019** | SeqNo: **3321674** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/19/2019** | SeqNo: **3321869** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132596** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132596** | TestNo: **EPA 218.6** | | Analysis Date: **3/19/2019** | SeqNo: **3321872** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# RETENTION TIME SUMMARY

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 3/19/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.206 | |
| CCV-1 | 4.206 | |
| CCV-2 | 4.215 | |
| CCV-3 | 4.215 | |
| CCV-4 | 4.223 | |

| | | |
|---|---|---|
| **Average** | 4.215 | |
| **Actual RT Window** | 4.135 - | 4.295 |
| **Applied RT Window** | 4.015 - | 4.415 |

| | | |
|---|---|---|
| MB-R132596 | N.A. | N.A. |
| LCS-R132596 | 4.190 | PASS |
| N034660-001AMS | 4.215 | PASS |
| N034661-002A | N.A. | N.A. |
| N034662-001A | 4.206 | PASS |
| N034660-001A | N.A. | N.A. |
| N034660-001AMS | 4.090 | PASS |
| N034660-001AMS | 4.181 | PASS |
| N034662-001ADUP | 4.206 | PASS |
| N034660-001AMSD | 4.181 | PASS |
| N034660-001A | N.A. | N.A. |
| N034661-002AMS | 4.215 | PASS |
| N034662-001AMS | 4.215 | PASS |
| N034662-002AMS | 4.215 | PASS |
| N034662-002A | 4.206 | PASS |
| N034662-003A | 4.215 | PASS |
| N034662-003AMS | 4.215 | PASS |
| N034662-004A | 4.206 | PASS |
| N034662-004AMS | 4.215 | PASS |
| N034662-005A | N.A. | N.A. |
| N034662-005AMS | 4.215 | PASS |
| N034662-001A | 4.223 | PASS |
| N034662-002A | 4.223 | PASS |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

| Datafile | 170505 | 170508 | 170509 | 170510 | 170511 | 170512 | 170515 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte** | **#1** | **#2** | **#3** | **#4** | **#5** | **#6** | **#7** | **Spike Conc., mg/L** | **SD** | **$t_{(n-1)}$ value** | **MDL** | **PQL** | **Remarks** |
| Hexavalent Chromium | 0.1949 | 0.2135 | 0.1840 | 0.1828 | 0.2011 | 0.1936 | 0.1911 | 0.20 | 0.0105 | 3.143 | **0.0331** | **0.20** | OK,meets criteria |

Students' **t** Values at 99% CL

| # | $t_{(n-1)}$ |
|---|---|
| 10 | 2.821 |
| 9 | 2.896 |
| 8 | 2.998 |
| 7 | 3.143 |

## LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

| Compound | MDL | LOD Spike Conc., µg/L | LOD actual Conc., µg/L |
|---|---|---|---|
| Hexavalent Chromium | 0.0331 | 0.100 | 0.116 |

| Compound | PQL | PQL Spike Conc., µg/L | PQL actual Conc., µg/L | % Recovery |
|---|---|---|---|---|
| Hexavalent Chromium | 0.200 | 0.200 | 0.201 | **100** |

# RAW DATA

# INITIAL CALIBRATION

**INJECTION LOG: 190313A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:00 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:11 AM | Not Reported |
| 3 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 03/13/19 9:21 AM | Reported |
| 4 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:30 AM | Reported |
| 5 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:41 AM | Not Reported |
| 6 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:53 AM | Reported |
| 7 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:02 AM | Reported |
| 8 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:12 AM | Reported |
| 9 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:21 AM | Reported |
| 10 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:31 AM | Reported |
| 11 | ICV | ICV | 1 | Hexavalent Chromium | 03/13/19 10:49 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 03/13/19 11:00 AM | Reported |
| 13 | ICB | ICB | 1 | Hexavalent Chromium | 03/13/19 11:10 AM | Reported |
| 14 | MB-R132461 | MBLK | 1 | Hexavalent Chromium | 03/13/19 11:19 AM | Reported |
| 15 | LCS-R132461 | LCS | 1 | Hexavalent Chromium | 03/13/19 11:29 AM | Reported |
| 16 | N034570-001A | SAMP | 1 | Hexavalent Chromium | 03/13/19 11:38 AM | Not Reported |
| 17 | N034572-001A | SAMP | 1 | Hexavalent Chromium | 03/13/19 11:48 AM | Not Reported |
| 18 | N034573-002A | SAMP | 1 | Hexavalent Chromium | 03/13/19 11:57 AM | Not Reported |
| 19 | N034570-001AMS | MS | 5 | Hexavalent Chromium | 03/13/19 12:07 PM | Reported |
| 20 | N034572-001AMS | MS | 5 | Hexavalent Chromium | 03/13/19 12:16 PM | Not Reported |
| 21 | N034572-001AMS | MS | 10 | Hexavalent Chromium | 03/13/19 12:33 PM | Reported |
| 22 | N034570-001A | SAMP | 5 | Hexavalent Chromium | 03/13/19 12:45 PM | Reported |
| 23 | N034572-001A | SAMP | 10 | Hexavalent Chromium | 03/13/19 12:54 PM | Reported |
| 24 | CCV-1 | CCV1 | 1 | Hexavalent Chromium | 03/13/19 1:04 PM | Reported |
| 25 | CCB-1 | CCB | 1 | Hexavalent Chromium | 03/13/19 1:13 PM | Reported |
| 26 | N034570-001AMSD | MSD | 5 | Hexavalent Chromium | 03/13/19 1:23 PM | Reported |
| 27 | N034570-001ADUP | DUP | 5 | Hexavalent Chromium | 03/13/19 1:32 PM | Reported |
| 28 | N034570-001AMS | MS | 1 | Hexavalent Chromium | 03/13/19 1:42 PM | Not Reported |
| 29 | N034572-001A | SAMP | 5 | Hexavalent Chromium | 03/13/19 1:51 PM | Not Reported |
| 30 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 2:00 PM | Not Reported |
| 31 | N034573-002A | SAMP | 1 | Hexavalent Chromium | 03/13/19 2:10 PM | Reported |
| 32 | N034573-002AMS | MS | 1 | Hexavalent Chromium | 03/13/19 2:19 PM | Reported |
| 33 | CCV-2 | CCV | 1 | Hexavalent Chromium | 03/13/19 2:29 PM | Reported |
| 34 | CCB-2 | CCB | 1 | Hexavalent Chromium | 03/13/19 2:53 PM | Reported |
| 35 | N034558-001A | SAMP | 5000 | Hexavalent Chromium | 03/13/19 3:14 PM | Reported |
| 36 | N034558-001AREP | DUP | 5000 | Hexavalent Chromium | 03/13/19 3:24 PM | Reported |
| 37 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 3:34 PM | Not Reported |
| 38 | CCV-3 | CCV1 | 1 | Hexavalent Chromium | 03/13/19 3:43 PM | Reported |
| 39 | CCB-3 | CCB | 1 | Hexavalent Chromium | 03/13/19 3:53 PM | Reported |
| 40 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 4:02 PM | Not Reported |
| 41 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 4:12 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190313A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **14/Mar/19 08:23:03** |
| *No. of Injections:* | **44** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 03/13/2019 09:00 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 03/13/2019 09:11 | Finished | BLANK |
| 3 | iBLANK | 3 | 1000 | Unknown | | 03/13/2019 09:21 | Finished | INSTRUMENT BLANK |
| 4 | STD1-0.2 ppb | 4 | 1000 | Calibration Standard | 01 | 03/13/2019 09:30 | Finished | 0.2 ppb, IWST-190221A |
| 5 | STD2-1.0 ppb | 5 | 1000 | Unknown | | 03/13/2019 09:41 | Finished | 1.0 ppb, IWST-190221A |
| 6 | STD3-5.0 ppb | 6 | 1000 | Calibration Standard | 03 | 03/13/2019 09:53 | Finished | 5.0 ppb, IWST-1190221A |
| 7 | STD4-10.0 ppb | 7 | 1000 | Calibration Standard | 04 | 03/13/2019 10:02 | Finished | 10 ppb, IWST-190221A |
| 8 | STD5-15.0 ppb | 8 | 1000 | Calibration Standard | 05 | 03/13/2019 10:12 | Finished | 15 ppb, IWST-190221A |
| 9 | STD6-20.0 ppb | 9 | 1000 | Calibration Standard | 06 | 03/13/2019 10:21 | Finished | 20 ppb, IWST-190221A |
| 10 | STD2-1.0 ppb | 10 | 1000 | Calibration Standard | 02 | 03/13/2019 10:31 | Finished | 1.0 ppb, IWST-190221A |
| 11 | ICV,ICV,1, | 12 | 1000 | Unknown | | 03/13/2019 10:49 | Finished | ICV @5ppb, IWST-190221B |
| 12 | PQL@0.2ppb,CCV2,1 | 13 | 1000 | Unknown | | 03/13/2019 11:00 | Finished | PQL @ 0.2ppb |
| 13 | ICB,ICB,1, | 14 | 1000 | Unknown | | 03/13/2019 11:10 | Finished | ICB R190211C |
| 14 | MB-H2O,MBLK,1, | 15 | 1000 | Unknown | | 03/13/2019 11:19 | Finished | MB R190211C |
| 15 | LCS-H2O,LCS,1, | 16 | 1000 | Unknown | | 03/13/2019 11:29 | Finished | LCS @5ppb, IWST-190221B |
| 16 | N034570-001A,SAMP | 17 | 1000 | Unknown | | 03/13/2019 11:38 | Finished | SAMP,10mL |
| 17 | N034572-001A,SAMP | 18 | 1000 | Unknown | | 03/13/2019 11:48 | Finished | SAMP,10mL |
| 18 | N034573-002A,SAMP | 19 | 1000 | Unknown | | 03/13/2019 11:57 | Finished | SAMP,10mL |
| 19 | N034570-001AMS,MS | 20 | 1000 | Unknown | | 03/13/2019 12:07 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 20 | N034572-001AMS,MS | 21 | 1000 | Unknown | | 03/13/2019 12:16 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 21 | N034572-001AMS,MS | 23 | 1000 | Unknown | | 03/13/2019 12:33 | Finished | MS (1ppb), IWST-190221B,1>1 |
| 22 | N034570-001A,SAMP | 24 | 1000 | Unknown | | 03/13/2019 12:45 | Finished | SAMP,2>10mL |
| 23 | N034572-001A,SAMP | 25 | 1000 | Unknown | | 03/13/2019 12:54 | Finished | SAMP,1>10mL |
| 24 | CCV-1,CCV1,1, | 26 | 1000 | Unknown | | 03/13/2019 13:04 | Finished | CCV @10ppb, IWST-190221A |
| 25 | CCB-1,CCB,1, | 27 | 1000 | Unknown | | 03/13/2019 13:13 | Finished | CCB R190211C |
| 26 | N034570-001AMSD,M | 28 | 1000 | Unknown | | 03/13/2019 13:23 | Finished | MSD (1ppb), IWST-190221B,2> |
| 27 | N034570-001ADUP,D | 29 | 1000 | Unknown | | 03/13/2019 13:32 | Finished | SAMP,10mL |
| 28 | N034570-001AMS,MS | 30 | 1000 | Unknown | | 03/13/2019 13:42 | Finished | MS (1ppb), IWST-190221B,10 |
| 29 | N034572-001A,SAMP | 31 | 1000 | Unknown | | 03/13/2019 13:51 | Finished | SAMP,2>10mL |
| 30 | BLANK | 32 | 1000 | Unknown | | 03/13/2019 14:00 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034573-002A,SAMP | 33 | 1000 | Unknown | | 03/13/2019 14:10 | Finished | SAMP,10mL |
| 32 | N034573-002AMS,MS | 34 | 1000 | Unknown | | 03/13/2019 14:19 | Finished | MS (1ppb), IWST-190221B,10 |
| 33 | CCV-2,CCV,1, | 35 | 1000 | Unknown | | 03/13/2019 14:29 | Finished | CCV @5ppb, IWST-190221A |
| 34 | CCB-2,CCB,1, | 37 | 1000 | Unknown | | 03/13/2019 14:53 | Finished | CCB R190211C |
| 35 | N034558-001A,SAMP | 1 | 1000 | Unknown | | 03/13/2019 15:14 | Finished | SAMP,0.002>10mL |
| 36 | N034558-001AREP,D | 2 | 1000 | Unknown | | 03/13/2019 15:24 | Finished | REP,0.002>10mL |
| 37 | BLANK | 3 | 1000 | Unknown | | 03/13/2019 15:34 | Finished | BLANK |
| 38 | CCV-3,CCV1,1, | 4 | 1000 | Unknown | | 03/13/2019 15:43 | Finished | CCV @10ppb, IWST-190221A |
| 39 | CCB-3,CCB,1, | 5 | 1000 | Unknown | | 03/13/2019 15:53 | Finished | CCB R190211C |
| 40 | BLANK | 6 | 1000 | Unknown | | 03/13/2019 16:02 | Finished | BLANK |
| 41 | BLANK | 7 | 1000 | Unknown | | 03/13/2019 16:12 | Finished | BLANK |
| 42 | SHUTDOWN | 8 | 1000 | Unknown | | 03/13/2019 16:21 | Finished | |
| 43 | Eluent: R190312D | 9 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 44 | PCR: R190312E | 10 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

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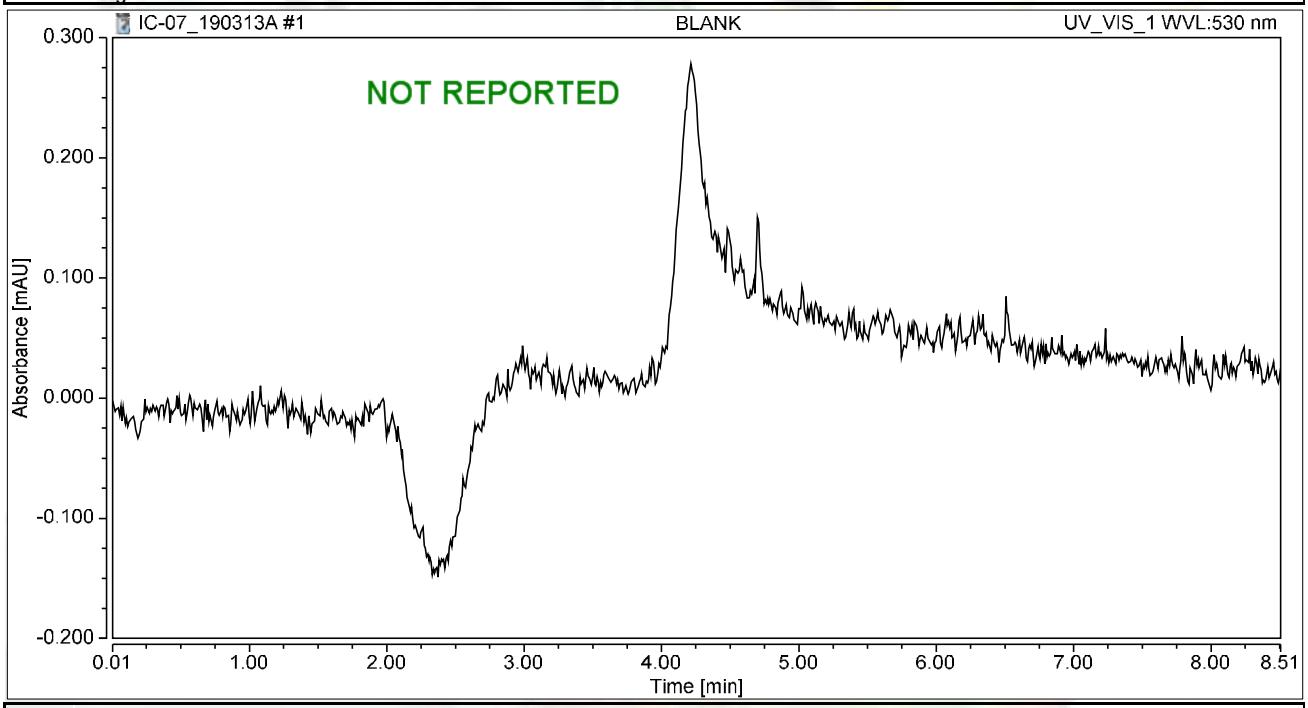
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

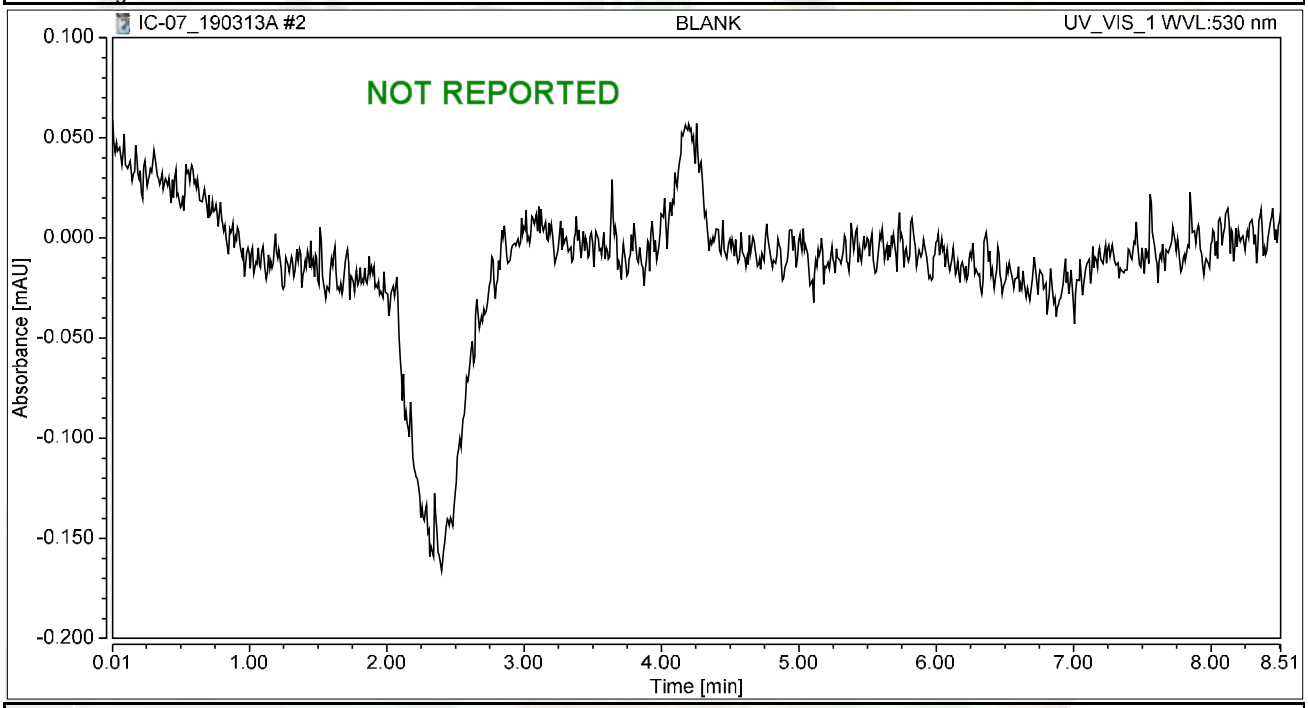
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

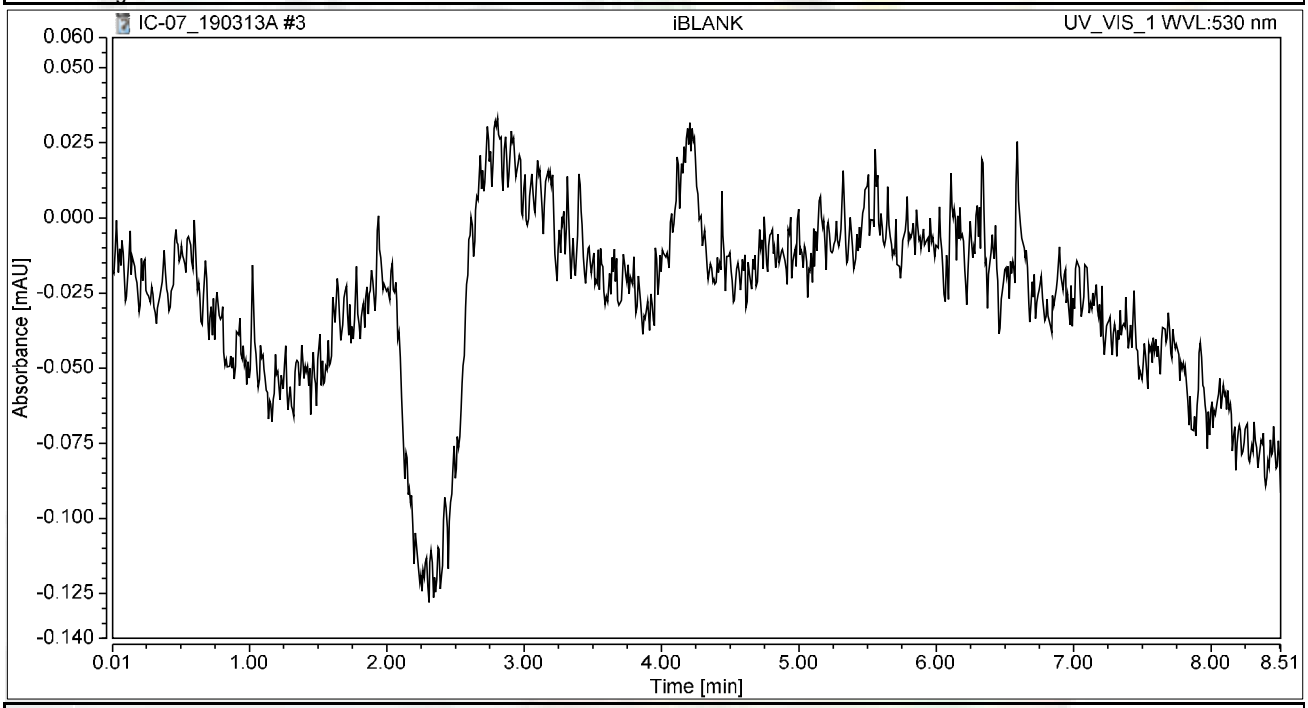
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **iBLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

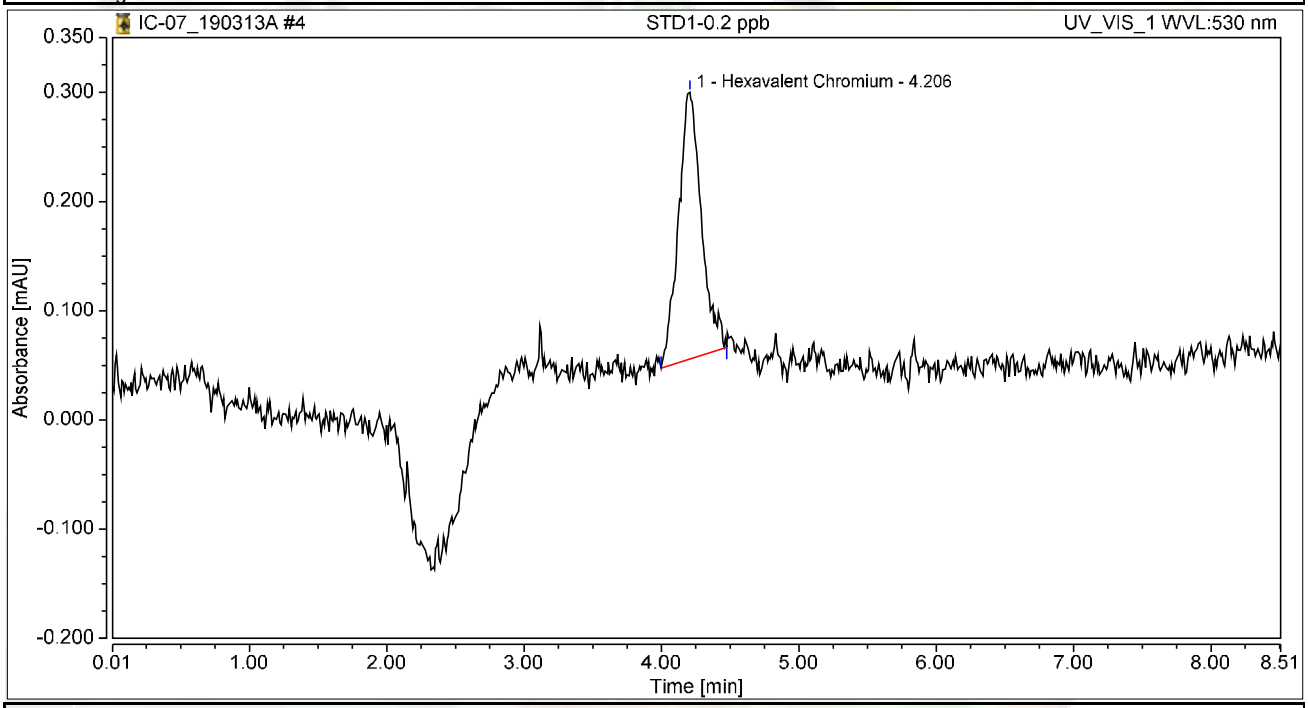
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD1-0.2 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **01** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

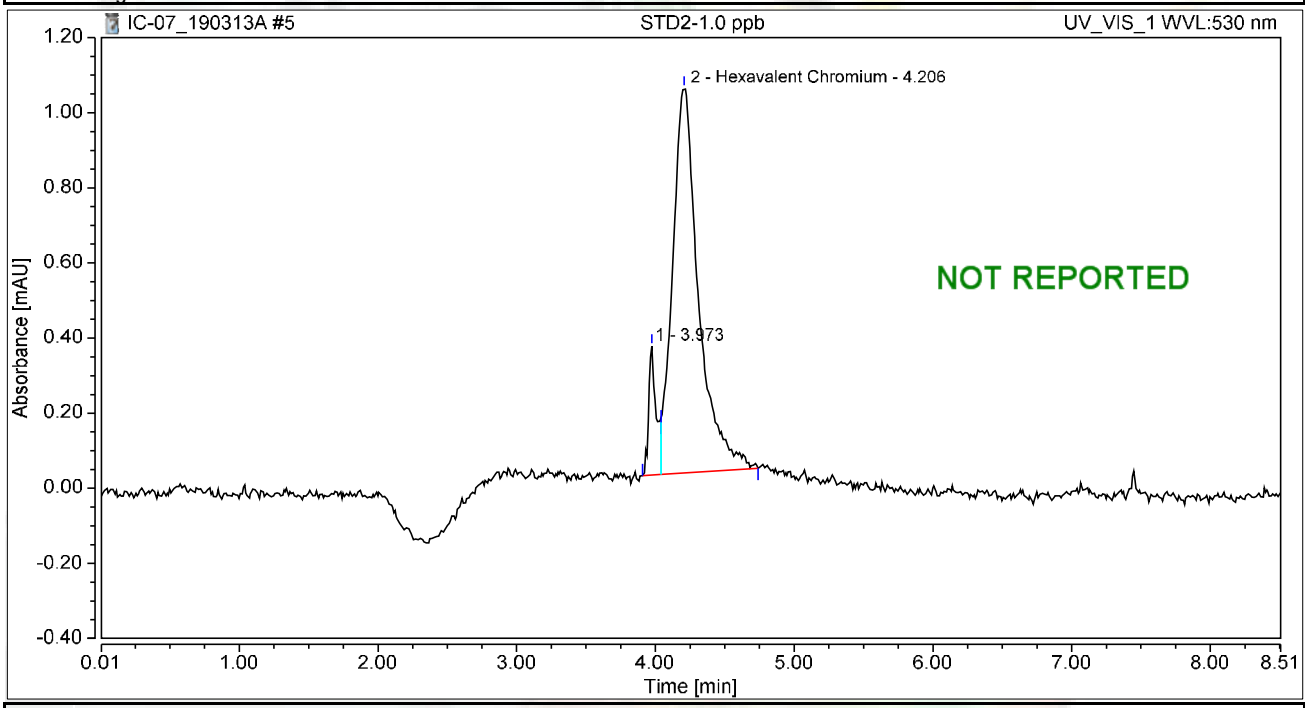
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.047 | 0.244 | 100.00 | 100.00 | 0.2139 |
| **Total:** | | | **0.047** | **0.244** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:41** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

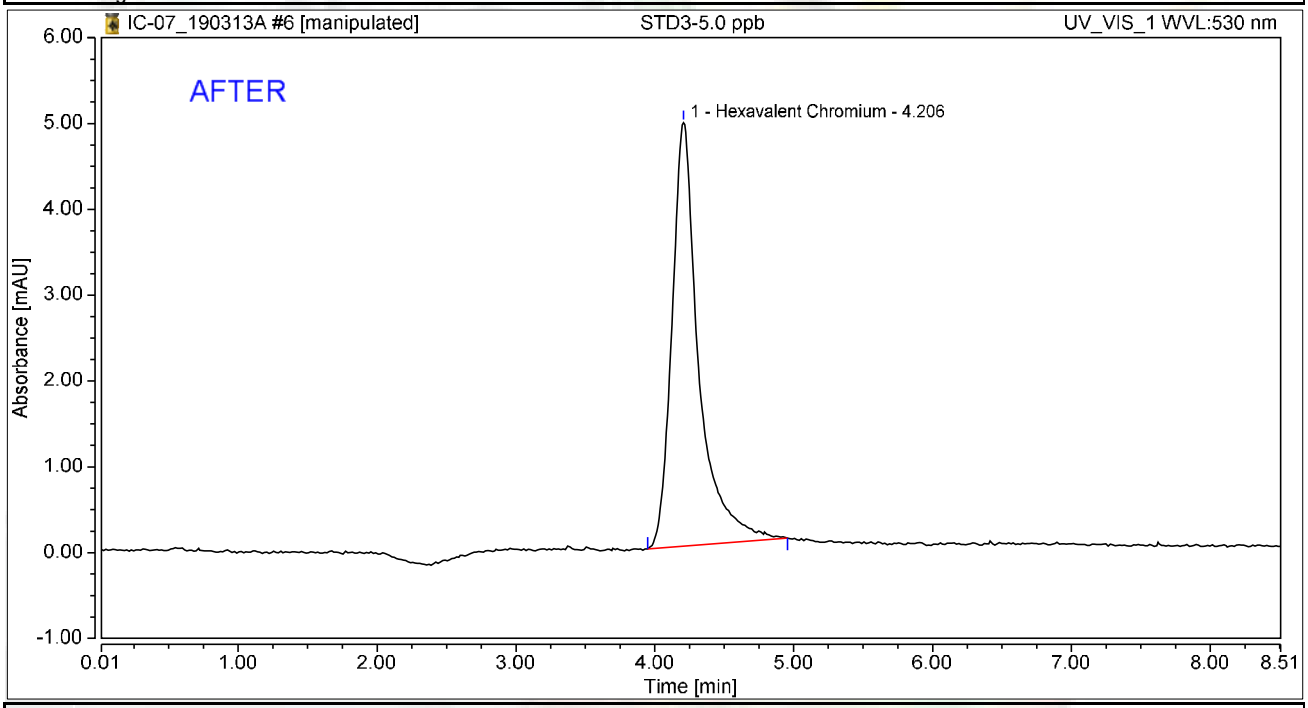
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | | 3.973 | 0.021 | 0.344 | 8.72 | 25.14 | n.a. |
| 2 | Hexavalent Chromium | 4.206 | 0.223 | 1.025 | 91.28 | 74.86 | 1.0122 |
| **Total:** | | | **0.244** | **1.369** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD3-5.0 ppb** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **03** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.106 | 4.936 | 100.00 | 100.00 | 5.0269 |
| **Total:** | | | **1.106** | **4.936** | **100.00** | **100.00** | |

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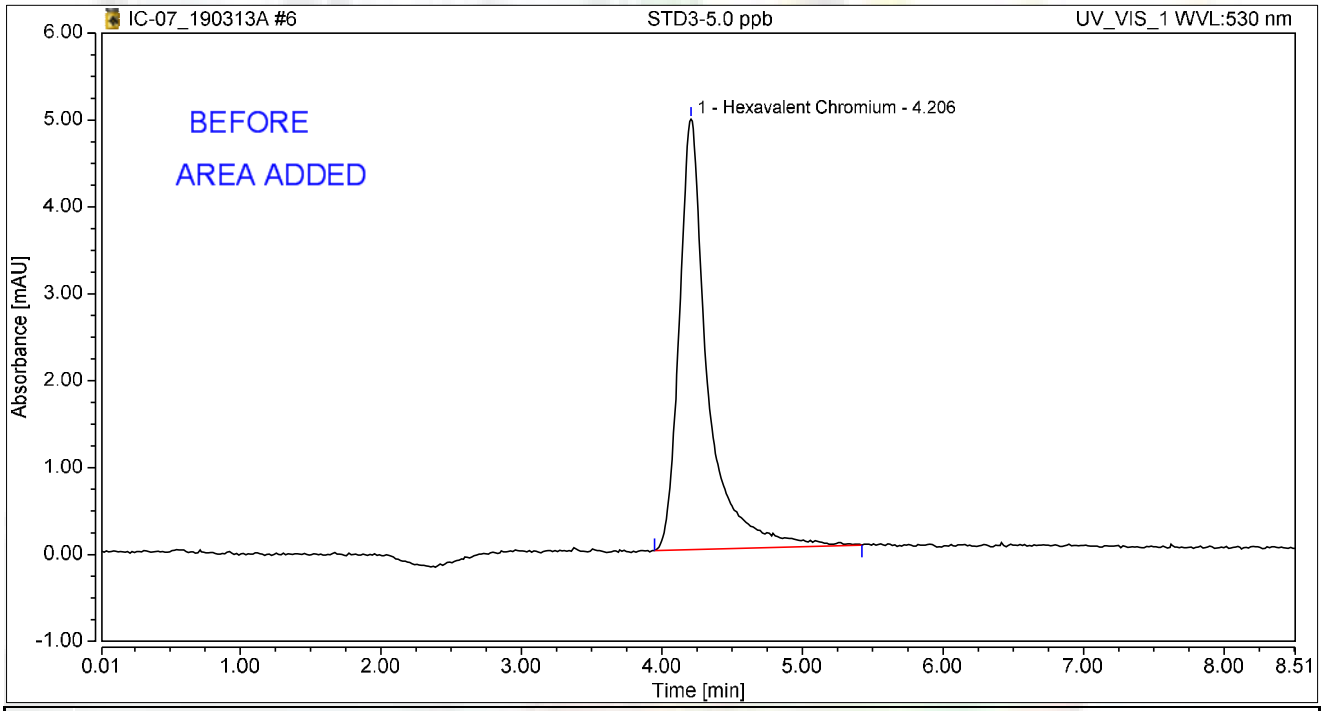
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD3-5.0 ppb** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **03** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.165 | 4.957 | 100.00 | 100.00 | 4.7988 |
| **Total:** | | | **1.165** | **4.957** | **100.00** | **100.00** | |

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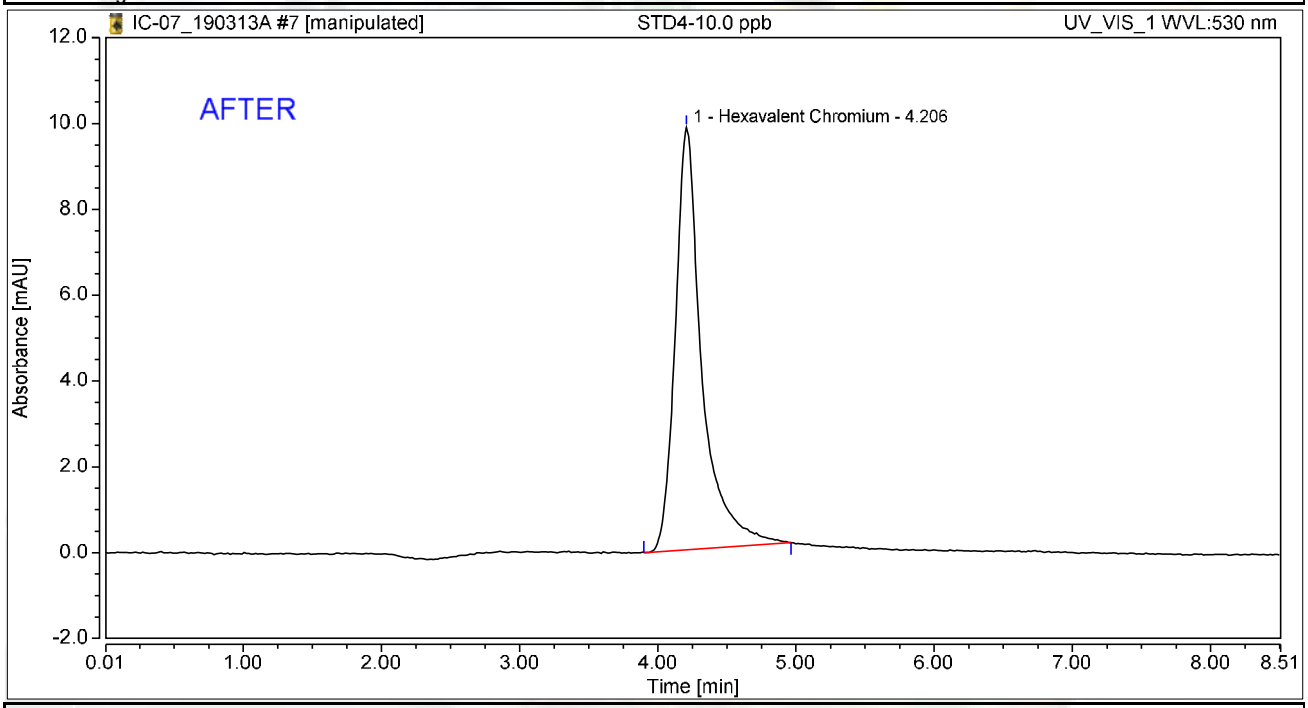
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD4-10.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **04** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 2.199 | 9.844 | 100.00 | 100.00 | 9.9965 |
| **Total:** | | | **2.199** | **9.844** | **100.00** | **100.00** | |

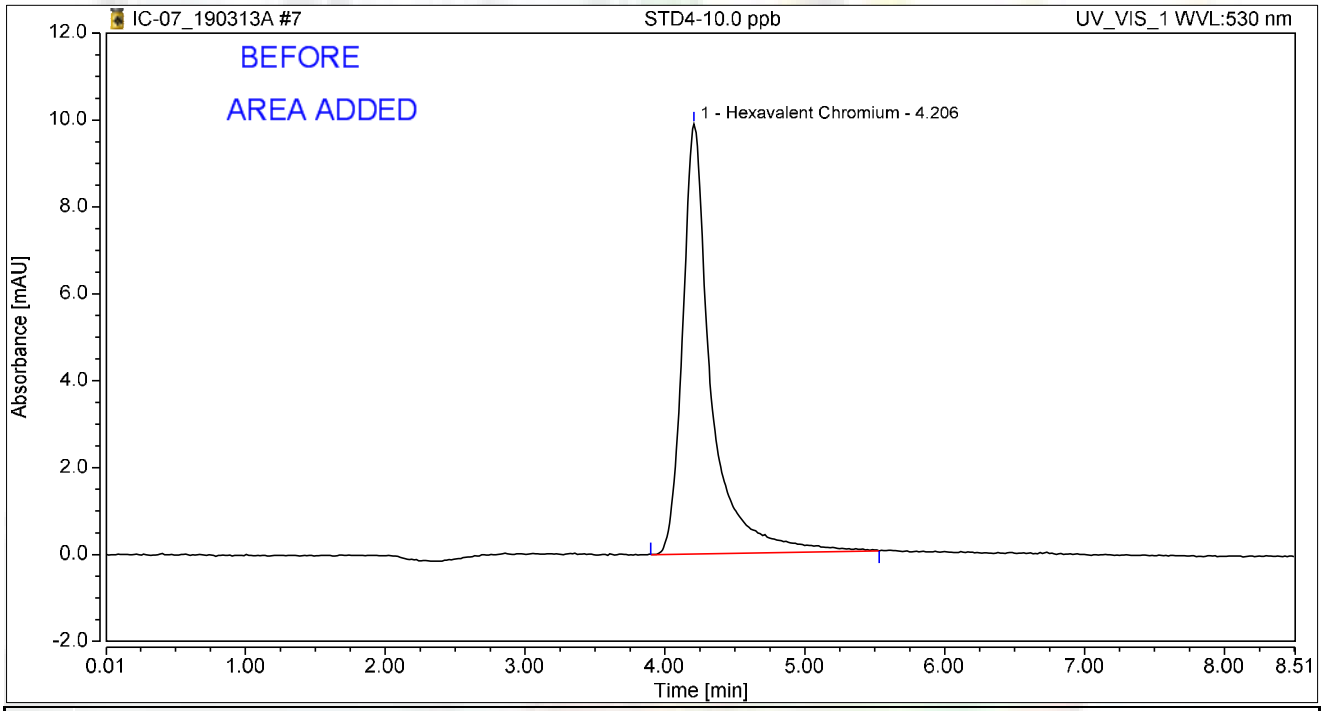
rba 3/17/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD4-10.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **04** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 2.344 | 9.896 | 100.00 | 100.00 | 9.6561 |
| **Total:** | | | **2.344** | **9.896** | **100.00** | **100.00** | |

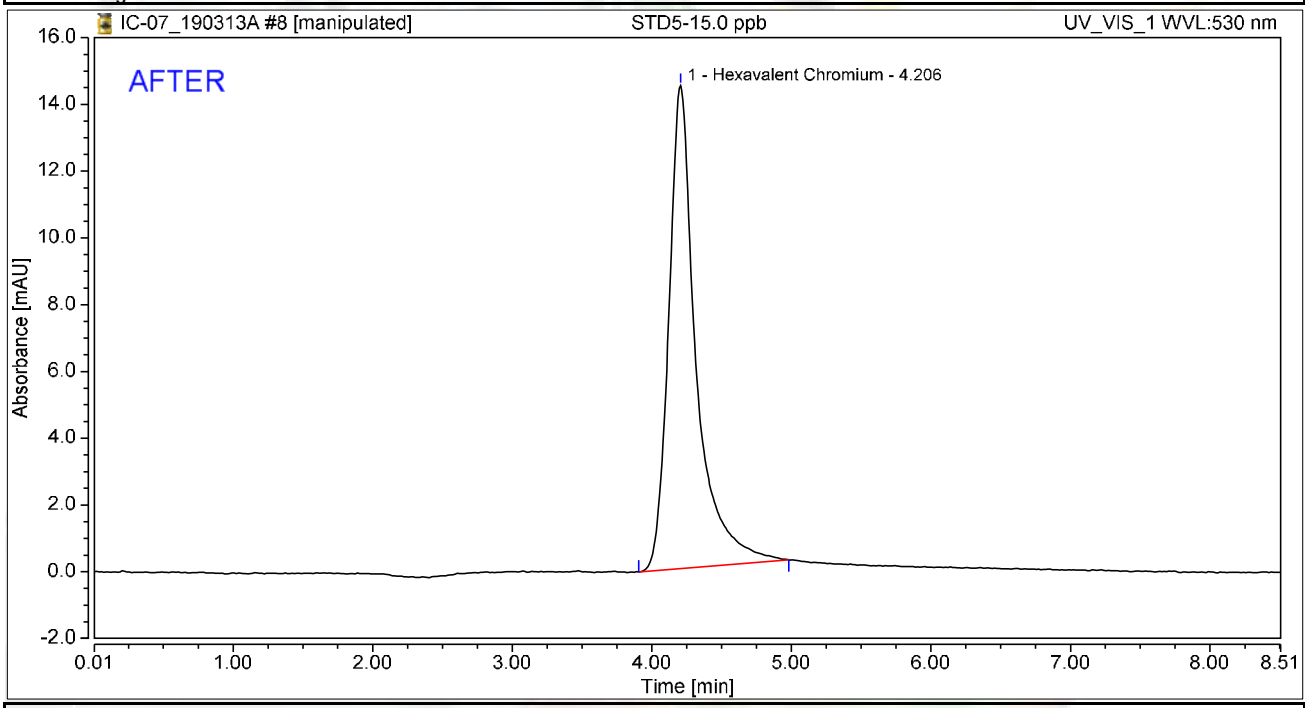
rba 3/17/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 3.284 | 14.466 | 100.00 | 100.00 | 14.9322 |
| **Total:** | | | **3.284** | **14.466** | **100.00** | **100.00** | |

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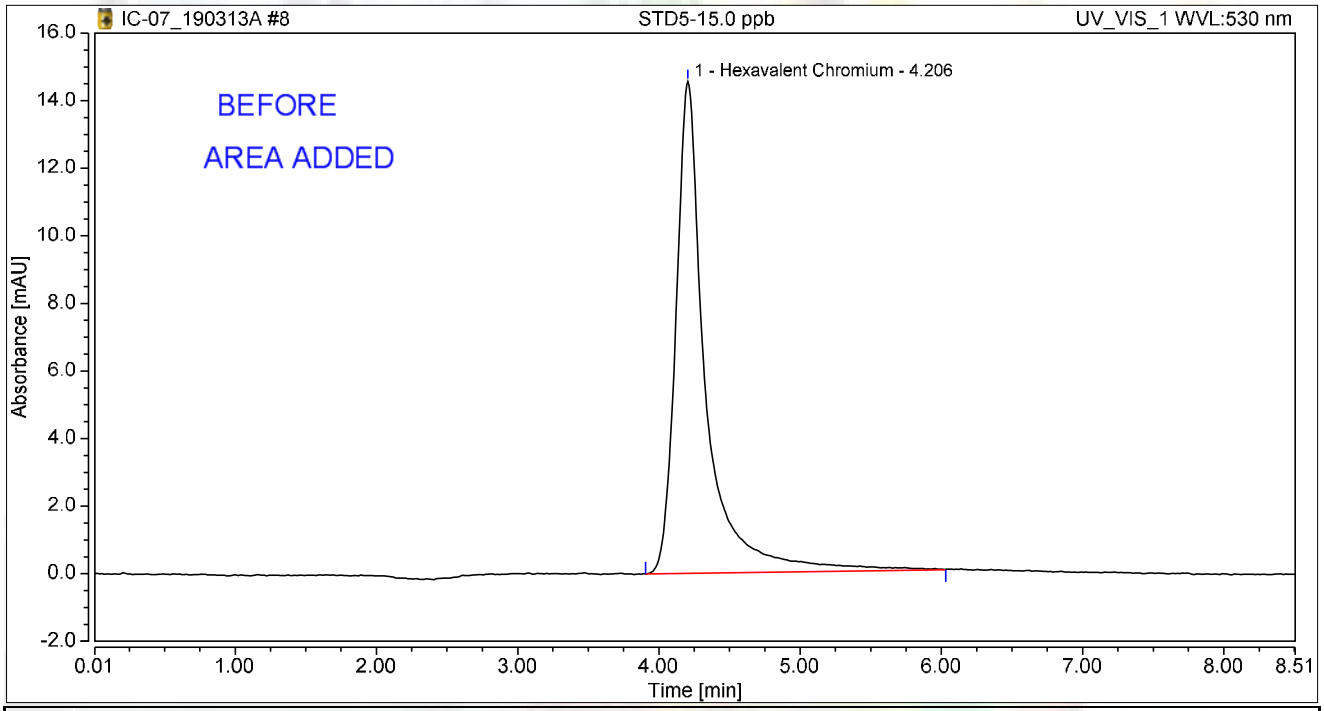
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 3.580 | 14.551 | 100.00 | 100.00 | 14.7476 |
| **Total:** | | | **3.580** | **14.551** | **100.00** | **100.00** | |

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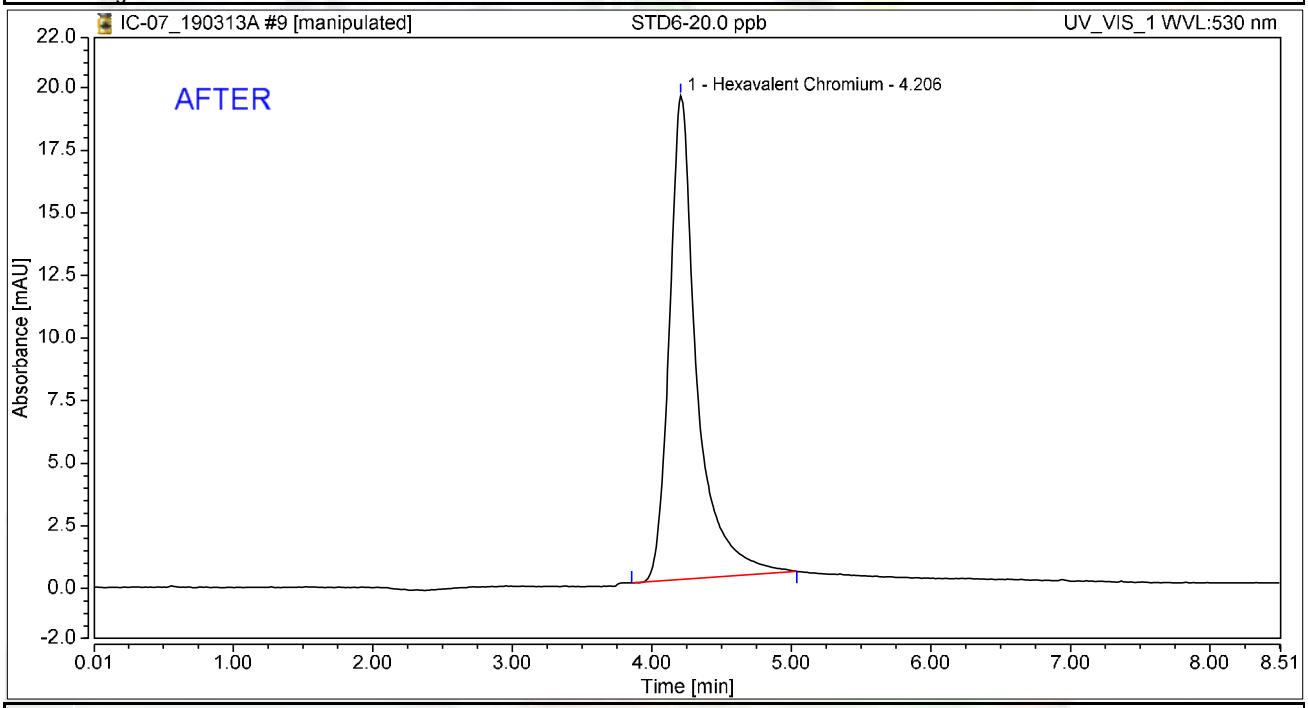
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD6-20.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **06** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 4.409 | 19.328 | 100.00 | 100.00 | 20.0449 |
| **Total:** | | | **4.409** | **19.328** | **100.00** | **100.00** | |

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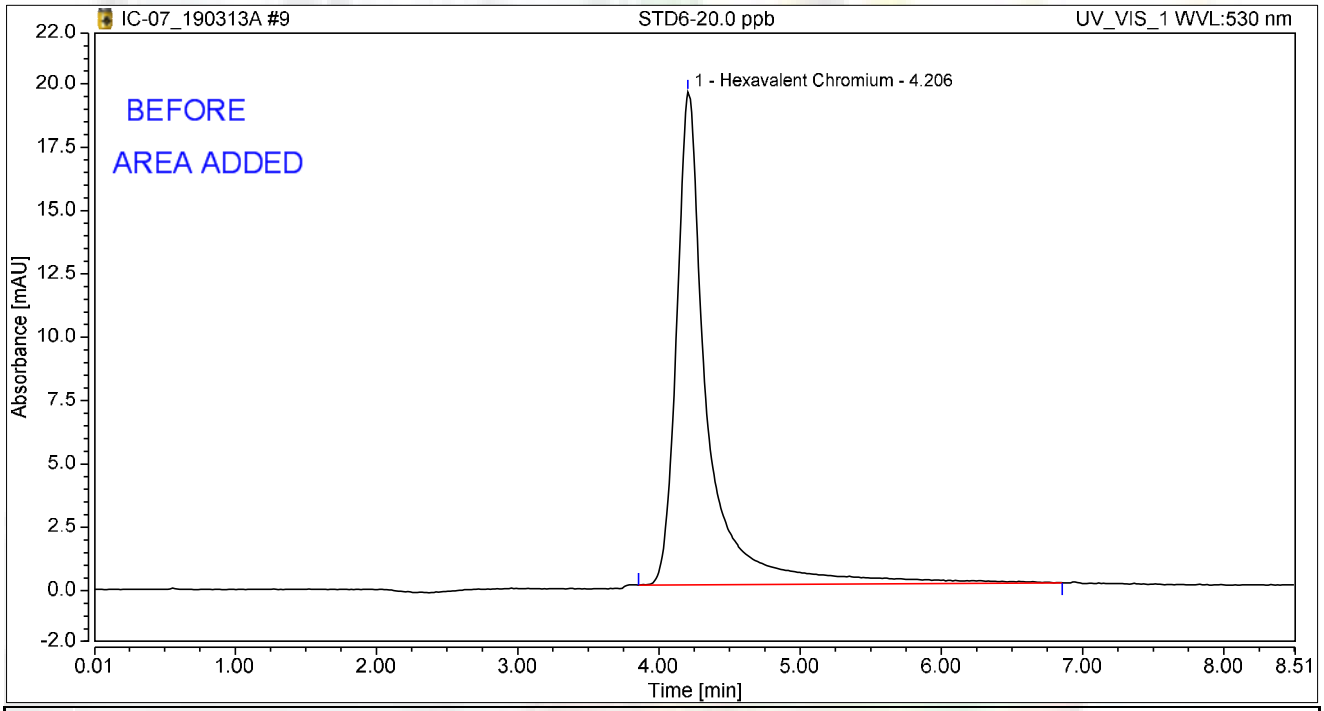
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD6-20.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **06** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 4.956 | 19.454 | 100.00 | 100.00 | 20.4140 |
| **Total:** | | | **4.956** | **19.454** | **100.00** | **100.00** | |

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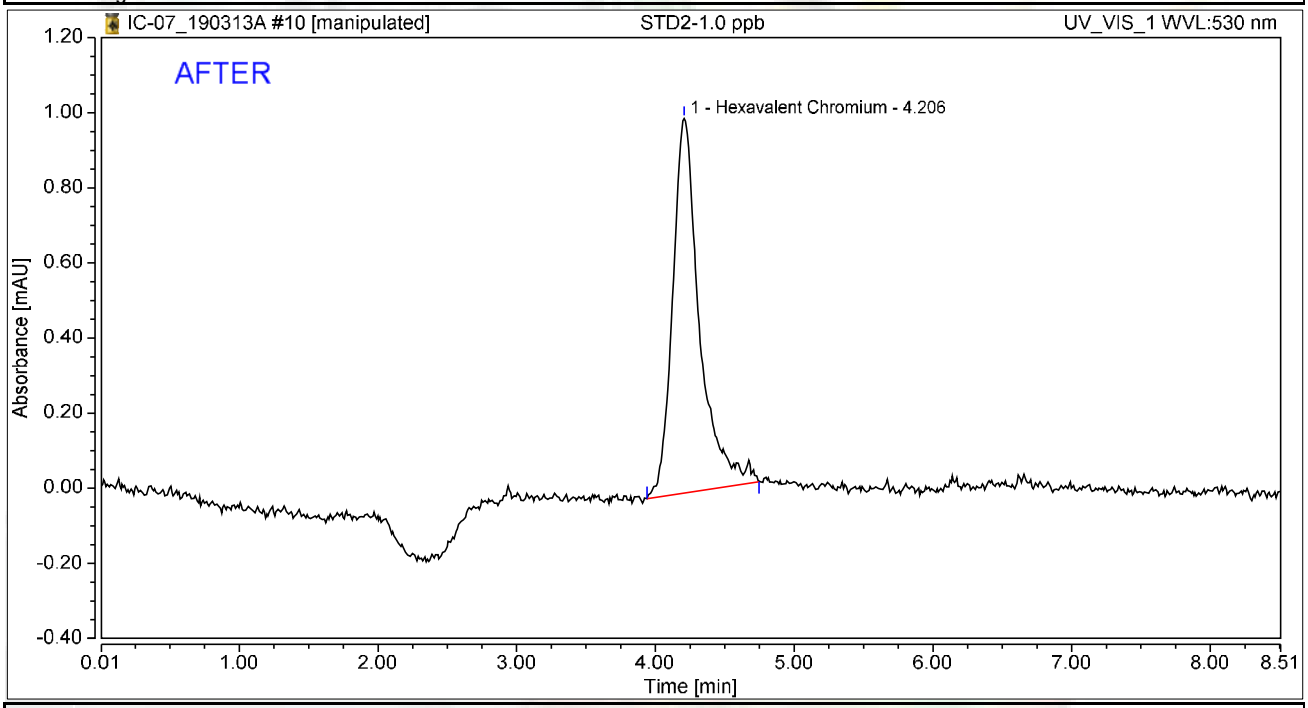
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.224 | 0.997 | 100.00 | 100.00 | 1.0173 |
| **Total:** | | | **0.224** | **0.997** | **100.00** | **100.00** | |

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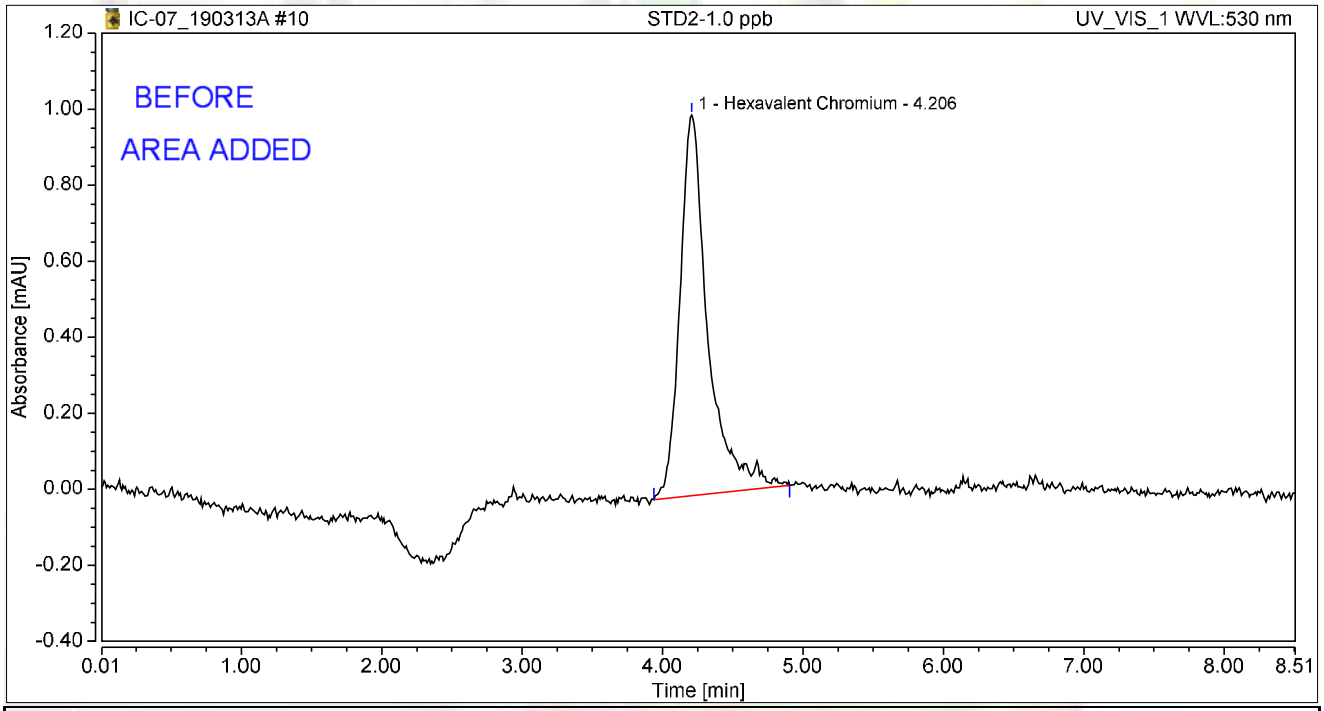
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.231 | 1.002 | 100.00 | 100.00 | 0.9515 |
| **Total:** | | | **0.231** | **1.002** | **100.00** | **100.00** | |

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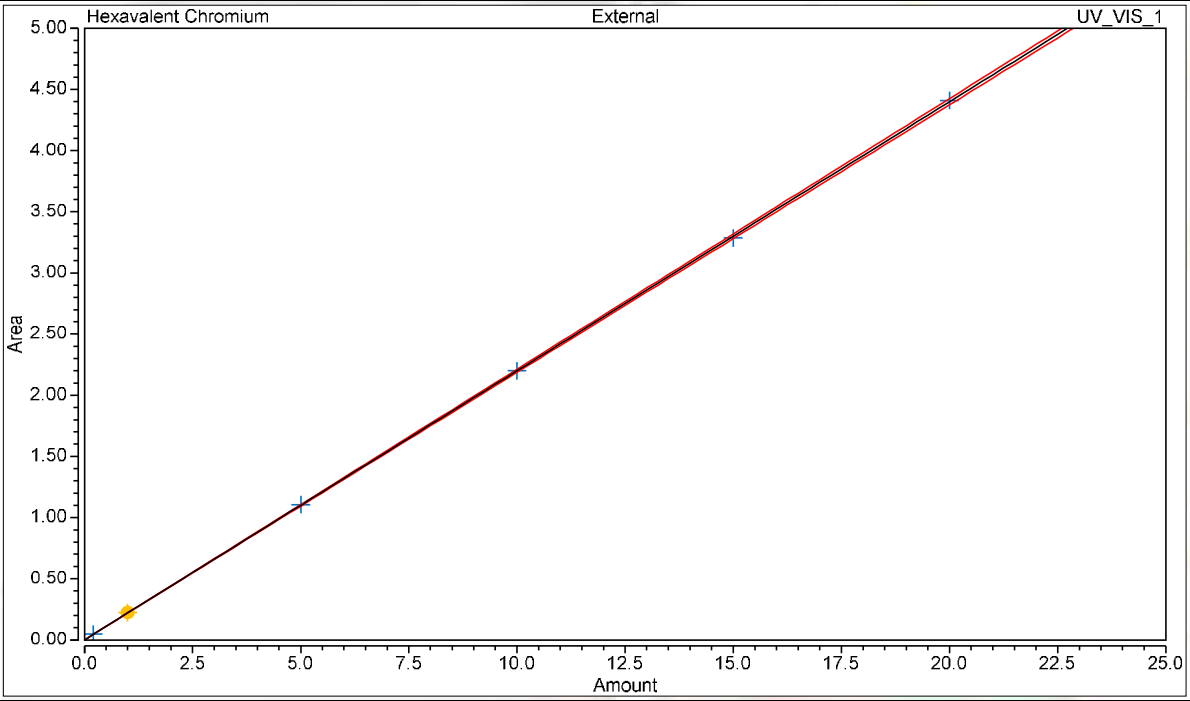
# Initial Calibration Summary

| Calibration Details | Hexavalent Chromium | | |
|---|---|---|---|
| *Calibration Type* | Lin | *Offset (C0)* | 0.0000 |
| *Evaluation Type* | Area | *Slope (C1)* | 0.2200 |
| *Number of Calibration Points* | 6 | *Curve (C2)* | 0.0000 |
| *Number of disabled Calibration Points* | 0 | *R-Square* | 0.99997 |

Calibration Plot Hexavalent Chromium




Calibration Results Hexavalent Chromium

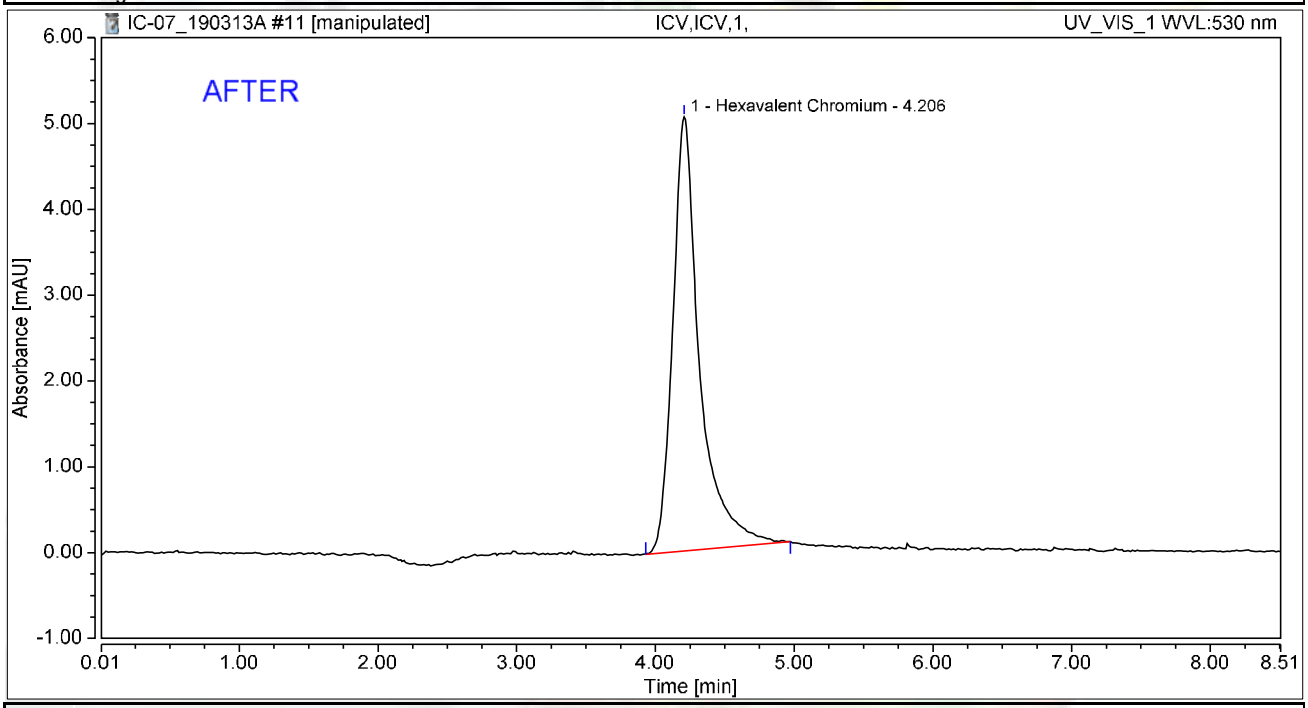
| No. | Injection Name | Calibration Level | X Value | Y Value | Area mAU*min | Height mAU |
|---|---|---|---|---|---|---|
| 4 | STD1-0.2 ppb | 01 | 0.2000 | 0.0471 | 0.047 | 0.244 |
| 6 | STD3-5.0 ppb | 03 | 5.0000 | 1.1057 | 1.106 | 4.936 |
| 7 | STD4-10.0 ppb | 04 | 10.0000 | 2.1988 | 2.199 | 9.844 |
| 8 | STD5-15.0 ppb | 05 | 15.0000 | 3.2845 | 3.284 | 14.466 |
| 9 | STD6-20.0 ppb | 06 | 20.0000 | 4.4091 | 4.409 | 19.328 |
| 10 | STD2-1.0 ppb | 02 | 1.0000 | 0.2238 | 0.224 | 0.997 |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICV,ICV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.134 | 5.058 | 100.00 | 100.00 | 5.1539 |
| **Total:** | | | **1.134** | **5.058** | **100.00** | **100.00** | |

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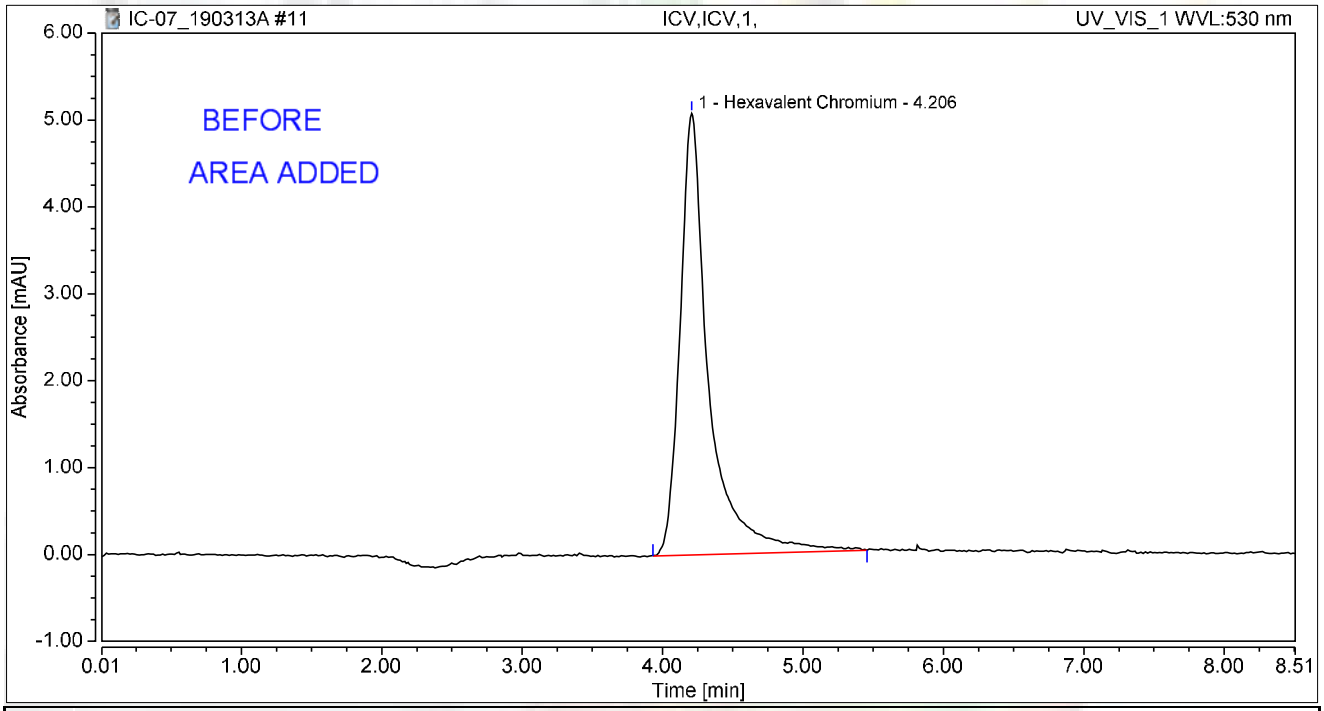
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICV,ICV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.210 | 5.084 | 100.00 | 100.00 | 4.9834 |
| **Total:** | | | **1.210** | **5.084** | **100.00** | **100.00** | |

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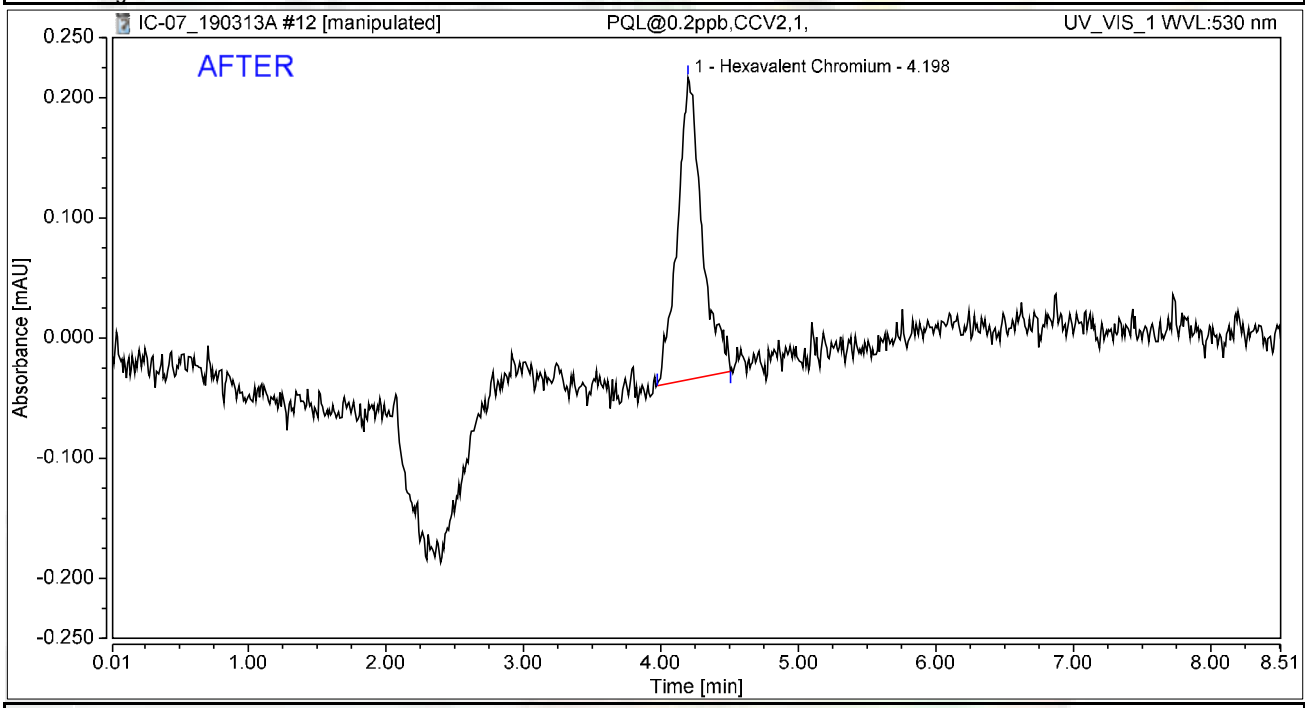
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 11:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.052 | 0.251 | 100.00 | 100.00 | 0.2346 |
| **Total:** | | | **0.052** | **0.251** | **100.00** | **100.00** | |

rba 3/17/2019

Reviewed by:
Nancy 3/26/2019

My first report/Integration

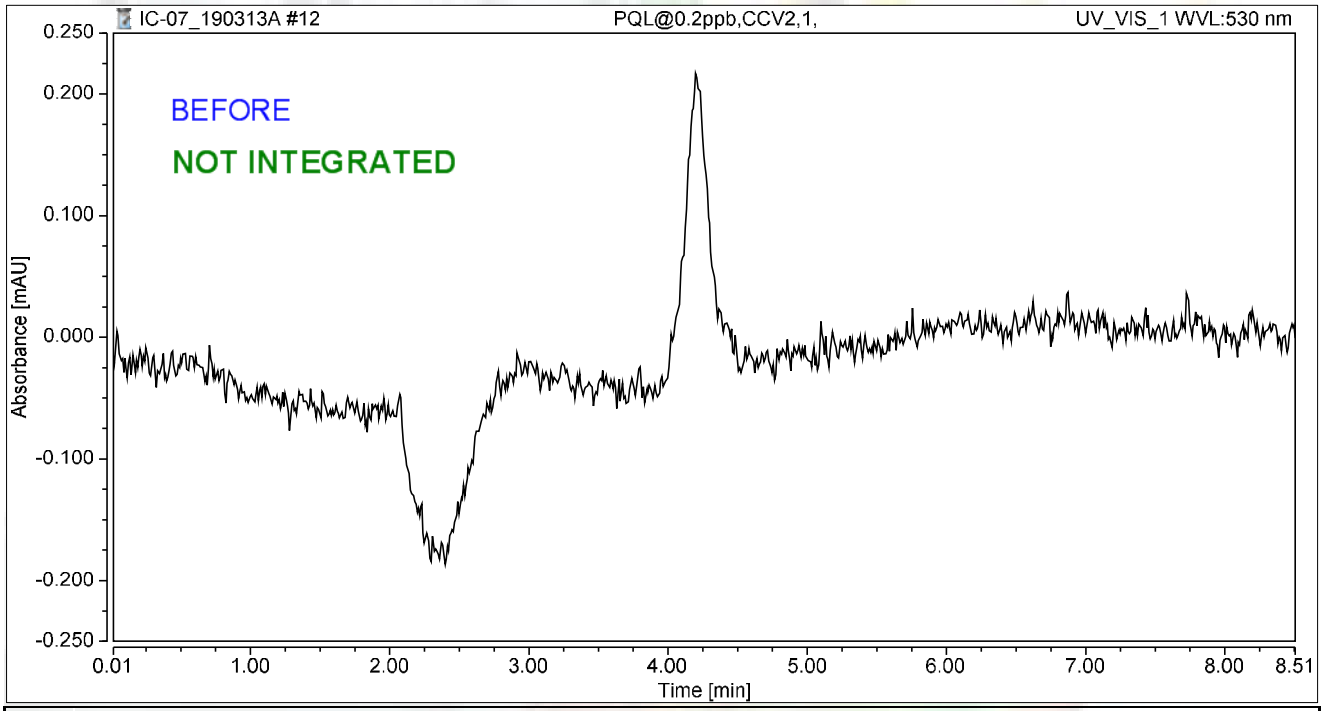
Chromeleon (c) Dionex
Version 7.1.1.1127

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 11:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

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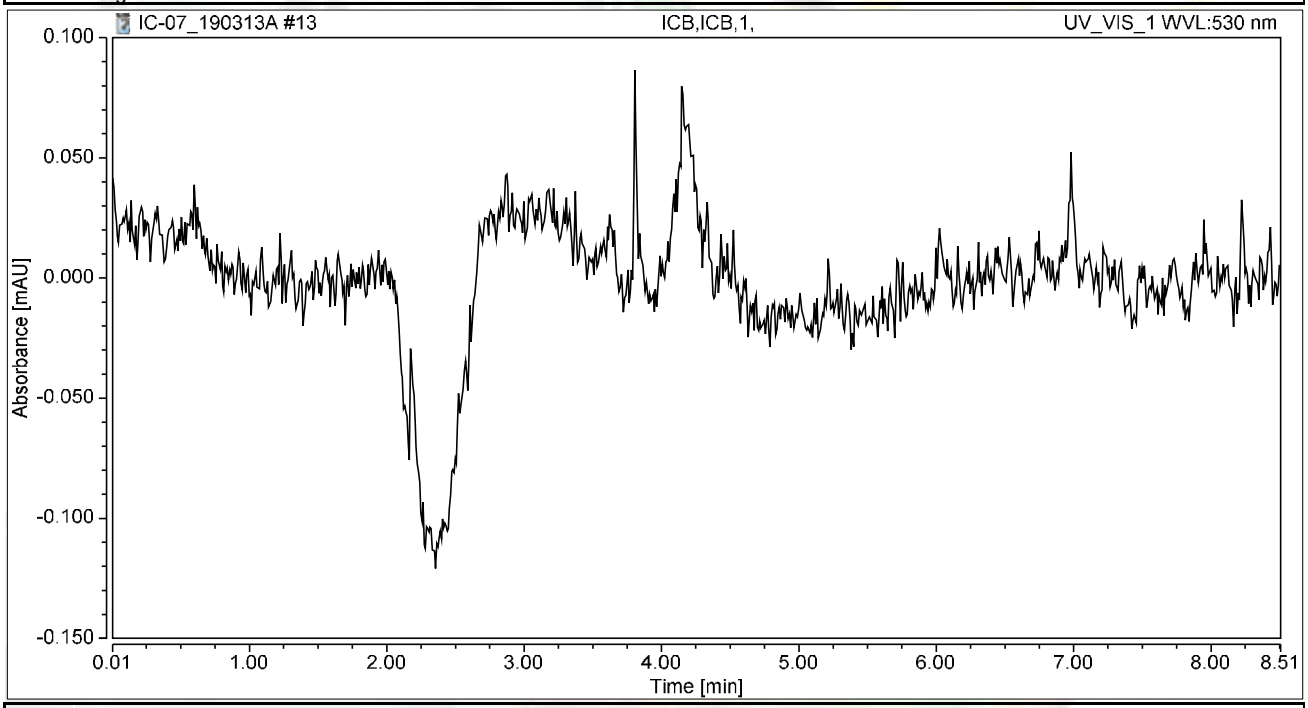
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICB,ICB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 11:10** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# RAW DATA

**INJECTION LOG: 190319A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:00 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:11 AM | Not Reported |
| 3 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 03/13/19 9:21 AM | Reported |
| 4 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:30 AM | Reported |
| 10 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:31 AM | Not Reported |
| 6 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:53 AM | Reported |
| 7 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:02 AM | Reported |
| 8 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:12 AM | Reported |
| 9 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:21 AM | Reported |
| 11 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/19/19 8:55 AM | Not Reported |
| 12 | CCV-1 | CCV | 1 | Hexavalent Chromium | 03/19/19 9:06 AM | Reported |
| 13 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 03/19/19 9:15 AM | Reported |
| 14 | CCB-1 | CCB | 1 | Hexavalent Chromium | 03/19/19 9:25 AM | Reported |
| 15 | MB-R132596 | MBLK | 1 | Hexavalent Chromium | 03/19/19 9:34 AM | Reported |
| 16 | LCS-R132596 | LCS | 1 | Hexavalent Chromium | 03/19/19 9:44 AM | Reported |
| 17 | N034660-001AMS | MS | 5 | Hexavalent Chromium | 03/19/19 9:53 AM | Not Reported |
| 18 | N034661-002A | SAMP | 1 | Hexavalent Chromium | 03/19/19 10:03 AM | Reported |
| 19 | N034662-001A | SAMP | 20 | Hexavalent Chromium | 03/19/19 10:12 AM | Reported |
| 20 | N034660-001A | SAMP | 5 | Hexavalent Chromium | 03/19/19 10:22 AM | Reported |
| 21 | N034660-001AMS | MS | 1 | Hexavalent Chromium | 03/19/19 10:31 AM | Not Reported |
| 22 | N034660-001AMS | MS | 5 | Hexavalent Chromium | 03/19/19 10:48 AM | Reported |
| 23 | N034662-001ADUP | DUP | 20 | Hexavalent Chromium | 03/19/19 11:00 AM | Reported |
| 24 | N034660-001AMSD | MSD | 5 | Hexavalent Chromium | 03/19/19 11:14 AM | Reported |
| 25 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 03/19/19 11:25 AM | Reported |
| 26 | CCB-2 | CCB | 1 | Hexavalent Chromium | 03/19/19 11:34 AM | Reported |
| 27 | N034660-001A | SAMP | 1 | Hexavalent Chromium | 03/19/19 11:44 AM | Not Reported |
| 28 | N034661-002AMS | MS | 1 | Hexavalent Chromium | 03/19/19 11:53 AM | Reported |
| 29 | N034662-001AMS | MS | 20 | Hexavalent Chromium | 03/19/19 12:03 PM | Reported |
| 30 | N034662-002AMS | MS | 20 | Hexavalent Chromium | 03/19/19 12:12 PM | Reported |
| 31 | N034662-002A | SAMP | 20 | Hexavalent Chromium | 03/19/19 12:22 PM | Reported |
| 32 | N034662-003A | SAMP | 20 | Hexavalent Chromium | 03/19/19 12:31 PM | Reported |
| 33 | N034662-003AMS | MS | 20 | Hexavalent Chromium | 03/19/19 12:41 PM | Reported |
| 34 | N034662-004A | SAMP | 10 | Hexavalent Chromium | 03/19/19 12:50 PM | Reported |
| 35 | N034662-004AMS | MS | 10 | Hexavalent Chromium | 03/19/19 1:00 PM | Reported |
| 36 | N034662-005A | SAMP | 1 | Hexavalent Chromium | 03/19/19 1:09 PM | Reported |
| 37 | CCV-3 | CCV | 1 | Hexavalent Chromium | 03/19/19 1:18 PM | Reported |
| 38 | CCB-3 | CCB | 1 | Hexavalent Chromium | 03/19/19 1:28 PM | Reported |
| 39 | N034662-005AMS | MS | 1 | Hexavalent Chromium | 03/19/19 1:37 PM | Reported |
| 40 | N034662-001A | SAMP | 20 | Hexavalent Chromium | 03/19/19 1:51 PM | Not Reported |
| 41 | N034662-002A | SAMP | 20 | Hexavalent Chromium | 03/19/19 2:02 PM | Not Reported |
| 42 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 03/19/19 2:12 PM | Reported |
| 43 | CCB-4 | CCB | 1 | Hexavalent Chromium | 03/19/19 2:21 PM | Reported |

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Mary 3/26/2019

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190319A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **19/Mar/19 14:52:13** |
| *No. of Injections:* | **46** | *Updated By:* | **ics 5000** |

## Injection Details

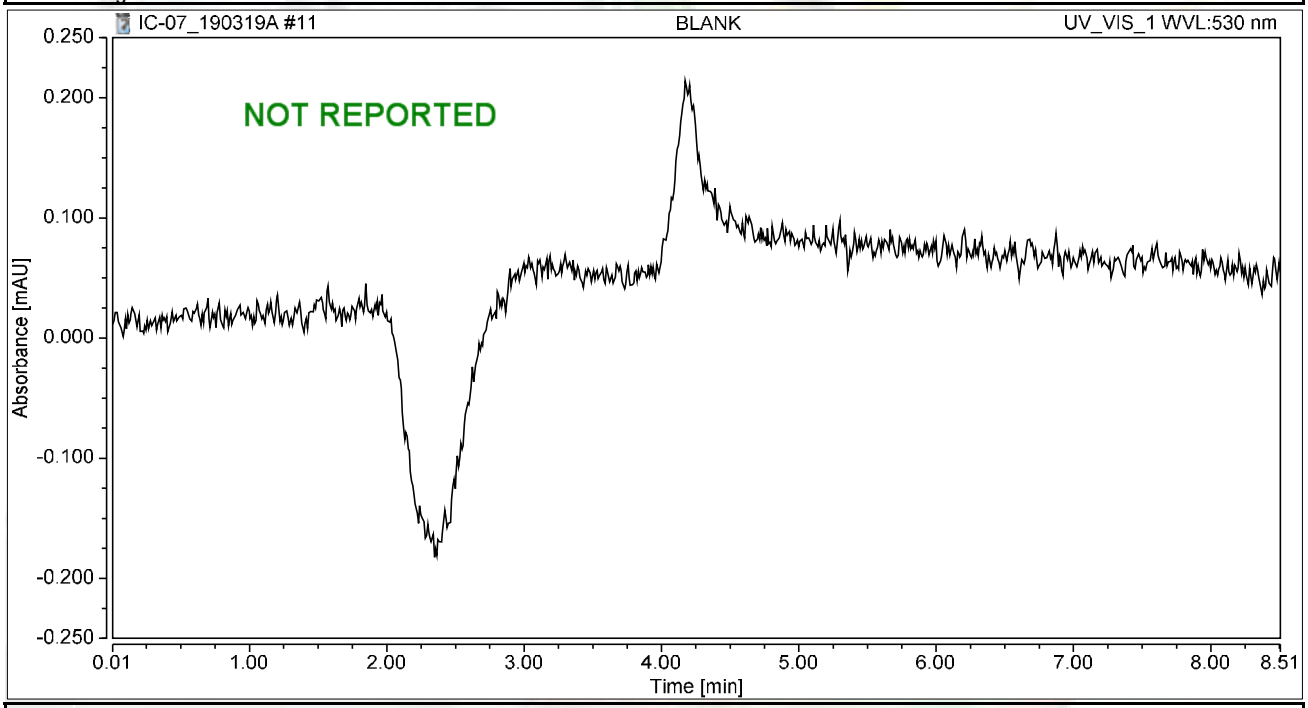
| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 03/13/2019 09:00 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 03/13/2019 09:11 | Finished | BLANK |
| 3 | iBLANK | 3 | 1000 | Unknown | | 03/13/2019 09:21 | Finished | INSTRUMENT BLANK |
| 4 | STD1-0.2 ppb | 4 | 1000 | Calibration Standard | 01 | 03/13/2019 09:30 | Finished | 0.2 ppb, IWST-190221A |
| 5 | STD2-1.0 ppb | 5 | 1000 | Unknown | | 03/13/2019 09:41 | Finished | 1.0 ppb, IWST-190221A |
| 6 | STD3-5.0 ppb | 6 | 1000 | Calibration Standard | 03 | 03/13/2019 09:53 | Finished | 5.0 ppb, IWST-1190221A |
| 7 | STD4-10.0 ppb | 7 | 1000 | Calibration Standard | 04 | 03/13/2019 10:02 | Finished | 10 ppb, IWST-190221A |
| 8 | STD5-15.0 ppb | 8 | 1000 | Calibration Standard | 05 | 03/13/2019 10:12 | Finished | 15 ppb, IWST-190221A |
| 9 | STD6-20.0 ppb | 9 | 1000 | Calibration Standard | 06 | 03/13/2019 10:21 | Finished | 20 ppb, IWST-190221A |
| 10 | STD2-1.0 ppb | 10 | 1000 | Calibration Standard | 02 | 03/13/2019 10:31 | Finished | 1.0 ppb, IWST-190221A |
| 11 | BLANK | 1 | 1000 | Unknown | | 03/19/2019 08:55 | Finished | BLANK |
| 12 | CCV-1,CCV,1, | 2 | 1000 | Unknown | | 03/19/2019 09:06 | Finished | ICV @5ppb, IWST-190221B |
| 13 | PQL@0.2ppb,CCV2,1 | 3 | 1000 | Unknown | | 03/19/2019 09:15 | Finished | PQL @ 0.2ppb |
| 14 | CCB-1,CCB,1, | 4 | 1000 | Unknown | | 03/19/2019 09:25 | Finished | ICB R190211C |
| 15 | MB-H2O,MBLK,1, | 5 | 1000 | Unknown | | 03/19/2019 09:34 | Finished | MB R190211C |
| 16 | LCS-H2O,LCS,1, | 6 | 1000 | Unknown | | 03/19/2019 09:44 | Finished | LCS @5ppb, IWST-190221B |
| 17 | N034660-001AMS,MS | 7 | 1000 | Unknown | | 03/19/2019 09:53 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 18 | N034661-002A,SAMP | 8 | 1000 | Unknown | | 03/19/2019 10:03 | Finished | SAMP,10mL |
| 19 | N034662-001A,SAMP | 9 | 1000 | Unknown | | 03/19/2019 10:12 | Finished | SAMP,0.5>10mL |
| 20 | N034660-001A,SAMP | 10 | 1000 | Unknown | | 03/19/2019 10:22 | Finished | SAMP,2>10mL |
| 21 | N034660-001AMS,MS | 11 | 1000 | Unknown | | 03/19/2019 10:31 | Finished | MS (1ppb), IWST-190221B,10 |
| 22 | N034660-001AMS,MS | 13 | 1000 | Unknown | | 03/19/2019 10:48 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 23 | N034662-001ADUP,D | 14 | 1000 | Unknown | | 03/19/2019 11:00 | Finished | DUP,0.5>10mL |
| 24 | N034660-001AMSD,M | 16 | 1000 | Unknown | | 03/19/2019 11:14 | Finished | MSD (1ppb), IWST-190221B,2> |
| 25 | CCV-2,CCV1,1, | 17 | 1000 | Unknown | | 03/19/2019 11:25 | Finished | CCV @10ppb, IWST-190221A |
| 26 | CCB-2,CCB,1, | 18 | 1000 | Unknown | | 03/19/2019 11:34 | Finished | CCB R190211C |
| 27 | N034660-001A,SAMP | 19 | 1000 | Unknown | | 03/19/2019 11:44 | Finished | SAMP,10mL |
| 28 | N034661-002AMS,MS | 20 | 1000 | Unknown | | 03/19/2019 11:53 | Finished | MS (1ppb), IWST-190221B,10 |
| 29 | N034662-001AMS,MS | 21 | 1000 | Unknown | | 03/19/2019 12:03 | Finished | MS (5ppb), IWST-190221B,0.5 |
| 30 | N034662-002AMS,MS | 22 | 1000 | Unknown | | 03/19/2019 12:12 | Finished | MS (5ppb), IWST-190221B,0.5 |
| 31 | N034662-002A,SAMP | 23 | 1000 | Unknown | | 03/19/2019 12:22 | Finished | SAMP,0.5>10mL |
| 32 | N034662-003A,SAMP | 24 | 1000 | Unknown | | 03/19/2019 12:31 | Finished | SAMP,0.5>10mL |
| 33 | N034662-003AMS,MS | 25 | 1000 | Unknown | | 03/19/2019 12:41 | Finished | MS (5ppb), IWST-190221B,0.5 |
| 34 | N034662-004A,SAMP | 26 | 1000 | Unknown | | 03/19/2019 12:50 | Finished | SAMP,1>10mL |
| 35 | N034662-004AMS,MS | 27 | 1000 | Unknown | | 03/19/2019 13:00 | Finished | MS (5ppb), IWST-190221B,1>1 |
| 36 | N034662-005A,SAMP | 28 | 1000 | Unknown | | 03/19/2019 13:09 | Finished | SAMP,10mL |
| 37 | CCV-3,CCV,1, | 29 | 1000 | Unknown | | 03/19/2019 13:18 | Finished | CCV @5ppb, IWST-190221A |
| 38 | CCB-3,CCB,1, | 30 | 1000 | Unknown | | 03/19/2019 13:28 | Finished | CCB R190211C |
| 39 | N034662-005AMS,MS | 31 | 1000 | Unknown | | 03/19/2019 13:37 | Finished | MS (1ppb), IWST-190221B,10 |
| 40 | N034662-001A,SAMP | 33 | 1000 | Unknown | | 03/19/2019 13:51 | Finished | SAMP,0.5>10mL |
| 41 | N034662-002A,SAMP | 34 | 1000 | Unknown | | 03/19/2019 14:02 | Finished | SAMP,0.5>10mL |
| 42 | CCV-4,CCV1,1, | 35 | 1000 | Unknown | | 03/19/2019 14:12 | Finished | CCV @10ppb, IWST-190221A |
| 43 | CCB-4,CCB,1, | 36 | 1000 | Unknown | | 03/19/2019 14:21 | Finished | CCB R190211C |
| 44 | SHUTDOWN | 37 | 1000 | Unknown | | 03/19/2019 14:31 | Finished | |
| 45 | Eluent: R190318A | 38 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 46 | PCR: R190318B | 39 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 08:55** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

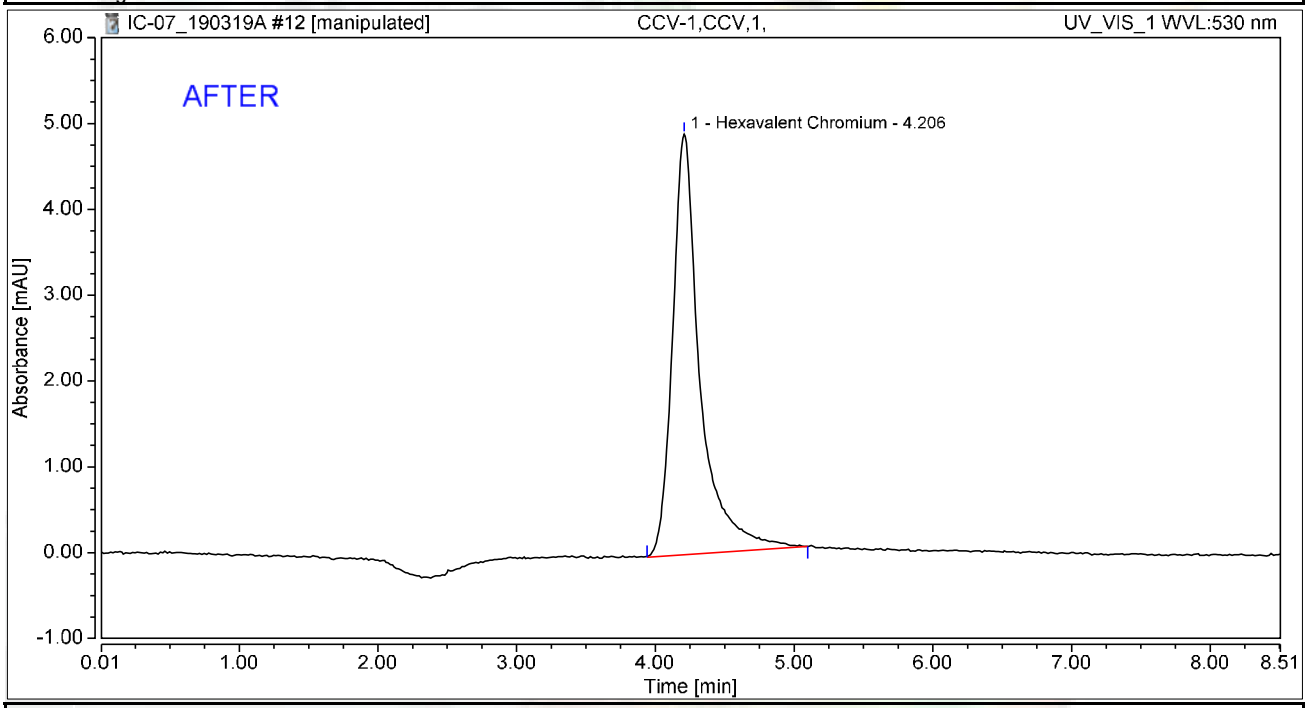
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-1,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 09:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.128 | 4.897 | 100.00 | 100.00 | 5.1303 |
| **Total:** | | | **1.128** | **4.897** | **100.00** | **100.00** | |

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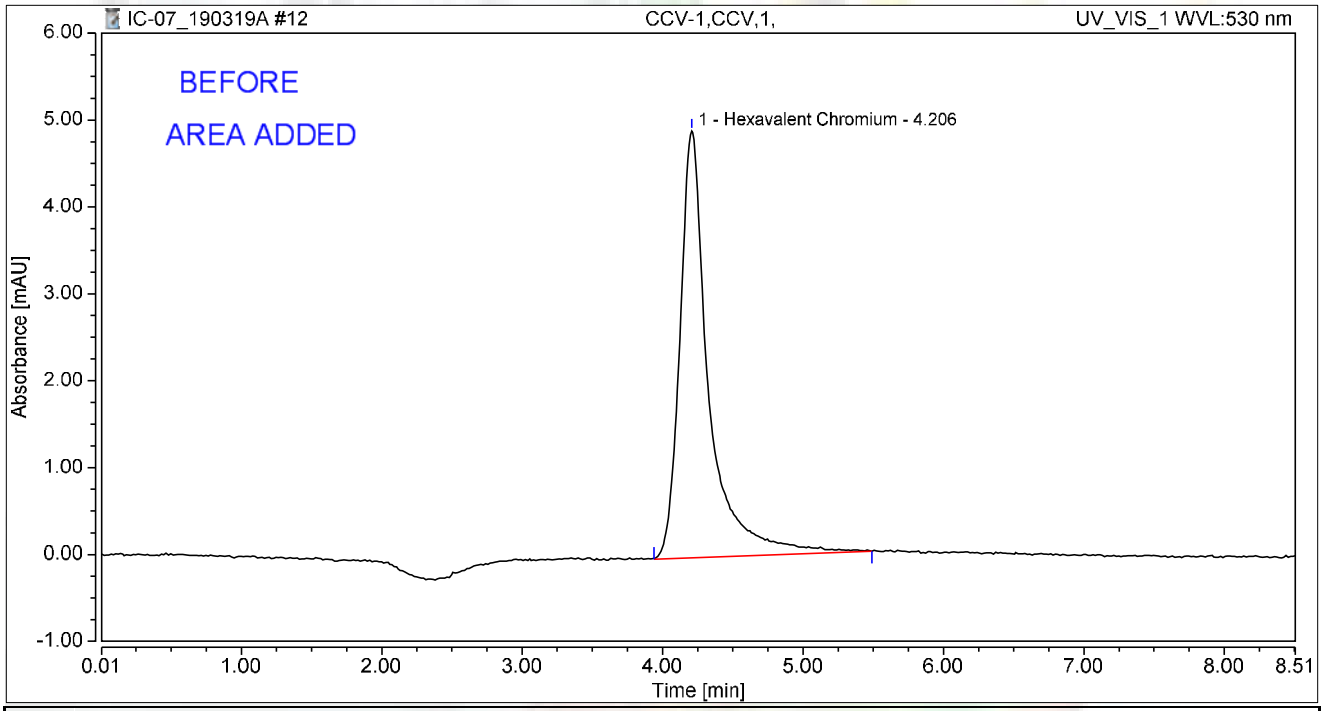
Reviewed by:
Nancy 3/26/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-1,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 09:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.172 | 4.911 | 100.00 | 100.00 | 5.3305 |
| **Total:** | | | **1.172** | **4.911** | **100.00** | **100.00** | |

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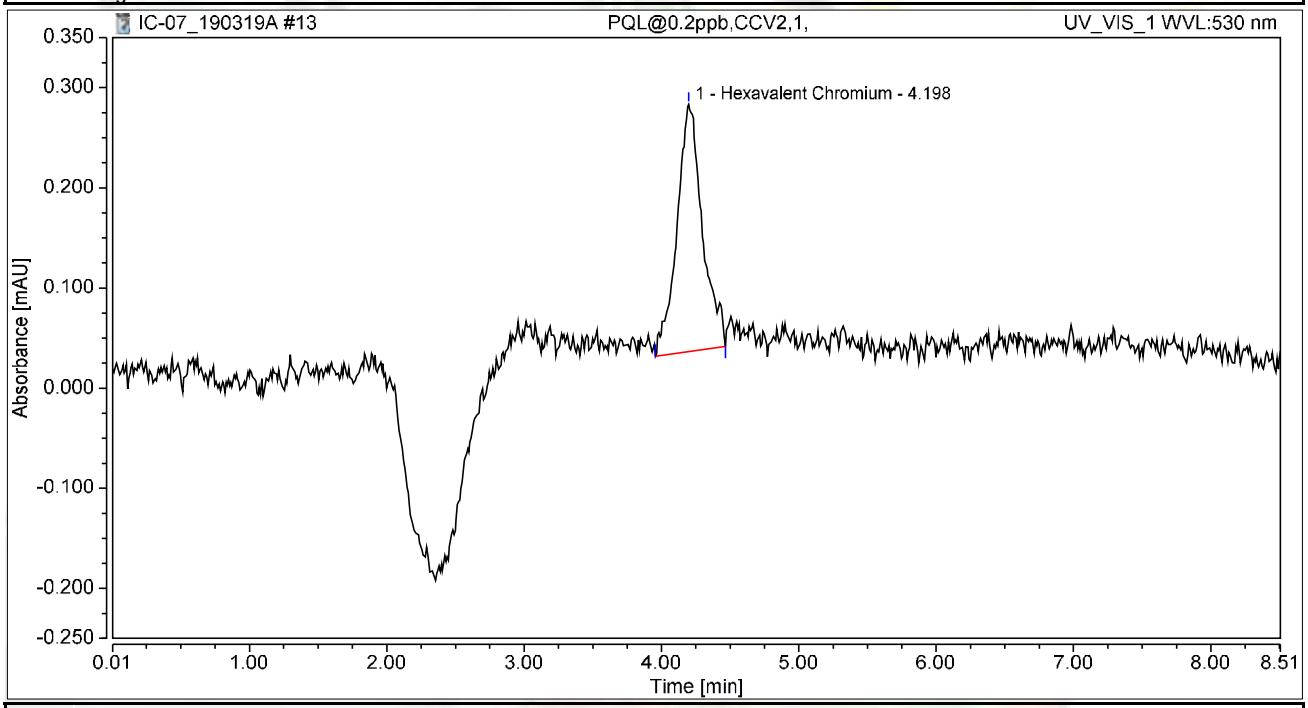
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 09:15** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

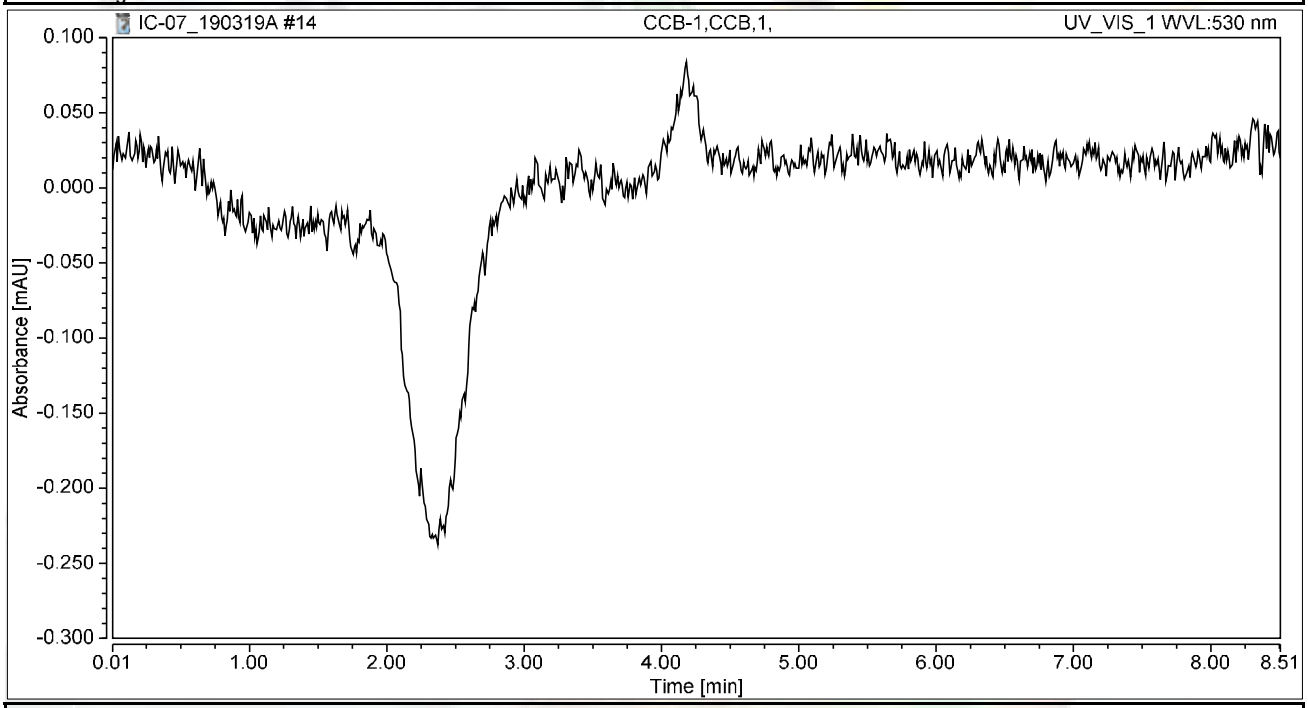
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.053 | 0.247 | 100.00 | 100.00 | 0.2398 |
| **Total:** | | | **0.053** | **0.247** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-1,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 09:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

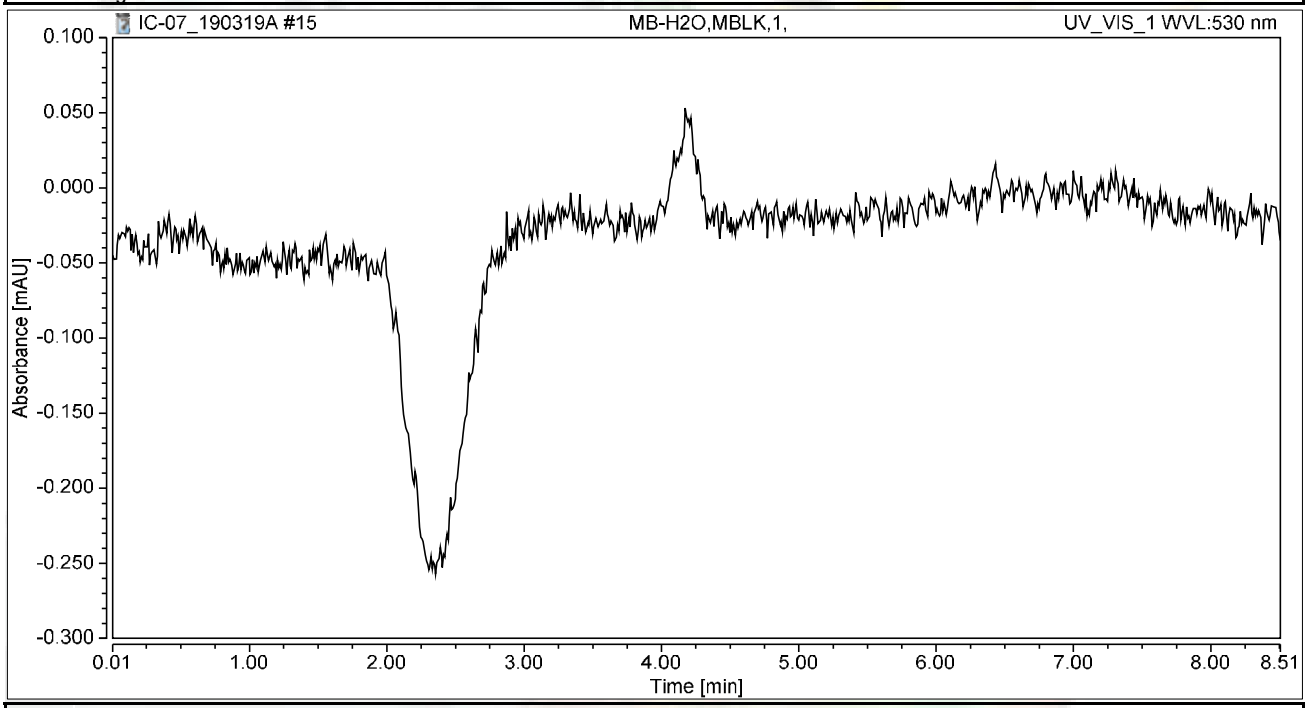
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **MB-H2O,MBLK,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 09:34** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

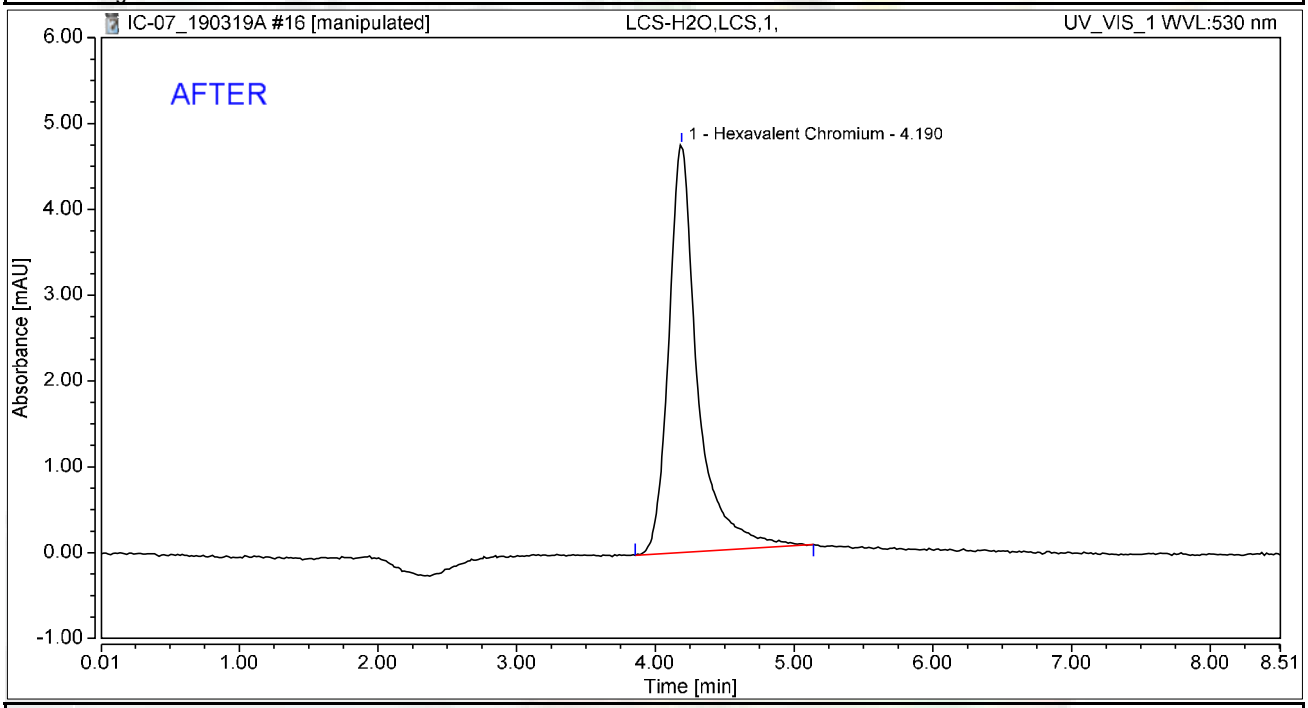
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **LCS-H2O,LCS,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 09:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.190 | 1.149 | 4.751 | 100.00 | 100.00 | 5.2232 |
| **Total:** | | | **1.149** | **4.751** | **100.00** | **100.00** | |

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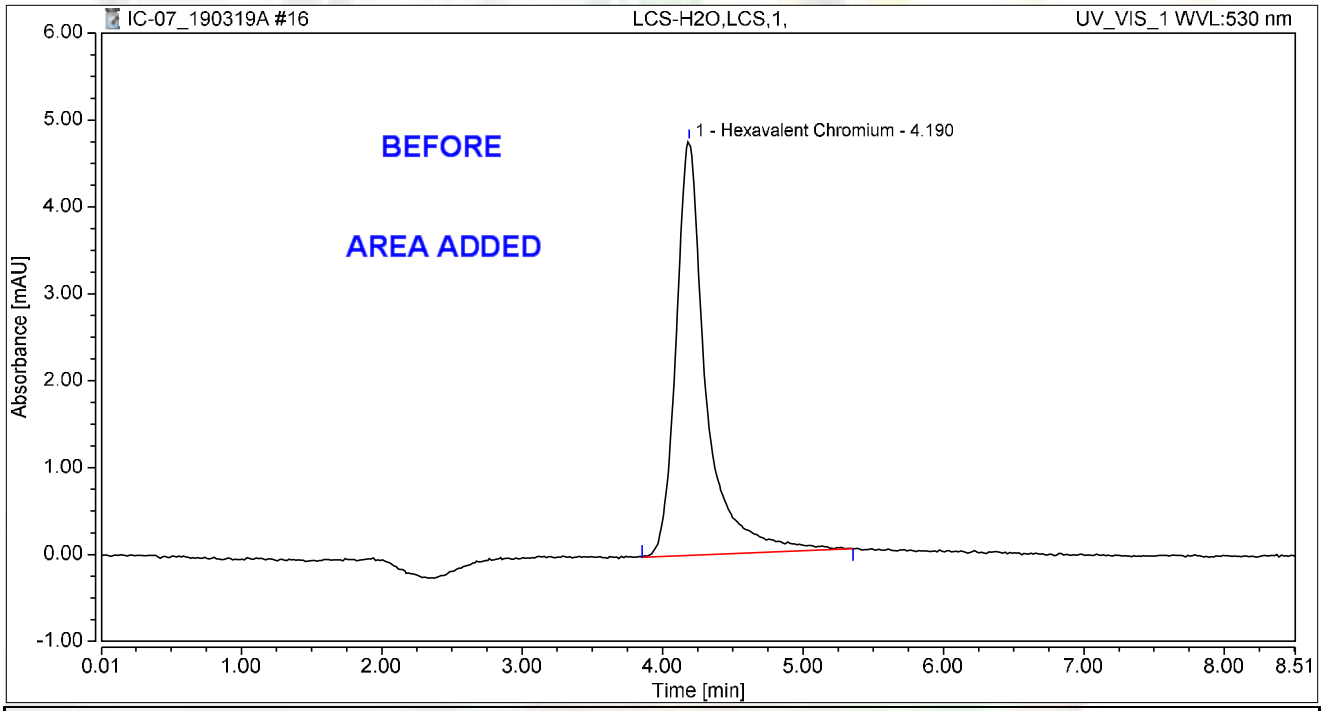
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **LCS-H2O,LCS,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 09:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.190 | 1.179 | 4.761 | 100.00 | 100.00 | 5.3585 |
| **Total:** | | | **1.179** | **4.761** | **100.00** | **100.00** | |

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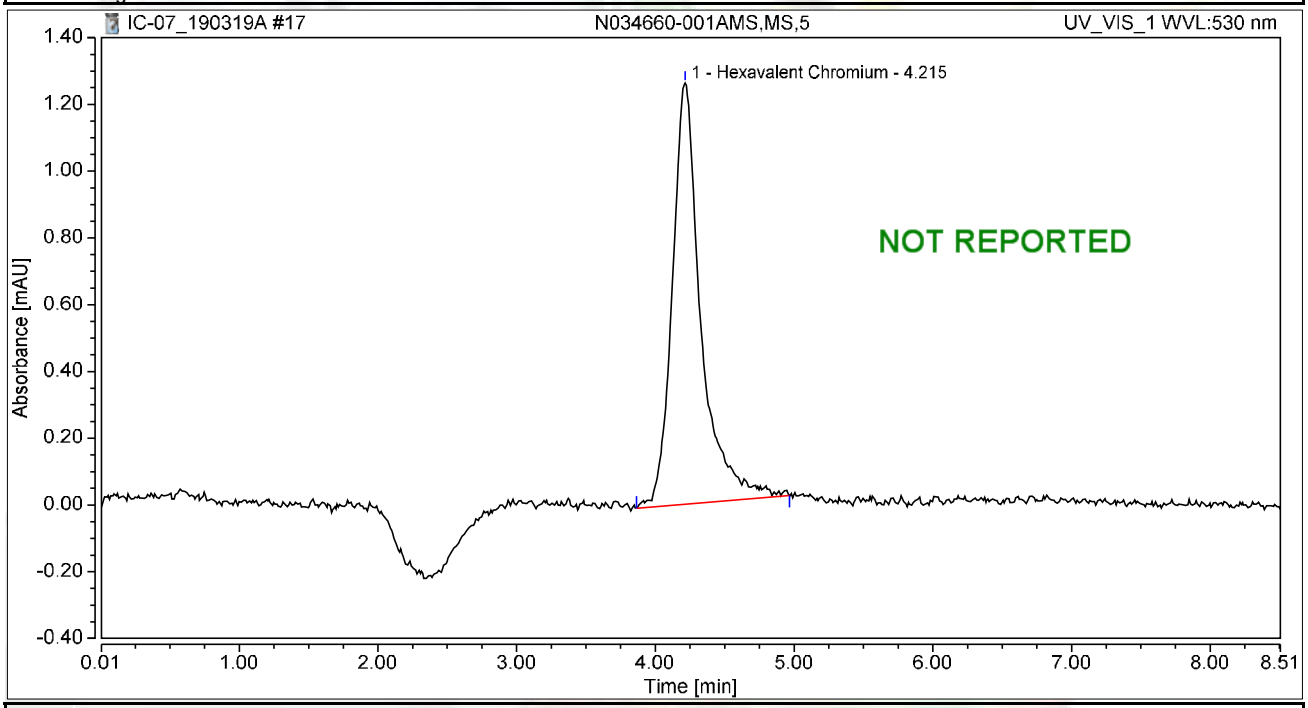
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034660-001AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 09:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 0.301 | 1.261 | 100.00 | 100.00 | 1.3694 |
| **Total:** | | | **0.301** | **1.261** | **100.00** | **100.00** | |

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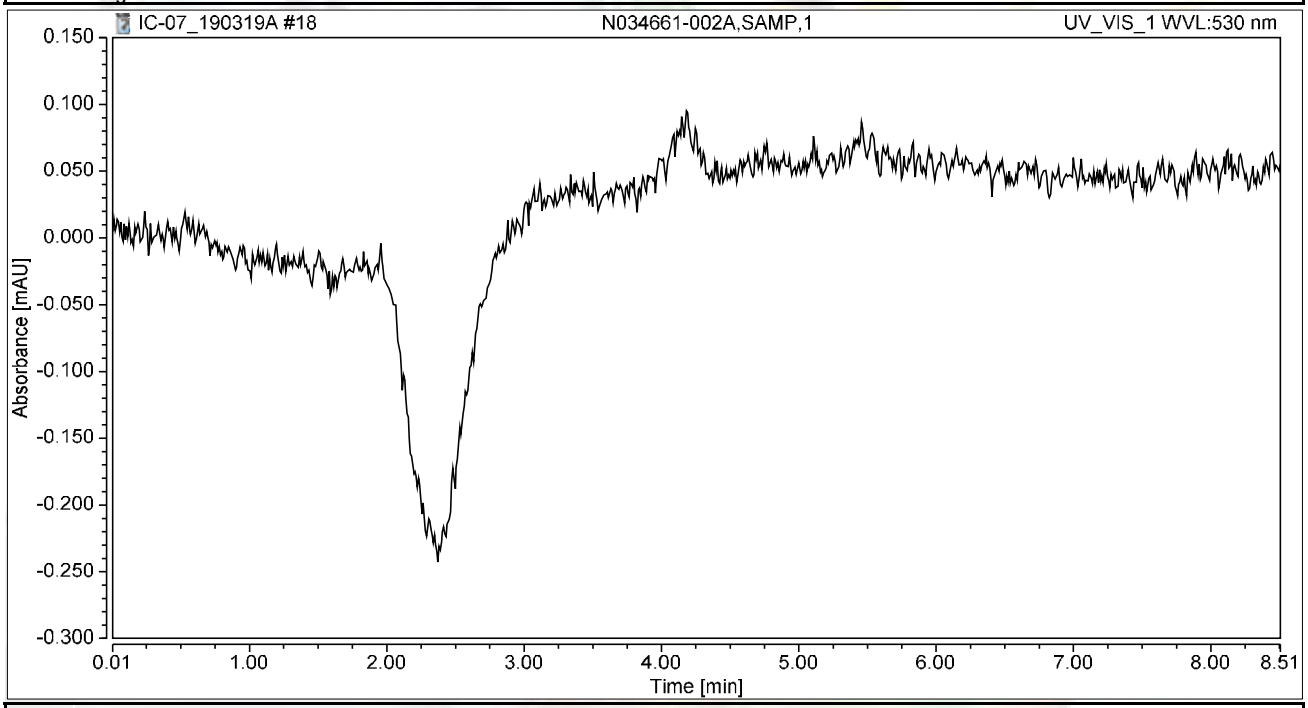
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034661-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 10:03** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

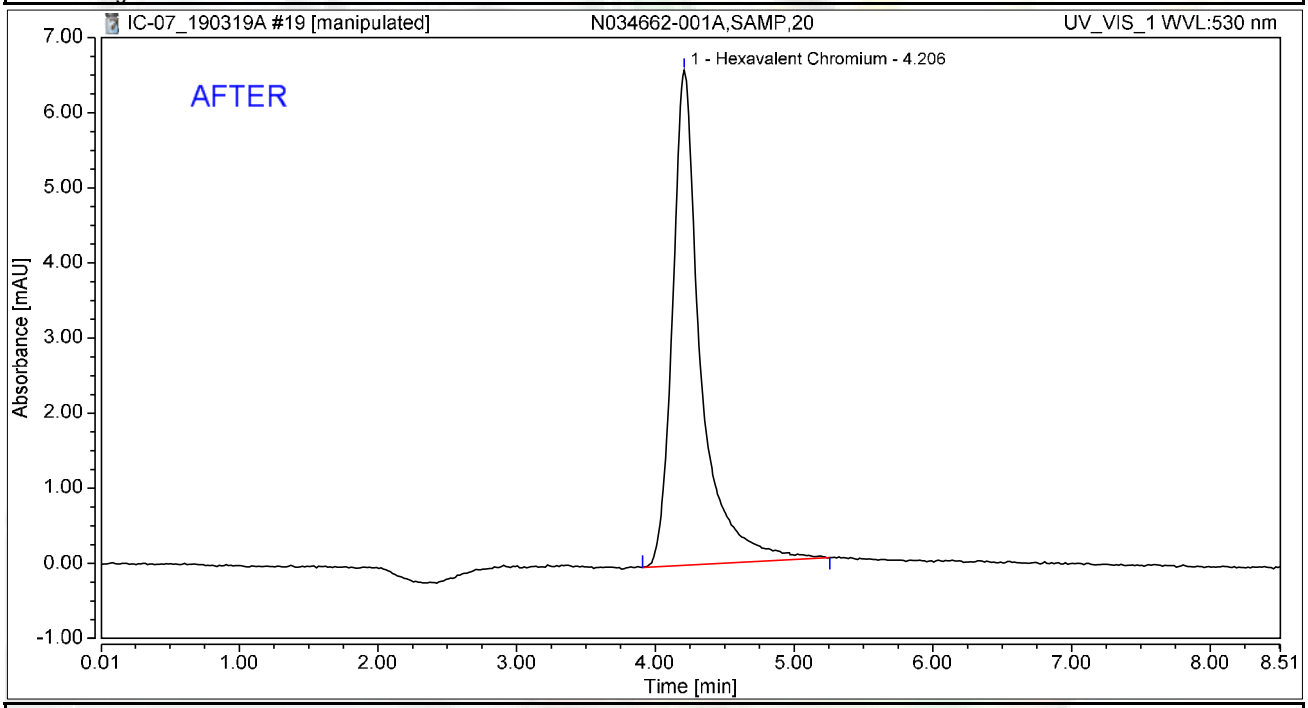
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-001A,SAMP,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 10:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.553 | 6.590 | 100.00 | 100.00 | 7.0608 |
| **Total:** | | | **1.553** | **6.590** | **100.00** | **100.00** | |

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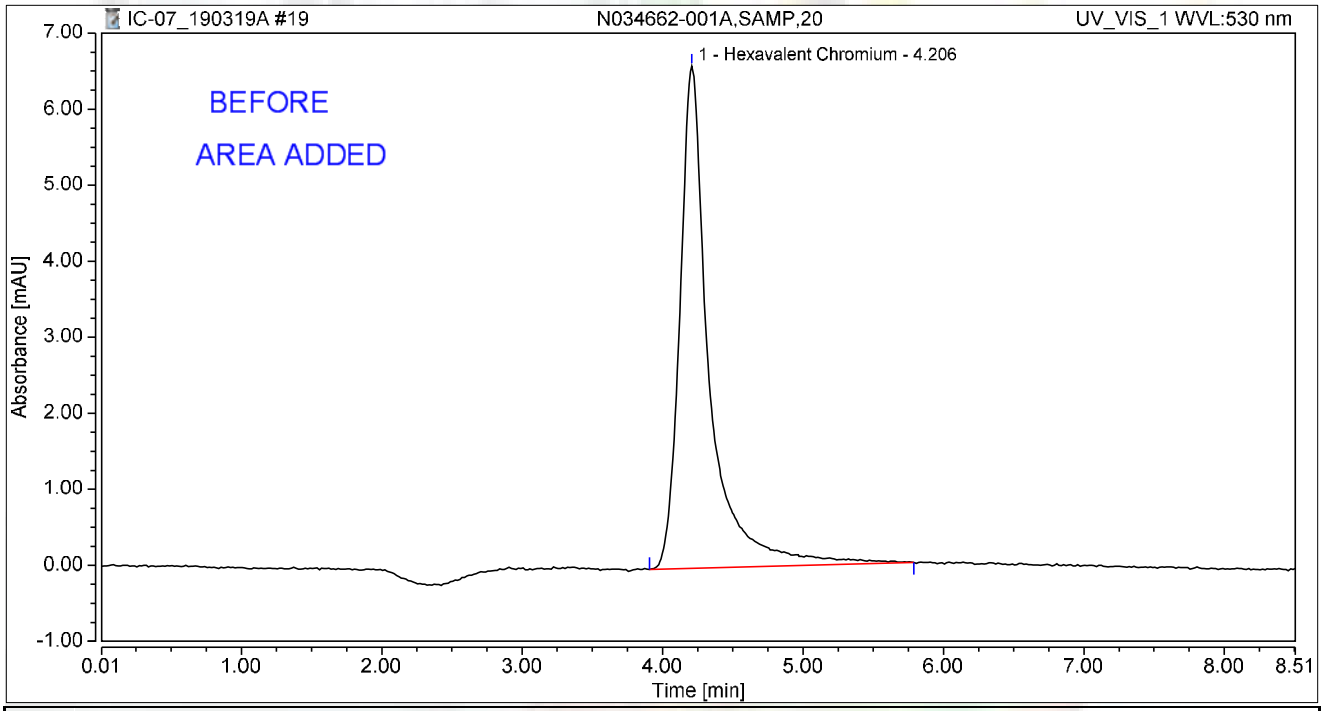
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-001A,SAMP,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 10:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.614 | 6.604 | 100.00 | 100.00 | 7.3366 |
| **Total:** | | | **1.614** | **6.604** | **100.00** | **100.00** | |

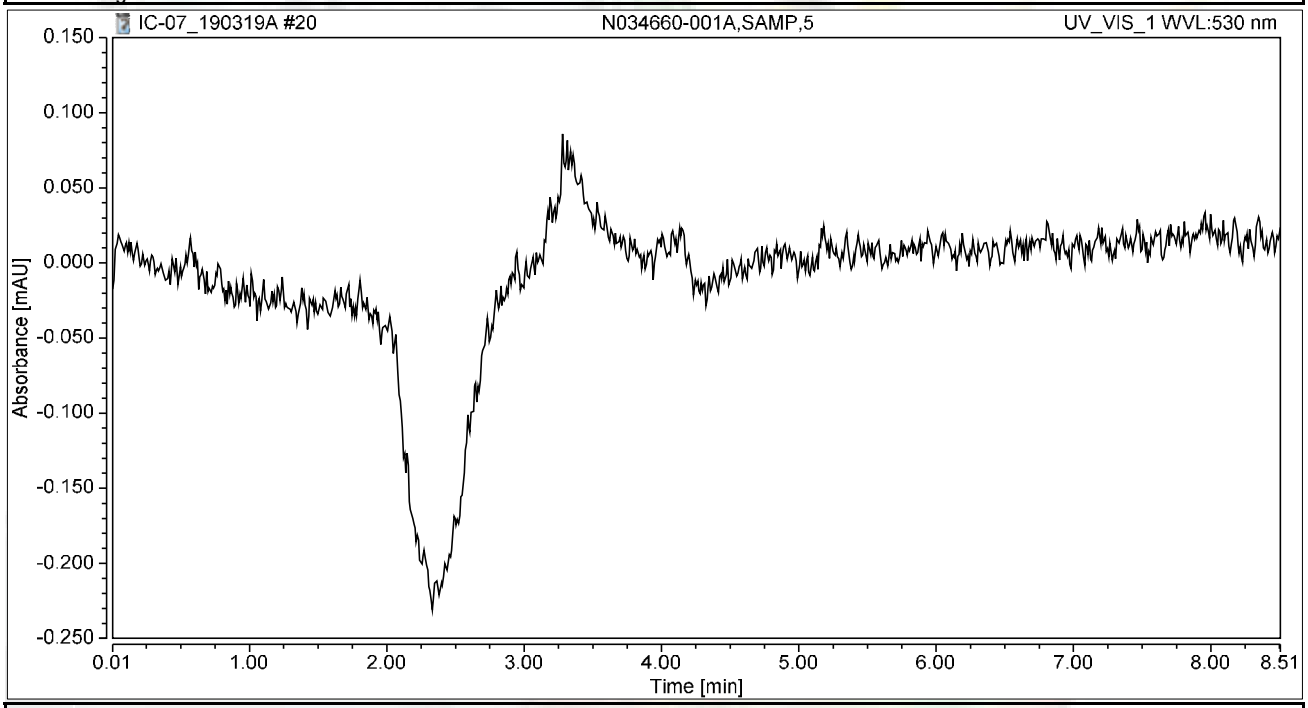
rba 3/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034660-001A,SAMP,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 10:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

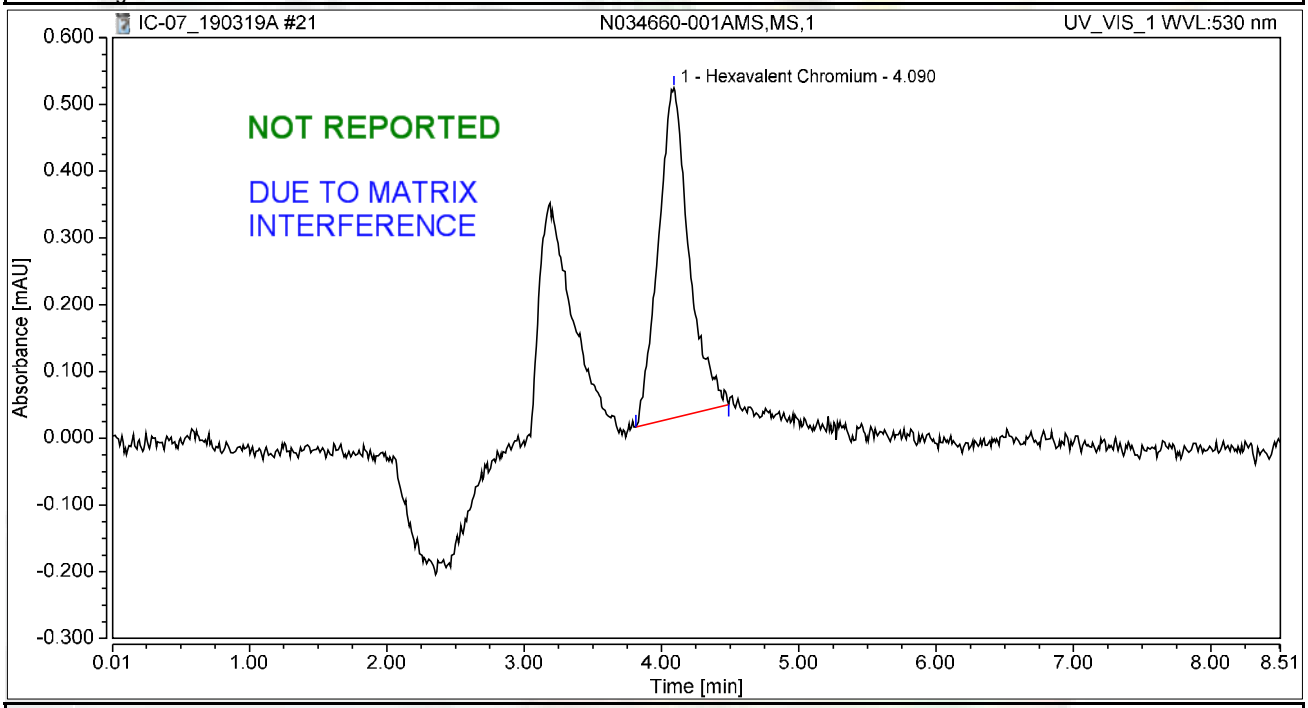
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034660-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 10:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

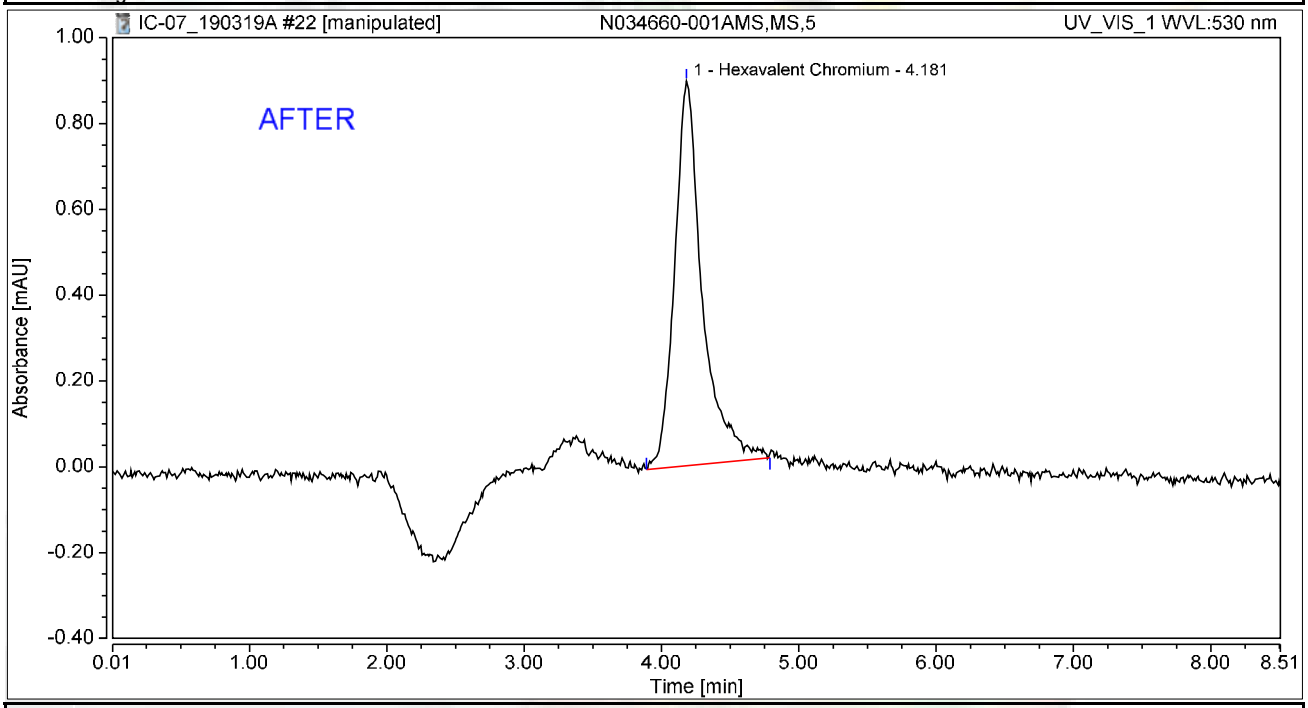
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.090 | 0.128 | 0.494 | 100.00 | 100.00 | 0.5821 |
| **Total:** | | | **0.128** | **0.494** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034660-001AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 10:48** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.181 | 0.210 | 0.897 | 100.00 | 100.00 | 0.9548 |
| **Total:** | | | **0.210** | **0.897** | **100.00** | **100.00** | |

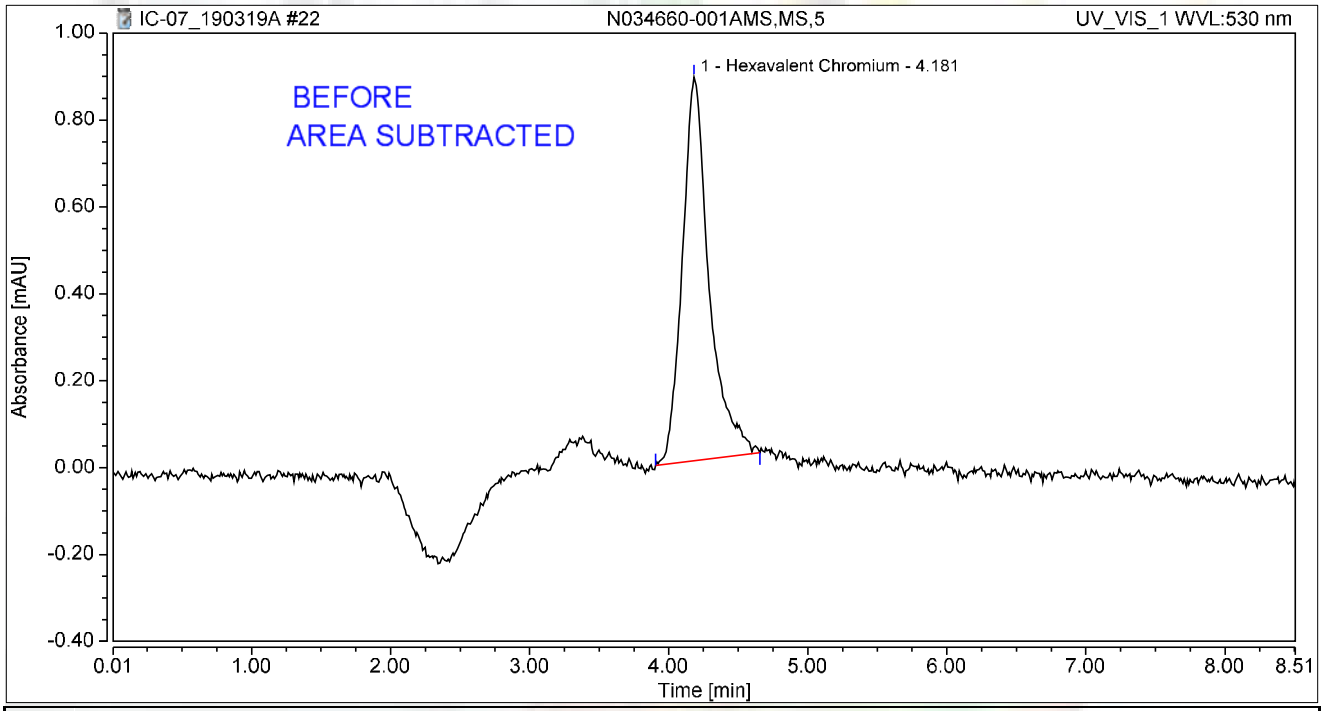
rba 3/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034660-001AMS,MS,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 10:48** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.181 | 0.197 | 0.883 | 100.00 | 100.00 | 0.8962 |
| **Total:** | | | **0.197** | **0.883** | **100.00** | **100.00** | |

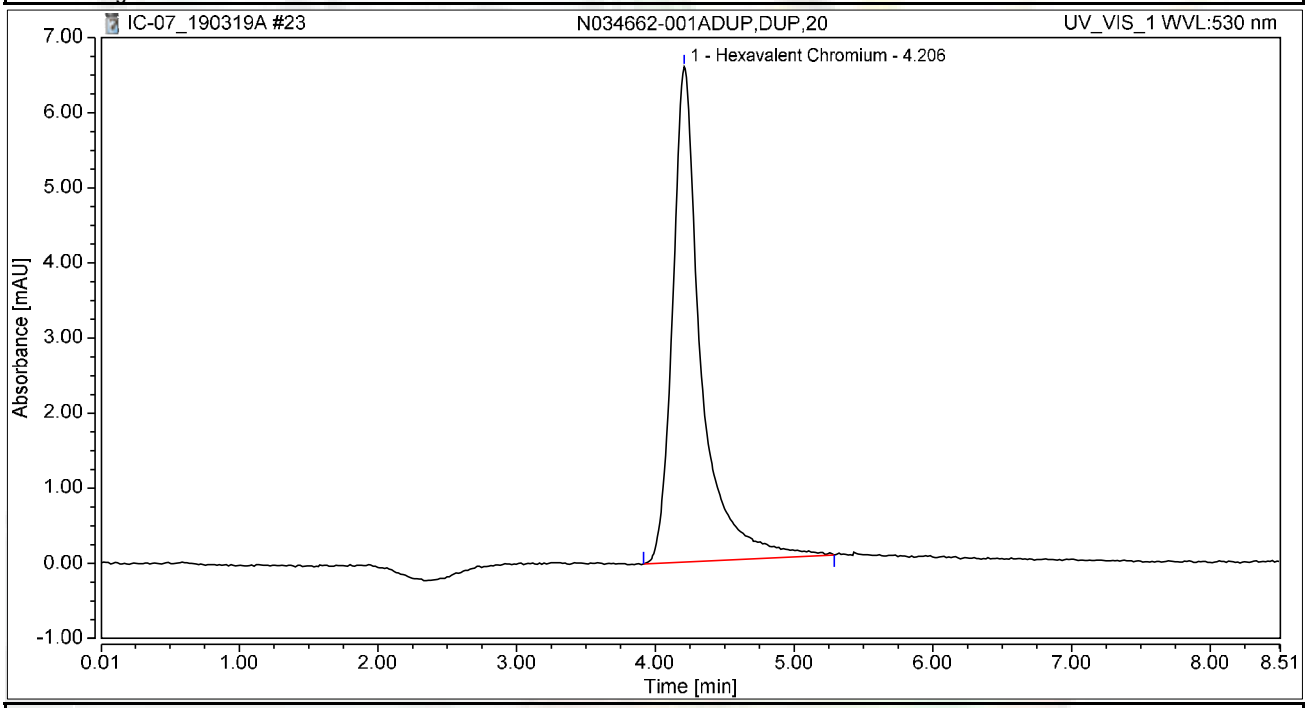
rba 3/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-001ADUP,DUP,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 11:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

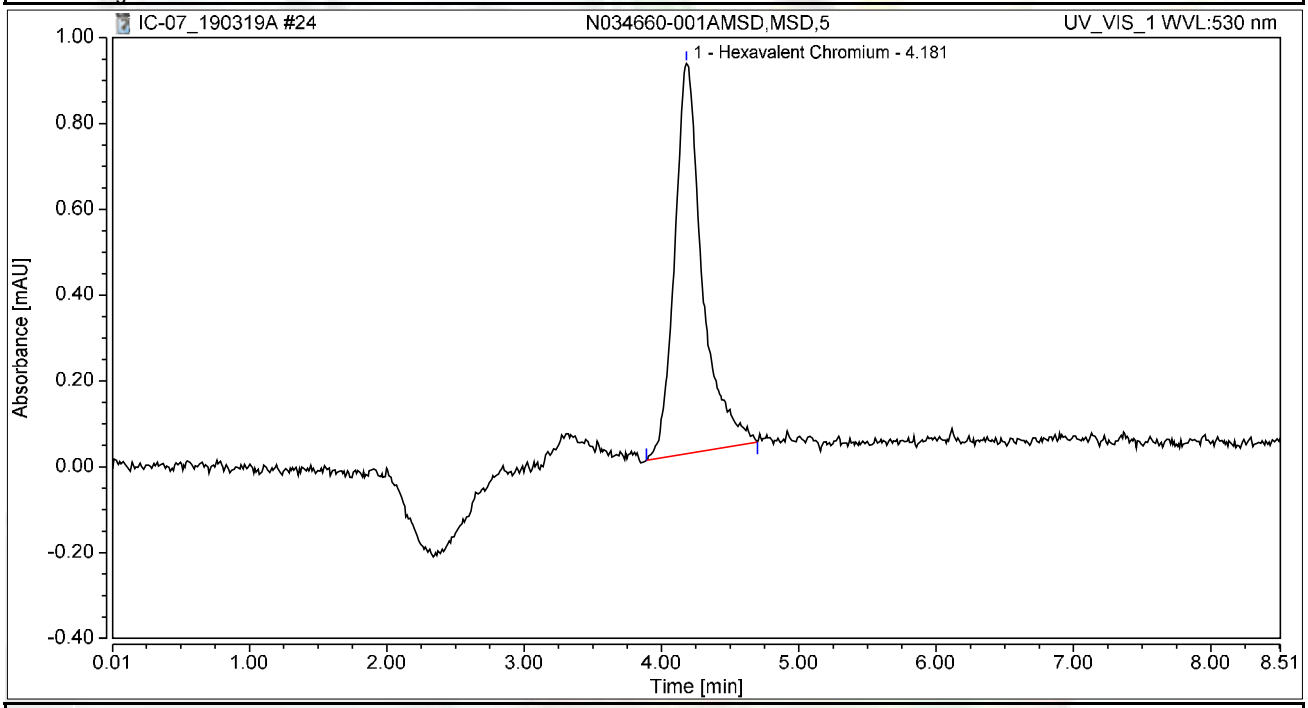
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.565 | 6.594 | 100.00 | 100.00 | 7.1143 |
| **Total:** | | | **1.565** | **6.594** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034660-001AMSD,MSD,5** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 11:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

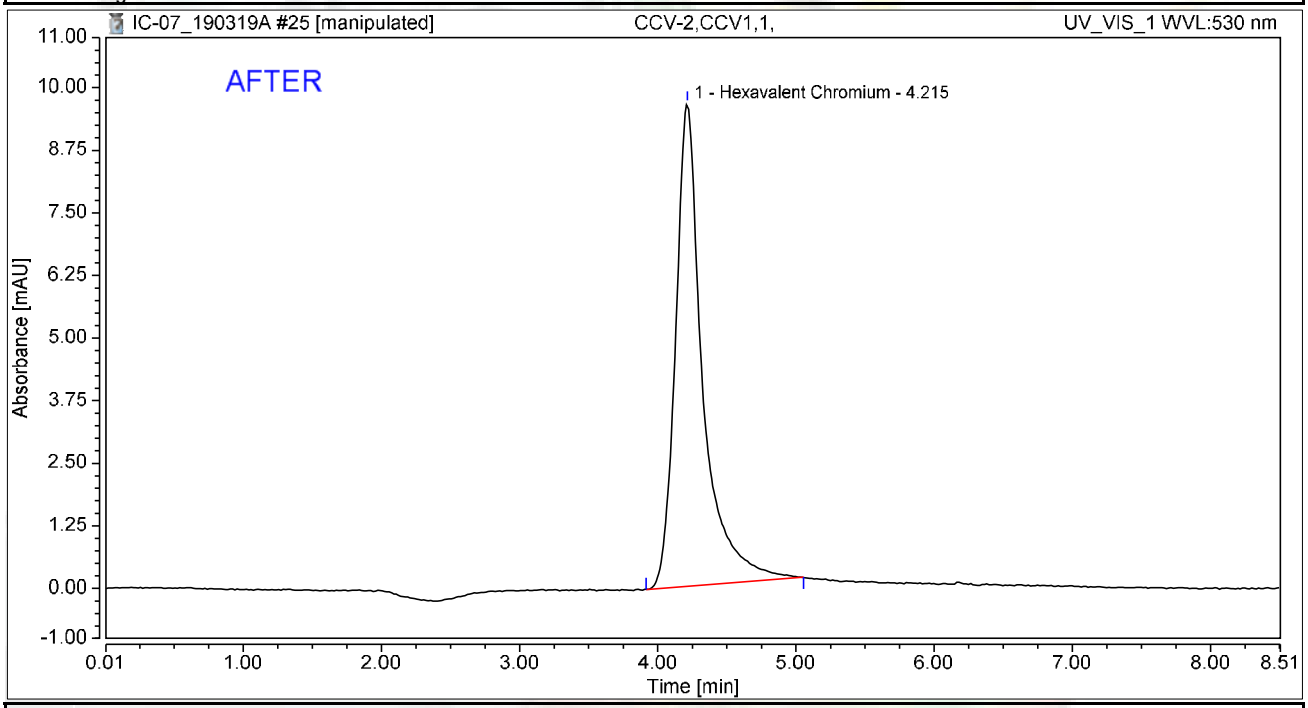
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.181 | 0.213 | 0.910 | 100.00 | 100.00 | 0.9679 |
| **Total:** | | | **0.213** | **0.910** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-2,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 11:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 2.198 | 9.650 | 100.00 | 100.00 | 9.9949 |
| **Total:** | | | **2.198** | **9.650** | **100.00** | **100.00** | |

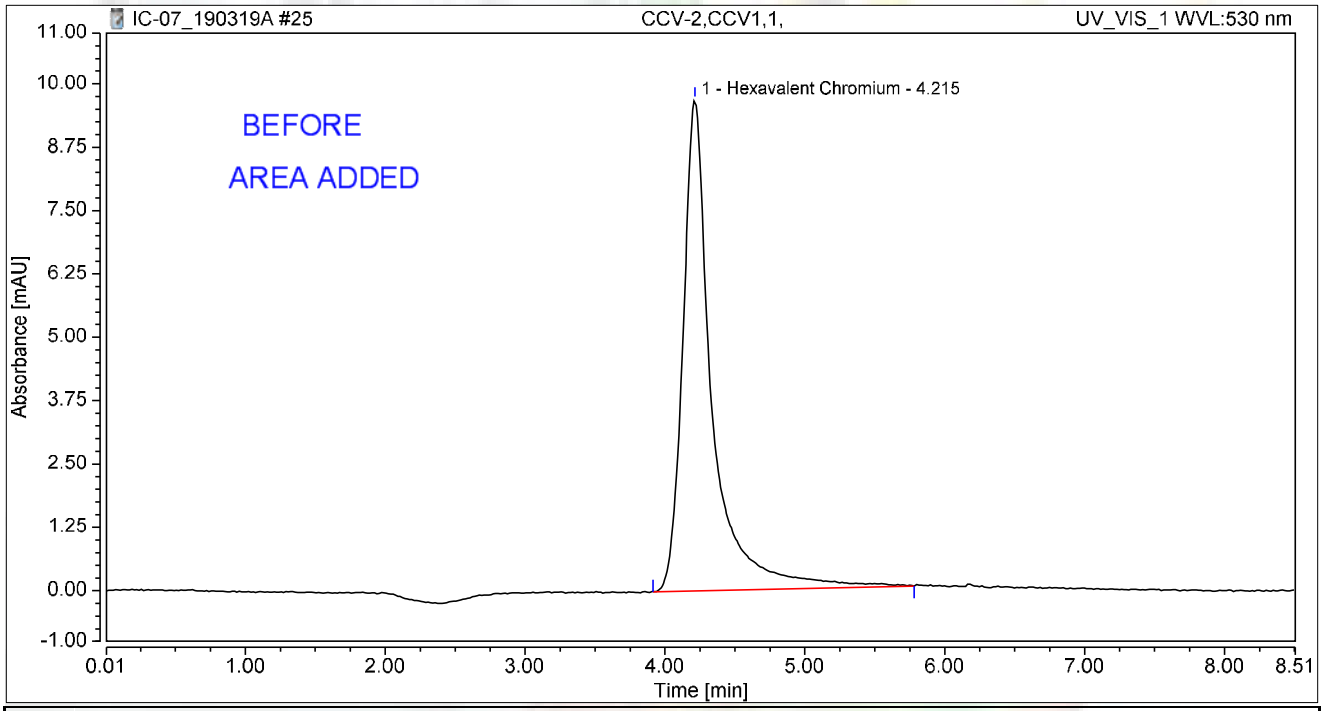
rba 3/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-2,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 11:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 2.356 | 9.696 | 100.00 | 100.00 | 10.7096 |
| **Total:** | | | **2.356** | **9.696** | **100.00** | **100.00** | |

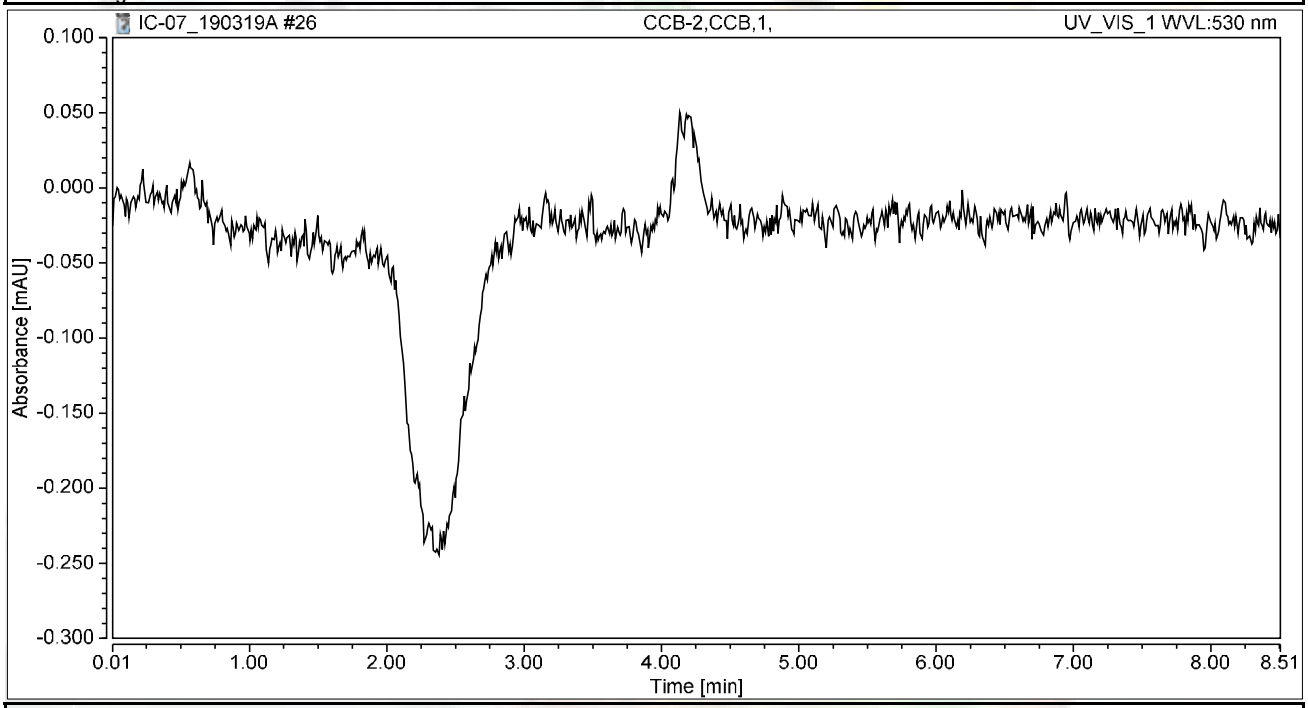
rba 3/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-2,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 11:34** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

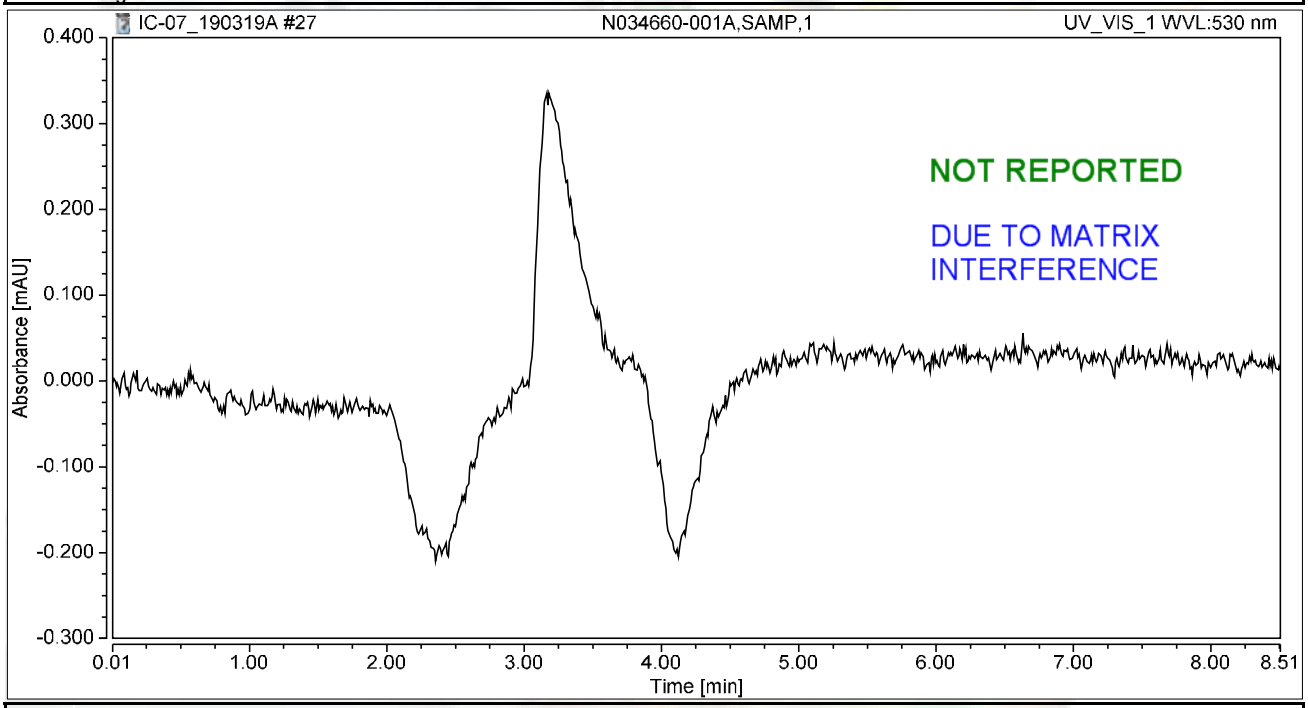
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034660-001A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 11:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

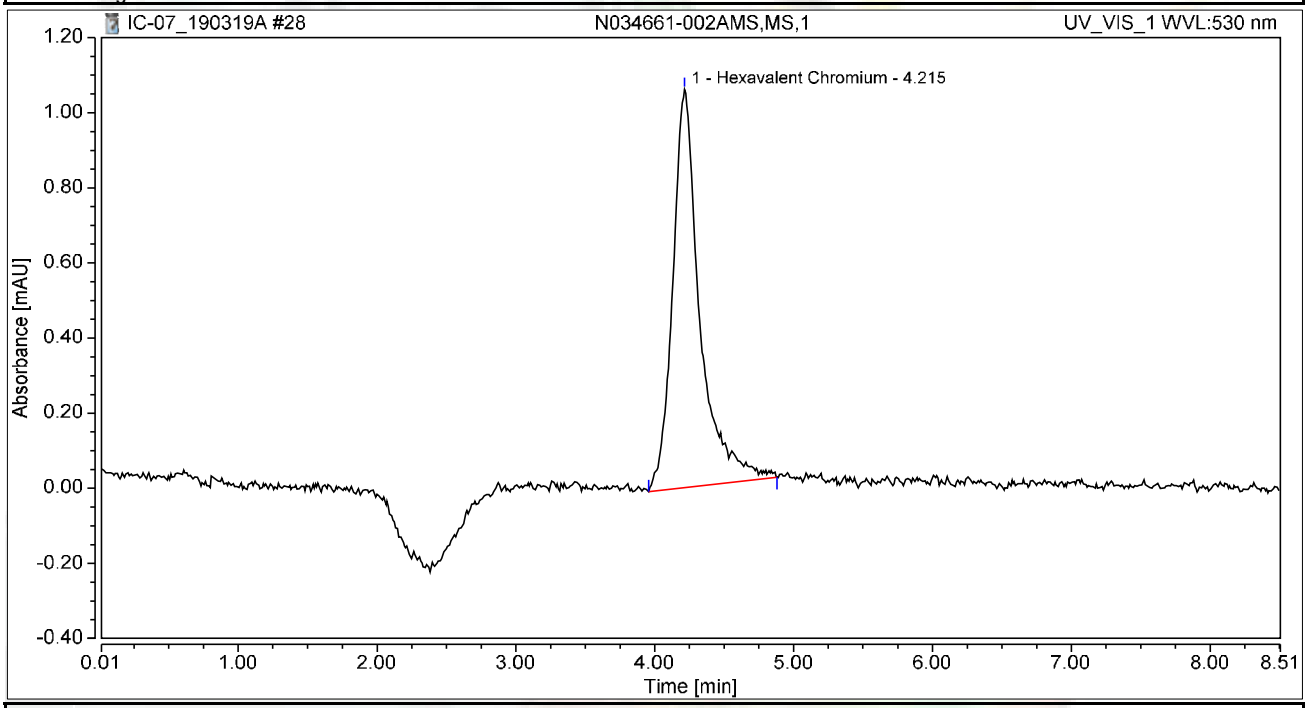
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034661-002AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **20** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 11:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

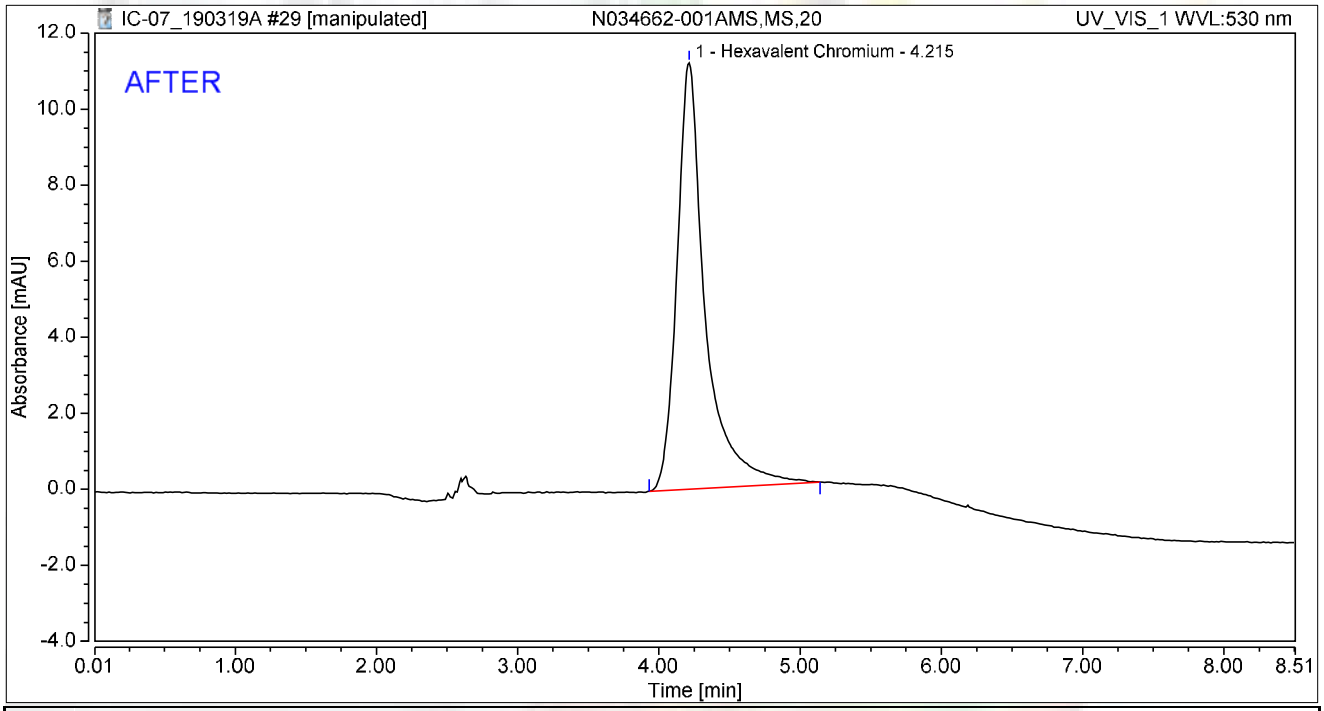
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 0.241 | 1.061 | 100.00 | 100.00 | 1.0958 |
| **Total:** | | | **0.241** | **1.061** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-001AMS,MS,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 12:03** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 2.615 | 11.215 | 100.00 | 100.00 | 11.8899 |
| **Total:** | | | **2.615** | **11.215** | **100.00** | **100.00** | |

rba 3/22/2019

Reviewed by:
Nancy 3/26/2019

My first report/Integration

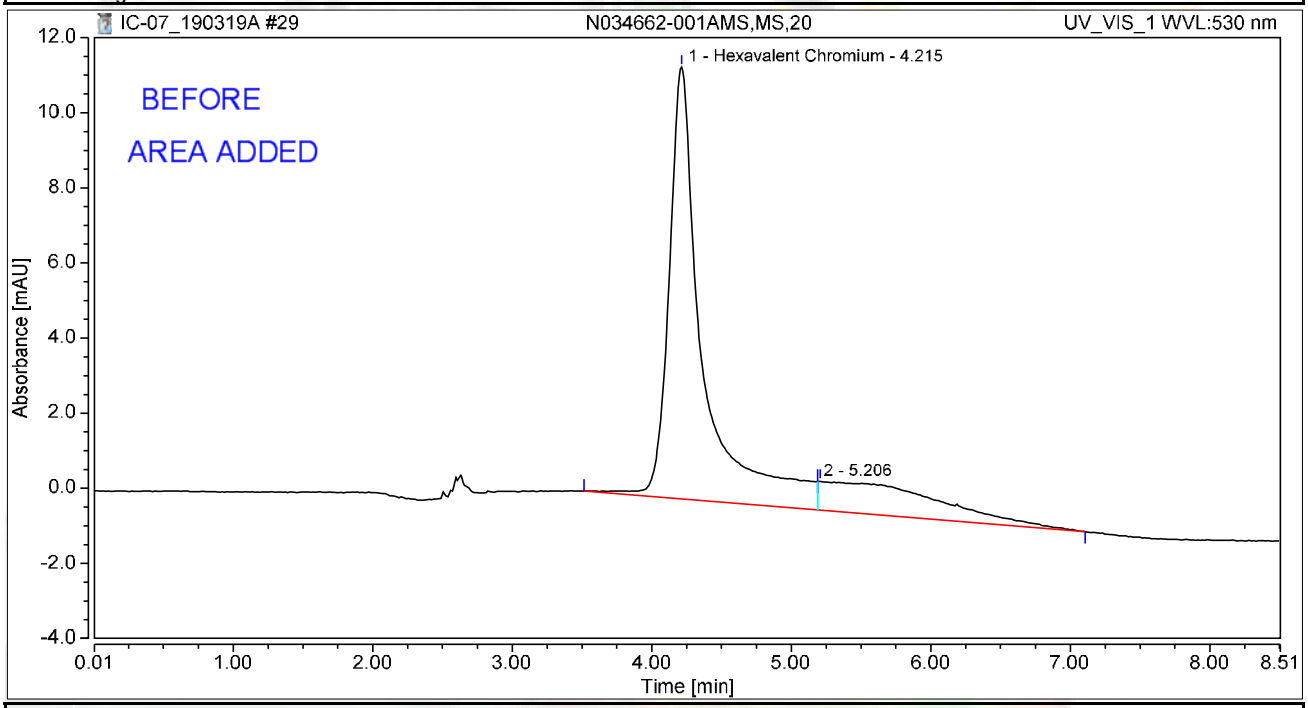
Chromeleon (c) Dionex
Version 7.1.1.1127

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-001AMS,MS,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 12:03** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 3.225 | 11.507 | 79.37 | 93.73 | 14.6604 |
| 2 | | 5.206 | 0.838 | 0.770 | 20.63 | 6.27 | n.a. |
| **Total:** | | | **4.063** | **12.277** | **100.00** | **100.00** | |

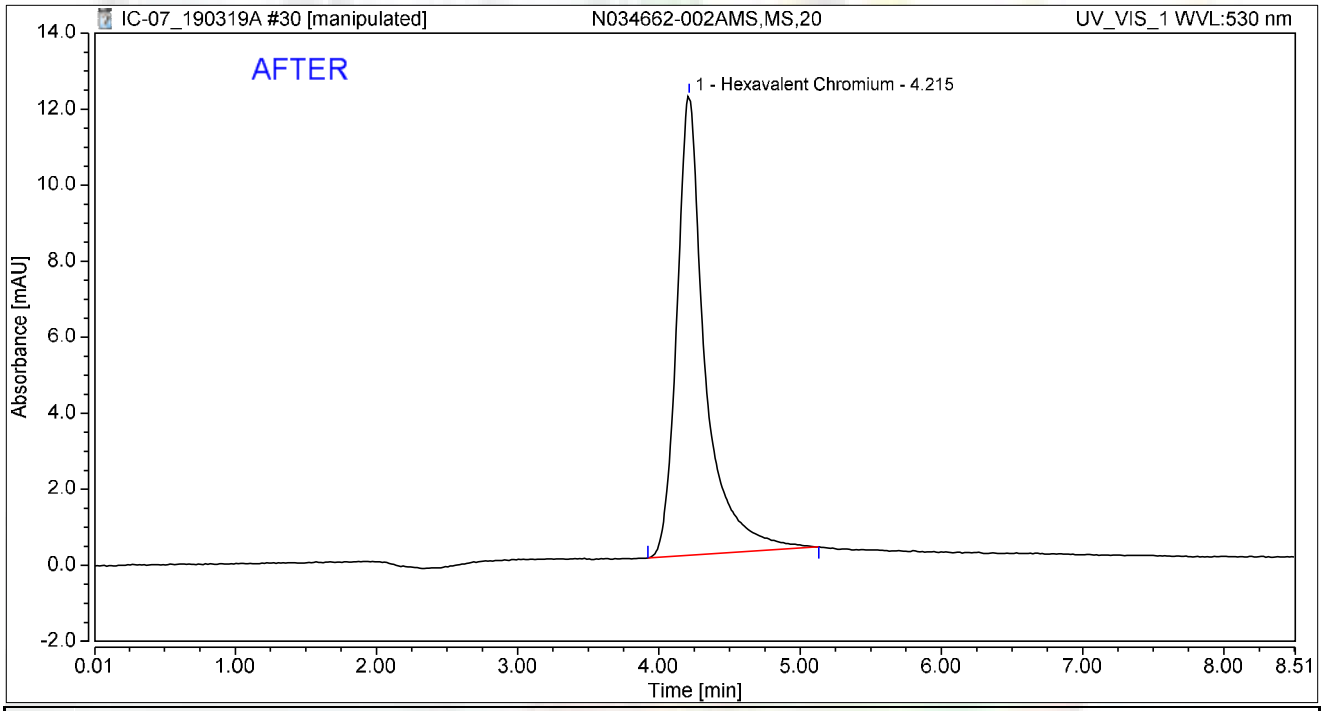
rba 3/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-002AMS,MS,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 12:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 2.807 | 12.085 | 100.00 | 100.00 | 12.7630 |
| **Total:** | | | **2.807** | **12.085** | **100.00** | **100.00** | |

rba 3/22/2019

My first report/integration

Reviewed by:
Nancy 3/26/2019

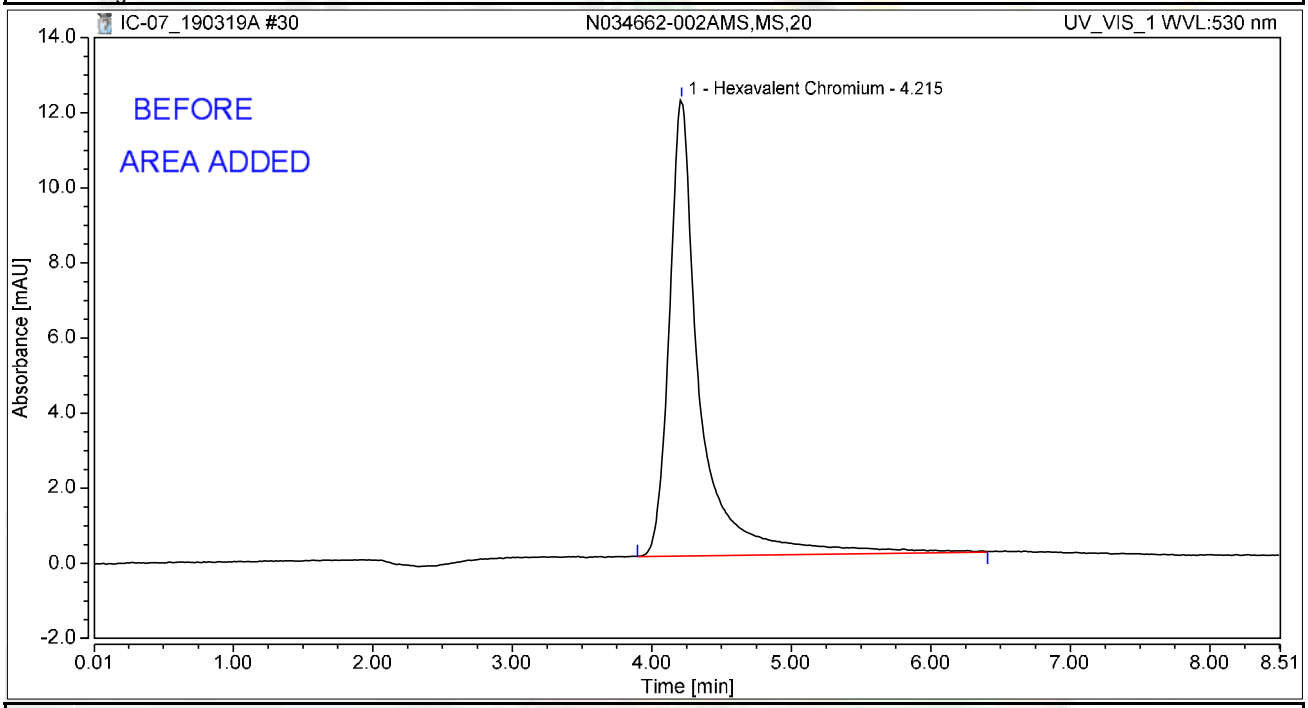
Chromeleon (c) Dionex
Version 7.1.1.1127

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-002AMS,MS,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 12:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 3.106 | 12.156 | 100.00 | 100.00 | 14.1206 |
| **Total:** | | | **3.106** | **12.156** | **100.00** | **100.00** | |

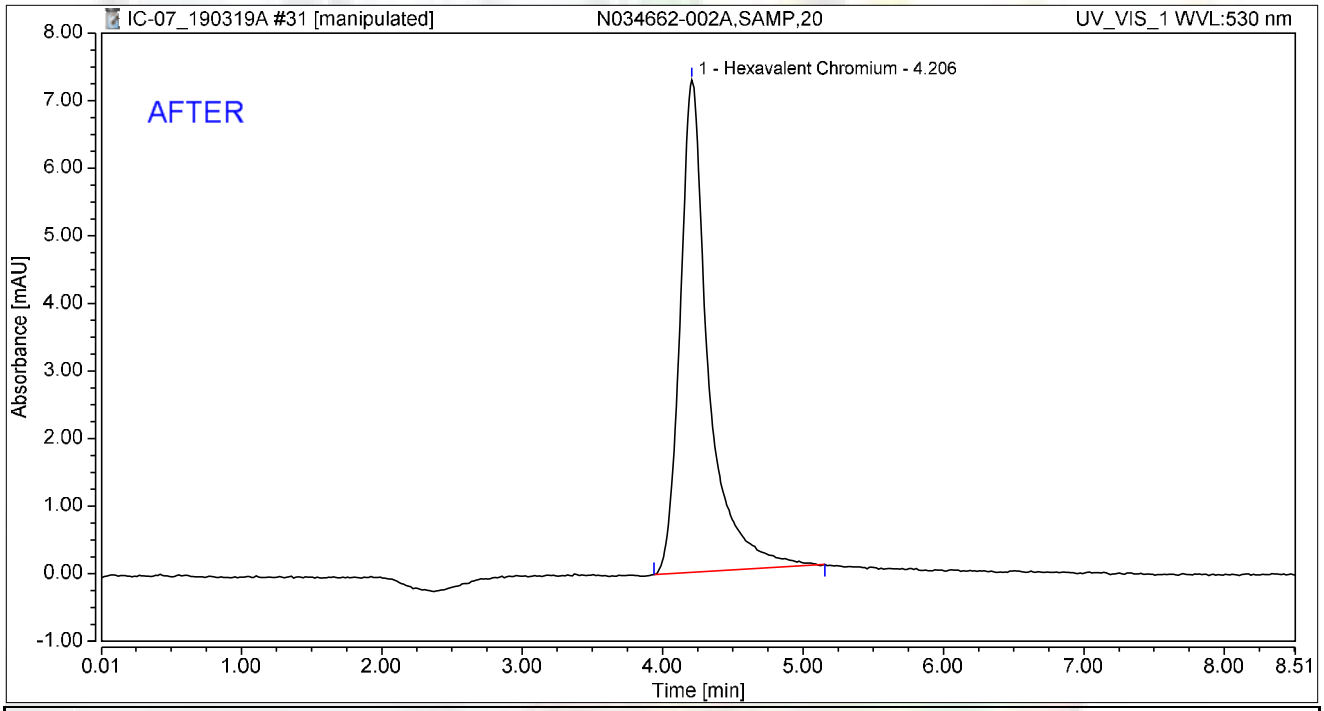
rba 3/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-002A,SAMP,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **23** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 12:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.695 | 7.286 | 100.00 | 100.00 | 7.7072 |
| **Total:** | | | **1.695** | **7.286** | **100.00** | **100.00** | |

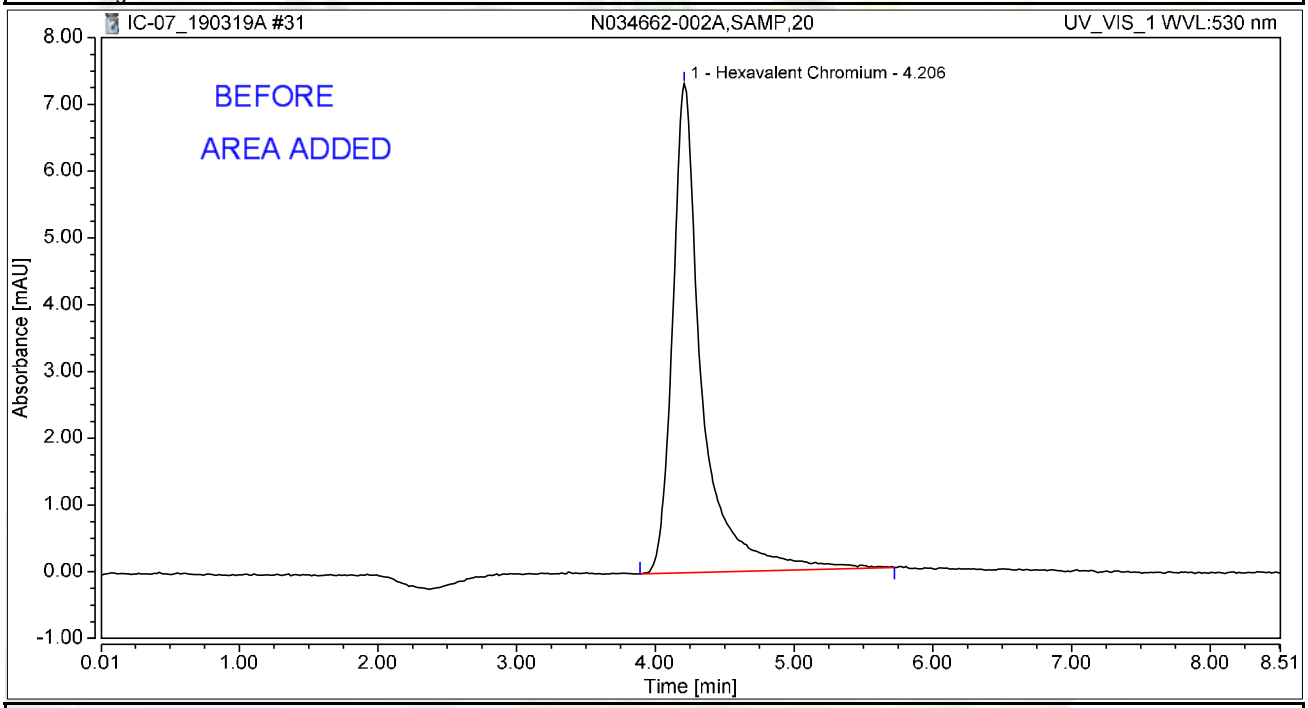
rba 3/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-002A,SAMP,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **23** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 12:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.795 | 7.323 | 100.00 | 100.00 | 8.1616 |
| **Total:** | | | **1.795** | **7.323** | **100.00** | **100.00** | |

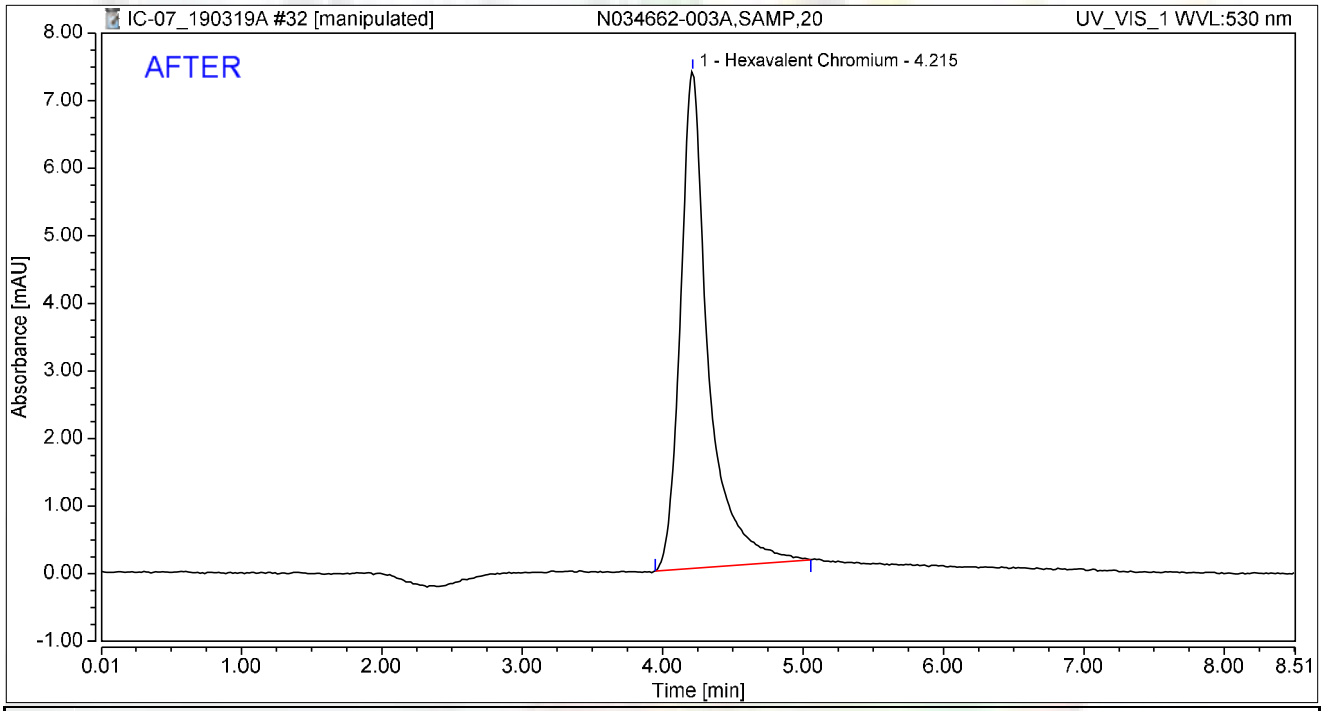
rba 3/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-003A,SAMP,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **24** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 12:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 1.699 | 7.350 | 100.00 | 100.00 | 7.7226 |
| **Total:** | | | **1.699** | **7.350** | **100.00** | **100.00** | |

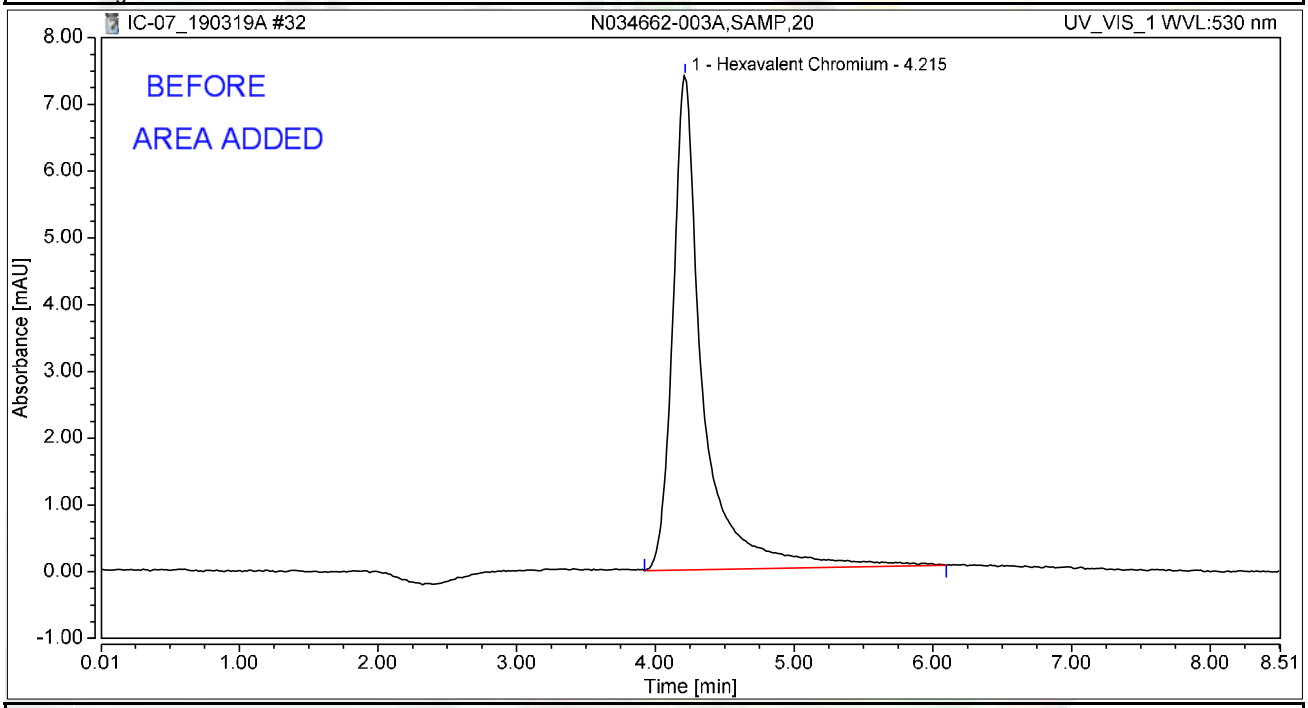
rba 3/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-003A,SAMP,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **24** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 12:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 1.871 | 7.404 | 100.00 | 100.00 | 8.5066 |
| **Total:** | | | **1.871** | **7.404** | **100.00** | **100.00** | |

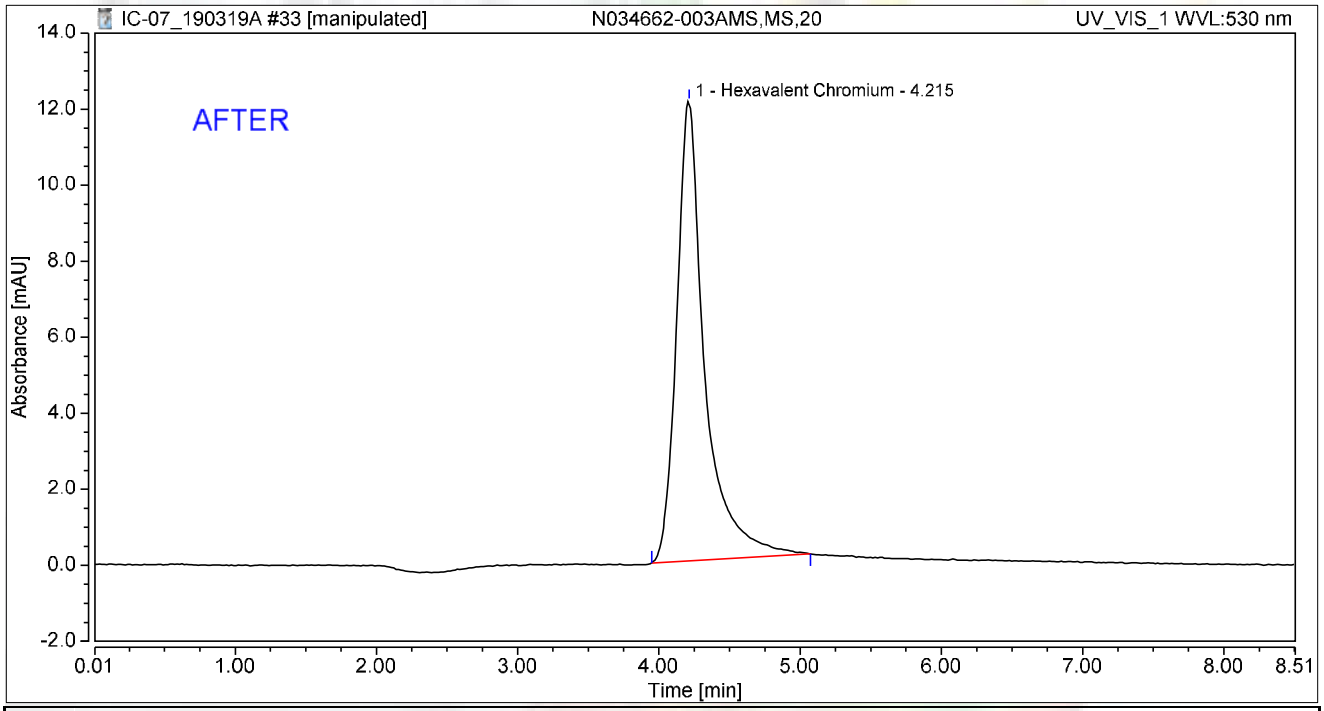
rba 3/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-003AMS,MS,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 12:41** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 2.786 | 12.083 | 100.00 | 100.00 | 12.6639 |
| **Total:** | | | **2.786** | **12.083** | **100.00** | **100.00** | |

rba 3/22/2019

My first report integration

Reviewed by: Nancy 3/26/2019

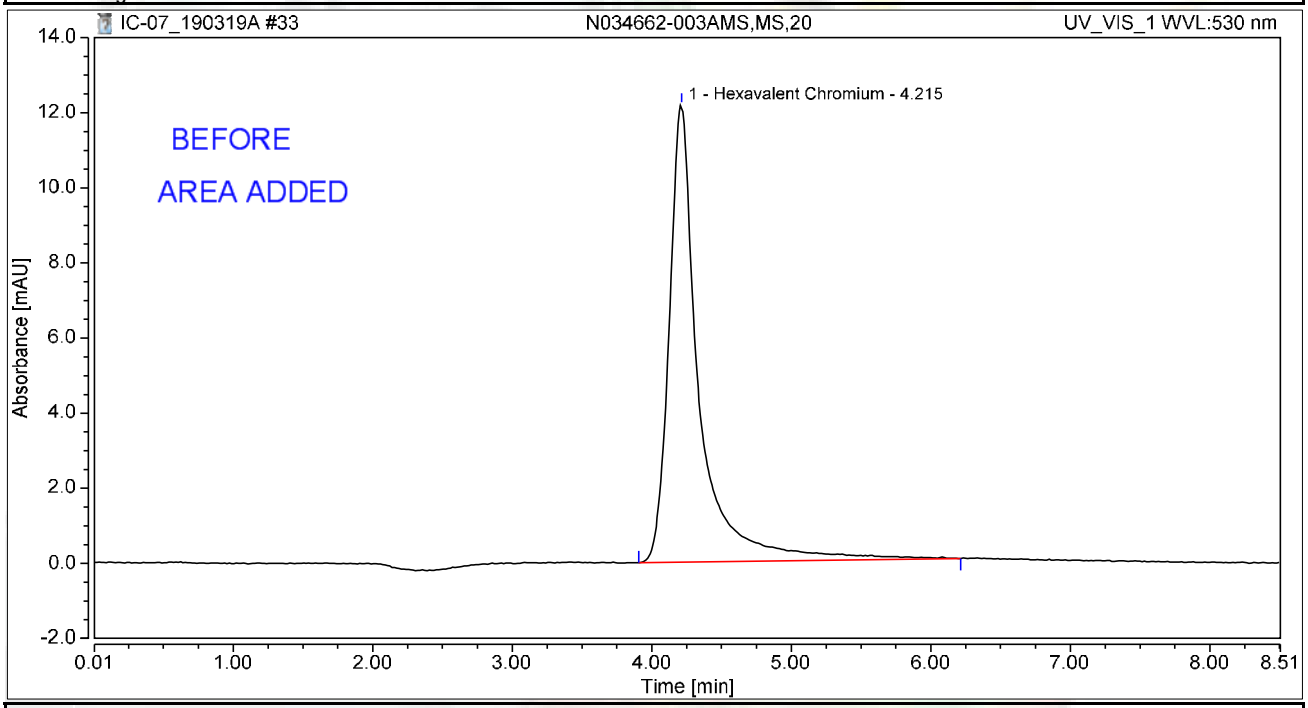
Chromeleon (c) Dionex
Version 7.1.1.1127

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-003AMS,MS,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 12:41** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 3.042 | 12.166 | 100.00 | 100.00 | 13.8290 |
| **Total:** | | | **3.042** | **12.166** | **100.00** | **100.00** | |

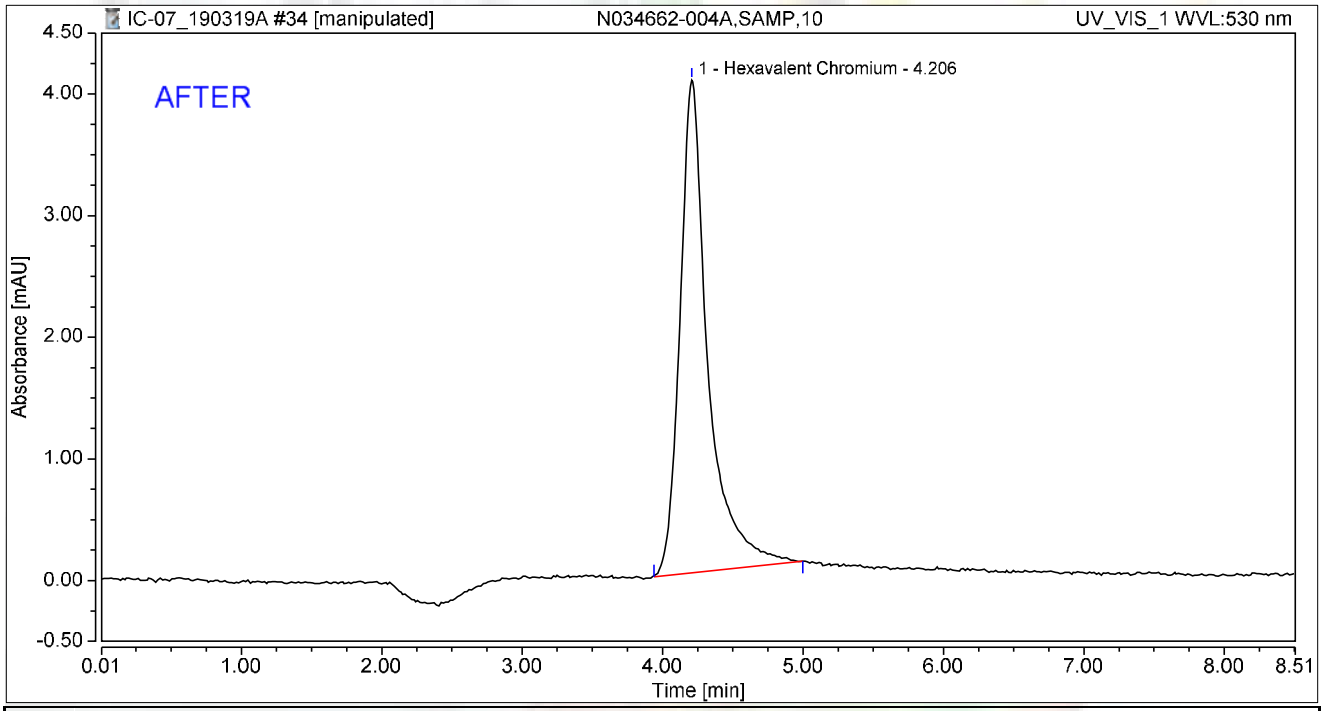
rba 3/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-004A,SAMP,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **26** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 12:50** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.933 | 4.050 | 100.00 | 100.00 | 4.2419 |
| **Total:** | | | **0.933** | **4.050** | **100.00** | **100.00** | |

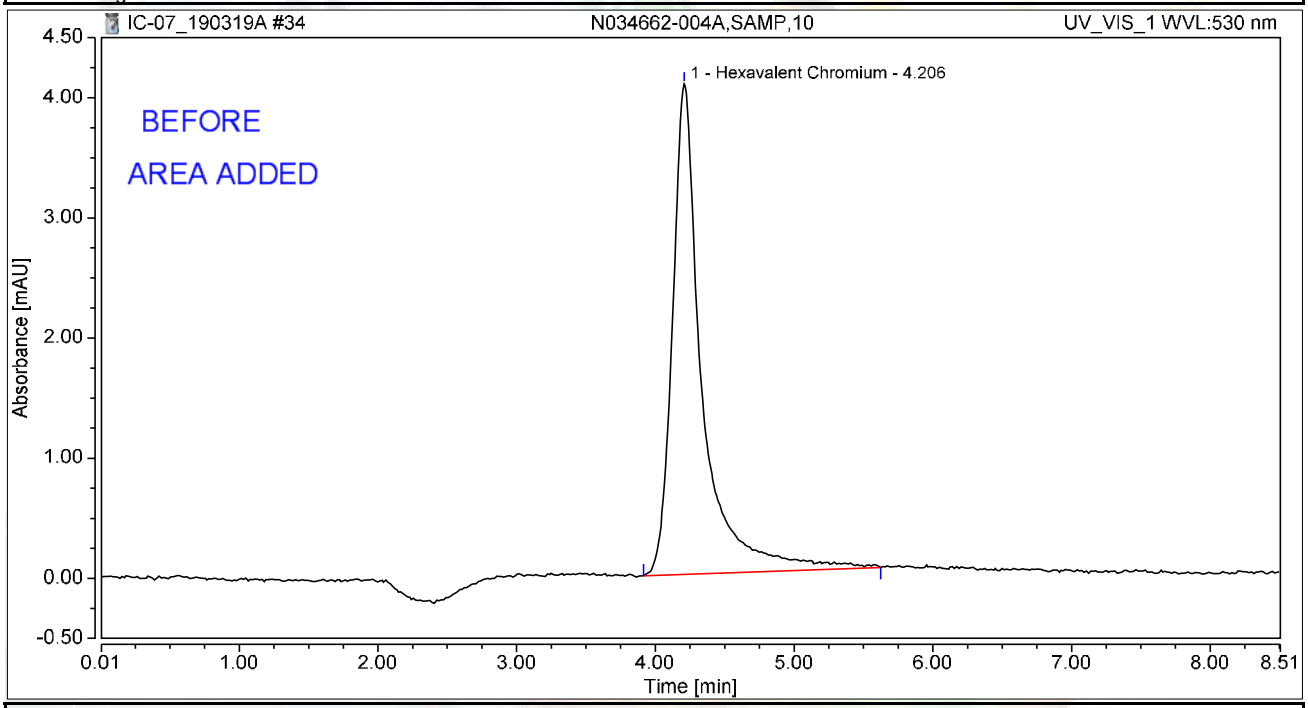
rba 3/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-004A,SAMP,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **26** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 12:50** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.018 | 4.082 | 100.00 | 100.00 | 4.6283 |
| **Total:** | | | **1.018** | **4.082** | **100.00** | **100.00** | |

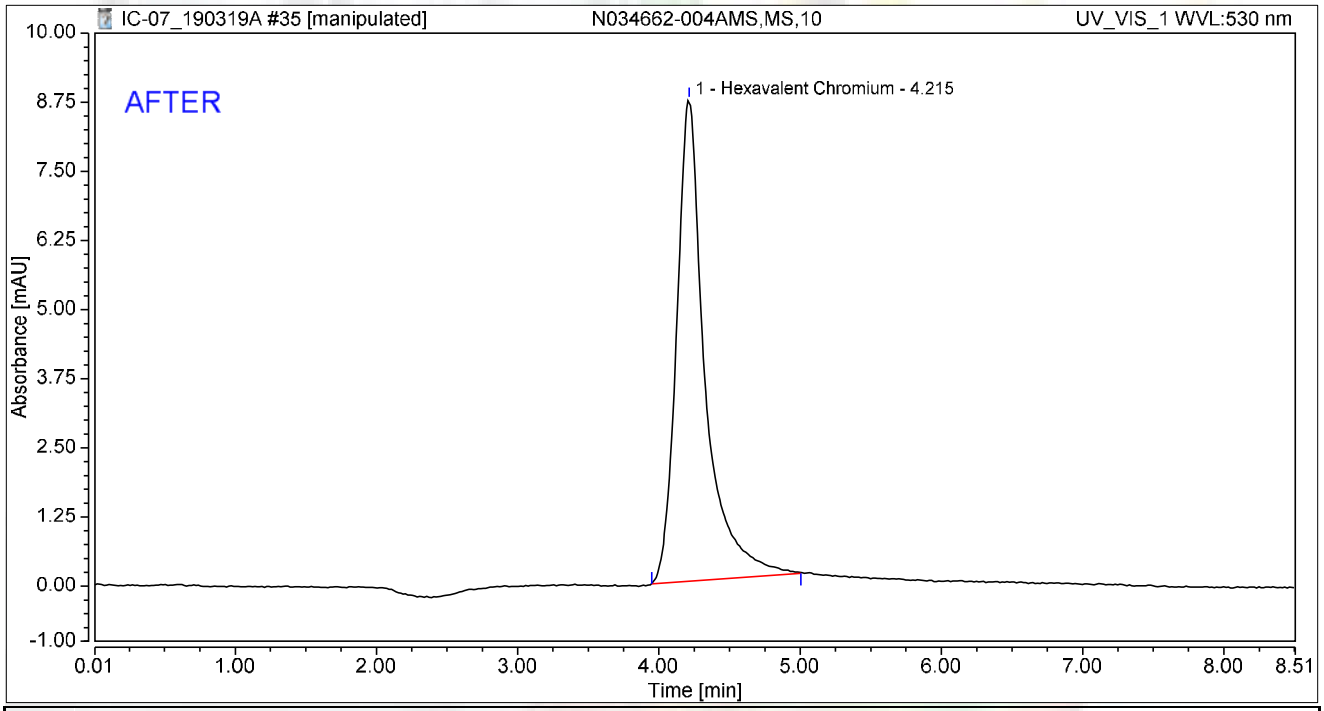
rba 3/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-004AMS,MS,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 13:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 2.036 | 8.709 | 100.00 | 100.00 | 9.2585 |
| **Total:** | | | **2.036** | **8.709** | **100.00** | **100.00** | |

rba 3/22/2019

My first report integration

Reviewed by: Nancy 3/26/2019

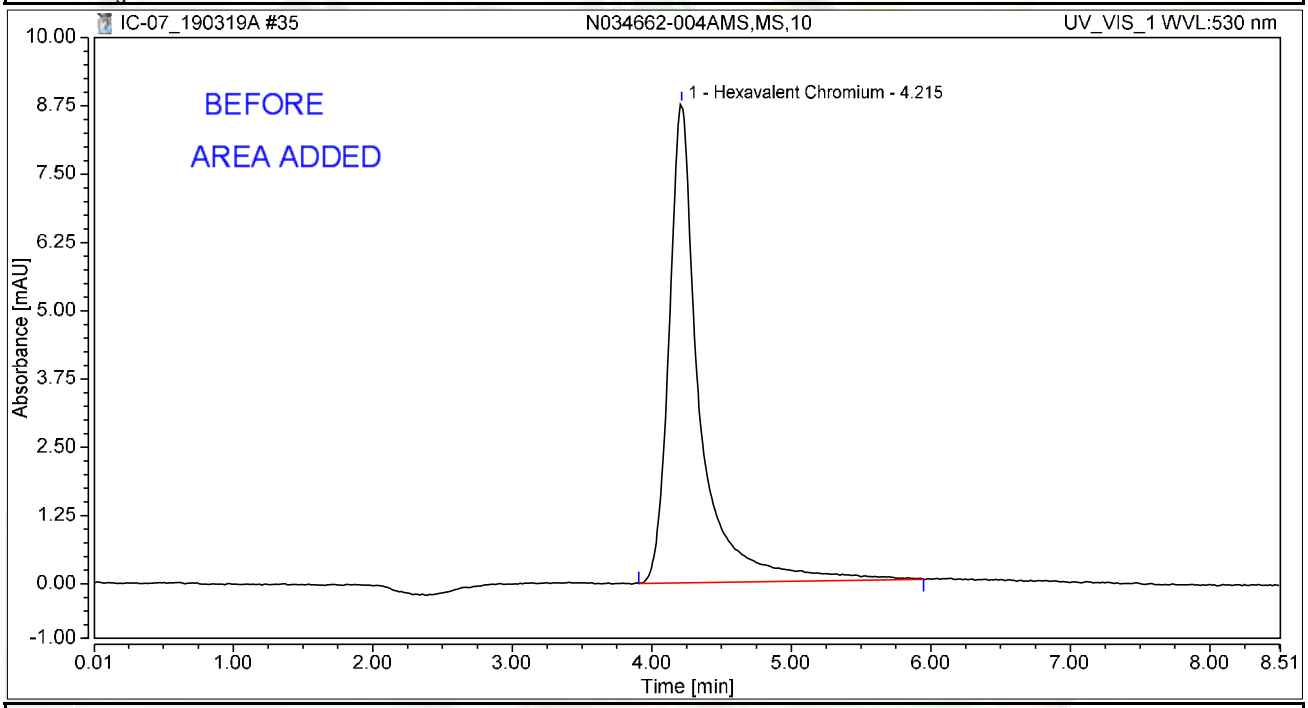
Chromeleon (c) Dionex
Version 7.1.1.1127

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-004AMS,MS,10** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 13:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 2.233 | 8.778 | 100.00 | 100.00 | 10.1536 |
| **Total:** | | | **2.233** | **8.778** | **100.00** | **100.00** | |

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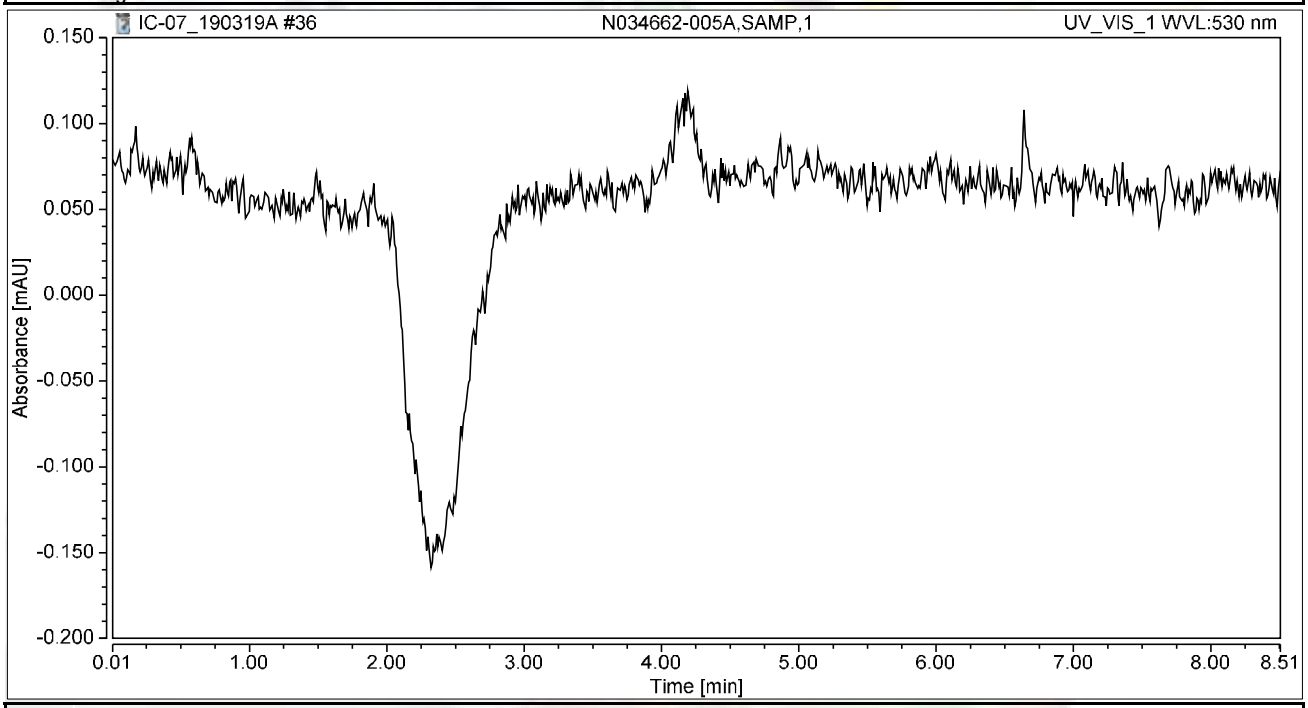
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-005A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **28** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 13:09** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

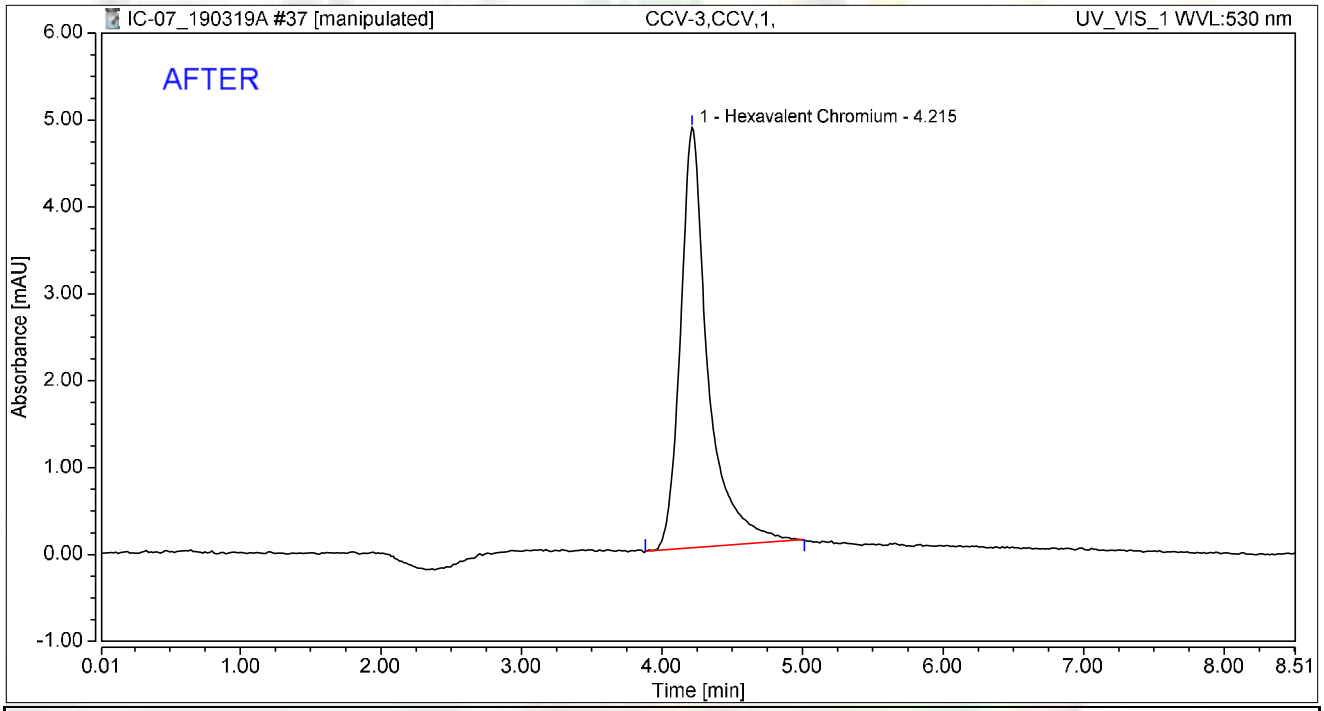
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-3,CCV,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **29** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 13:18** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 1.095 | 4.835 | 100.00 | 100.00 | 4.9796 |
| **Total:** | | | **1.095** | **4.835** | **100.00** | **100.00** | |

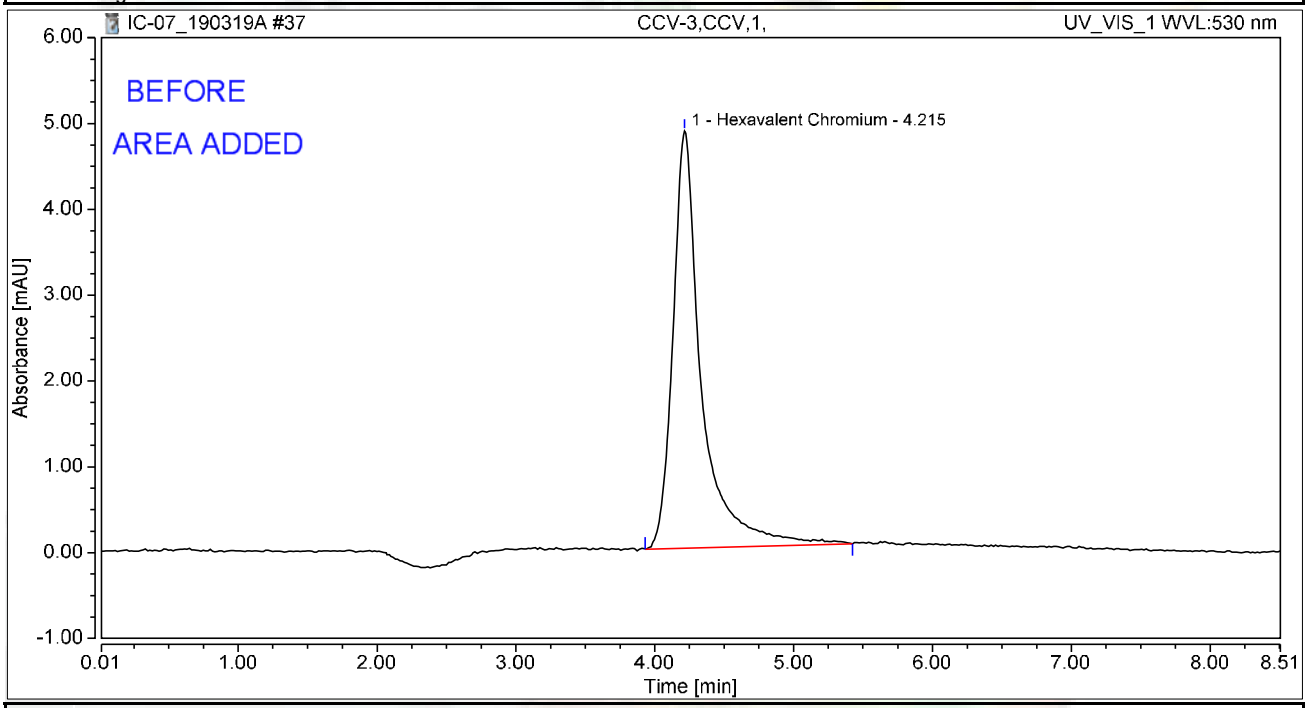
rba 3/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-3,CCV,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **29** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 13:18** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 1.163 | 4.863 | 100.00 | 100.00 | 5.2884 |
| **Total:** | | | **1.163** | **4.863** | **100.00** | **100.00** | |

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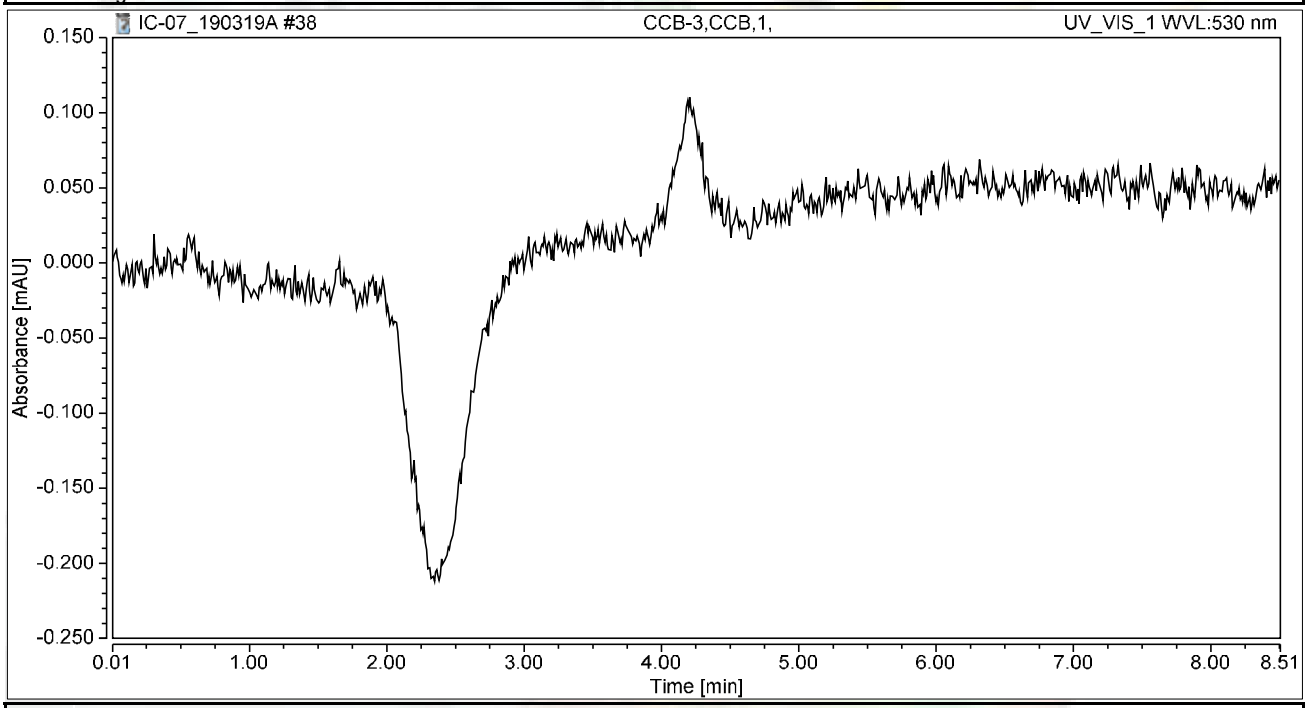
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-3,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **30** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 13:28** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

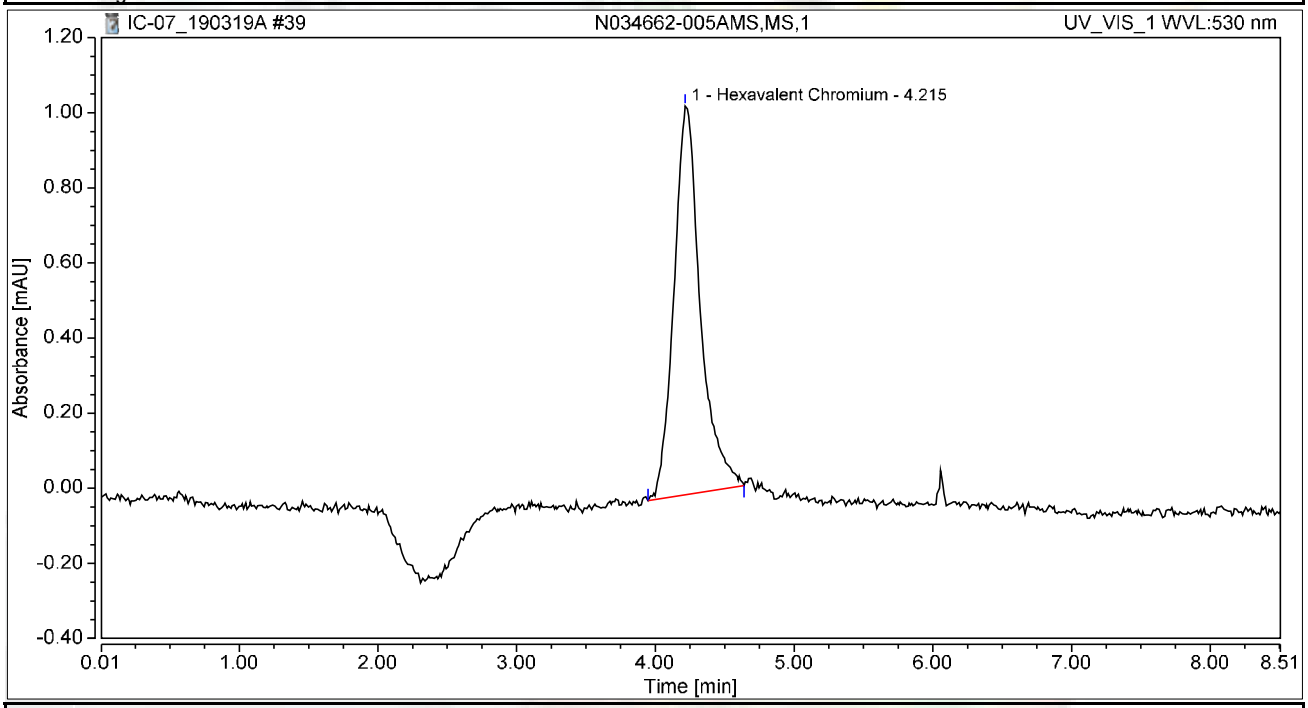
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-005AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **31** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 13:37** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

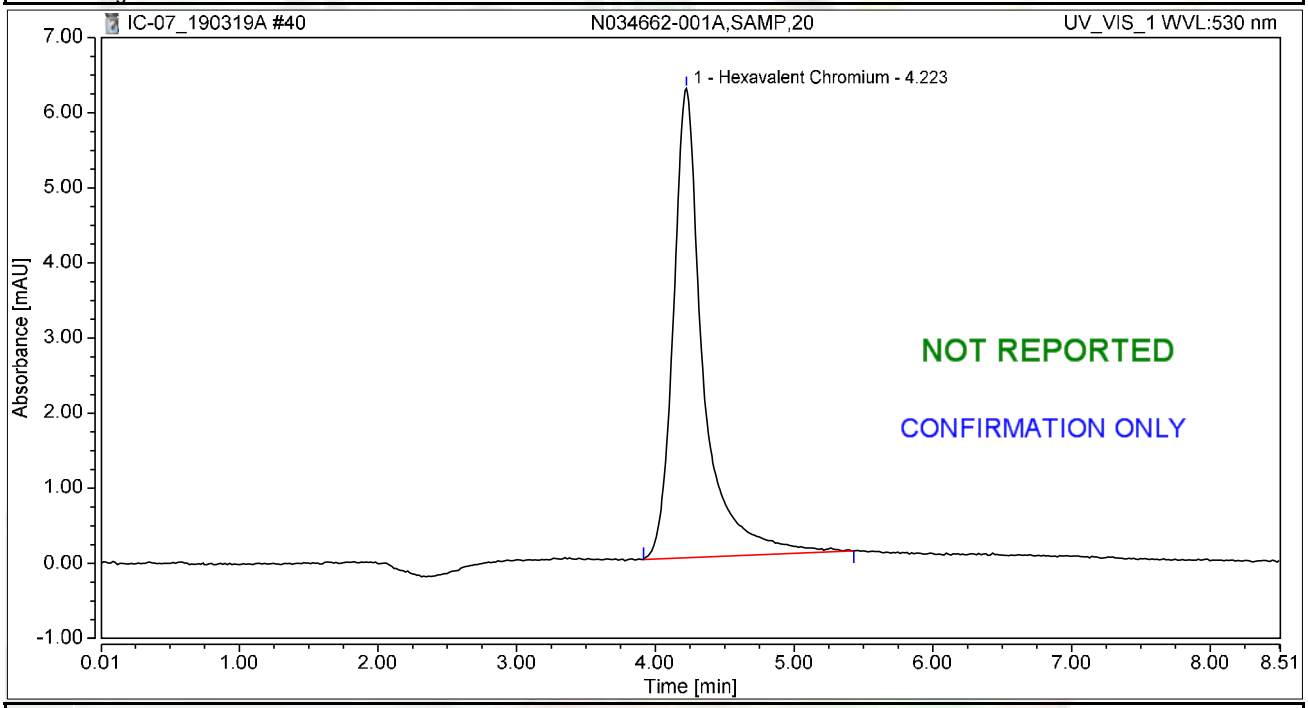
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 0.228 | 1.035 | 100.00 | 100.00 | 1.0387 |
| **Total:** | | | **0.228** | **1.035** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-001A,SAMP,20** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **33** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 13:51** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

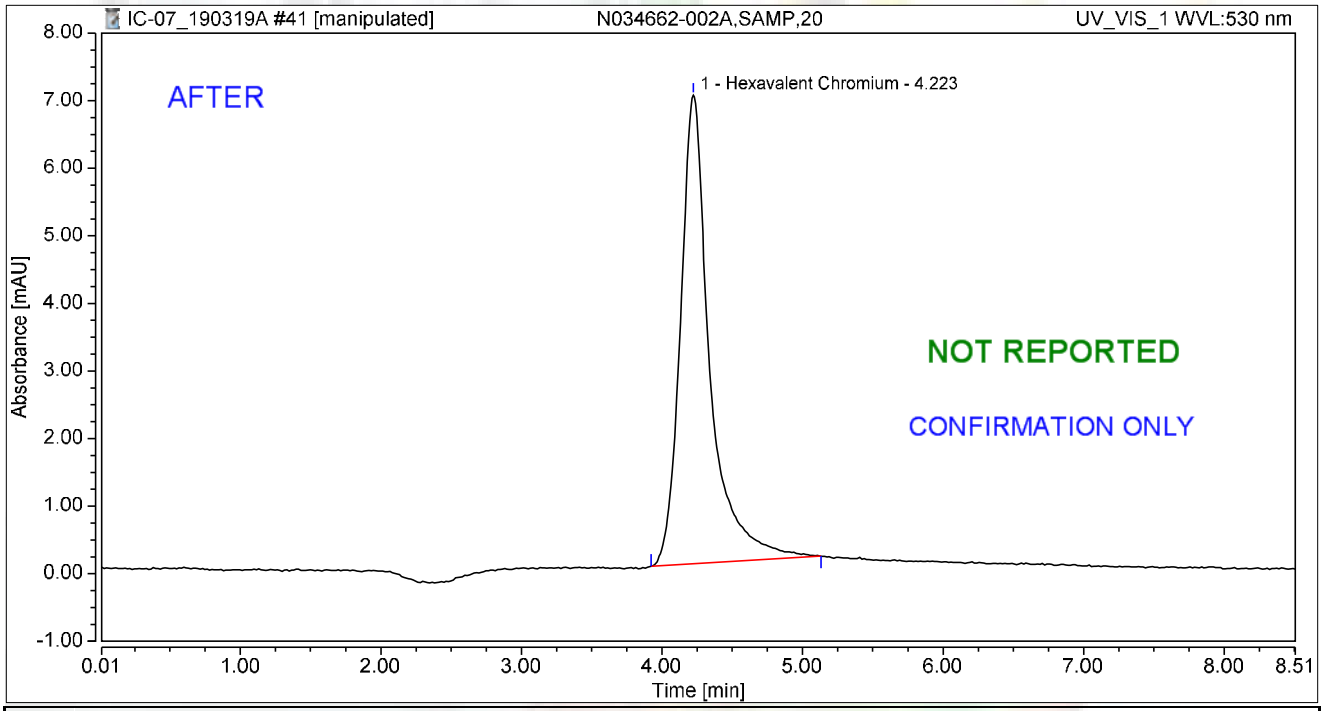
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.223 | 1.561 | 6.248 | 100.00 | 100.00 | 7.0975 |
| **Total:** | | | **1.561** | **6.248** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-002A,SAMP,20** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **34** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 14:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.223 | 1.682 | 6.934 | 100.00 | 100.00 | 7.6483 |
| **Total:** | | | **1.682** | **6.934** | **100.00** | **100.00** | |

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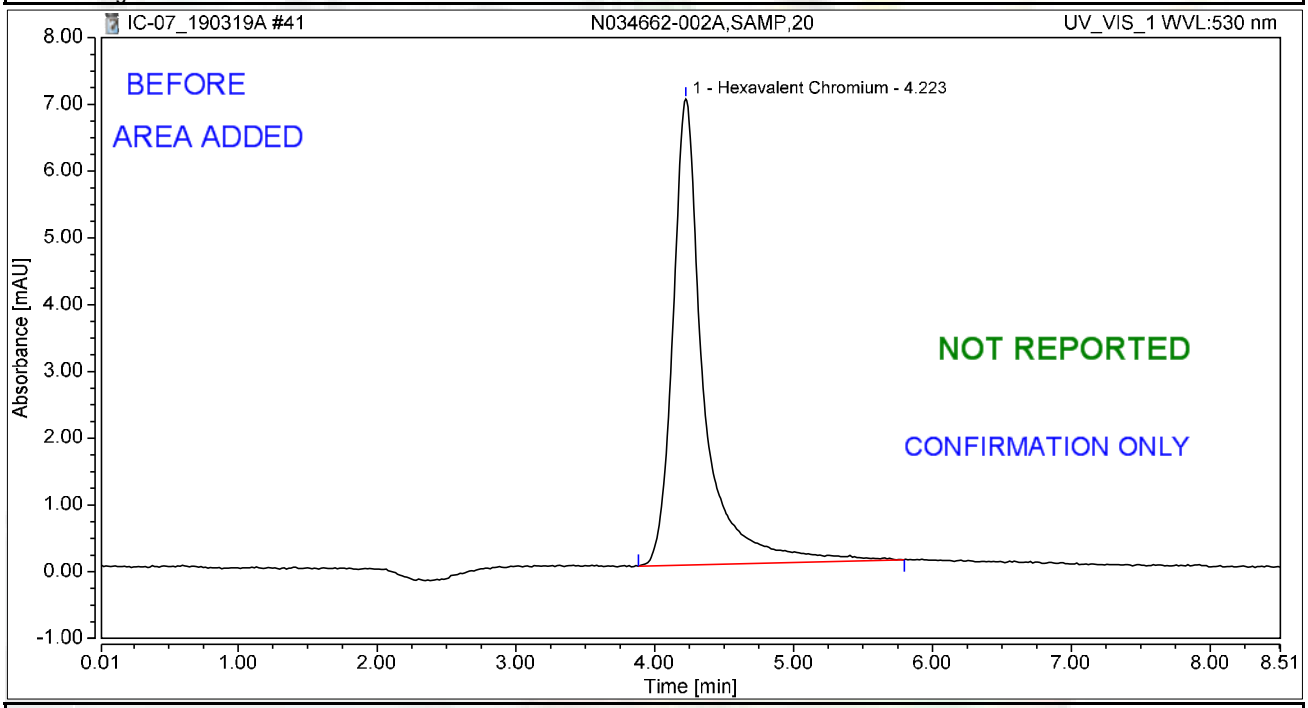
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034662-002A,SAMP,20** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **34** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 14:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.223 | 1.805 | 6.984 | 100.00 | 100.00 | 8.2067 |
| **Total:** | | | **1.805** | **6.984** | **100.00** | **100.00** | |

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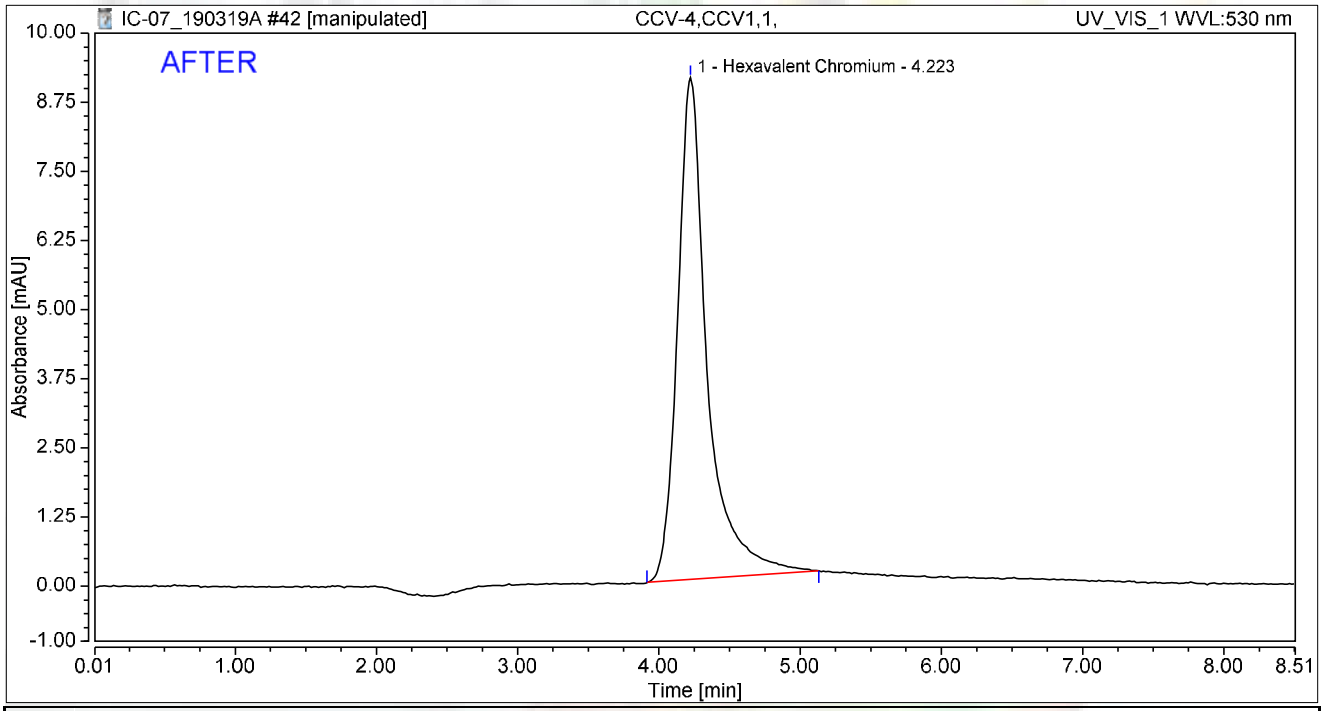
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-4,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **35** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 14:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.223 | 2.205 | 9.073 | 100.00 | 100.00 | 10.0239 |
| **Total:** | | | **2.205** | **9.073** | **100.00** | **100.00** | |

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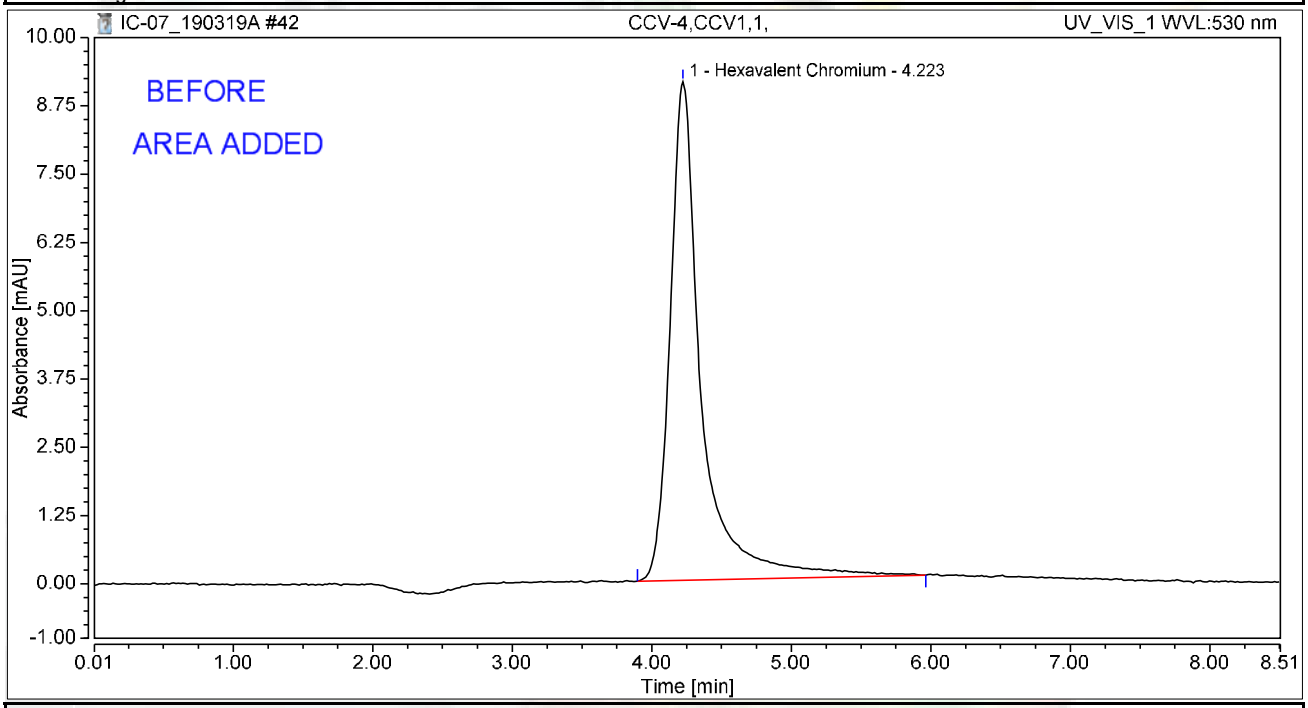
Reviewed by:
Nancy 3/26/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-4,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **35** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 14:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.223 | 2.377 | 9.127 | 100.00 | 100.00 | 10.8063 |
| **Total:** | | | **2.377** | **9.127** | **100.00** | **100.00** | |

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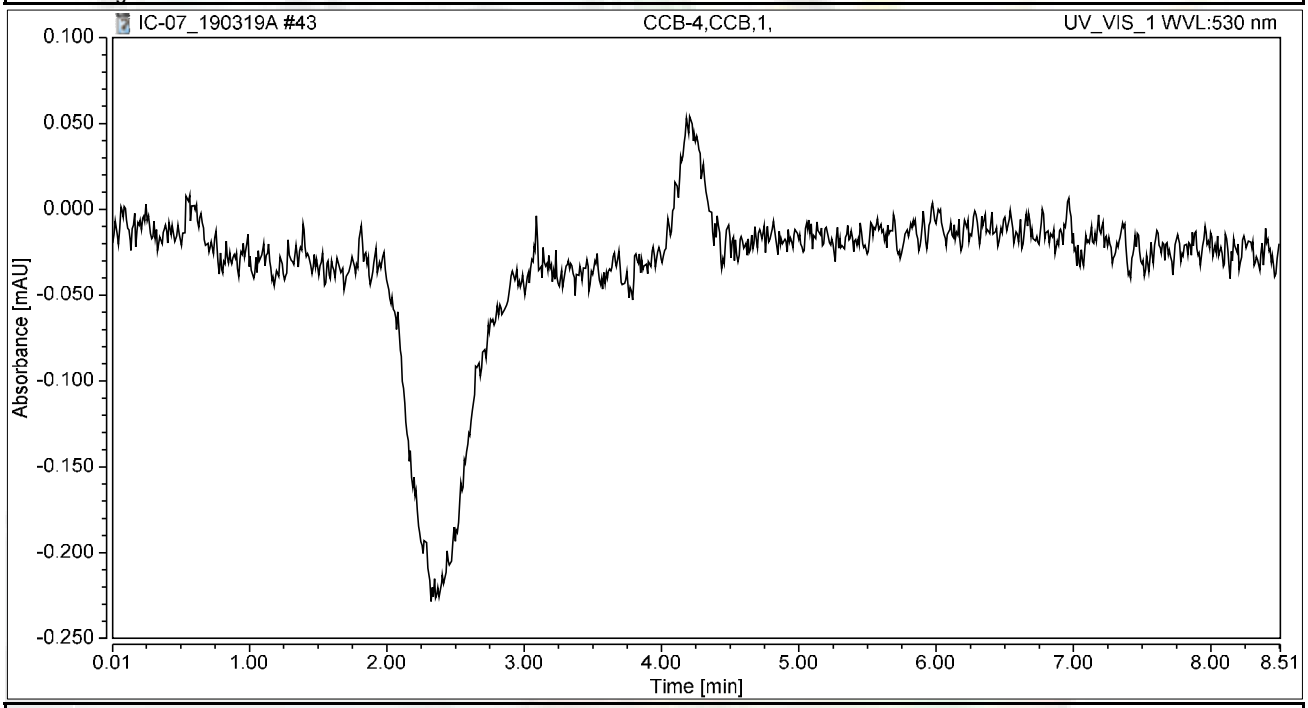
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-4,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **36** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **19/Mar/19 14:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# SM 2320B

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R132603 **Analyst:** LSR

**ASSET #:** N034662 **Date Analyzed:** 19-Mar

**Method:** EPA 2320

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | | | |
| 11. LCS compounds within control limits. | X | | | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 3/22/2019

2nd Level Reviewer: Nancy 4/1/2019 Date:

# SAMPLE CALCULATION

Sample ID: **N034662-001B @ pH 7.55**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A) (B)/ (53.00) (C)

Where:

A, grams weighed for $Na_2CO_3$ solution ($Na_2CO_3$ Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

**$Na_2CO_3$ Standardization Solution**, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of $Na_2CO_3$ in distilled water and dilute to 1 liter.

**LCS/MS/MSD Stock** $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65 g/L) (5mL) / (53.00) (11.35 mL)

= **0.02203 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N $H_2SO_4$ * DF * 1000

Where:

$M_{vol.}$ volume titrant used to reach pH 4.5, ml
N, Normality of $H_2SO_4$
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (6.0) (0.02203 N) (1) * 1000

= 132.1800 mg**/L**

Reporting results in two significant figures,

= 130 as CaCO3

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C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N $H_2SO_4$ * DF * 1000

= (0.00) (0.02203 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N $H_2SO_4$ * DF * 1000

= (6.0 mL) (0.02203) (1) * 1000

= 132.1800 **mg/L** as CaCO3

Where:

$P_{vol.}$ - Volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - Volume titrant used to reach pH 4.5, ml
N - Normality of $H_2SO_4$
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, $CO_3$, $HCO_3$ alkalinities as $CaCO_3$ will be calculated as follows:

| **Result of Titration** | **OH Alkalinity as $CaCO_3$** | **$CO_3$ Alkalinity as $CaCO_3$** | **$HCO_3$ Alkalinity as $CaCO_3$** |
|---|---|---|---|
| P = 0 | 0 | 0 | T |
| P < ½ T | 0 | 2P | T – 2P |
| P = ½ T | 0 | 2P | 0 |
| P > ½ T | 2P – T | 2(T – P) | 0 |
| P = T | T | 0 | 0 |

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

$CO_3$ Alkalinity as $CaCO_3$ = **0**

$HCO_3$ Alkalinity as $CaCO_3$ = 132.1800 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

$CO_3$ Alkalinity as $CaCO_3$ = **0**

$HCO_3$ Alkalinity as $CaCO_3$ = **130 mg/L**

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# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

| SAMPLE | PH SAMPLE | AMOUNT | V@8.3 | VT TO 4.5 | Sample Type |
|---|---|---|---|---|---|
| MB-1 | 5.32 | 50 | 0.00 | 0.050 | MBLK |
| LCS-1 | 8.18 | 50 | 0.00 | 4.30 | LCS |
| N034662-001B | 7.55 | 50 | 0.00 | 6.00 | SAMP |
| N034662-002B | 7.50 | 50 | 0.00 | 5.60 | SAMP |
| N034662-003B | 7.48 | 50 | 0.00 | 5.75 | SAMP |
| N034662-004B | 7.50 | 50 | 0.00 | 4.35 | SAMP |
| N034662-001BDUP | 7.54 | 50 | 0.00 | 6.00 | DUP |
| N034662-001BMS | 7.87 | 50 | 0.00 | 10.60 | MS |
| N034662-001BMSD | 7.87 | 50 | 0.00 | 10.45 | MSD |

| Standardization: | | |
|---|---|---|
| Spike amt: | **5** | ml |
| Titrant used: | **11.350** | ml |
| | | |
| N H2SO4 | **0.02203** | Normal |
| | | |
| **Date Analyzed:** | **3/19/19** | |
| **Time:** | **1:30 PM** | |
| **Analyzed By:** | **LSR** | |

| | |
|---|---|
| Sodium Carbonate: | **CINV-161205A** |
| Sodium Bicarbonate: | **CINV-180510A** |
| Sulfuric Acid: | **R190304D** |

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| Date Analyzed: | 3/19/19 | | Reagents: | | | | | Standardization: | | | | | P = 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time Started: | 1:30 PM | | | Sodium Carbonate: | | CINV-161205A | | | Spike amt: | 5 | mL | | P < 1/2 T |
| Analyzed By: | LSR | | | Hydrochloric Acid: | | 0 | | | Titrant used: | 11.35 | mL | | P = 1/2 T |
| | | | | Sulfuric Acid: | | R190304D | | | | | | | P > 1/2 T |
| | | | | | | | | | N H2SO4 | 0.02203 | N | | P = T |

| Sample ID | Sample Vol/Wt. | Sample pH | Std. Code | Spike Amount | Spike Conc. | Normality, Titrant | Vol. Used to pH 8.3, ml. | Vol. Used pH 8.3 to 4.5, ml. | Total Vol. Used, ml. | DF (50ml/Vsamp.) | P Alkalinity | T Alkalinity | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-1 | 50 | 5.32 | | | | 0.02203 | 0.00 | 0.05 | 0.05 | 1 | 0.00 | 1.10 | |
| LCS-1 | 50 | 8.18 | | | | 0.02203 | 0.00 | 4.30 | 4.30 | 1 | 0.00 | 94.71 | |
| N034662-001B | 50 | 7.55 | | | | 0.02203 | 0.00 | 6.00 | 6.00 | 1 | 0.00 | 132.16 | |
| N034662-002B | 50 | 7.5 | | | | 0.02203 | 0.00 | 5.60 | 5.60 | 1 | 0.00 | 123.35 | |
| N034662-003B | 50 | 7.48 | | | | 0.02203 | 0.00 | 5.75 | 5.75 | 1 | 0.00 | 126.65 | |
| N034662-004B | 50 | 7.5 | | | | 0.02203 | 0.00 | 4.35 | 4.35 | 1 | 0.00 | 95.81 | |
| N034662-001BDU | 50 | 7.54 | | | | 0.02203 | 0.00 | 6.00 | 6.00 | 1 | 0.00 | 132.16 | |
| N034662-001BMS | 50 | 7.87 | | | | 0.02203 | 0.00 | 10.60 | 10.60 | 1 | 0.00 | 233.48 | |
| N034662-001BMS | 50 | 7.87 | | | | 0.02203 | 0.00 | 10.45 | 10.45 | 1 | 0.00 | 230.18 | |

Julia Ramit 3/22/2019

## Speciated, Alkalinity as CaCO3

**SM 2320B**

| | |
|---|---|
| **Date Analyzed:** | 3/19/19 |
| **Time:** | 1:30 PM |
| **Analyzed By:** | LSR |

| SAMPLE ID | OH | CO3 | HCO3 | TOTAL | CHECK | COMMENT | REMARKS |
|---|---|---|---|---|---|---|---|
| MB-1 | 0.00 | 0.00 | 1.10 | 1.10 | 1.10 | | P = 0 |
| LCS-1 | 0.00 | 0.00 | 94.71 | 94.71 | 94.71 | | P = 0 |
| N034662-001B | 0.00 | 0.00 | 132.16 | 132.16 | 132.16 | | P = 0 |
| N034662-002B | 0.00 | 0.00 | 123.35 | 123.35 | 123.35 | | P = 0 |
| N034662-003B | 0.00 | 0.00 | 126.65 | 126.65 | 126.65 | | P = 0 |
| N034662-004B | 0.00 | 0.00 | 95.81 | 95.81 | 95.81 | | P = 0 |
| N034662-001BDUP | 0.00 | 0.00 | 132.16 | 132.16 | 132.16 | | P = 0 |
| N034662-001BMS | 0.00 | 0.00 | 233.48 | 233.48 | 233.48 | | P = 0 |
| N034662-001BMSD | 0.00 | 0.00 | 230.18 | 230.18 | 230.18 | | P = 0 |

Silvia Ramit 3/22/2019

## Alkalinity Preparation and Runlog

**Matrix:** H2O

Date Extracted: 3/19/19
Time Extracted:
Extracted By: WR

Date Analyzed: 3/19/19
Time Analyzed: 1330
Analyzed By: LBR

Reagent Lot # / Reagent ID
Sodium Carbonate: CANV 161205A
Hydrochloric Acid:
Sulfuric Acid: R1803640
Sodium Bicarbonate: CANV 180570A

pH meter Calibration:
SLOPE: 96.4%
pH 7 - 7.00 CANV 190107A
4 - 4.01 1 B
10 - 10.02 CANV 190111G

| | Sample ID. | Sample Wt./Vol. | Sample pH | Std Code | Spike Amt Added | Spike Conc. | Norm. Titrant | Vol. At pH = 8.3 | Vol. At pH = 4.5 | Dilution (F/I) | Calculations | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | STANDARDIZATION | | | | | | | | | | | |
| | A1 | 50mL | 10.48 | IWST190319A | 5mL | 0.05N | - | - | 11.40 | 50/50 | $N_{H_2SO_4} = (2.5g/L)(5mL)$ | =0.021929824 |
| | A2 | " | 10.49 | " | " | " | - | - | 11.30 | " | $(53)(0.Titrant$ | = 0.022123893 |
| 1) | MBLK | 50mL | 5.32 | - | - | - | 0.02203 | 0 | 0.05 | 50/50 | | Ave. 0.022026858 |
| 2) | LCS | " | 8.18 | IWST190319B | 1mL | 0.05N | " | 0 | 4.30 | " | | |
| 3) | NOB4662-1B | " | 7.55 | " | " | " | " | 0 | 6.0 | " | | |
| 4) | 2B | " | 7.50 | " | " | " | " | 0 | 5.60 | " | | |
| 5) | 3B | " | 7.48 | " | " | " | " | 0 | 5.75 | " | | |
| 6) | 4B | " | 7.50 | " | " | " | " | 0 | 4.35 | " | | |
| 7) | 1BDUP | " | 7.54 | " | " | " | " | 6 | 6.0 | " | | |
| 8) | 1BMS | " | 7.87 | IWST190319B | 1mL | 0.05N | " | 0 | 10.60 | " | | |
| 9) | 1BMSD | " | 7.87 | " | " | " | " | 0 | 10.45 | " | | |
| 10) | | | | | | | | | | | | |
| 11) | | | | | | | | | | | | |
| 12) | | | | | | | | | | | | |
| 13) | | | | | | | | | | | | |
| 14) | | | | | | | | | | | | |
| 15) | | | | | | | | | | | | |
| 16) | | | | $P = \frac{(V_{pH\ 8.3})(N_{H_2SO_4})(50,000)}{V_{SX}}$ | | | | | | | | |
| 17) | | | | | | | | | | | | |
| 18) | | | | | | | | | | | | |
| 19) | | | | $T = \frac{(V_{pH\ 4.5})(N_{H_2SO_4})(50,000)}{V_{SX}}$ | | | | | | | | |
| 20) | | | | | | | | | | | | |
| | MS | | | | | | | | | | | |
| | MSD | | | | | | | | | | | |
| | LCS | | | | | | | | | | | |

Julia Ramit 3/22/2019

Logbook #7

# EPA 300.0

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R132689
**ASSET #:** N034689 / N034707 / N034662

**Instrument ID:** IC-08
**Analyst:** RBA
**Date Analyzed:** 3/21/2019

**Method:**

[X] EPA 300.0
[ ] EPA 7199
[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | | | |
| 3. ICV within ± 10% of expected value. | X | | | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | | | X | | | |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | | | X | | | |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | | | X | | | |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | | | X | | | |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | | | X | | | |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | | | |
| 21. Are all samples analyzed within hold time? | X | | | | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | | | |
| 24. LCS compounds are within control limits. | X | | | | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | |
| 29. All manual integrations initialed, date and reasons included. | X | | | | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | | | |
| 31. All samples and QC raw data present in package. | X | | | | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | | | |
| 34 Is the QC summary report present and complete? | X | | | | | |

Comments:

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: rba  Date: 3/22/2019

2nd Level Reviewer: 3/25/2019  Date:

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R132731
**ASSET #:** N034689 / N034707 / N034662

**Instrument ID:** IC-08
**Analyst:** RBA
**Date Analyzed:** 3/22/2019

**Method:**

[X] EPA 300.0
[ ] EPA 7199
[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | | | |
| 3. ICV within ± 10% of expected value. | X | | | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | | | X | | | |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | | | X | | | |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | | | X | | | |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | | | X | | | |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | | | X | | | |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | | | |
| 21. Are all samples analyzed within hold time? | X | | | | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | | | |
| 24. LCS compounds are within control limits. | X | | | | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | |
| 29. All manual integrations initialed, date and reasons included. | X | | | | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | | | |
| 31. All samples and QC raw data present in package. | X | | | | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | | | |
| 34 Is the QC summary report present and complete? | X | | | | | |

Comments:

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: rba  Date: 3/25/2019

2nd Level Reviewer: 3/25/2019  Date: _____

# SAMPLE CALCULATION

# Sample Calculation

**METHOD:** EPA 300
**TEST NAME:** INORGANIC ANIONS BY IC
**MATRIX:** GROUNDWATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the orignal sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N034662-001B** concentration in mg/L is calculated as follows:

Chloride, mg/L = 3.5926 * 200

= 718.52

Reporting result in two significant values,

**Chloride, mg/L = 720**

NS 3/28/2019

# ANALYSIS RUN LOG

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 44
Created: 3/18/2019 5:46:03 PM by IC-05
Last Update: 3/20/2019 12:03:03 AM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 1 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 2 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 3 | Std - 0 | Standard | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 4 | Std - 1 | Standard | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 5 | Std - 2 | Standard | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 6 | Std - 3 | Standard | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 7 | Std - 4 | Standard | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 8 | Std - 5 | Standard | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 9 | ICV,ICV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 10 | ICB,ICB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 11 | MB-SOIL,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 12 | LCS-SOIL,LCS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 13 | N034623-004B,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 14 | N034623-004BDUP,DUP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 15 | N034623-004B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 16 | N034622-003B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 17 | N034623-001B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 18 | N034623-002B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 19 | N034623-003B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 20 | N034623-005B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 21 | CCV-2,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 22 | CCB-2,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 23 | N034623-014B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 24 | N034623-006B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 25 | N034623-007B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 26 | N034623-008B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 27 | N034623-009B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 28 | N034623-010B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 29 | N034623-011B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 30 | N034623-012B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 31 | N034623-013B,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 32 | N034623-004BMS,MS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 33 | CCV-3,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 34 | CCB-3,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 35 | N034623-004BMSD,MSD,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 36 | N034623-014BMS,MS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 37 | N034623-004BPS,MS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 38 | N034623-014BPS,MS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 39 | N034623-013B,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 40 | N034623-004BPS,MS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 41 | CCV-4,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 44
Created: 3/18/2019 5:46:03 PM by IC-05
Last Update: 3/20/2019 12:03:03 AM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 1 | BLANK,BLANK | 3/19/2019 7:54:39 AM | BLANK |
| 2 | BLANK,BLANK | 3/19/2019 8:09:27 AM | BLANK |
| 3 | Std - 0 | 3/19/2019 8:24:15 AM | BLANK |
| 4 | Std - 1 | 3/19/2019 8:39:03 AM | STD-LOW |
| 5 | Std - 2 | 3/19/2019 8:53:50 AM | STD |
| 6 | Std - 3 | 3/19/2019 9:08:39 AM | STD |
| 7 | Std - 4 | 3/19/2019 9:23:27 AM | STD |
| 8 | Std - 5 | 3/19/2019 9:38:15 AM | STD-HIGH |
| 9 | ICV,ICV,1 | 3/19/2019 10:53:05 AM | CCV |
| 10 | ICB,ICB,1 | 3/19/2019 11:07:54 AM | ICB |
| 11 | MB-SOIL,MBLK,1 | 3/19/2019 11:22:42 AM | METHOD BLANK |
| 12 | LCS-SOIL,LCS,1 | 3/19/2019 11:37:30 AM | LCS |
| 13 | N034623-004B,SAMP,5 | 3/19/2019 11:57:43 AM | SAMP,2>10mL |
| 14 | N034623-004BDUP,DUP,1 | 3/19/2019 12:12:32 PM | DUP,10mL |
| 15 | N034623-004B,SAMP,1 | 3/19/2019 12:29:55 PM | SAMP,10mL |
| 16 | N034622-003B,SAMP,1 | 3/19/2019 12:44:42 PM | SAMP,10mL |
| 17 | N034623-001B,SAMP,1 | 3/19/2019 12:59:31 PM | SAMP,10mL |
| 18 | N034623-002B,SAMP,1 | 3/19/2019 1:14:19 PM | SAMP,10mL |
| 19 | N034623-003B,SAMP,1 | 3/19/2019 1:29:07 PM | SAMP,10mL |
| 20 | N034623-005B,SAMP,1 | 3/19/2019 1:50:54 PM | SAMP,10mL |
| 21 | CCV-2,CCV,1 | 3/19/2019 2:05:43 PM | CCV |
| 22 | CCB-2,CCB,1 | 3/19/2019 2:20:31 PM | CCB |
| 23 | N034623-014B,SAMP,1 | 3/19/2019 2:40:14 PM | SAMP,10mL |
| 24 | N034623-006B,SAMP,1 | 3/19/2019 2:55:02 PM | SAMP,10mL |
| 25 | N034623-007B,SAMP,1 | 3/19/2019 3:09:50 PM | SAMP,10mL |
| 26 | N034623-008B,SAMP,1 | 3/19/2019 3:24:38 PM | SAMP,10mL |
| 27 | N034623-009B,SAMP,1 | 3/19/2019 3:39:26 PM | SAMP,10mL |
| 28 | N034623-010B,SAMP,1 | 3/19/2019 3:54:13 PM | SAMP,10mL |
| 29 | N034623-011B,SAMP,1 | 3/19/2019 4:09:01 PM | SAMP,10mL |
| 30 | N034623-012B,SAMP,1 | 3/19/2019 4:23:49 PM | SAMP,10mL |
| 31 | N034623-013B,SAMP,1 | 3/19/2019 4:38:37 PM | SAMP,10mL |
| 32 | N034623-004BMS,MS,1 | 3/19/2019 4:53:25 PM | MS,10mL |
| 33 | CCV-3,CCV,1 | 3/19/2019 5:08:13 PM | CCV |
| 34 | CCB-3,CCB,1 | 3/19/2019 5:23:00 PM | CCB |
| 35 | N034623-004BMSD,MSD,1 | 3/19/2019 5:37:48 PM | MSD,10mL |
| 36 | N034623-014BMS,MS,1 | 3/19/2019 5:52:36 PM | MS,10mL |
| 37 | N034623-004BPS,MS,1 | 3/19/2019 6:07:24 PM | PS,10mL |
| 38 | N034623-014BPS,MS,1 | 3/19/2019 6:22:12 PM | PS,10mL |
| 39 | N034623-013B,SAMP,2 | 3/19/2019 6:37:00 PM | SAMP,5>10mL |
| 40 | N034623-004BPS,MS,1 | 3/19/2019 6:51:47 PM | PS,10mL |
| 41 | CCV-4,CCV,1 | 3/19/2019 7:06:35 PM | CCV |

Chromeleon © Dionex Corporation, Version 6.80 SR10 Build 2818 (166959)

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 44
Created: 3/18/2019 5:46:03 PM by IC-05
Last Update: 3/20/2019 12:03:03 AM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 42 | CCB-4,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 43 | BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 44 | BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |

Chromeleon © Dionex Corporation, Version 6.80 SR10 Build 2818 (166959)

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 44
Created: 3/18/2019 5:46:03 PM by IC-05
Last Update: 3/20/2019 12:03:03 AM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 42 | CCB-4,CCB,1 | 3/19/2019 7:21:23 PM | CCB |
| 43 | BLANK | 3/19/2019 7:36:11 PM | BLANK |
| 44 | BLANK | 3/19/2019 7:50:59 PM | BLANK |

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 46
Created: 3/21/2019 8:41:26 AM by IC-05
Last Update: 3/21/2019 4:01:28 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 1 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 2 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 3 | Std - 0 | Standard | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 4 | Std - 1 | Standard | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 5 | Std - 2 | Standard | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 6 | Std - 3 | Standard | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 7 | Std - 4 | Standard | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 8 | Std - 5 | Standard | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 9 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 10 | CCV-1,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 11 | CCB-1,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 12 | MB-H2O,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 13 | LCS-H2O,LCS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 14 | N034691-003F,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 15 | N034702-002C,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 16 | N034691-003FDUP,DUP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 17 | N034691-003FMS,MS,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 18 | N034691-003FMSD,MSD,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 19 | N034691-003FMS,MS,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 20 | N034691-003FMSD,MSD,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 21 | N034689-002G,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 22 | CCV-2,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 23 | CCB-2,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 24 | N034689-003G,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 25 | N034689-004G,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 26 | N034689-005G,SAMP,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 27 | N034689-006G,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 28 | N034689-007G,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 29 | N034689-005G,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 30 | N034707-001B,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 31 | N034707-002B,SAMP,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 32 | N034707-003B,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 33 | N034707-004B,SAMP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 34 | CCV-3,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 35 | CCB-3,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 36 | N034662-001B,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 37 | N034662-002B,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 38 | N034662-003B,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 39 | N034662-004B,SAMP,2 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 40 | N034689-006GMS,MS,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 41 | N034689-006GMSD,MSD,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 46
Created: 3/21/2019 8:41:26 AM by IC-05
Last Update: 3/21/2019 4:01:28 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 1 | BLANK,BLANK | 3/19/2019 7:54:39 AM | BLANK |
| 2 | BLANK,BLANK | 3/19/2019 8:09:27 AM | BLANK |
| 3 | Std - 0 | 3/19/2019 8:24:15 AM | BLANK |
| 4 | Std - 1 | 3/19/2019 8:39:03 AM | STD-LOW |
| 5 | Std - 2 | 3/19/2019 8:53:50 AM | STD |
| 6 | Std - 3 | 3/19/2019 9:08:39 AM | STD |
| 7 | Std - 4 | 3/19/2019 9:23:27 AM | STD |
| 8 | Std - 5 | 3/19/2019 9:38:15 AM | STD-HIGH |
| 9 | BLANK,BLANK | 3/21/2019 8:41:56 AM | BLANK |
| 10 | CCV-1,CCV,1 | 3/21/2019 8:56:45 AM | CCV |
| 11 | CCB-1,CCB,1 | 3/21/2019 9:11:32 AM | CCB |
| 12 | MB-H2O,MBLK,1 | 3/21/2019 9:26:20 AM | METHOD BLANK |
| 13 | LCS-H2O,LCS,1 | 3/21/2019 9:41:08 AM | LCS |
| 14 | N034691-003F,SAMP,5 | 3/21/2019 10:17:30 AM | SAMP,2>10mL |
| 15 | N034702-002C,SAMP,5 | 3/21/2019 10:32:17 AM | SAMP,2>10mL |
| 16 | N034691-003FDUP,DUP,5 | 3/21/2019 10:54:27 AM | DUP,2>10mL |
| 17 | N034691-003FMS,MS,5 | 3/21/2019 11:09:15 AM | MS,2>10mL |
| 18 | N034691-003FMSD,MSD,5 | 3/21/2019 11:24:03 AM | MSD,2>10mL |
| 19 | N034691-003FMS,MS,10 | 3/21/2019 11:38:51 AM | MS,1>10mL |
| 20 | N034691-003FMSD,MSD,10 | 3/21/2019 11:53:39 AM | MSD,1>10mL |
| 21 | N034689-002G,SAMP,2 | 3/21/2019 12:41:36 PM | SAMP,5>10mL |
| 22 | CCV-2,CCV,1 | 3/21/2019 12:56:23 PM | CCV |
| 23 | CCB-2,CCB,1 | 3/21/2019 1:11:11 PM | CCB |
| 24 | N034689-003G,SAMP,2 | 3/21/2019 1:25:59 PM | SAMP,5>10mL |
| 25 | N034689-004G,SAMP,1 | 3/21/2019 1:40:47 PM | SAMP,10mL |
| 26 | N034689-005G,SAMP,1 | 3/21/2019 1:55:35 PM | SAMP,10mL |
| 27 | N034689-006G,SAMP,5 | 3/21/2019 2:10:22 PM | SAMP,2>10mL |
| 28 | N034689-007G,SAMP,5 | 3/21/2019 2:25:10 PM | SAMP,2>10mL |
| 29 | N034689-005G,SAMP,2 | 3/21/2019 3:23:49 PM | SAMP,5>10mL |
| 30 | N034707-001B,SAMP,10 | 3/21/2019 3:38:37 PM | SAMP,1>10mL |
| 31 | N034707-002B,SAMP,10 | 3/21/2019 3:53:25 PM | SAMP,1>10mL |
| 32 | N034707-003B,SAMP,5 | 3/21/2019 4:08:12 PM | SAMP,2>10mL |
| 33 | N034707-004B,SAMP,5 | 3/21/2019 4:23:00 PM | SAMP,2>10mL |
| 34 | CCV-3,CCV,1 | 3/21/2019 4:37:48 PM | CCV |
| 35 | CCB-3,CCB,1 | 3/21/2019 4:52:36 PM | CCB |
| 36 | N034662-001B,SAMP,2 | 3/21/2019 5:07:24 PM | SAMP,5>10mL |
| 37 | N034662-002B,SAMP,2 | 3/21/2019 5:22:12 PM | SAMP,5>10mL |
| 38 | N034662-003B,SAMP,2 | 3/21/2019 5:36:59 PM | SAMP,5>10mL |
| 39 | N034662-004B,SAMP,2 | 3/21/2019 5:51:47 PM | SAMP,5>10mL |
| 40 | N034689-006GMS,MS,5 | 3/21/2019 6:06:35 PM | MS,2>10mL |
| 41 | N034689-006GMSD,MSD,5 | 3/21/2019 6:21:23 PM | MSD,2>10mL |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 46
Created: 3/21/2019 8:41:26 AM by IC-05
Last Update: 3/21/2019 4:01:28 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 42 | N034707-001BMS,MS,10 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 43 | N034707-003BDUP,DUP,5 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 44 | CCV-4,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 45 | CCB-4,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 46 | BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |

Chromeleon © Dionex Corporation, Version 6.80 SR10 Build 2818 (166959)

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 46
Created: 3/21/2019 8:41:26 AM by IC-05
Last Update: 3/21/2019 4:01:28 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 42 | N034707-001BMS,MS,10 | 3/21/2019 6:36:11 PM | MS,1>10mL |
| 43 | N034707-003BDUP,DUP,5 | 3/21/2019 6:50:58 PM | DUP,2>10mL |
| 44 | CCV-4,CCV,1 | 3/21/2019 7:05:46 PM | CCV |
| 45 | CCB-4,CCB,1 | 3/21/2019 7:20:34 PM | CCB |
| 46 | BLANK | 3/21/2019 7:35:22 PM | BLANK |

Chromeleon © Dionex Corporation, Version 6.80 SR10 Build 2818 (166959)

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 59
Created: 3/22/2019 8:44:20 AM by IC-05
Last Update: 3/22/2019 2:39:36 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 1 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 2 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 3 | Std - 0 | Standard | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 4 | Std - 1 | Standard | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 5 | Std - 2 | Standard | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 6 | Std - 3 | Standard | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 7 | Std - 4 | Standard | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 8 | Std - 5 | Standard | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 9 | BLANK,BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 10 | CCV-1,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 11 | CCB-1,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 12 | MB-H2O,MBLK,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 13 | LCS-H2O,LCS,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 14 | N034662-001B,SAMP,200 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 15 | N034662-002B,SAMP,200 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 16 | N034662-003B,SAMP,200 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 17 | N034662-004B,SAMP,200 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 18 | N034662-001B,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 19 | N034662-002B,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 20 | N034662-003B,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 21 | N034662-004B,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 22 | CCV-2,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 23 | CCB-2,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 24 | N034689-002G,SAMP,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 25 | N034689-003G,SAMP,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 26 | N034689-004G,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 27 | N034689-005G,SAMP,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 28 | N034689-006G,SAMP,500 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 29 | N034689-007G,SAMP,1000 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 30 | N034689-002G,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 31 | N034689-003G,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 32 | N034689-004G,SAMP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 33 | N034689-005G,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 34 | CCV-3,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 35 | CCB-3,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 36 | N034689-006G,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 37 | N034689-007G,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 38 | N034707-001B,SAMP,1000 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 39 | N034707-002B,SAMP,1000 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 40 | N034707-003B,SAMP,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 41 | N034707-004B,SAMP,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 59
Created: 3/22/2019 8:44:20 AM by IC-05
Last Update: 3/22/2019 2:39:36 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 1 | BLANK,BLANK | 3/19/2019 7:54:39 AM | BLANK |
| 2 | BLANK,BLANK | 3/19/2019 8:09:27 AM | BLANK |
| 3 | Std - 0 | 3/19/2019 8:24:15 AM | BLANK |
| 4 | Std - 1 | 3/19/2019 8:39:03 AM | STD-LOW |
| 5 | Std - 2 | 3/19/2019 8:53:50 AM | STD |
| 6 | Std - 3 | 3/19/2019 9:08:39 AM | STD |
| 7 | Std - 4 | 3/19/2019 9:23:27 AM | STD |
| 8 | Std - 5 | 3/19/2019 9:38:15 AM | STD-HIGH |
| 9 | BLANK,BLANK | 3/22/2019 8:44:41 AM | BLANK |
| 10 | CCV-1,CCV,1 | 3/22/2019 8:59:29 AM | CCV |
| 11 | CCB-1,CCB,1 | 3/22/2019 9:14:17 AM | CCB |
| 12 | MB-H2O,MBLK,1 | 3/22/2019 9:29:05 AM | METHOD BLANK |
| 13 | LCS-H2O,LCS,1 | 3/22/2019 9:43:53 AM | LCS |
| 14 | N034662-001B,SAMP,200 | 3/22/2019 10:09:04 AM | SAMP,0.05>10mL |
| 15 | N034662-002B,SAMP,200 | 3/22/2019 10:23:52 AM | SAMP,0.05>10mL |
| 16 | N034662-003B,SAMP,200 | 3/22/2019 10:38:40 AM | SAMP,0.05>10mL |
| 17 | N034662-004B,SAMP,200 | 3/22/2019 10:53:28 AM | SAMP,0.05>10mL |
| 18 | N034662-001B,SAMP,20 | 3/22/2019 11:08:15 AM | SAMP,0.5>10mL |
| 19 | N034662-002B,SAMP,20 | 3/22/2019 11:23:03 AM | SAMP,0.5>10mL |
| 20 | N034662-003B,SAMP,20 | 3/22/2019 11:37:51 AM | SAMP,0.5>10mL |
| 21 | N034662-004B,SAMP,20 | 3/22/2019 11:52:39 AM | SAMP,0.5>10mL |
| 22 | CCV-2,CCV,1 | 3/22/2019 12:07:26 PM | CCV |
| 23 | CCB-2,CCB,1 | 3/22/2019 12:22:14 PM | CCB |
| 24 | N034689-002G,SAMP,100 | 3/22/2019 12:37:02 PM | SAMP,0.1>10mL |
| 25 | N034689-003G,SAMP,100 | 3/22/2019 12:51:50 PM | SAMP,0.1>10mL |
| 26 | N034689-004G,SAMP,50 | 3/22/2019 1:06:38 PM | SAMP,0.2>10mL |
| 27 | N034689-005G,SAMP,500 | 3/22/2019 1:21:26 PM | SAMP,0.02>10mL |
| 28 | N034689-006G,SAMP,500 | 3/22/2019 1:36:14 PM | SAMP,0.02>10mL |
| 29 | N034689-007G,SAMP,1000 | 3/22/2019 1:51:01 PM | SAMP,0.01>10mL |
| 30 | N034689-002G,SAMP,20 | 3/22/2019 2:05:49 PM | SAMP,0.5>10mL |
| 31 | N034689-003G,SAMP,20 | 3/22/2019 2:20:37 PM | SAMP,0.5>10mL |
| 32 | N034689-004G,SAMP,20 | 3/22/2019 2:35:25 PM | SAMP,0.5>10mL |
| 33 | N034689-005G,SAMP,50 | 3/22/2019 2:50:13 PM | SAMP,0.2>10mL |
| 34 | CCV-3,CCV,1 | 3/22/2019 3:05:00 PM | CCV |
| 35 | CCB-3,CCB,1 | 3/22/2019 3:19:48 PM | CCB |
| 36 | N034689-006G,SAMP,50 | 3/22/2019 3:34:36 PM | SAMP,0.2>10mL |
| 37 | N034689-007G,SAMP,50 | 3/22/2019 3:49:24 PM | SAMP,0.2>10mL |
| 38 | N034707-001B,SAMP,1000 | 3/22/2019 4:04:12 PM | SAMP,0.01>10mL |
| 39 | N034707-002B,SAMP,1000 | 3/22/2019 4:19:00 PM | SAMP,0.01>10mL |
| 40 | N034707-003B,SAMP,100 | 3/22/2019 4:33:48 PM | SAMP,0.1>10mL |
| 41 | N034707-004B,SAMP,100 | 3/22/2019 4:48:36 PM | SAMP,0.1>10mL |

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 59
Created: 3/22/2019 8:44:20 AM by IC-05
Last Update: 3/22/2019 2:39:36 PM by IC-05

| No. | Name | Type | Inj. Vol. | Program | Method | Status |
|---|---|---|---|---|---|---|
| 42 | N034707-001B,SAMP,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 43 | N034707-002B,SAMP,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 44 | N034707-003B,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 45 | N034707-004B,SAMP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 46 | CCV-4,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 47 | CCB-4,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 48 | N034689-002GMS,MS,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 49 | N034689-002GMSD,MSD,100 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 50 | N034662-001BMS,MS,200 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 51 | N034689-004GDUP,DUP,50 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 52 | N034662-001BMS,MS,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 53 | N034662-001BMSD,MSD,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 54 | N034689-002GMS,MS,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 55 | N034662-003BDUP,DUP,20 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 56 | CCV-5,CCV,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 57 | CCB-5,CCB,1 | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 58 | BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |
| 59 | BLANK | Unknown | 1000.0 | Anions Default | EPA 300_0_190319 | Finished |

jrba 3/22/2019

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 59
Created: 3/22/2019 8:44:20 AM by IC-05
Last Update: 3/22/2019 2:39:36 PM by IC-05

| No. | Name | Inj. Date/Time | Comment |
|---|---|---|---|
| 42 | N034707-001B,SAMP,100 | 3/22/2019 5:03:24 PM | SAMP,0.1>10mL |
| 43 | N034707-002B,SAMP,100 | 3/22/2019 5:18:12 PM | SAMP,0.1>10mL |
| 44 | N034707-003B,SAMP,50 | 3/22/2019 5:33:00 PM | SAMP,0.2>10mL |
| 45 | N034707-004B,SAMP,50 | 3/22/2019 5:47:47 PM | SAMP,0.2>10mL |
| 46 | CCV-4,CCV,1 | 3/22/2019 6:02:35 PM | CCV |
| 47 | CCB-4,CCB,1 | 3/22/2019 6:17:23 PM | CCB |
| 48 | N034689-002GMS,MS,100 | 3/22/2019 6:32:11 PM | MS,0.1>10mL |
| 49 | N034689-002GMSD,MSD,100 | 3/22/2019 6:46:59 PM | MSD,0.1>10mL |
| 50 | N034662-001BMS,MS,200 | 3/22/2019 7:01:46 PM | MS,0.05>10mL |
| 51 | N034689-004GDUP,DUP,50 | 3/22/2019 7:16:34 PM | DUP,0.2>10mL |
| 52 | N034662-001BMS,MS,20 | 3/22/2019 7:31:22 PM | MS,0.5>10mL |
| 53 | N034662-001BMSD,MSD,20 | 3/22/2019 7:46:10 PM | MSD,0.5>10mL |
| 54 | N034689-002GMS,MS,20 | 3/22/2019 8:00:58 PM | MS,0.5>10mL |
| 55 | N034662-003BDUP,DUP,20 | 3/22/2019 8:15:46 PM | DUP,0.5>10mL |
| 56 | CCV-5,CCV,1 | 3/22/2019 8:30:33 PM | CCV |
| 57 | CCB-5,CCB,1 | 3/22/2019 8:45:21 PM | CCB |
| 58 | BLANK | 3/22/2019 9:00:09 PM | BLANK |
| 59 | BLANK | 3/22/2019 9:14:57 PM | BLANK |

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# INITIAL CALIBRATION DATA SUMMARY

**(EPA 300) - INITIAL CALIBRATION**

Instrument ID: IC-08
Date Calibrated: 3/19/2019

Initial Calibration:

| Sulfate | STD0 | STD1 | STD2 | STD3 | STD4 | STD5 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0 | 0.5 | 2 | 4 | 10 | 20 | $R^2$ |
| Area,mAU*min | 0 | 0.0575 | 0.2257 | 0.4594 | 1.1956 | 2.4631 | 1.000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock |
|---|---|
| Standard Concentration: | 1000000 PPB |
| Standard ID: | ISST-180914G |

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

**(EPA 300) - INITIAL CALIBRATION**

Instrument ID: IC-08
Date Calibrated: 3/19/2019

Initial Calibration:

| Chloride | STD0 | STD1 | STD2 | STD3 | STD4 | STD5 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0 | 0.5 | 1 | 2 | 5 | 10 | $R^2$ |
| Area,mAU*min | 0.000 | 0.0737 | 0.1543 | 0.3083 | 0.7923 | 1.6766 | 1.000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock |
|---|---|
| Standard Concentration: | 1000000 PPB |
| Standard ID: | ISST-180914B |

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

**(EPA 300) - INITIAL CALIBRATION**

Instrument ID: IC-08
Date Calibrated: 3/19/2019

Initial Calibration:

| Bromide | STD0 | STD1 | STD2 | STD3 | STD4 | STD5 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0 | 0.05 | 0.25 | 0.5 | 1.25 | 2.5 | $R^2$ |
| Area,mAU*min | 0.000 | 0.0042 | 0.0166 | 0.0326 | 0.0806 | 0.1632 | 1.000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock |
|---|---|
| Standard Concentration: | 1000000 PPB |
| Standard ID: | ISST-180914D |

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_BRPGE**

| Sample ID | **ICV** | SampType: **ICV** | TestCode: **300_W_BRP** | Units: **mg/L** | Prep Date: | RunNo: **132689** |
|---|---|---|---|---|---|---|
| Client ID: | **ICV** | Batch ID: **R132689** | TestNo: **EPA 300.0** | | Analysis Date: **3/19/2019** | SeqNo: **3326189** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 1.248 | 0.50 | 1.250 | 0 | 99.8 | 90 | 110 | | | | |

| Sample ID | **CCV-1** | SampType: **CCV** | TestCode: **300_W_BRP** | Units: **mg/L** | Prep Date: | RunNo: **132689** |
|---|---|---|---|---|---|---|
| Client ID: | **CCV** | Batch ID: **R132689** | TestNo: **EPA 300.0** | | Analysis Date: **3/21/2019** | SeqNo: **3326191** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 1.219 | 0.50 | 1.250 | 0 | 97.5 | 90 | 110 | | | | |

| Sample ID | **CCV-2** | SampType: **CCV** | TestCode: **300_W_BRP** | Units: **mg/L** | Prep Date: | RunNo: **132689** |
|---|---|---|---|---|---|---|
| Client ID: | **CCV** | Batch ID: **R132689** | TestNo: **EPA 300.0** | | Analysis Date: **3/21/2019** | SeqNo: **3326196** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 1.235 | 0.50 | 1.250 | 0 | 98.8 | 90 | 110 | | | | |

| Sample ID | **CCV-3** | SampType: **CCV** | TestCode: **300_W_BRP** | Units: **mg/L** | Prep Date: | RunNo: **132689** |
|---|---|---|---|---|---|---|
| Client ID: | **CCV** | Batch ID: **R132689** | TestNo: **EPA 300.0** | | Analysis Date: **3/21/2019** | SeqNo: **3326207** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 1.250 | 0.50 | 1.250 | 0 | 100 | 90 | 110 | | | | |

| Sample ID | **CCV-4** | SampType: **CCV** | TestCode: **300_W_BRP** | Units: **mg/L** | Prep Date: | RunNo: **132689** |
|---|---|---|---|---|---|---|
| Client ID: | **CCV** | Batch ID: **R132689** | TestNo: **EPA 300.0** | | Analysis Date: **3/21/2019** | SeqNo: **3326217** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | 1.240 | 0.50 | 1.250 | 0 | 99.2 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/19/2019** | SeqNo: **3327459** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.980 | 0.50 | 2.000 | 0 | 99.0 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/22/2019** | SeqNo: **3327461** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.969 | 0.50 | 2.000 | 0 | 98.4 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/22/2019** | SeqNo: **3327469** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.952 | 0.50 | 2.000 | 0 | 97.6 | 90 | 110 | | | | |

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/22/2019** | SeqNo: **3327477** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.955 | 0.50 | 2.000 | 0 | 97.7 | 90 | 110 | | | | |

| Sample ID **CCV-4** | SampType: **CCV** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/22/2019** | SeqNo: **3327483** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.958 | 0.50 | 2.000 | 0 | 97.9 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

Sample ID **CCV-5** SampType: **CCV** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **132731**
Client ID: **CCV** Batch ID: **R132731** TestNo: **EPA 300.0** Analysis Date: **3/22/2019** SeqNo: **3327489**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1.952 | 0.50 | 2.000 | 0 | 97.6 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/19/2019** | SeqNo: **3327491** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.890 | 0.50 | 4.000 | 0 | 97.2 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/22/2019** | SeqNo: **3327493** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.876 | 0.50 | 4.000 | 0 | 96.9 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/22/2019** | SeqNo: **3327501** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.889 | 0.50 | 4.000 | 0 | 97.2 | 90 | 110 | | | | |

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/22/2019** | SeqNo: **3327507** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.942 | 0.50 | 4.000 | 0 | 98.6 | 90 | 110 | | | | |

| Sample ID **CCV-4** | SampType: **CCV** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/22/2019** | SeqNo: **3327515** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.918 | 0.50 | 4.000 | 0 | 97.9 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID **CCV-5** | SampType: **CCV** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/22/2019** | SeqNo: **3327521** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.966 | 0.50 | 4.000 | 0 | 99.1 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_BRPGE**

| Sample ID | **ICB** | SampType: | **ICB** | TestCode: | **300_W_BRP** | Units: | **mg/L** | Prep Date: | | RunNo: | **132689** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ICB** | Batch ID: | **R132689** | TestNo: | **EPA 300.0** | | | Analysis Date: | **3/19/2019** | SeqNo: | **3326190** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | ND | 0.50 | | | | | | | | | |

| Sample ID | **CCB-1** | SampType: | **CCB** | TestCode: | **300_W_BRP** | Units: | **mg/L** | Prep Date: | | RunNo: | **132689** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **CCB** | Batch ID: | **R132689** | TestNo: | **EPA 300.0** | | | Analysis Date: | **3/21/2019** | SeqNo: | **3326192** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | ND | 0.50 | | | | | | | | | |

| Sample ID | **CCB-2** | SampType: | **CCB** | TestCode: | **300_W_BRP** | Units: | **mg/L** | Prep Date: | | RunNo: | **132689** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **CCB** | Batch ID: | **R132689** | TestNo: | **EPA 300.0** | | | Analysis Date: | **3/21/2019** | SeqNo: | **3326197** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | ND | 0.50 | | | | | | | | | |

| Sample ID | **CCB-3** | SampType: | **CCB** | TestCode: | **300_W_BRP** | Units: | **mg/L** | Prep Date: | | RunNo: | **132689** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **CCB** | Batch ID: | **R132689** | TestNo: | **EPA 300.0** | | | Analysis Date: | **3/21/2019** | SeqNo: | **3326208** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | ND | 0.50 | | | | | | | | | |

| Sample ID | **CCB-4** | SampType: | **CCB** | TestCode: | **300_W_BRP** | Units: | **mg/L** | Prep Date: | | RunNo: | **132689** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **CCB** | Batch ID: | **R132689** | TestNo: | **EPA 300.0** | | | Analysis Date: | **3/21/2019** | SeqNo: | **3326218** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/19/2019** | SeqNo: **3327460** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/22/2019** | SeqNo: **3327462** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.145 | 0.50 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/22/2019** | SeqNo: **3327470** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.146 | 0.50 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/22/2019** | SeqNo: **3327478** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/22/2019** | SeqNo: **3327484** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_CLPGE**

| Sample ID **CCB-5** | SampType: **CCB** | TestCode: **300_W_CLP** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/22/2019** | SeqNo: **3327490** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.143 | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/19/2019** | SeqNo: **3327492** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/22/2019** | SeqNo: **3327494** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/22/2019** | SeqNo: **3327502** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.207 | 0.50 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/22/2019** | SeqNo: **3327508** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.217 | 0.50 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/22/2019** | SeqNo: **3327516** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID **CCB-5** | SampType: **CCB** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **132731** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132731** | TestNo: **EPA 300.0** | | Analysis Date: **3/22/2019** | SeqNo: **3327522** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.201 | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# RETENTION TIME SUMMARY

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-08

**Analytical Sequence**

Date Analyzed: 3/21/2019

| Sample Name | | Retention Time | Evaluation |
|---|---|---|---|
| ICV | Bromide | 5.613 | |
| CCV-1 | Bromide | 5.607 | |
| CCV-2 | Bromide | 5.600 | |
| CCV-3 | Bromide | 5.607 | |
| CCV-4 | Bromide | 5.607 | |
| | **Average** | 5.605 | |
| | **Applied RT Window** | 5.405 - 5.805 | |
| MB-R132689_BR | Bromide | N.A. | N.A. |
| LCS-R132689_BR | Bromide | 5.603 | PASS |
| N034689-006GMS | Bromide | 5.607 | PASS |
| N034689-006GMSD | Bromide | 5.610 | PASS |
| N034707-001BMS | Bromide | 5.610 | PASS |
| N034707-003BDUP | Bromide | 5.610 | PASS |
| N034662-001B | Bromide | 5.610 | PASS |
| N034662-002B | Bromide | 5.610 | PASS |
| N034662-003B | Bromide | 5.607 | PASS |
| N034662-004B | Bromide | 5.604 | PASS |

## RETENTION TIME (RT) SUMMARY

**Instrument ID:** IC-08

**Analytical Sequence**

Date Analyzed: 3/22/2019

| Sample Name | | Retention Time | | Evaluation |
|---|---|---|---|---|
| ICV | Chloride | 4.157 | | |
| CCV-1 | Chloride | 4.157 | | |
| CCV-2 | Chloride | 4.154 | | |
| CCV-3 | Chloride | 4.150 | | |
| CCV-4 | Chloride | 4.150 | | |
| CCV-5 | Chloride | 4.150 | | |
| | **Average** | 4.152 | | |
| | **Applied RT Window** | 3.952 - | 4.352 | |
| MB-R132731_CL | Chloride | 4.157 | | PASS |
| LCS-R132731_CL | Chloride | 4.154 | | PASS |
| N034662-001B | Chloride | 4.154 | | PASS |
| N034662-002B | Chloride | 4.154 | | PASS |
| N034662-003B | Chloride | 4.153 | | PASS |
| N034662-004B | Chloride | 4.153 | | PASS |
| N034689-002GMS | Chloride | 4.154 | | PASS |
| N034689-002GMSD | Chloride | 4.153 | | PASS |
| N034662-001BMS | Chloride | 4.153 | | PASS |
| N034689-004GDUP | Chloride | 4.150 | | PASS |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-08

**Analytical Sequence**

Date Analyzed: 3/22/2019

| Sample Name | | Retention Time | Evaluation |
|---|---|---|---|
| ICV | Sulfate | 9.457 | |
| CCV-1 | Sulfate | 9.420 | |
| CCV-2 | Sulfate | 9.407 | |
| CCV-3 | Sulfate | 9.397 | |
| CCV-4 | Sulfate | 9.387 | |
| CCV-5 | Sulfate | 9.390 | |
| | **Average** | 9.400 | |
| | **Applied RT Window** | 9.200 - 9.600 | |
| MB-R132731_SO4 | Sulfate | N.A. | N.A. |
| LCS-R132731_SO4 | Sulfate | 9.410 | PASS |
| N034662-001B | Sulfate | 9.414 | PASS |
| N034662-002B | Sulfate | 9.414 | PASS |
| N034662-003B | Sulfate | 9.417 | PASS |
| N034662-004B | Sulfate | 9.414 | PASS |
| N034662-001BMS | Sulfate | 9.400 | PASS |
| N034662-001BMSD | Sulfate | 9.397 | PASS |
| N034689-002GMS | Sulfate | 9.390 | PASS |
| N034662-003BDUP | Sulfate | 9.394 | PASS |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **INORGANIC IONS by Ion Chromatography**
Method Number: EPA 300.0
Analysis Date(s): 5/23/2017 ; 5/24/2017; 5/25/2017
Analyst/Technician: Ria Abes

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

**Acceptance Criteria:** MDL < spike < 10XMDL

| Datafile | 170523A D36 | 170523A D37 | 170523A D38 | 170524A D17 | 170524A D18 | 170525A D45 | 170525A D46 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte** | **#1** | **#2** | **#3** | **#4** | **#5** | **#6** | **#7** | **Spike Conc., mg/L** | **SD** | **MDL** | **LOD** | **PQL** |
| Fluoride | 0.020 | 0.022 | 0.021 | 0.020 | 0.023 | 0.026 | 0.024 | 0.020 | 0.0021 | **0.0065** | 0.020 | 0.10 |
| Chloride | 0.133 | 0.136 | 0.136 | 0.133 | 0.141 | 0.133 | 0.136 | 0.025 | 0.0029 | **0.0091** | 0.020 | 0.50 |
| Nitrite | 0.030 | 0.028 | 0.027 | 0.028 | 0.028 | 0.027 | 0.027 | 0.020 | 0.0010 | **0.0030** | 0.010 | 0.05 |
| Bromide | 0.037 | 0.042 | 0.043 | 0.038 | 0.040 | 0.032 | 0.025 | 0.040 | 0.0062 | **0.0196** | 0.040 | 0.20 |
| Nitrate | 0.035 | 0.034 | 0.033 | 0.033 | 0.033 | 0.031 | 0.030 | 0.020 | 0.0016 | **0.0050** | 0.010 | 0.05 |
| Phosphate | 0.047 | 0.051 | 0.049 | 0.046 | 0.052 | 0.047 | 0.059 | 0.040 | 0.0043 | **0.0135** | 0.030 | 0.10 |
| Sulfate | 0.213 | 0.199 | 0.208 | 0.216 | 0.199 | 0.201 | 0.198 | 0.050 | 0.0073 | **0.0229** | 0.050 | 0.50 |

# MDL/LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Inorganic Ions by Ion Chromatography (Low Level)**
Method Number: EPA Method 300.0
Analysis Date(s): 3/29-30/2018
Analyst: Ria B. Abes

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

| Compound | MDL | LOD Spike Conc., mg/L | LOD Actual Conc., mg/L | PQL Spike Conc., mg/L | PQL Actual Conc., mg/L | %Recovery |
|---|---|---|---|---|---|---|
| Fluoride | **0.0065** | 0.020 | 0.0252 | 0.10 | 0.087 | **87** |
| Chloride | **0.0091** | 0.020 | 0.1193 | 0.50 | 0.5757 | **115** |
| Nitrite | **0.0030** | 0.010 | 0.0237 | 0.05 | 0.0638 | **128** |
| Bromide | **0.0196** | 0.040 | 0.0405 | 0.20 | 0.1993 | **100** |
| Nitrate | **0.0050** | 0.010 | 0.0191 | 0.05 | 0.0561 | **112** |
| Phosphate | **0.0135** | 0.030 | 0.0415 | 0.10 | 0.1216 | **122** |
| Sulfate | **0.0229** | 0.050 | 0.3682 | 0.50 | 0.6549 | **131** |

# SM 4500-NO3F

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R132714 **Analyst:** QBM

**ASSET #:** N034662, N034689 **Date Analyzed:** 3/22/2019

**Method:** 4500_N03

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | X | | | X | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 3. ICV within ± 15% of expected value. | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | X | | | X | | |
| 5. CCV within ± 15% of expected value. | X | | | X | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | X | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< PQL) | X | | | X | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | X | | | X | | |
| 9. Are all samples analyzed within hold time. | X | | | X | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 11. LCS compounds within control limits. | X | | | X | | |
| 12. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | X |
| 14. Runlog complete and included in package. | X | | | X | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | X |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | X |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | X | | |
| 18. Are analytical results correct? | X | | | X | | |
| 19. Is the QC summary report present and complete? | X | | | X | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer QBM Date: 3/28/2019

2nd Level Reviewer 3/28/2019 Date: —

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 4500N03F
**TEST NAME:** Nitrate/Nitrite-N by Automated Cadmium Reduction
**MATRIX:** Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

**Nitrate/Nitrite-N, mg/L= A * DF**

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N034662-001C**

The concentration in mg/L is calculated as follows:

| | | | | |
|---|---|---|---|---|
| **Nitrate/Nitrite-N** | = | 0.5983 | * | 20 |
| | = | 11.966 | mg/L | |

Reporting result in two significant figures,

**Nitrate/Nitrite-N = 12 mg/L**

NS 3/28/2019

# INITIAL CALIBRATION DATA SUMMARY

## EPA 353.2 NO3 as N (NO3CD) - Endpoint

### General setup

| | |
|---|---|
| **Measuring unit** | **ppm** |
| **Number of decimals** | 4 |
| **Stabilization time (sec)** | 26 |
| **Measurement time (sec)** | 3 |
| **Sample volume (µl)** | 450 |
| **Filter** | 546 |
| **Reagent prime** | No |
| **CD Reduction** | Yes |

### Limits and dilution

| | |
|---|---|
| **Low level** | **-0.2** |
| **High level** | 4 |
| **Max linearity** | 4 |
| **Blank min** | 0 |
| **Blank max** | 0.049 |
| **Postdilution factor %** | 10 |
| **Factor Calculations** | No |

### Washes

| | |
|---|---|
| **Number of final washes** | 6 |
| **Wash every** | R1, R2 |

### O.D.Corrections

| | |
|---|---|
| **Carry Over** | **No** |
| **Carry Over value** | 0.0000 |
| **Blank** | No |
| **Gain** | No |

### Reagents

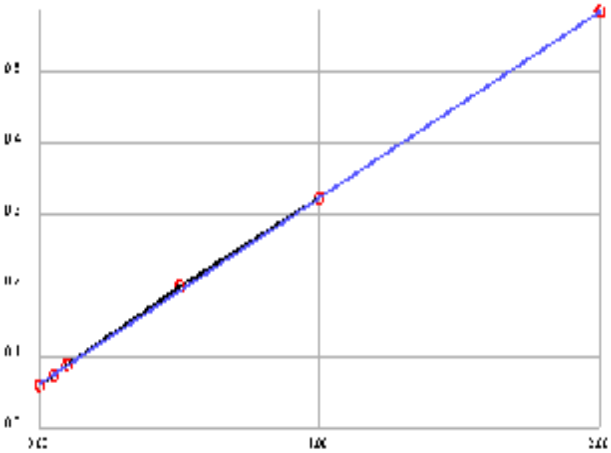
| N. | Volume (µl) | Incubation time (sec) |
|---|---|---|
| **1** | 200 | 102 |
| **2** | 300 | 663 |
| **3** | 0 | 0 |

### QC

| N. | Value | Tolerance |
|---|---|---|
| **1** | 1 | 0.1 |

## Calibration

| | |
|---|---|
| **Curve type** | Linear (Calibrants) |
| **Curve forced to zero** | No |
| **Blank inclusion** | No |



| | |
|---|---|
| **Formula** | y = 0.2614x + 0.0628 |
| **Correlation** | .999912 |

| Calibrant | Energy | Set | Conc |
|---|---|---|---|
| **1** | 0.0604 | 0.0000 | -0.0092 |
| **2** | 0.0747 | 0.0500 | 0.0455 |
| **3** | 0.0889 | 0.1000 | 0.0998 |
| **4** | 0.1988 | 0.5000 | 0.5203 |
| **5** | 0.3234 | 1.0000 | 0.9969 |
| **6** | 0.5847 | 2.0000 | 1.9966 |

**Notes:**

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132714** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132714** | TestNo: **SM4500-NO3** | | Analysis Date: **3/22/2019** | SeqNo: **3326872** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.512 | 0.050 | 0.5000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132714** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132714** | TestNo: **SM4500-NO3** | | Analysis Date: **3/22/2019** | SeqNo: **3326889** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.548 | 0.050 | 0.5000 | 0 | 110 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132714** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132714** | TestNo: **SM4500-NO3** | | Analysis Date: **3/22/2019** | SeqNo: **3326898** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.534 | 0.050 | 0.5000 | 0 | 107 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132714** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132714** | TestNo: **SM4500-NO3** | | Analysis Date: **3/22/2019** | SeqNo: **3326874** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132714** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132714** | TestNo: **SM4500-NO3** | | Analysis Date: **3/22/2019** | SeqNo: **3326891** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132714** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132714** | TestNo: **SM4500-NO3** | | Analysis Date: **3/22/2019** | SeqNo: **3326899** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

**Advanced Technology Laboratories, Inc.**

**3151 W. Post Rd.**
**Las Vegas, NV. 89118**
**702-307-2659**
**702-307-2691**
**www.atl-labs.com**

**Time start: 03-22-2019 13:29**
**Time end: 03-22-2019 15:39**

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 1 | <BLANK> | 15:10:28 | 0.0134 | | 0.0663 |
| 2 | <BLANK> | 15:11:28 | -0.0092 | | 0.0604 |
| 3 | <BLANK> | 15:12:22 | -0.0023 | | 0.0622 |
| 4 | <CAL1> | 15:13:24 | -0.0092 | [0] | 0.0604 |
| 5 | <CAL2> | 15:14:19 | 0.0455 | [0.05] | 0.0747 |
| 6 | <CAL3> | 15:15:21 | 0.0998 | [0.1] | 0.0889 |
| 7 | <CAL4> | 15:16:15 | 0.5203 | [0.5] | 0.1988 |
| 8 | <CAL5> | 15:17:10 | 0.9969 | [1] | 0.3234 |
| 9 | <CAL6> | 15:18:05 | 1.9966 | [2] | 0.5847 |
| 10 | ,BLANK,BLANK,1, NOT REPORTED | 15:19:06 | 0.0777 | | 0.0831 |
| 11 | ,ICV,ICV,1, | 15:20:01 | 0.5122 | | 0.1967 |
| 12 | ,ICB,ICB,1, | 15:21:02 | 0.0130 | | 0.0662 |
| 13 | ,MB-H2O,MBLK,1, | 15:21:58 | -0.0034 | | 0.0619 |
| 14 | ,LCS-H2O,LCS,1, | 15:22:52 | 0.5658 | | 0.2107 |
| 15 | ,N034662-001C,SAMP,20, | 15:23:41 | 0.5983 | | 0.2192 |
| 16 | ,N034662-002C,SAMP,20, | 15:24:29 | 0.5941 | | 0.2181 |
| 17 | ,N034662-003C,SAMP,20, | 15:25:13 | 0.5914 | | 0.2174 |
| 18 | ,N034662-003CDUP,DUP,20, | 15:25:56 | 0.5899 | | 0.2170 |
| 19 | ,N034662-004C,SAMP,10, | 15:26:44 | 0.5624 | | 0.2098 |
| 20 | ,N034662-004CMS,MS,10, | 15:27:28 | 1.0329 | | 0.3328 |
| 21 | ,N034662-004CMSD,MSD,10, | 15:28:10 | 1.0666 | | 0.3416 |
| 22 | ,BLANK, NOT REPORTED | 15:28:59 | 0.0253 | | 0.0694 |
| 23 | ,CCV-1,CCV,1, | 15:29:41 | 0.5478 | | 0.2060 |
| 24 | ,CCB-1,CCB,1, | 15:30:24 | 0.0027 | | 0.0635 |
| 25 | ,N034689-002C,SAMP,2, | 15:31:14 | 0.9862 | | 0.3206 |
| 26 | ,N034689-003C,SAMP,2, | 15:31:56 | 0.9943 | | 0.3227 |

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 27 | ,N034689-004C,SAMP,2, | 15:32:39 | 0.7177 | | 0.2504 |
| 28 | ,N034689-005C,SAMP,10, | 15:33:27 | 1.0348 | | 0.3333 |
| 29 | ,N034689-006C,SAMP,10, | 15:34:10 | 0.9763 | | 0.3180 |
| 30 | ,N034689-007C,SAMP,5, NOT REPORTED | 15:34:58 | 0.0582 | | 0.0780 |
| 31 | ,BLANK, NOT REPORTED | 15:35:42 | -0.0134 | | 0.0593 |
| 32 | ,CCV-2,CCV,1, | 15:36:24 | 0.5344 | | 0.2025 |
| 33 | ,CCB-2,CCB,1, | 15:37:13 | -0.0038 | | 0.0618 |

**Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog**

## Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 3/22/2019
Time Analyzed: 1:29 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190322D
Color reagent: R190322E
2% Copper Sulfate: R190322C
Ammonium Hydroxide: CINV-190124A

| Sample ID. | Sample Wt./Vol. | Sample pH | Std Code | Spike Amt Added (mL) | Spike Conc.(PPM) | Final Volume (mL) | Dilution (F/I) | Reading & Calculations (mg/L) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| N034662-001C | | 8.62 | | | | | | | |
| N034662-002C | | 8.18 | | | | | | | |
| N034662-003C | | 7.80 | | | | | | | |
| N034662-004C | | 8.15 | | | | | | | |
| N034689-002C | | 6.27 | | | | | | | |
| N034689-003C | | 7.90 | | | | | | | |
| N034689-004C | | 8.36 | | | | | | | |
| N034689-005C | | 7.25 | | | | | | | |
| N034689-006C | | 7.66 | | | | | | | |
| N034689-007C | | 7.69 | | | | | | | |
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Advanced Technology Laboratories, Inc.
Book # 1

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

| Analyte | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Ave | SD | $t_{(n-1)}$ value | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.0573 | 0.0562 | 0.0500 | 0.0730 | 0.0698 | 0.0637 | 0.0564 | 0.0609 | 0.0082 | 3.143 | 0.0259 | 0.05 |
| **Method Blank** | | | | | | | | | | | | |
| Nitrate/Nitrite as N | 0.0160 | 0.0067 | 0.0064 | 0.0204 | 0.0173 | 0.0036 | 0.0083 | 0.0112 | 0.0065 | 3.143 | 0.0317 | 0.05 |

**MDL:** **0.0317** **mg/L**

# EPA 6010B
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 73017
**ASSET #:** N034662
**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 3/26/2019

**Method:**

[X] EPA 6010B / 200.7 Dissolved
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

% Rec of B in N034662-001D PS/MS/MSD failed, high bias. However, LCS passed criteria.
% Rec of Ca in N034662-001D PS/MSD failed, low bias. However, LCS passed criteria.
%Rec of Fe in PS failed, high bias. However, LCS passed criteria.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: 3/29/2019

2nd Level Reviewer 3/29/2019 Date: ~

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 73017
**ASSET #:** N034662
**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 3/27/2019

**Method:**

[X] EPA 6010B / 200.7 Dissolved
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

% Rec of Na in N034662-002D PS failed, high bias. However, LCS passed criteria.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: 3/29/2019

2nd Level Reviewer 3/29/2019 Date: —

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA 6010B
**TEST NAME:** Heavy Metals by ICP
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Sidium concentration, in ug/L , in the original sample as follows:

Sodium , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N034662-002D** , the concentration ir ug/L is calculated as follows:

Sodium , ug/L = 18.531 * 25 *(25/25) * 1000

Sodium , ug/L = 463275

Reporting results in two significant figures,

**Sodium , ug/L = 460000**

NS 3/29/2019

# % RSD SUMMARY

**RSD SUMMARY: 190326C**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Al | 0 | 35.2 | 15 | <PQL |
| Standard1 | ICAL | 1 | Al | 0.05 | 8.64 | 15 | PASS |
| Standard2 | ICAL | 1 | Al | 1 | 0.44 | 15 | PASS |
| Standard3 | ICAL | 1 | Al | 2 | 0.81 | 15 | PASS |
| Standard4 | ICAL | 1 | Al | 5 | 0.65 | 15 | PASS |
| Standard5 | ICAL | 1 | Al | 7.5 | 0.4 | 15 | PASS |
| Standard6 | ICAL | 1 | Al | 10 | 0.49 | 15 | PASS |
| Standard7 | ICAL | 1 | Al | 20 | 0.086 | 15 | PASS |
| ICV | ICV | 1 | Al | 10.4 | 0.096 | 15 | PASS |
| ICB | ICB | 1 | Al | -0.0061 | 40.84 | 15 | <PQL |
| LLICV | CCV1 | 1 | Al | 0.046 | 11.18 | 20 | PASS |
| LLICV | CCV1 | 1 | Al | 0.055 | 7.048 | 20 | PASS |
| ICSA1 | ICSA | 1 | Al | 462.88 | 0.027 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Al | 537.23 | 0.0098 | 15 | PASS |
| MB-73017 | MBLK | 1 | Al | 0.099 | 12.7 | 15 | PASS |
| LCS1-73017 | LCS | 1 | Al | 5.13 | 0.37 | 15 | PASS |
| MB-73017 | MBLK | 1 | Al | -0.008 | 62.13 | 15 | <PQL |
| N034662-001D | SAMP | 1 | Al | -0.027 | 1.46 | 15 | PASS |
| N034662-001D | SAMP | 5 | Al | -0.018 | 46.37 | 15 | <PQL |
| N034662-001D-PS | PS | 1 | Al | 5.48 | 0.18 | 15 | PASS |
| N034662-001D-MS1 | MS | 1 | Al | 5.52 | 0.51 | 15 | PASS |
| N034662-001D-MSD1 | MSD | 1 | Al | 5.43 | 0.26 | 15 | PASS |
| N034662-002D | SAMP | 1 | Al | 0.023 | 14.22 | 15 | PASS |
| N034662-003D | SAMP | 1 | Al | 0.03 | 3.84 | 15 | PASS |
| CCV1 | CCV | 1 | Al | 10.44 | 0.5 | 15 | PASS |
| CCB1 | CCB | 1 | Al | -0.011 | 53.34 | 15 | <PQL |
| N034662-004D | SAMP | 1 | Al | -0.012 | 24.64 | 15 | <PQL |
| N034689-002E | SAMP | 1 | Al | 0.17 | 0.79 | 15 | PASS |
| N034689-003E | SAMP | 1 | Al | 0.11 | 6.37 | 15 | PASS |
| N034689-004E | SAMP | 1 | Al | -0.014 | 9.18 | 15 | PASS |
| N034689-005E | SAMP | 1 | Al | -0.013 | 30.91 | 15 | <PQL |
| N034689-006E | SAMP | 1 | Al | -0.0098 | 22.041 | 15 | <PQL |
| N034689-007E | SAMP | 1 | Al | 0.057 | 5.42 | 15 | PASS |
| N034707-001F | SAMP | 1 | Al | -0.06 | 1.11 | 15 | PASS |
| N034707-002F | SAMP | 1 | Al | -0.054 | 11.66 | 15 | PASS |
| N034707-003F | SAMP | 1 | Al | -0.041 | 1.93 | 15 | PASS |
| CCV2 | CCV | 1 | Al | 10.37 | 0.4 | 15 | PASS |
| CCB2 | CCB | 1 | Al | -0.017 | 26.041 | 15 | <PQL |
| N034707-004F | SAMP | 1 | Al | -0.041 | 16.63 | 15 | <PQL |
| CCV3 | CCV | 1 | Al | 10.3 | 0.57 | 15 | PASS |
| CCB3 | CCB | 1 | Al | -0.016 | 42.2 | 15 | <PQL |
| CCV4 | CCV | 1 | Al | 10.37 | 0.27 | 15 | PASS |

**RSD SUMMARY: 190326C**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CCB4 | CCB | 1 | Al | -0.017 | 32.93 | 15 | <PQL |
| CCV5 | CCV | 1 | Al | 10.46 | 0.51 | 15 | PASS |
| CCB5 | CCB | 1 | Al | -0.017 | 12.76 | 15 | PASS |
| ICSA2 | ICSA | 1 | Al | 463.75 | 0.025 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Al | 537.74 | 0.023 | 15 | PASS |
| CalBlk | IBLK | 1 | B | 0 | 0.6 | 15 | PASS |
| Standard1 | ICAL | 1 | B | 0.1 | 1.31 | 15 | PASS |
| Standard3 | ICAL | 1 | B | 1 | 0.64 | 15 | PASS |
| Standard4 | ICAL | 1 | B | 2.5 | 0.68 | 15 | PASS |
| Standard5 | ICAL | 1 | B | 3.75 | 0.34 | 15 | PASS |
| Standard6 | ICAL | 1 | B | 5 | 0.31 | 15 | PASS |
| Standard7 | ICAL | 1 | B | 10 | 0.18 | 15 | PASS |
| ICV | ICV | 1 | B | 5.18 | 0.26 | 15 | PASS |
| ICB | ICB | 1 | B | 0.039 | 4.46 | 15 | PASS |
| LLICV | CCV1 | 1 | B | 0.12 | 0.71 | 20 | PASS |
| LLICV | CCV1 | 1 | B | 0.12 | 1.32 | 20 | PASS |
| ICSA1 | ICSA | 1 | B | 0.045 | 3.016 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | B | 1.13 | 0.73 | 15 | PASS |
| MB-73017 | MBLK | 1 | B | 0.023 | 3.23 | 15 | PASS |
| LCS1-73017 | LCS | 1 | B | 1.0038 | 0.36 | 15 | PASS |
| MB-73017 | MBLK | 1 | B | 0.024 | 6.065 | 15 | PASS |
| N034662-001D | SAMP | 1 | B | 0.79 | 0.33 | 15 | PASS |
| N034662-001D | SAMP | 5 | B | 0.17 | 0.39 | 15 | PASS |
| N034662-001D-PS | PS | 1 | B | 2.11 | 0.63 | 15 | PASS |
| N034662-001D-MS1 | MS | 1 | B | 2.12 | 0.78 | 15 | PASS |
| N034662-001D-MSD1 | MSD | 1 | B | 2.087 | 0.23 | 15 | PASS |
| N034662-002D | SAMP | 1 | B | 0.95 | 0.22 | 15 | PASS |
| N034662-003D | SAMP | 1 | B | 0.96 | 0.051 | 15 | PASS |
| CCV1 | CCV | 1 | B | 5.22 | 0.43 | 15 | PASS |
| CCB1 | CCB | 1 | B | 0.031 | 3.28 | 15 | PASS |
| N034662-004D | SAMP | 1 | B | 0.47 | 0.39 | 15 | PASS |
| N034689-002E | SAMP | 1 | B | 0.75 | 0.26 | 15 | PASS |
| N034689-003E | SAMP | 1 | B | 0.75 | 0.7 | 15 | PASS |
| N034689-004E | SAMP | 1 | B | 0.52 | 0.55 | 15 | PASS |
| N034689-005E | SAMP | 1 | B | 0.92 | 0.35 | 15 | PASS |
| N034689-006E | SAMP | 1 | B | 1.14 | 0.24 | 15 | PASS |
| N034689-007E | SAMP | 1 | B | 2.24 | 0.22 | 15 | PASS |
| N034707-001F | SAMP | 1 | B | 2.32 | 0.21 | 15 | PASS |
| N034707-002F | SAMP | 1 | B | 2.31 | 0.12 | 15 | PASS |
| N034707-003F | SAMP | 1 | B | 0.75 | 0.13 | 15 | PASS |
| CCV2 | CCV | 1 | B | 5.2 | 0.45 | 15 | PASS |
| CCB2 | CCB | 1 | B | 0.038 | 4.27 | 15 | PASS |

**RSD SUMMARY: 190326C**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| N034707-004F | SAMP | 1 | B | 0.72 | 0.29 | 15 | PASS |
| CCV3 | CCV | 1 | B | 5.19 | 0.41 | 15 | PASS |
| CCB3 | CCB | 1 | B | 0.028 | 7.33 | 15 | PASS |
| CCV4 | CCV | 1 | B | 5.21 | 0.32 | 15 | PASS |
| CCB4 | CCB | 1 | B | 0.023 | 5.27 | 15 | PASS |
| CCV5 | CCV | 1 | B | 5.23 | 0.38 | 15 | PASS |
| CCB5 | CCB | 1 | B | 0.023 | 3.67 | 15 | PASS |
| ICSA2 | ICSA | 1 | B | 0.036 | 7.22 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | B | 1.11 | 0.64 | 15 | PASS |
| CalBlk | IBLK | 1 | Ca | 0 | 6.8 | 15 | PASS |
| Standard1 | ICAL | 1 | Ca | 0.2 | 5.15 | 15 | PASS |
| Standard2 | ICAL | 1 | Ca | 1 | 2.31 | 15 | PASS |
| Standard3 | ICAL | 1 | Ca | 2 | 1.77 | 15 | PASS |
| Standard4 | ICAL | 1 | Ca | 5 | 0.073 | 15 | PASS |
| Standard5 | ICAL | 1 | Ca | 7.5 | 1.0096 | 15 | PASS |
| Standard6 | ICAL | 1 | Ca | 10 | 0.42 | 15 | PASS |
| Standard7 | ICAL | 1 | Ca | 20 | 0.21 | 15 | PASS |
| ICV | ICV | 1 | Ca | 10.27 | 0.59 | 15 | PASS |
| ICB | ICB | 1 | Ca | 0.011 | 836.53 | 15 | <PQL |
| LLICV | CCV1 | 1 | Ca | 0.19 | 26.71 | 20 | <PQL |
| LLICV | CCV1 | 1 | Ca | 0.18 | 16.79 | 20 | PASS |
| ICSA1 | ICSA | 1 | Ca | 489.25 | 0.081 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Ca | 560.94 | 0.48 | 15 | PASS |
| MB-73017 | MBLK | 1 | Ca | 0.1 | 12.62 | 15 | PASS |
| LCS1-73017 | LCS | 1 | Ca | 4.92 | 1.036 | 15 | PASS |
| MB-73017 | MBLK | 1 | Ca | -0.044 | 73.2 | 15 | <PQL |
| N034662-001D | SAMP | 1 | Ca | 123.94 | 0.25 | 15 | PASS |
| N034662-001D | SAMP | 5 | Ca | 23.48 | 0.46 | 15 | PASS |
| N034662-001D-PS | PS | 1 | Ca | 128.44 | 0.35 | 15 | PASS |
| N034662-001D-MS1 | MS | 1 | Ca | 128.83 | 0.65 | 15 | PASS |
| N034662-001D-MSD1 | MSD | 1 | Ca | 126.6 | 0.25 | 15 | PASS |
| N034662-002D | SAMP | 1 | Ca | 126.75 | 0.56 | 15 | PASS |
| N034662-003D | SAMP | 1 | Ca | 129.4 | 0.18 | 15 | PASS |
| CCV1 | CCV | 1 | Ca | 10.42 | 0.56 | 15 | PASS |
| CCB1 | CCB | 1 | Ca | -0.027 | 95.048 | 15 | <PQL |
| N034662-004D | SAMP | 1 | Ca | 136.55 | 0.62 | 15 | PASS |
| N034689-002E | SAMP | 1 | Ca | 32.75 | 0.71 | 15 | PASS |
| N034689-003E | SAMP | 1 | Ca | 32.59 | 0.75 | 15 | PASS |
| N034689-004E | SAMP | 1 | Ca | 50.034 | 0.17 | 15 | PASS |
| N034689-005E | SAMP | 1 | Ca | 107.7 | 0.26 | 15 | PASS |
| N034689-006E | SAMP | 1 | Ca | 282.57 | 0.27 | 15 | PASS |
| N034689-007E | SAMP | 1 | Ca | 519.15 | 0.12 | 15 | PASS |

**RSD SUMMARY: 190326C**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| N034707-001F | SAMP | 1 | Ca | 362.34 | 0.2 | 15 | PASS |
| N034707-002F | SAMP | 1 | Ca | 359.06 | 0.44 | 15 | PASS |
| N034707-003F | SAMP | 1 | Ca | 145.47 | 0.18 | 15 | PASS |
| CCV2 | CCV | 1 | Ca | 10.26 | 0.77 | 15 | PASS |
| CCB2 | CCB | 1 | Ca | -0.047 | 74 | 15 | <PQL |
| N034707-004F | SAMP | 1 | Ca | 137.75 | 0.16 | 15 | PASS |
| CCV3 | CCV | 1 | Ca | 10.19 | 0.17 | 15 | PASS |
| CCB3 | CCB | 1 | Ca | -0.0088 | 517.35 | 15 | <PQL |
| CCV4 | CCV | 1 | Ca | 10.27 | 0.76 | 15 | PASS |
| CCB4 | CCB | 1 | Ca | -0.068 | 25.7 | 15 | <PQL |
| CCV5 | CCV | 1 | Ca | 10.33 | 0.47 | 15 | PASS |
| CCB5 | CCB | 1 | Ca | -0.046 | 160.13 | 15 | <PQL |
| ICSA2 | ICSA | 1 | Ca | 486.7 | 0.16 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Ca | 562.56 | 0.43 | 15 | PASS |
| CalBlk | IBLK | 1 | Fe | 0 | 3242.91 | 15 | <PQL |
| Standard1 | ICAL | 1 | Fe | 0.02 | 6.8 | 15 | PASS |
| Standard2 | ICAL | 1 | Fe | 0.05 | 2.62 | 15 | PASS |
| Standard3 | ICAL | 1 | Fe | 2 | 0.35 | 15 | PASS |
| Standard4 | ICAL | 1 | Fe | 5 | 0.68 | 15 | PASS |
| Standard5 | ICAL | 1 | Fe | 7.5 | 0.28 | 15 | PASS |
| Standard6 | ICAL | 1 | Fe | 10 | 0.48 | 15 | PASS |
| Standard7 | ICAL | 1 | Fe | 20 | 0.18 | 15 | PASS |
| ICV | ICV | 1 | Fe | 10.67 | 0.13 | 15 | PASS |
| ICB | ICB | 1 | Fe | -0.0024 | 15.26 | 15 | <PQL |
| LLICV | CCV1 | 1 | Fe | 0.019 | 3.63 | 20 | PASS |
| LLICV | CCV1 | 1 | Fe | 0.023 | 7.19 | 20 | PASS |
| ICSA1 | ICSA | 1 | Fe | 200.89 | 0.085 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Fe | 184.42 | 0.2 | 15 | PASS |
| MB-73017 | MBLK | 1 | Fe | 0.041 | 12.97 | 15 | PASS |
| LCS1-73017 | LCS | 1 | Fe | 0.1 | 1.46 | 15 | PASS |
| MB-73017 | MBLK | 1 | Fe | -0.0015 | 106.18 | 15 | <PQL |
| N034662-001D | SAMP | 1 | Fe | 0.043 | 2.26 | 15 | PASS |
| N034662-001D | SAMP | 5 | Fe | 0.0053 | 38.13 | 15 | <PQL |
| N034662-001D-PS | PS | 1 | Fe | 0.17 | 0.53 | 15 | PASS |
| N034662-001D-MS1 | MS | 1 | Fe | 0.15 | 0.27 | 15 | PASS |
| N034662-001D-MSD1 | MSD | 1 | Fe | 0.15 | 0.99 | 15 | PASS |
| N034662-002D | SAMP | 1 | Fe | 0.11 | 4.41 | 15 | PASS |
| N034662-003D | SAMP | 1 | Fe | 0.064 | 1.59 | 15 | PASS |
| CCV1 | CCV | 1 | Fe | 10.68 | 0.51 | 15 | PASS |
| CCB1 | CCB | 1 | Fe | -0.0032 | 11.2 | 15 | PASS |
| N034662-004D | SAMP | 1 | Fe | 0.062 | 1.55 | 15 | PASS |
| N034689-002E | SAMP | 1 | Fe | 0.16 | 0.61 | 15 | PASS |

**RSD SUMMARY: 190326C**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| N034689-003E | SAMP | 1 | Fe | 0.098 | 0.77 | 15 | PASS |
| N034689-004E | SAMP | 1 | Fe | 0.054 | 1.056 | 15 | PASS |
| N034689-005E | SAMP | 1 | Fe | 0.019 | 1.27 | 15 | PASS |
| N034689-006E | SAMP | 1 | Fe | 0.061 | 0.28 | 15 | PASS |
| N034689-007E | SAMP | 1 | Fe | 0.035 | 2.43 | 15 | PASS |
| N034707-001F | SAMP | 1 | Fe | -0.0046 | 38.23 | 15 | <PQL |
| N034707-002F | SAMP | 1 | Fe | 0.021 | 4.18 | 15 | PASS |
| N034707-003F | SAMP | 1 | Fe | 0.029 | 0.7 | 15 | PASS |
| CCV2 | CCV | 1 | Fe | 10.68 | 0.27 | 15 | PASS |
| CCB2 | CCB | 1 | Fe | -0.003 | 51.84 | 15 | <PQL |
| N034707-004F | SAMP | 1 | Fe | 0.026 | 4.44 | 15 | PASS |
| CCV3 | CCV | 1 | Fe | 10.63 | 0.34 | 15 | PASS |
| CCB3 | CCB | 1 | Fe | -0.0035 | 29.87 | 15 | <PQL |
| CCV4 | CCV | 1 | Fe | 10.67 | 0.19 | 15 | PASS |
| CCB4 | CCB | 1 | Fe | -0.0057 | 25.66 | 15 | <PQL |
| CCV5 | CCV | 1 | Fe | 10.75 | 0.44 | 15 | PASS |
| CCB5 | CCB | 1 | Fe | -0.0052 | 1.3 | 15 | PASS |
| ICSA2 | ICSA | 1 | Fe | 202 | 0.061 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Fe | 185.27 | 0.11 | 15 | PASS |
| CalBlk | IBLK | 1 | Mg | 0 | 14.19 | 15 | PASS |
| Standard1 | ICAL | 1 | Mg | 0.1 | 3.51 | 15 | PASS |
| Standard2 | ICAL | 1 | Mg | 1 | 0.52 | 15 | PASS |
| Standard3 | ICAL | 1 | Mg | 2 | 0.33 | 15 | PASS |
| Standard4 | ICAL | 1 | Mg | 5 | 0.68 | 15 | PASS |
| Standard5 | ICAL | 1 | Mg | 7.5 | 0.38 | 15 | PASS |
| Standard6 | ICAL | 1 | Mg | 10 | 0.44 | 15 | PASS |
| Standard7 | ICAL | 1 | Mg | 20 | 0.3 | 15 | PASS |
| ICV | ICV | 1 | Mg | 10.63 | 0.043 | 15 | PASS |
| ICB | ICB | 1 | Mg | -0.0067 | 5.13 | 15 | PASS |
| LLICV | CCV1 | 1 | Mg | 0.1 | 1.62 | 20 | PASS |
| LLICV | CCV1 | 1 | Mg | 0.11 | 2.078 | 20 | PASS |
| ICSA1 | ICSA | 1 | Mg | 450.86 | 0.064 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Mg | 526.56 | 0.23 | 15 | PASS |
| MB-73017 | MBLK | 1 | Mg | 0.1 | 10.061 | 15 | PASS |
| LCS1-73017 | LCS | 1 | Mg | 5.069 | 0.33 | 15 | PASS |
| MB-73017 | MBLK | 1 | Mg | -0.0075 | 17.67 | 15 | <PQL |
| N034662-001D | SAMP | 1 | Mg | 27.78 | 0.13 | 15 | PASS |
| N034662-001D | SAMP | 5 | Mg | 6.017 | 0.29 | 15 | PASS |
| N034662-001D-PS | PS | 1 | Mg | 33.56 | 0.33 | 15 | PASS |
| N034662-001D-MS1 | MS | 1 | Mg | 33.57 | 0.77 | 15 | PASS |
| N034662-001D-MSD1 | MSD | 1 | Mg | 31.92 | 0.065 | 15 | PASS |
| N034662-002D | SAMP | 1 | Mg | 18.097 | 0.23 | 15 | PASS |

**RSD SUMMARY: 190326C**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| N034662-003D | SAMP | 1 | Mg | 18.4 | 0.12 | 15 | PASS |
| CCV1 | CCV | 1 | Mg | 10.62 | 0.55 | 15 | PASS |
| CCB1 | CCB | 1 | Mg | -0.01 | 18.4 | 15 | <PQL |
| N034662-004D | SAMP | 1 | Mg | 20.57 | 0.1 | 15 | PASS |
| N034689-002E | SAMP | 1 | Mg | 3.26 | 0.22 | 15 | PASS |
| N034689-003E | SAMP | 1 | Mg | 3.24 | 0.71 | 15 | PASS |
| N034689-004E | SAMP | 1 | Mg | 8.94 | 0.31 | 15 | PASS |
| N034689-005E | SAMP | 1 | Mg | 20.093 | 0.043 | 15 | PASS |
| N034689-006E | SAMP | 1 | Mg | 21.47 | 0.094 | 15 | PASS |
| N034689-007E | SAMP | 1 | Mg | 6.6 | 0.23 | 15 | PASS |
| N034707-001F | SAMP | 1 | Mg | 16.073 | 0.37 | 15 | PASS |
| N034707-002F | SAMP | 1 | Mg | 16.3 | 0.29 | 15 | PASS |
| N034707-003F | SAMP | 1 | Mg | 24.067 | 0.038 | 15 | PASS |
| CCV2 | CCV | 1 | Mg | 10.83 | 0.061 | 15 | PASS |
| CCB2 | CCB | 1 | Mg | -0.011 | 17.42 | 15 | <PQL |
| N034707-004F | SAMP | 1 | Mg | 22.036 | 0.24 | 15 | PASS |
| CCV3 | CCV | 1 | Mg | 10.6 | 0.3 | 15 | PASS |
| CCB3 | CCB | 1 | Mg | -0.012 | 5.78 | 15 | PASS |
| CCV4 | CCV | 1 | Mg | 10.63 | 0.047 | 15 | PASS |
| CCB4 | CCB | 1 | Mg | -0.014 | 4.46 | 15 | PASS |
| CCV5 | CCV | 1 | Mg | 10.72 | 0.34 | 15 | PASS |
| CCB5 | CCB | 1 | Mg | -0.012 | 7.4 | 15 | PASS |
| ICSA2 | ICSA | 1 | Mg | 451 | 0.046 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Mg | 527.37 | 0.14 | 15 | PASS |

**RSD SUMMARY: 190327A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | K | 0 | 3.33 | 15 | PASS |
| Standard1 | ICAL | 1 | K | 0.1 | 5.84 | 15 | PASS |
| Standard2 | ICAL | 1 | K | 1 | 0.8 | 15 | PASS |
| Standard3 | ICAL | 1 | K | 5 | 0.22 | 15 | PASS |
| Standard4 | ICAL | 1 | K | 10 | 0.16 | 15 | PASS |
| Standard5 | ICAL | 1 | K | 20 | 0.081 | 15 | PASS |
| Standard6 | ICAL | 1 | K | 40 | 0.058 | 15 | PASS |
| ICV | ICV | 1 | K | 9.95 | 0.14 | 15 | PASS |
| ICB | ICB | 1 | K | 0.011 | 58.05 | 15 | <PQL |
| LLICV | CCV | 1 | K | 0.13 | 14.23 | 20 | PASS |
| LLICV | CCV | 1 | K | 0.1 | 10.54 | 20 | PASS |
| ICSA1 | ICSA | 1 | K | -0.002 | 735.75 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | K | 9.94 | 0.23 | 15 | PASS |
| MB-73017 | MBLK | 1 | K | 0.00056 | 2527.25 | 15 | <PQL |
| LCS2-73017 | LCS | 1 | K | 19.47 | 0.14 | 15 | PASS |
| N034662-001D | SAMP | 5 | K | 2.021 | 0.39 | 15 | PASS |
| N034662-002D | SAMP | 5 | K | 1.94 | 0.74 | 15 | PASS |
| N034662-003D | SAMP | 5 | K | 2.015 | 0.51 | 15 | PASS |
| N034662-004D | SAMP | 5 | K | 1.58 | 0.38 | 15 | PASS |
| N034689-002E | SAMP | 5 | K | 1.67 | 0.46 | 15 | PASS |
| N034689-003E | SAMP | 5 | K | 1.62 | 0.44 | 15 | PASS |
| N034689-004E | SAMP | 5 | K | 1.72 | 0.7 | 15 | PASS |
| N034689-005E | SAMP | 5 | K | 3.84 | 0.33 | 15 | PASS |
| CCV1 | CCV | 1 | K | -0.0081 | 225.86 | 15 | <PQL |
| CCV1 | CCV | 1 | K | 9.95 | 0.071 | 15 | PASS |
| CCB1 | CCB | 1 | K | 0.00056 | 2913.62 | 15 | <PQL |
| N034689-006E | SAMP | 5 | K | 4.79 | 0.67 | 15 | PASS |
| N034689-007E | SAMP | 5 | K | 9.27 | 0.49 | 15 | PASS |
| N034707-001F | SAMP | 5 | K | 6.71 | 0.5 | 15 | PASS |
| N034707-002F | SAMP | 5 | K | 6.75 | 0.2 | 15 | PASS |
| N034707-003F | SAMP | 5 | K | 1.91 | 1.33 | 15 | PASS |
| N034707-004F | SAMP | 5 | K | 1.85 | 0.46 | 15 | PASS |
| N034662-001D | SAMP | 25 | K | 0.42 | 3.47 | 15 | PASS |
| N034662-002D | SAMP | 1 | K | 10.076 | 0.42 | 15 | PASS |
| N034662-002D-PS | PS | 1 | K | 31.89 | 0.24 | 15 | PASS |
| N034662-002D-MS2 | MS | 1 | K | 31.96 | 0.049 | 15 | PASS |
| CCV2 | CCV | 1 | K | 9.95 | 0.06 | 15 | PASS |
| CCB2 | CCB | 1 | K | -0.003 | 66.076 | 15 | <PQL |
| N034662-002D-MSD2 | MSD | 1 | K | 31.79 | 0.15 | 15 | PASS |
| N034662-002D | SAMP | 25 | K | 0.42 | 1.27 | 15 | PASS |
| N034662-002D | SAMP | 125 | K | 0.095 | 4.6 | 15 | PASS |
| N034662-002D-PS | PS | 25 | K | 1.2 | 1.1 | 15 | PASS |

**RSD SUMMARY: 190327A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| N034662-002D-MS2 | MS | 25 | K | 1.2 | 1.34 | 15 | PASS |
| N034662-002D-MSD2 | MSD | 25 | K | 1.19 | 0.39 | 15 | PASS |
| N034662-003D | SAMP | 25 | K | 0.39 | 2.65 | 15 | PASS |
| N034662-004D | SAMP | 25 | K | 0.32 | 6.081 | 15 | PASS |
| N034689-002E | SAMP | 25 | K | 0.33 | 3.96 | 15 | PASS |
| N034689-003E | SAMP | 25 | K | 0.33 | 5.11 | 15 | PASS |
| CCV3 | CCV | 1 | K | 9.85 | 0.21 | 15 | PASS |
| CCB3 | CCB | 1 | K | -0.017 | 107.81 | 15 | <PQL |
| N034689-004E | SAMP | 25 | K | 0.35 | 6.54 | 15 | PASS |
| N034689-005E | SAMP | 50 | K | 0.36 | 4.63 | 15 | PASS |
| N034689-006E | SAMP | 100 | K | 0.23 | 3.053 | 15 | PASS |
| N034689-007E | SAMP | 250 | K | 0.15 | 8.73 | 15 | PASS |
| N034707-001F | SAMP | 100 | K | 0.3 | 7.45 | 15 | PASS |
| N034707-002F | SAMP | 100 | K | 0.29 | 4.6 | 15 | PASS |
| N034707-003F | SAMP | 25 | K | 0.36 | 3.32 | 15 | PASS |
| N034707-004F | SAMP | 25 | K | 0.34 | 5.29 | 15 | PASS |
| CCV4 | CCV | 1 | K | 9.83 | 0.14 | 15 | PASS |
| CCB4 | CCB | 1 | K | -0.025 | 10.66 | 15 | PASS |
| ICSA2 | ICSA | 1 | K | -0.03 | 27.36 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | K | 9.83 | 0.066 | 15 | PASS |
| CalBlk | IBLK | 1 | Na | 0 | 25.73 | 15 | <PQL |
| Standard1 | ICAL | 1 | Na | 0.1 | 2.48 | 15 | PASS |
| Standard2 | ICAL | 1 | Na | 1 | 0.38 | 15 | PASS |
| Standard3 | ICAL | 1 | Na | 5 | 0.096 | 15 | PASS |
| Standard4 | ICAL | 1 | Na | 10 | 0.28 | 15 | PASS |
| Standard5 | ICAL | 1 | Na | 20 | 0.085 | 15 | PASS |
| Standard6 | ICAL | 1 | Na | 40 | 0.2 | 15 | PASS |
| ICV | ICV | 1 | Na | 9.99 | 0.28 | 15 | PASS |
| ICB | ICB | 1 | Na | 0.0098 | 38.24 | 15 | <PQL |
| LLICV | CCV | 1 | Na | 0.14 | 6.66 | 20 | PASS |
| LLICV | CCV | 1 | Na | 0.12 | 10.096 | 20 | PASS |
| ICSA1 | ICSA | 1 | Na | 0.013 | 34.13 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | Na | 9.97 | 0.083 | 15 | PASS |
| MB-73017 | MBLK | 1 | Na | 0.0059 | 49.0022 | 15 | <PQL |
| LCS2-73017 | LCS | 1 | Na | 19.6 | 0.11 | 15 | PASS |
| N034662-001D | SAMP | 5 | Na | 93.48 | 0.064 | 15 | PASS |
| N034662-002D | SAMP | 5 | Na | 94.64 | 0.57 | 15 | PASS |
| N034662-003D | SAMP | 5 | Na | 98.008 | 0.27 | 15 | PASS |
| N034662-004D | SAMP | 5 | Na | 58.29 | 0.079 | 15 | PASS |
| N034689-002E | SAMP | 5 | Na | 68.66 | 0.27 | 15 | PASS |
| N034689-003E | SAMP | 5 | Na | 66.58 | 0.058 | 15 | PASS |
| N034689-004E | SAMP | 5 | Na | 52.81 | 0.18 | 15 | PASS |

**RSD SUMMARY: 190327A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| N034689-005E | SAMP | 5 | Na | 207.78 | 0.94 | 15 | PASS |
| CCV1 | CCV | 1 | Na | 0.099 | 4.76 | 15 | PASS |
| CCV1 | CCV | 1 | Na | 10.076 | 0.15 | 15 | PASS |
| CCB1 | CCB | 1 | Na | 0.048 | 14.37 | 15 | PASS |
| N034689-006E | SAMP | 5 | Na | 335.27 | 0.67 | 15 | PASS |
| N034689-007E | SAMP | 5 | Na | 807.38 | 0.53 | 15 | PASS |
| N034707-001F | SAMP | 5 | Na | 500.07 | 0.06 | 15 | PASS |
| N034707-002F | SAMP | 5 | Na | 497.54 | 0.31 | 15 | PASS |
| N034707-003F | SAMP | 5 | Na | 77.9 | 0.62 | 15 | PASS |
| N034707-004F | SAMP | 5 | Na | 74.97 | 0.22 | 15 | PASS |
| N034662-001D | SAMP | 25 | Na | 18.74 | 0.084 | 15 | PASS |
| N034662-002D | SAMP | 1 | Na | 444.48 | 0.31 | 15 | PASS |
| N034662-002D-PS | PS | 1 | Na | 473.29 | 0.13 | 15 | PASS |
| N034662-002D-MS2 | MS | 1 | Na | 473.99 | 0.11 | 15 | PASS |
| CCV2 | CCV | 1 | Na | 10.3 | 0.14 | 15 | PASS |
| CCB2 | CCB | 1 | Na | 0.14 | 2.21 | 15 | PASS |
| N034662-002D-MSD2 | MSD | 1 | Na | 475.44 | 0.22 | 15 | PASS |
| N034662-002D | SAMP | 25 | Na | 18.53 | 0.13 | 15 | PASS |
| N034662-002D | SAMP | 125 | Na | 3.87 | 0.49 | 15 | PASS |
| N034662-002D-PS | PS | 25 | Na | 19.67 | 0.16 | 15 | PASS |
| N034662-002D-MS2 | MS | 25 | Na | 19.45 | 0.035 | 15 | PASS |
| N034662-002D-MSD2 | MSD | 25 | Na | 19.53 | 0.023 | 15 | PASS |
| N034662-003D | SAMP | 25 | Na | 19.21 | 0.14 | 15 | PASS |
| N034662-004D | SAMP | 25 | Na | 11.73 | 0.15 | 15 | PASS |
| N034689-002E | SAMP | 25 | Na | 13.95 | 0.015 | 15 | PASS |
| N034689-003E | SAMP | 25 | Na | 13.34 | 0.32 | 15 | PASS |
| CCV3 | CCV | 1 | Na | 10.16 | 0.21 | 15 | PASS |
| CCB3 | CCB | 1 | Na | 0.061 | 8.35 | 15 | PASS |
| N034689-004E | SAMP | 25 | Na | 10.79 | 0.057 | 15 | PASS |
| N034689-005E | SAMP | 50 | Na | 21.23 | 0.22 | 15 | PASS |
| N034689-006E | SAMP | 100 | Na | 16.97 | 0.36 | 15 | PASS |
| N034689-007E | SAMP | 250 | Na | 16.64 | 0.047 | 15 | PASS |
| N034707-001F | SAMP | 100 | Na | 25.81 | 0.14 | 15 | PASS |
| N034707-002F | SAMP | 100 | Na | 25.21 | 0.18 | 15 | PASS |
| N034707-003F | SAMP | 25 | Na | 15.4 | 0.13 | 15 | PASS |
| N034707-004F | SAMP | 25 | Na | 15.059 | 0.082 | 15 | PASS |
| CCV4 | CCV | 1 | Na | 10.19 | 0.27 | 15 | PASS |
| CCB4 | CCB | 1 | Na | 0.041 | 6.0015 | 15 | PASS |
| ICSA2 | ICSA | 1 | Na | 0.041 | 16.53 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | Na | 10.15 | 0.072 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190326C**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-181001A,0.5<50mL |
| Standard2 | MWST-181001E |
| Standard3 | MWST-181001J,5<50mL |
| Standard4 | MWST-181001J,12.5<50mL |
| Standard5 | MWST-181001J,15<40mL |
| Standard6 | MWST-181001J,25<50mL |
| Standard7 | MWST-181001J |
| ICV | MWST-181001O |
| CCV | MWST-181001J,25<50mL |
| ICSA/ICSAB | MWST-181001R/MWST-180730A |
| Int. Std. (Y) | MSST-180926A/B |
| PS Spike | MWST-180930D/E/F |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CalBlk | IBLK | 1 | 03/26/2019 | 06:10:15 PM |
| 2 | Standard1 | ICAL | 1 | 03/26/2019 | 06:15:03 PM |
| 3 | Standard2 | ICAL | 1 | 03/26/2019 | 06:20:19 PM |
| 4 | Standard3 | ICAL | 1 | 03/26/2019 | 06:25:35 PM |
| 5 | Standard4 | ICAL | 1 | 03/26/2019 | 06:30:53 PM |
| 6 | Standard5 | ICAL | 1 | 03/26/2019 | 06:38:11 PM |
| 7 | Standard6 | ICAL | 1 | 03/26/2019 | 06:45:31 PM |
| 8 | Standard7 | ICAL | 1 | 03/26/2019 | 06:52:52 PM |
| 250 | ICV | ICV | 1 | 03/26/2019 | 06:59:45 PM |
| 1 | ICB | ICB | 1 | 03/26/2019 | 07:10:11 PM |
| 2 | LLICV | CCV1 | 1 | 03/26/2019 | 07:14:56 PM |
| 2 | LLICV | CCV1 | 1 | 03/26/2019 | 07:22:00 PM |
| 9 | ICSA1 | ICSA | 1 | 03/26/2019 | 07:27:16 PM |
| 10 | ICSAB1 | ICSAB | 1 | 03/26/2019 | 07:34:41 PM |
| 11 | MB-73017 | MBLK | 1 | 03/26/2019 | 07:45:28 PM |
| 12 | LCS1-73017 | LCS | 1 | 03/26/2019 | 07:50:13 PM |
| 11 | MB-73017 | MBLK | 1 | 03/26/2019 | 07:54:52 PM |
| 13 | N034662-001D | SAMP | 1 | 03/26/2019 | 07:59:36 PM |
| 14 | N034662-001D | SAMP | 5 | 03/26/2019 | 08:06:22 PM |
| 15 | N034662-001D-PS | PS | 1 | 03/26/2019 | 08:11:37 PM |
| 16 | N034662-001D-MS1 | MS | 1 | 03/26/2019 | 08:18:54 PM |
| 17 | N034662-001D-MSD1 | MSD | 1 | 03/26/2019 | 08:26:11 PM |
| 18 | N034662-002D | SAMP | 1 | 03/26/2019 | 08:32:58 PM |
| 19 | N034662-003D | SAMP | 1 | 03/26/2019 | 08:39:47 PM |
| 7 | CCV1 | CCV | 1 | 03/26/2019 | 08:46:34 PM |
| 1 | CCB1 | CCB | 1 | 03/26/2019 | 08:53:55 PM |
| 20 | N034662-004D | SAMP | 1 | 03/26/2019 | 08:58:41 PM |
| 21 | N034689-002E | SAMP | 1 | 03/26/2019 | 09:05:28 PM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 22 | N034689-003E | SAMP | 1 | 03/26/2019 | 09:10:45 PM |
| 23 | N034689-004E | SAMP | 1 | 03/26/2019 | 09:16:03 PM |
| 24 | N034689-005E | SAMP | 1 | 03/26/2019 | 09:21:18 PM |
| 25 | N034689-006E | SAMP | 1 | 03/26/2019 | 09:28:36 PM |
| 26 | N034689-007E | SAMP | 1 | 03/26/2019 | 09:35:22 PM |
| 27 | N034707-001F | SAMP | 1 | 03/26/2019 | 09:42:09 PM |
| 28 | N034707-002F | SAMP | 1 | 03/26/2019 | 09:48:56 PM |
| 29 | N034707-003F | SAMP | 1 | 03/26/2019 | 09:55:44 PM |
| 7 | CCV2 | CCV | 1 | 03/26/2019 | 10:03:01 PM |
| 1 | CCB2 | CCB | 1 | 03/26/2019 | 10:10:23 PM |
| 30 | N034707-004F | SAMP | 1 | 03/26/2019 | 10:15:09 PM |
| 31 | MB-73092 | MBLK | 1 | 03/26/2019 | 10:21:57 PM |
| 32 | LCS-73092 | LCS | 1 | 03/26/2019 | 10:26:43 PM |
| 33 | N034689-002F | SAMP | 1 | 03/26/2019 | 10:31:59 PM |
| 34 | N034689-002F | SAMP | 5 | 03/26/2019 | 10:37:16 PM |
| 35 | N034689-002F-PS | PS | 1 | 03/26/2019 | 10:42:34 PM |
| 36 | N034689-002F-MS | MS | 1 | 03/26/2019 | 10:49:49 PM |
| 37 | N034689-002F-MSD | MSD | 1 | 03/26/2019 | 10:57:04 PM |
| 38 | N034689-003F | SAMP | 1 | 03/26/2019 | 11:04:20 PM |
| 39 | N034689-004F | SAMP | 1 | 03/26/2019 | 11:09:37 PM |
| 7 | CCV3 | CCV | 1 | 03/26/2019 | 11:14:53 PM |
| 1 | CCB3 | CCB | 1 | 03/26/2019 | 11:22:15 PM |
| 40 | N034689-005F | SAMP | 1 | 03/26/2019 | 11:26:59 PM |
| 41 | N034689-006F | SAMP | 1 | 03/26/2019 | 11:33:45 PM |
| 42 | N034689-007F | SAMP | 1 | 03/26/2019 | 11:40:34 PM |
| 43 | N034707-001G | SAMP | 1 | 03/26/2019 | 11:47:20 PM |
| 44 | N034707-002G | SAMP | 1 | 03/26/2019 | 11:54:09 PM |
| 45 | N034707-003G | SAMP | 1 | 03/27/2019 | 12:00:57 AM |
| 46 | N034707-004G | SAMP | 1 | 03/27/2019 | 12:07:44 AM |
| 47 | N034689-007E | SAMP | 5 | 03/27/2019 | 12:14:33 AM |
| 48 | N034689-007F | SAMP | 5 | 03/27/2019 | 12:19:48 AM |
| 29 | N034707-003F | SAMP | 1 | 03/27/2019 | 12:25:01 AM |
| 7 | CCV4 | CCV | 1 | 03/27/2019 | 12:31:48 AM |
| 1 | CCB4 | CCB | 1 | 03/27/2019 | 12:39:10 AM |
| 45 | N034707-003G | SAMP | 1 | 03/27/2019 | 12:43:54 AM |
| 7 | CCV5 | CCV | 1 | 03/27/2019 | 12:50:42 AM |
| 1 | CCB5 | CCB | 1 | 03/27/2019 | 12:58:03 AM |
| 9 | ICSA2 | ICSA | 1 | 03/27/2019 | 01:02:49 AM |
| 10 | ICSAB2 | ICSAB | 1 | 03/27/2019 | 01:10:16 AM |

**INJECTION LOG: 190327A**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-181001P,0.025<50mL |
| Standard2 | MWST-181001P,0.25<50mL |
| Standard3 | MWST-181001P,1.25<50mL |
| Standard4 | MWST-181001P,2.5<50mL |
| Standard5 | MWST-181001P,5<50mL |
| Standard6 | MWST-181001P,10<50mL |
| ICV | MWST-180615A |
| CCV | MWST-181001P,2.5<50mL |
| ICSA/ICSAB | MWST-181001R/Q |
| Int. Std. (Sc): | MSST-180926A/B |
| PS Spike | MSST-140120B/ -180608B/A |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CalBlk | IBLK | 1 | 03/27/2019 | 01:15:55 AM |
| 11 | Standard1 | ICAL | 1 | 03/27/2019 | 01:19:09 AM |
| 12 | Standard2 | ICAL | 1 | 03/27/2019 | 01:22:23 AM |
| 13 | Standard3 | ICAL | 1 | 03/27/2019 | 01:26:08 AM |
| 14 | Standard4 | ICAL | 1 | 03/27/2019 | 01:29:56 AM |
| 15 | Standard5 | ICAL | 1 | 03/27/2019 | 01:33:44 AM |
| 16 | Standard6 | ICAL | 1 | 03/27/2019 | 01:37:35 AM |
| 17 | ICV | ICV | 1 | 03/27/2019 | 01:41:36 AM |
| 1 | ICB | ICB | 1 | 03/27/2019 | 01:45:25 AM |
| 11 | LLICV | CCV | 1 | 03/27/2019 | 01:48:39 AM |
| 11 | LLICV | CCV | 1 | 03/27/2019 | 01:53:56 AM |
| 18 | ICSA1 | ICSA | 1 | 03/27/2019 | 01:57:11 AM |
| 19 | ICSAB1 | ICSAB | 1 | 03/27/2019 | 02:00:27 AM |
| 23 | MB-73017 | MBLK | 1 | 03/27/2019 | 02:04:20 AM |
| 24 | LCS2-73017 | LCS | 1 | 03/27/2019 | 02:07:34 AM |
| 25 | N034662-001D | SAMP | 5 | 03/27/2019 | 02:12:44 AM |
| 26 | N034662-002D | SAMP | 5 | 03/27/2019 | 02:16:30 AM |
| 27 | N034662-003D | SAMP | 5 | 03/27/2019 | 02:20:15 AM |
| 28 | N034662-004D | SAMP | 5 | 03/27/2019 | 02:23:30 AM |
| 29 | N034689-002E | SAMP | 5 | 03/27/2019 | 02:27:16 AM |
| 30 | N034689-003E | SAMP | 5 | 03/27/2019 | 02:30:31 AM |
| 31 | N034689-004E | SAMP | 5 | 03/27/2019 | 02:33:46 AM |
| 32 | N034689-005E | SAMP | 5 | 03/27/2019 | 02:37:01 AM |
| 2 | CCV1 | CCV | 1 | 03/27/2019 | 02:41:49 AM |
| 14 | CCV1 | CCV | 1 | 03/27/2019 | 02:45:01 AM |
| 1 | CCB1 | CCB | 1 | 03/27/2019 | 02:48:50 AM |
| 33 | N034689-006E | SAMP | 5 | 03/27/2019 | 02:52:04 AM |
| 34 | N034689-007E | SAMP | 5 | 03/27/2019 | 02:56:52 AM |
| 35 | N034707-001F | SAMP | 5 | 03/27/2019 | 03:01:43 AM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 36 | N034707-002F | SAMP | 5 | 03/27/2019 | 03:06:29 AM |
| 37 | N034707-003F | SAMP | 5 | 03/27/2019 | 03:11:17 AM |
| 38 | N034707-004F | SAMP | 5 | 03/27/2019 | 03:15:01 AM |
| 39 | N034662-001D | SAMP | 25 | 03/27/2019 | 03:18:26 AM |
| 40 | N034662-002D | SAMP | 1 | 03/27/2019 | 03:21:42 AM |
| 41 | N034662-002D-PS | PS | 1 | 03/27/2019 | 03:26:31 AM |
| 42 | N034662-002D-MS2 | MS | 1 | 03/27/2019 | 03:31:33 AM |
| 14 | CCV2 | CCV | 1 | 03/27/2019 | 03:36:35 AM |
| 1 | CCB2 | CCB | 1 | 03/27/2019 | 03:40:24 AM |
| 43 | N034662-002D-MSD2 | MSD | 1 | 03/27/2019 | 03:43:38 AM |
| 44 | N034662-002D | SAMP | 25 | 03/27/2019 | 03:48:42 AM |
| 45 | N034662-002D | SAMP | 125 | 03/27/2019 | 03:51:58 AM |
| 46 | N034662-002D-PS | PS | 25 | 03/27/2019 | 03:55:16 AM |
| 47 | N034662-002D-MS2 | MS | 25 | 03/27/2019 | 03:59:03 AM |
| 48 | N034662-002D-MSD2 | MSD | 25 | 03/27/2019 | 04:02:18 AM |
| 49 | N034662-003D | SAMP | 25 | 03/27/2019 | 04:05:32 AM |
| 50 | N034662-004D | SAMP | 25 | 03/27/2019 | 04:08:47 AM |
| 51 | N034689-002E | SAMP | 25 | 03/27/2019 | 04:12:02 AM |
| 52 | N034689-003E | SAMP | 25 | 03/27/2019 | 04:15:17 AM |
| 14 | CCV3 | CCV | 1 | 03/27/2019 | 04:18:32 AM |
| 1 | CCB3 | CCB | 1 | 03/27/2019 | 04:22:21 AM |
| 53 | N034689-004E | SAMP | 25 | 03/27/2019 | 04:25:35 AM |
| 54 | N034689-005E | SAMP | 50 | 03/27/2019 | 04:28:51 AM |
| 55 | N034689-006E | SAMP | 100 | 03/27/2019 | 04:32:07 AM |
| 56 | N034689-007E | SAMP | 250 | 03/27/2019 | 04:35:23 AM |
| 57 | N034707-001F | SAMP | 100 | 03/27/2019 | 04:38:40 AM |
| 58 | N034707-002F | SAMP | 100 | 03/27/2019 | 04:41:57 AM |
| 59 | N034707-003F | SAMP | 25 | 03/27/2019 | 04:45:14 AM |
| 60 | N034707-004F | SAMP | 25 | 03/27/2019 | 04:48:29 AM |
| 14 | CCV4 | CCV | 1 | 03/27/2019 | 04:51:43 AM |
| 1 | CCB4 | CCB | 1 | 03/27/2019 | 04:55:32 AM |
| 18 | ICSA2 | ICSA | 1 | 03/27/2019 | 04:58:46 AM |
| 19 | ICSAB2 | ICSAB | 1 | 03/27/2019 | 05:02:02 AM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/21/2019 8:02:11**
Prep End Date: **3/21/2019 3:00:00**
Reviewed/ Date: NS 3/29/2019
Initials/ Date: for

Prep Batch **73017** Prep Code: **3010_W_DISS** Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **DB-2-3** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS1-73017 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| LCS2-73017 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-73017 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034662-001D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034662-001D-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034662-001D-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034662-002D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034662-002D-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034662-002D-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034662-003D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034662-004D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034689-002E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034689-003E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034689-004E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10760 | HYDROCHLORIC ACID |
| 10767 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MSST-140120B | Sodium | LCS,MS,MSD | 0.05 |
| MSST-180608A | Strontium | LCS,MS,MSD | 0.125 |
| MSST-180608B | Potassium | LCS,MS,MSD | 0.05 |
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/21/2019 8:02:11**
Prep End Date: **3/21/2019 3:00:00**
Reviewed/ Date: NS 3/29/2019
Initials/ Date: for

Prep Batch **73017** Prep Code: **3010_W_DISS** Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **DB-2-3** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| N034689-005E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034689-006E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034689-007E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034707-001F | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034707-002F | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034707-003F | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034707-004F | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10760 | HYDROCHLORIC ACID |
| 10767 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MSST-140120B | Sodium | LCS,MS,MSD | 0.05 |
| MSST-180608A | Strontium | LCS,MS,MSD | 0.125 |
| MSST-180608B | Potassium | LCS,MS,MSD | 0.05 |
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190326C**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Boron** | | | | | | | | |
| CalBlk | 03/26/2019 | 06:10:15 PM | B | 249.677 | 3578 | 0.00 | mg/L | |
| Standard1 | 03/26/2019 | 06:15:03 PM | B | 249.677 | 1837 | 0.1000 | mg/L | |
| Standard3 | 03/26/2019 | 06:25:35 PM | B | 249.677 | 20452 | 1.000 | mg/L | |
| Standard4 | 03/26/2019 | 06:30:53 PM | B | 249.677 | 51685 | 2.500 | mg/L | |
| Standard5 | 03/26/2019 | 06:38:11 PM | B | 249.677 | 74322 | 3.750 | mg/L | |
| Standard6 | 03/26/2019 | 06:45:31 PM | B | 249.677 | 102052 | 5.000 | mg/L | |
| Standard7 | 03/26/2019 | 06:52:52 PM | B | 249.677 | 194950 | 10.000 | mg/L | 0.9998 |
| **Magnesium** | | | | | | | | |
| CalBlk | 03/26/2019 | 06:10:15 PM | Mg | 279.079 | 107 | 0.00 | mg/L | |
| Standard1 | 03/26/2019 | 06:15:03 PM | Mg | 279.079 | 639 | 0.1000 | mg/L | |
| Standard2 | 03/26/2019 | 06:20:19 PM | Mg | 279.079 | 5934 | 1.000 | mg/L | |
| Standard3 | 03/26/2019 | 06:25:35 PM | Mg | 279.079 | 12586 | 2.000 | mg/L | |
| Standard4 | 03/26/2019 | 06:30:53 PM | Mg | 279.079 | 31385 | 5.000 | mg/L | |
| Standard5 | 03/26/2019 | 06:38:11 PM | Mg | 279.079 | 45746 | 7.500 | mg/L | |
| Standard6 | 03/26/2019 | 06:45:31 PM | Mg | 279.079 | 62155 | 10.000 | mg/L | |
| Standard7 | 03/26/2019 | 06:52:52 PM | Mg | 279.079 | 116056 | 20.000 | mg/L | 0.9995 |
| **Aluminum** | | | | | | | | |
| CalBlk | 03/26/2019 | 06:10:15 PM | Al | 237.313 | -23 | 0.00 | mg/L | |
| Standard1 | 03/26/2019 | 06:15:03 PM | Al | 237.313 | 129 | 0.0500 | mg/L | |
| Standard2 | 03/26/2019 | 06:20:19 PM | Al | 237.313 | 2553 | 1.000 | mg/L | |
| Standard3 | 03/26/2019 | 06:25:35 PM | Al | 237.313 | 5177 | 2.000 | mg/L | |
| Standard4 | 03/26/2019 | 06:30:53 PM | Al | 237.313 | 12225 | 5.000 | mg/L | |
| Standard5 | 03/26/2019 | 06:38:11 PM | Al | 237.313 | 17717 | 7.500 | mg/L | |
| Standard6 | 03/26/2019 | 06:45:31 PM | Al | 237.313 | 23959 | 10.000 | mg/L | |
| Standard7 | 03/26/2019 | 06:52:52 PM | Al | 237.313 | 45911 | 20.000 | mg/L | 0.9997 |
| **Calcium** | | | | | | | | |
| CalBlk | 03/26/2019 | 06:10:15 PM | Ca | 227.546 | -55 | 0.00 | mg/L | |
| Standard1 | 03/26/2019 | 06:15:03 PM | Ca | 227.546 | 22 | 0.2000 | mg/L | |
| Standard2 | 03/26/2019 | 06:20:19 PM | Ca | 227.546 | 109 | 1.000 | mg/L | |
| Standard3 | 03/26/2019 | 06:25:35 PM | Ca | 227.546 | 204 | 2.000 | mg/L | |
| Standard4 | 03/26/2019 | 06:30:53 PM | Ca | 227.546 | 521 | 5.000 | mg/L | |
| Standard5 | 03/26/2019 | 06:38:11 PM | Ca | 227.546 | 762 | 7.500 | mg/L | |
| Standard6 | 03/26/2019 | 06:45:31 PM | Ca | 227.546 | 1036 | 10.000 | mg/L | |
| Standard7 | 03/26/2019 | 06:52:52 PM | Ca | 227.546 | 1997 | 20.000 | mg/L | 0.9999 |
| **Iron** | | | | | | | | |
| CalBlk | 03/26/2019 | 06:10:15 PM | Fe | 273.953 | -1 | 0.00 | mg/L | |
| Standard1 | 03/26/2019 | 06:15:03 PM | Fe | 273.953 | 243 | 0.0200 | mg/L | |
| Standard2 | 03/26/2019 | 06:20:19 PM | Fe | 273.953 | 865 | 0.050 | mg/L | |
| Standard3 | 03/26/2019 | 06:25:35 PM | Fe | 273.953 | 23679 | 2.000 | mg/L | |
| Standard4 | 03/26/2019 | 06:30:53 PM | Fe | 273.953 | 59241 | 5.000 | mg/L | |
| Standard5 | 03/26/2019 | 06:38:11 PM | Fe | 273.953 | 86472 | 7.500 | mg/L | |
| Standard6 | 03/26/2019 | 06:45:31 PM | Fe | 273.953 | 117436 | 10.000 | mg/L | |
| Standard7 | 03/26/2019 | 06:52:52 PM | Fe | 273.953 | 217243 | 20.000 | mg/L | 0.9994 |

Calibration Acceptance Criteria: > 0.995 Correlation

**INITIAL CALIBRATION SUMMARY: 190327A**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Sodium** | | | | | | | | |
| CalBlk | 03/27/2019 | 01:15:55 AM | Na | 589.594 | 56 | 0.00 | mg/L | |
| Standard1 | 03/27/2019 | 01:19:09 AM | Na | 589.594 | 371 | 0.1000 | mg/L | |
| Standard2 | 03/27/2019 | 01:22:23 AM | Na | 589.594 | 2942 | 1.000 | mg/L | |
| Standard3 | 03/27/2019 | 01:26:08 AM | Na | 589.594 | 14584 | 5.000 | mg/L | |
| Standard4 | 03/27/2019 | 01:29:56 AM | Na | 589.594 | 28956 | 10.000 | mg/L | |
| Standard5 | 03/27/2019 | 01:33:44 AM | Na | 589.594 | 57501 | 20.000 | mg/L | |
| Standard6 | 03/27/2019 | 01:37:35 AM | Na | 589.594 | 114790 | 40.000 | mg/L | 1.0000 |
| **Potassium** | | | | | | | | |
| CalBlk | 03/27/2019 | 01:15:55 AM | K | 766.451 | 772 | 0.00 | mg/L | |
| Standard1 | 03/27/2019 | 01:19:09 AM | K | 766.451 | 471 | 0.1000 | mg/L | |
| Standard2 | 03/27/2019 | 01:22:23 AM | K | 766.451 | 3928 | 1.000 | mg/L | |
| Standard3 | 03/27/2019 | 01:26:08 AM | K | 766.451 | 19831 | 5.000 | mg/L | |
| Standard4 | 03/27/2019 | 01:29:56 AM | K | 766.451 | 39560 | 10.000 | mg/L | |
| Standard5 | 03/27/2019 | 01:33:44 AM | K | 766.451 | 78671 | 20.000 | mg/L | |
| Standard6 | 03/27/2019 | 01:37:35 AM | K | 766.451 | 158390 | 40.000 | mg/L | 1.0000 |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132788** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132788** | TestNo: **EPA 6010B** | | Analysis Date: **3/26/2019** | SeqNo: **3329861** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 5180.586 | 100 | 5000 | 0 | 104 | 90 | 110 | | | | |
| Calcium | 10274.433 | 500 | 10000 | 0 | 103 | 90 | 110 | | | | |
| Iron | 10673.383 | 20 | 10000 | 0 | 107 | 90 | 110 | | | | |
| Magnesium | 10628.690 | 100 | 10000 | 0 | 106 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132788** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132788** | TestNo: **EPA 6010B** | | Analysis Date: **3/26/2019** | SeqNo: **3329864** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 115.005 | 100 | 100.0 | 0 | 115 | 80 | 120 | | | | |
| Calcium | 178.017 | 500 | 200.0 | 0 | 89.0 | 80 | 120 | | | | |
| Iron | 23.415 | 20 | 20.00 | 0 | 117 | 80 | 120 | | | | |
| Magnesium | 107.532 | 100 | 100.0 | 0 | 108 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132788** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132788** | TestNo: **EPA 6010B** | | Analysis Date: **3/26/2019** | SeqNo: **3329877** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 5222.085 | 100 | 5000 | 0 | 104 | 90 | 110 | | | | |
| Calcium | 10421.385 | 500 | 10000 | 0 | 104 | 90 | 110 | | | | |
| Iron | 10678.256 | 20 | 10000 | 0 | 107 | 90 | 110 | | | | |
| Magnesium | 10615.163 | 100 | 10000 | 0 | 106 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132788** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132788** | TestNo: **EPA 6010B** | | Analysis Date: **3/26/2019** | SeqNo: **3329889** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 5196.328 | 100 | 5000 | 0 | 104 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

Sample ID **CCV2** SampType: **CCV** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **132788**
Client ID: **CCV** Batch ID: **R132788** TestNo: **EPA 6010B** Analysis Date: **3/26/2019** SeqNo: **3329889**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 10257.314 | 500 | 10000 | 0 | 103 | 90 | 110 | | | | |
| Iron | 10679.172 | 20 | 10000 | 0 | 107 | 90 | 110 | | | | |
| Magnesium | 10833.678 | 100 | 10000 | 0 | 108 | 90 | 110 | | | | |

Sample ID **CCV3** SampType: **CCV** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **132788**
Client ID: **CCV** Batch ID: **R132788** TestNo: **EPA 6010B** Analysis Date: **3/26/2019** SeqNo: **3330109**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 5194.131 | 100 | 5000 | 0 | 104 | 90 | 110 | | | | |
| Calcium | 10185.364 | 500 | 10000 | 0 | 102 | 90 | 110 | | | | |
| Iron | 10630.597 | 20 | 10000 | 0 | 106 | 90 | 110 | | | | |
| Magnesium | 10601.323 | 100 | 10000 | 0 | 106 | 90 | 110 | | | | |

Sample ID **CCV4** SampType: **CCV** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **132788**
Client ID: **CCV** Batch ID: **R132788** TestNo: **EPA 6010B** Analysis Date: **3/27/2019** SeqNo: **3330121**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 5207.532 | 100 | 5000 | 0 | 104 | 90 | 110 | | | | |
| Calcium | 10265.680 | 500 | 10000 | 0 | 103 | 90 | 110 | | | | |
| Iron | 10668.132 | 20 | 10000 | 0 | 107 | 90 | 110 | | | | |
| Magnesium | 10633.812 | 100 | 10000 | 0 | 106 | 90 | 110 | | | | |

Sample ID **CCV5** SampType: **CCV** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **132788**
Client ID: **CCV** Batch ID: **R132788** TestNo: **EPA 6010B** Analysis Date: **3/27/2019** SeqNo: **3330124**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 5227.944 | 100 | 5000 | 0 | 105 | 90 | 110 | | | | |
| Calcium | 10326.455 | 500 | 10000 | 0 | 103 | 90 | 110 | | | | |
| Iron | 10746.006 | 20 | 10000 | 0 | 107 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132788** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132788** | TestNo: **EPA 6010B** | | Analysis Date: **3/27/2019** | SeqNo: **3330124** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Magnesium | 10721.049 | 100 | 10000 | 0 | 107 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132794** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132794** | TestNo: **EPA 6010B** | | Analysis Date: **3/27/2019** | SeqNo: **3330274** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 9991.511 | 500 | 10000 | 0 | 99.9 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132794** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132794** | TestNo: **EPA 6010B** | | Analysis Date: **3/27/2019** | SeqNo: **3330277** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 115.612 | 500 | 100.0 | 0 | 116 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132794** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132794** | TestNo: **EPA 6010B** | | Analysis Date: **3/27/2019** | SeqNo: **3330291** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10075.903 | 500 | 10000 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132794** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132794** | TestNo: **EPA 6010B** | | Analysis Date: **3/27/2019** | SeqNo: **3330303** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10296.285 | 500 | 10000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132794** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132794** | TestNo: **EPA 6010B** | | Analysis Date: **3/27/2019** | SeqNo: **3330315** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10159.544 | 500 | 10000 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132794** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132794** | TestNo: **EPA 6010B** | | Analysis Date: **3/27/2019** | SeqNo: **3330325** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 10186.230 | 500 | 10000 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132788** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132788** | TestNo: **EPA 6010B** | | Analysis Date: **3/26/2019** | SeqNo: **3329862** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 39.020 | 100 | | | | | | | | | |
| Calcium | 10.859 | 500 | | | | | | | | | |
| Iron | -2.446453 | 20 | | | | | | | | | |
| Magnesium | -6.744147 | 100 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132788** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132788** | TestNo: **EPA 6010B** | | Analysis Date: **3/26/2019** | SeqNo: **3329878** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 30.660 | 100 | | | | | | | | | |
| Calcium | -27.311645 | 500 | | | | | | | | | |
| Iron | -3.208083 | 20 | | | | | | | | | |
| Magnesium | -10.20135 | 100 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132788** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132788** | TestNo: **EPA 6010B** | | Analysis Date: **3/26/2019** | SeqNo: **3329890** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 37.772 | 100 | | | | | | | | | |
| Calcium | -46.933887 | 500 | | | | | | | | | |
| Iron | -2.98474 | 20 | | | | | | | | | |
| Magnesium | -11.477836 | 100 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132788** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132788** | TestNo: **EPA 6010B** | | Analysis Date: **3/26/2019** | SeqNo: **3330110** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 28.100 | 100 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132788** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132788** | TestNo: **EPA 6010B** | | Analysis Date: **3/26/2019** | SeqNo: **3330110** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | -8.783407 | 500 | | | | | | | | | |
| Iron | -3.479462 | 20 | | | | | | | | | |
| Magnesium | -11.812536 | 100 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132788** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132788** | TestNo: **EPA 6010B** | | Analysis Date: **3/27/2019** | SeqNo: **3330122** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 22.830 | 100 | | | | | | | | | |
| Calcium | -67.598841 | 500 | | | | | | | | | |
| Iron | -5.676611 | 20 | | | | | | | | | |
| Magnesium | -13.625866 | 100 | | | | | | | | | |

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132788** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132788** | TestNo: **EPA 6010B** | | Analysis Date: **3/27/2019** | SeqNo: **3330125** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 23.005 | 100 | | | | | | | | | |
| Calcium | -45.993786 | 500 | | | | | | | | | |
| Iron | -5.146043 | 20 | | | | | | | | | |
| Magnesium | -12.232222 | 100 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132794** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132794** | TestNo: **EPA 6010B** | | Analysis Date: **3/27/2019** | SeqNo: **3330275** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 9.766 | 500 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132794** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132794** | TestNo: **EPA 6010B** | | Analysis Date: **3/27/2019** | SeqNo: **3330292** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 48.426 | 500 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132794** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132794** | TestNo: **EPA 6010B** | | Analysis Date: **3/27/2019** | SeqNo: **3330304** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 135.345 | 500 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132794** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132794** | TestNo: **EPA 6010B** | | Analysis Date: **3/27/2019** | SeqNo: **3330316** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 60.851 | 500 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132794** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132794** | TestNo: **EPA 6010B** | | Analysis Date: **3/27/2019** | SeqNo: **3330326** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 40.913 | 500 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **132788**
Client ID: **ICSA** Batch ID: **R132788** TestNo: **EPA 6010B** Analysis Date: **3/26/2019** SeqNo: **3329865**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 462880.619 | 50 | 500000 | 0 | 92.6 | 80 | 120 | | | | |
| Boron | 44.709 | 100 | | | | | | | | | |
| Calcium | 489251.189 | 500 | 500000 | 0 | 97.9 | 80 | 120 | | | | |
| Iron | 200891.110 | 20 | 200000 | 0 | 100 | 80 | 120 | | | | |
| Magnesium | 450855.686 | 100 | 500000 | 0 | 90.2 | 80 | 120 | | | | |

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **132788**
Client ID: **ICSAB** Batch ID: **R132788** TestNo: **EPA 6010B** Analysis Date: **3/26/2019** SeqNo: **3329866**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 537226.927 | 50 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Boron | 1132.138 | 100 | 1000 | 0 | 113 | 80 | 120 | | | | |
| Calcium | 560939.655 | 500 | 500000 | 0 | 112 | 80 | 120 | | | | |
| Iron | 184419.127 | 20 | 200000 | 0 | 92.2 | 80 | 120 | | | | |
| Magnesium | 526555.762 | 100 | 500000 | 0 | 105 | 80 | 120 | | | | |

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **132788**
Client ID: **ICSA** Batch ID: **R132788** TestNo: **EPA 6010B** Analysis Date: **3/27/2019** SeqNo: **3330126**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 463749.282 | 50 | 500000 | 0 | 92.7 | 80 | 120 | | | | |
| Boron | 36.421 | 100 | | | | | | | | | |
| Calcium | 486702.199 | 500 | 500000 | 0 | 97.3 | 80 | 120 | | | | |
| Iron | 202002.039 | 20 | 200000 | 0 | 101 | 80 | 120 | | | | |
| Magnesium | 450996.531 | 100 | 500000 | 0 | 90.2 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **132788**
Client ID: **ICSAB** Batch ID: **R132788** TestNo: **EPA 6010B** Analysis Date: **3/27/2019** SeqNo: **3330127**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 537741.231 | 50 | 500000 | 0 | 108 | 80 | 120 | | | | |
| Boron | 1112.246 | 100 | 1000 | 0 | 111 | 80 | 120 | | | | |
| Calcium | 562557.459 | 500 | 500000 | 0 | 113 | 80 | 120 | | | | |
| Iron | 185268.469 | 20 | 200000 | 0 | 92.6 | 80 | 120 | | | | |
| Magnesium | 527368.053 | 100 | 500000 | 0 | 105 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132794** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132794** | TestNo: **EPA 6010B** | | Analysis Date: **3/27/2019** | SeqNo: **3330278** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | -1.977646 | 500 | | | | | | | | | |
| Sodium | 13.416 | 500 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132794** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132794** | TestNo: **EPA 6010B** | | Analysis Date: **3/27/2019** | SeqNo: **3330279** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | 9939.165 | 500 | 10000 | 0 | 99.4 | 80 | 120 | | | | |
| Sodium | 9970.822 | 500 | 10000 | 0 | 99.7 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132794** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132794** | TestNo: **EPA 6010B** | | Analysis Date: **3/27/2019** | SeqNo: **3330327** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | -29.878269 | 500 | | | | | | | | | |
| Sodium | 40.518 | 500 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132794** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132794** | TestNo: **EPA 6010B** | | Analysis Date: **3/27/2019** | SeqNo: **3330328** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | 9826.297 | 500 | 10000 | 0 | 98.3 | 80 | 120 | | | | |
| Sodium | 10147.960 | 500 | 10000 | 0 | 101 | 80 | 120 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190326C**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 1.0081 | 100.81 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1.11 | 111.43 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 1.041 | 104.08 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 1.027 | 102.67 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 1.05 | 105.04 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 1.025 | 102.53 | 65-125 | PASS |
| Standard7 | ICAL | 1 | 1.036 | 103.63 | 65-125 | PASS |
| ICV | ICV | 1 | 1.017 | 101.71 | 65-125 | PASS |
| ICB | ICB | 1 | 1.0005 | 100.05 | 65-125 | PASS |
| LLICV | CCV1 | 1 | 1.0072 | 100.72 | 65-125 | PASS |
| LLICV | CCV1 | 1 | 1.01 | 101.05 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 1.11 | 110.76 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 0.94 | 94.12 | 65-125 | PASS |
| MB-73017 | MBLK | 1 | 1.0069 | 100.69 | 65-125 | PASS |
| LCS1-73017 | LCS | 1 | 1.0042 | 100.42 | 65-125 | PASS |
| MB-73017 | MBLK | 1 | 1.0041 | 100.41 | 65-125 | PASS |
| N034662-001D | SAMP | 1 | 0.96 | 96.44 | 65-125 | PASS |
| N034662-001D | SAMP | 5 | 0.99 | 99.47 | 65-125 | PASS |
| N034662-001D-PS | PS | 1 | 0.94 | 94.47 | 65-125 | PASS |
| N034662-001D-MS1 | MS | 1 | 0.95 | 95.48 | 65-125 | PASS |
| N034662-001D-MSD1 | MSD | 1 | 0.97 | 97.33 | 65-125 | PASS |
| N034662-002D | SAMP | 1 | 0.96 | 96.42 | 65-125 | PASS |
| N034662-003D | SAMP | 1 | 0.97 | 96.71 | 65-125 | PASS |
| CCV1 | CCV | 1 | 1.0082 | 100.82 | 65-125 | PASS |
| CCB1 | CCB | 1 | 1.0075 | 100.75 | 65-125 | PASS |
| N034662-004D | SAMP | 1 | 0.98 | 98.31 | 65-125 | PASS |
| N034689-002E | SAMP | 1 | 0.99 | 99.37 | 65-125 | PASS |
| N034689-003E | SAMP | 1 | 0.98 | 98.36 | 65-125 | PASS |
| N034689-004E | SAMP | 1 | 0.98 | 97.95 | 65-125 | PASS |
| N034689-005E | SAMP | 1 | 0.92 | 92.2 | 65-125 | PASS |
| N034689-006E | SAMP | 1 | 0.86 | 86.18 | 65-125 | PASS |
| N034689-007E | SAMP | 1 | 0.75 | 74.94 | 65-125 | PASS |
| N034707-001F | SAMP | 1 | 0.81 | 80.86 | 65-125 | PASS |
| N034707-002F | SAMP | 1 | 0.8 | 80.48 | 65-125 | PASS |
| N034707-003F | SAMP | 1 | 0.94 | 93.5 | 65-125 | PASS |
| CCV2 | CCV | 1 | 0.97 | 97.12 | 65-125 | PASS |
| CCB2 | CCB | 1 | 0.97 | 97.051 | 65-125 | PASS |
| N034707-004F | SAMP | 1 | 0.97 | 96.6 | 65-125 | PASS |
| CCV3 | CCV | 1 | 0.97 | 97.29 | 65-125 | PASS |
| CCB3 | CCB | 1 | 0.99 | 99.032 | 65-125 | PASS |

**INTERNAL STANDARD: 190326C**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CCV4 | CCV | 1 | 0.99 | 98.69 | 65-125 | PASS |
| CCB4 | CCB | 1 | 0.98 | 98.011 | 65-125 | PASS |
| CCV5 | CCV | 1 | 1 | 99.91 | 65-125 | PASS |
| CCB5 | CCB | 1 | 1.0026 | 100.26 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 1.1 | 110.38 | 65-125 | PASS |
| ICSAB2 | ICSAB | 1 | 0.93 | 93.28 | 65-125 | PASS |

**INTERNAL STANDARD: 190327A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Scandium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 1 | 99.51 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1.0021 | 100.21 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 0.99 | 98.83 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 0.99 | 98.67 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 0.98 | 97.73 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 0.96 | 96.25 | 65-125 | PASS |
| ICV | ICV | 1 | 0.99 | 98.94 | 65-125 | PASS |
| ICB | ICB | 1 | 1 | 99.67 | 65-125 | PASS |
| LLICV | CCV | 1 | 1 | 99.8 | 65-125 | PASS |
| LLICV | CCV | 1 | 1 | 99.81 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 1.0061 | 100.61 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 0.99 | 99.4 | 65-125 | PASS |
| MB-73017 | MBLK | 1 | 1 | 99.99 | 65-125 | PASS |
| LCS2-73017 | LCS | 1 | 1.051 | 105.13 | 65-125 | PASS |
| N034662-001D | SAMP | 5 | 0.99 | 99.32 | 65-125 | PASS |
| N034662-002D | SAMP | 5 | 0.99 | 99.15 | 65-125 | PASS |
| N034662-003D | SAMP | 5 | 0.99 | 98.88 | 65-125 | PASS |
| N034662-004D | SAMP | 5 | 0.99 | 98.58 | 65-125 | PASS |
| N034689-002E | SAMP | 5 | 0.99 | 99.48 | 65-125 | PASS |
| N034689-003E | SAMP | 5 | 0.99 | 99.26 | 65-125 | PASS |
| N034689-004E | SAMP | 5 | 1.0022 | 100.22 | 65-125 | PASS |
| N034689-005E | SAMP | 5 | 0.98 | 98.46 | 65-125 | PASS |
| CCV1 | CCV | 1 | 1.0004 | 100.04 | 65-125 | PASS |
| CCV1 | CCV | 1 | 0.99 | 98.73 | 65-125 | PASS |
| CCB1 | CCB | 1 | 0.99 | 99.28 | 65-125 | PASS |
| N034689-006E | SAMP | 5 | 0.97 | 97.25 | 65-125 | PASS |
| N034689-007E | SAMP | 5 | 0.95 | 94.58 | 65-125 | PASS |
| N034707-001F | SAMP | 5 | 0.96 | 95.79 | 65-125 | PASS |
| N034707-002F | SAMP | 5 | 0.97 | 96.94 | 65-125 | PASS |
| N034707-003F | SAMP | 5 | 1 | 99.97 | 65-125 | PASS |
| N034707-004F | SAMP | 5 | 1.0098 | 100.98 | 65-125 | PASS |
| N034662-001D | SAMP | 25 | 1.0026 | 100.26 | 65-125 | PASS |
| N034662-002D | SAMP | 1 | 0.99 | 98.94 | 65-125 | PASS |
| N034662-002D-PS | PS | 1 | 1.0056 | 100.56 | 65-125 | PASS |
| N034662-002D-MS2 | MS | 1 | 0.99 | 99.29 | 65-125 | PASS |
| CCV2 | CCV | 1 | 1.0078 | 100.78 | 65-125 | PASS |
| CCB2 | CCB | 1 | 1.024 | 102.44 | 65-125 | PASS |
| N034662-002D-MSD2 | MSD | 1 | 0.99 | 99.22 | 65-125 | PASS |
| N034662-002D | SAMP | 25 | 1.0078 | 100.78 | 65-125 | PASS |
| N034662-002D | SAMP | 125 | 1.014 | 101.37 | 65-125 | PASS |

**INTERNAL STANDARD: 190327A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Scandium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| N034662-002D-PS | PS | 25 | 1.012 | 101.17 | 65-125 | PASS |
| N034662-002D-MS2 | MS | 25 | 1.011 | 101.06 | 65-125 | PASS |
| N034662-002D-MSD2 | MSD | 25 | 1.0082 | 100.82 | 65-125 | PASS |
| N034662-003D | SAMP | 25 | 1.011 | 101.06 | 65-125 | PASS |
| N034662-004D | SAMP | 25 | 1.0035 | 100.35 | 65-125 | PASS |
| N034689-002E | SAMP | 25 | 1.017 | 101.71 | 65-125 | PASS |
| N034689-003E | SAMP | 25 | 1.013 | 101.27 | 65-125 | PASS |
| CCV3 | CCV | 1 | 1.022 | 102.21 | 65-125 | PASS |
| CCB3 | CCB | 1 | 1.012 | 101.23 | 65-125 | PASS |
| N034689-004E | SAMP | 25 | 1.013 | 101.27 | 65-125 | PASS |
| N034689-005E | SAMP | 50 | 1.0087 | 100.87 | 65-125 | PASS |
| N034689-006E | SAMP | 100 | 1.003 | 100.3 | 65-125 | PASS |
| N034689-007E | SAMP | 250 | 1 | 99.94 | 65-125 | PASS |
| N034707-001F | SAMP | 100 | 1.0024 | 100.24 | 65-125 | PASS |
| N034707-002F | SAMP | 100 | 1.0053 | 100.53 | 65-125 | PASS |
| N034707-003F | SAMP | 25 | 1.0058 | 100.58 | 65-125 | PASS |
| N034707-004F | SAMP | 25 | 1.0018 | 100.18 | 65-125 | PASS |
| CCV4 | CCV | 1 | 1.0025 | 100.25 | 65-125 | PASS |
| CCB4 | CCB | 1 | 1 | 99.92 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 1.017 | 101.66 | 65-125 | PASS |
| ICSAB2 | ICSAB | 1 | 1 | 99.76 | 65-125 | PASS |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034662
Test Method: EPA 6010B
Analysis Date: 03 / 26 - 27 / 2019

Matrix: Groundwater
Batch No.: 73017

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to B & Fe. The calculated concentration is <25RL.

| Sample ID | Analyte | Symbol | Units | Calc Val | Oqual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|---|
| N034662-001D DT 5x | Boron | B | ug/L | 856.2544 | NA | 788.538 | 8.59% | 10 |
| N034662-001D DT 5x | Calcium | Ca | ug/L | 117373.1 | PASS | 123943.3 | 5.30% | 10 |
| N034662-001D DT 5x | Iron | Fe | ug/L | 0 | NA | 43.26109 | 100.00% | 10 |
| N034662-001D DT 5x | Magnesium | Mg | ug/L | 30085.17 | PASS | 27782.08 | 8.29% | 10 |
| N034662-002D DT 125x | Sodium | Na | ug/L | 483399 | PASS | 463274.9 | 4.34% | 10 |

Note: NA - Not Applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID | N034662-001D-PS | SampType: | PS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | | RunNo: | 132788 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73017 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/26/2019 | SeqNo: | 3329872 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 2109.447 | 100 | 1000 | 788.5 | 132 | 80 | 120 | | | | S |
| Calcium | 128437.115 | 500 | 5000 | 123900 | 89.9 | 80 | 120 | | | | |
| Iron | 171.900 | 20 | 100.0 | 43.26 | 129 | 80 | 120 | | | | S |
| Magnesium | 33562.081 | 100 | 5000 | 27780 | 116 | 80 | 120 | | | | |

| Sample ID | N034662-002D-PS | SampType: | PS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | | RunNo: | 132794 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73017 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/27/2019 | SeqNo: | 3330308 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 491764.582 | 12000 | 20000 | 463300 | 142 | 80 | 120 | | | | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

**Acceptance Criteria:** MDL < spike < 10XMDL

| Analyte | Wavelength | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Spike Conc., mg/L | SD | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ag | 328.069 | 0.0033 | 0.0031 | 0.0033 | 0.0033 | 0.0031 | 0.0030 | 0.0047 | 0.003 | 0.00061604 | **0.001936** | 0.003 |
| Al | 237.312 | 0.0664 | 0.0603 | 0.0656 | 0.0650 | 0.0658 | 0.0660 | 0.0946 | 0.050 | 0.01254823 | **0.039439** | 0.050 |
| As | 188.983 | 0.0131 | 0.0089 | 0.0120 | 0.0089 | 0.0060 | 0.0102 | 0.0080 | 0.010 | 0.00223806 | **0.007034** | 0.010 |
| B | 249.679 | 0.1491 | 0.1267 | 0.1281 | 0.1467 | 0.1261 | 0.1195 | 0.1015 | 0.100 | 0.01801843 | **0.056632** | 0.100 |
| Ba | 233.529 | 0.0033 | 0.0031 | 0.0033 | 0.0031 | 0.0032 | 0.0030 | 0.0024 | 0.003 | 0.00033070 | **0.001039** | 0.003 |
| Be | 313.104 | 0.0012 | 0.0011 | 0.0012 | 0.0012 | 0.0011 | 0.0011 | 0.0011 | 0.001 | 0.00006873 | **0.000216** | 0.001 |
| Ca | 227.546 | 0.2381 | 0.2231 | 0.2559 | 0.2299 | 0.2194 | 0.2473 | 0.2691 | 0.200 | 0.02202408 | **0.069222** | 0.200 |
| Cd | 214.437 | 0.0031 | 0.0029 | 0.0031 | 0.0032 | 0.0031 | 0.0031 | 0.0025 | 0.003 | 0.00027049 | **0.000850** | 0.003 |
| Co | 228.614 | 0.0030 | 0.0028 | 0.0030 | 0.0031 | 0.0031 | 0.0031 | 0.0027 | 0.003 | 0.00014491 | **0.000455** | 0.003 |
| Cr | 267.719 | 0.0009 | 0.0008 | 0.0009 | 0.0012 | 0.0012 | 0.0013 | 0.0009 | 0.001 | 0.00017120 | **0.000538** | 0.001 |
| Fe | 273.953 | 0.0255 | 0.0226 | 0.0242 | 0.0255 | 0.0252 | 0.0248 | 0.0387 | 0.020 | 0.00552308 | **0.017359** | 0.020 |
| Mg | 279.079 | 0.1124 | 0.1052 | 0.1129 | 0.1315 | 0.1305 | 0.1314 | 0.1435 | 0.100 | 0.01532024 | **0.048152** | 0.100 |
| Mn | 257.607 | 0.0119 | 0.0111 | 0.0120 | 0.0122 | 0.0121 | 0.0122 | 0.0099 | 0.010 | 0.00098403 | **0.003093** | 0.010 |
| Mo | 202.03 | 0.0079 | 0.0068 | 0.0067 | 0.0065 | 0.0065 | 0.0062 | 0.0057 | 0.005 | 0.00083918 | **0.002638** | 0.005 |
| Ni | 231.604 | 0.0061 | 0.0056 | 0.0062 | 0.0060 | 0.0060 | 0.0062 | 0.0045 | 0.005 | 0.00062690 | **0.001970** | 0.005 |
| Pb | 220.351 | 0.0124 | 0.0117 | 0.0127 | 0.0115 | 0.0120 | 0.0118 | 0.0090 | 0.010 | 0.00126325 | **0.003970** | 0.010 |
| Sb | 206.836 | 0.0102 | 0.0095 | 0.0104 | 0.0112 | 0.0117 | 0.0111 | 0.0080 | 0.010 | 0.00117407 | **0.003690** | 0.010 |
| Se | 196.025 | 0.0102 | 0.0087 | 0.0114 | 0.0136 | 0.0144 | 0.0136 | 0.0075 | 0.010 | 0.00251341 | **0.007900** | 0.010 |
| Sn | 189.927 | 0.0095 | 0.0084 | 0.0090 | 0.0124 | 0.0126 | 0.0129 | 0.0099 | 0.010 | 0.00175765 | **0.005524** | 0.010 |
| Ti | 334.943 | 0.0114 | 0.0106 | 0.0115 | 0.0115 | 0.0115 | 0.0115 | 0.0098 | 0.010 | 0.00074093 | **0.002329** | 0.010 |
| Tl | 190.794 | 0.0170 | 0.0150 | 0.0165 | 0.0171 | 0.0180 | 0.0168 | 0.0151 | 0.015 | 0.00116288 | **0.003655** | 0.015 |
| V | 292.404 | 0.0025 | 0.0024 | 0.0025 | 0.0032 | 0.0032 | 0.0032 | 0.0027 | 0.003 | 0.00038496 | **0.001210** | 0.003 |
| Zn | 206.201 | 0.0109 | 0.0100 | 0.0107 | 0.0125 | 0.0124 | 0.0124 | 0.0095 | 0.010 | 0.00123731 | **0.003889** | 0.010 |

## METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

| Analyte | ICP-02 MDL | MDL Blank | Higher MDL | LOD | PQL |
|---|---|---|---|---|---|
| Ag | 0.001936 | 0.002362 | 0.002362 | 0.002 | 0.003 |
| Al | 0.039439 | 0.039859 | 0.039859 | 0.04 | 0.5 |
| As | 0.007034 | 0.007672 | 0.007672 | 0.0075 | 0.01 |
| B | 0.056632 | 0.074419 | 0.074419 | 0.075 | 0.1 |
| Ba | 0.001039 | 0.000433 | 0.001039 | 0.001 | 0.003 |
| Be | 0.000216 | 0.000311 | 0.000311 | 0.0005 | 0.003 |
| Ca | 0.069222 | 0.084832 | 0.084832 | 0.1 | 0.5 |
| Cd | 0.000850 | 0.000592 | 0.000850 | 0.001 | 0.003 |
| Co | 0.000455 | 0.001902 | 0.001902 | 0.001 | 0.003 |
| Cr | 0.000538 | 0.000527 | 0.000538 | 0.001 | 0.003 |
| Fe | 0.017359 | 0.017751 | 0.017751 | 0.018 | 0.1 |
| Mg | 0.048152 | 0.043017 | 0.048152 | 0.05 | 0.1 |
| Mn | 0.003093 | 0.000782 | 0.003093 | 0.005 | 0.5 |
| Mo | 0.002638 | 0.002482 | 0.002638 | 0.0025 | 0.005 |
| Ni | 0.001970 | 0.000822 | 0.001970 | 0.0025 | 0.005 |
| Pb | 0.003970 | 0.002762 | 0.003970 | 0.005 | 0.005 |
| Sb | 0.003690 | 0.004504 | 0.004504 | 0.005 | 0.01 |
| Se | 0.007900 | 0.008549 | 0.008549 | 0.008 | 0.01 |
| Sn | 0.005524 | 0.003415 | 0.005524 | 0.0075 | 0.05 |
| Ti | 0.002329 | 0.001493 | 0.002329 | 0.005 | 0.05 |
| Tl | 0.003655 | 0.005987 | 0.005987 | 0.005 | 0.015 |
| V | 0.001210 | 0.000749 | 0.001210 | 0.002 | 0.003 |
| Zn | 0.003889 | 0.007683 | 0.007683 | 0.008 | 0.01 |

## LOD & PQL VERIFICATION

**Analytical Method:** EPA 6010B / 200.7
**Date of Analysis:** 4/30/2018
**Instrument Name:** ICP2
**Analyst:** MI

**Matrix:** Water
**Units:** mg/L

| Compound | MDL | LOD | | PQL | | |
|---|---|---|---|---|---|---|
| | | Spike | Recovered | Spike | Recovered | % Recovery |
| Potassium | 0.08509 | 0.250 | 0.304 | 0.500 | 0.544 | 108.9 |
| Sodium | 0.09611 | 0.250 | 0.274 | 0.500 | 0.521 | 104.1 |
| Strontium | 0.00220 | 0.025 | 0.027 | 0.050 | 0.054 | 108.0 |

**Method Detection Limit**

**Analytical Method:** EPA 6010B / 200.7
**Digestion Method:** EPA 200.7
**Date of Analysis:** 4/26/2018,4/27/18, 4/28/18
**Instrument Name:** ICP2
**Analysts:** MEI

**Matrix:** Water
**Amount of Sample:** 25 mL
**Units:** mg/L

| Analyte | 1 | 2 | 3 | 4 | 5 | 6 | 7 | SD | Ave | AMT SPIKED | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | 0.52047 | 0.51468 | 0.50982 | 0.46507 | 0.46016 | 0.45873 | 0.49093 | 0.02710 | 0.48855 | 0.5000 | 0.08509 | 0.5 |
| Sodium | 0.55314 | 0.5464 | 0.5354 | 0.4861 | 0.49466 | 0.48423 | 0.49053 | 0.03061 | 0.51292 | 0.5000 | 0.09611 | 0.5 |
| Strontium | 0.0543 | 0.05418 | 0.05429 | 0.05295 | 0.05353 | 0.05251 | 0.05341 | 0.00070 | 0.05360 | 0.0250 | 0.00220 | 0.05 |

MBLK

| Analyte | 1 | 2 | 3 | 4 | 5 | 6 | 7 | SD | Ave | MDL |
|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | 0.046 | 0.02365 | 0.01213 | -0.00541 | -0.0022 | -0.00535 | 0.03047 | 0.02002 | 0.01418 | 0.0771 |
| Sodium | 0.04731 | 0.03661 | 0.02294 | -0.0006 | -0.00135 | -0.00646 | -0.00911 | 0.02270 | 0.01276 | 0.0841 |
| Strontium | 0.00006 | -0.0006 | -0.0002 | 0.00003 | -0.00002 | 0.00001 | 0.00035 | 0.00029 | -0.00005 | 0.0009 |

Note: MDL spike is used since its value is greater than the MDL blank.

# EPA 6020
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number** 73031
**ASSET #:** N034662

**Instrument ID:** ICPMS-02
**Analyst:** CEI

**Method:**

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

**Date Analyzed:** 3/28/2019

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | | X | | | X | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | X | |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | | X | | | X | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:** Reported for Batch QCs and Cr only for samples N034662

IS of As, Zn, Cu, Ni, Mo, Ba, Pb, Tl, Ag, Se and Be in N034662-001D/002D/003D/004D faild. For rerun.
% RSD of Se in N034662-001D/004D failed. For rerun.
% RSD of Mn in N034662-004D failed. For rerun.
% Rec of Cu in N034661-001A PS/MS/MSD failed, low bias. However, LCS passed criteria.
% Rec of Mn in N034661-001A MS/MSD failed, high bias. However, LCS passed criteria.
% Rec of Mo in N034661-001A MS failed, high bias. However, LCS passed criteria.
% Rec of Se and Be in N034661-001A PS failed. However, LCS passed criteria.

| | | | |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date:

2nd Level Reviewer 4/3/2019 Date:

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 73031
**ASSET #:** N034662
**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 3/31/2019

**Method:**

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | | X | | | X | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | X |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | X | | | X | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | X |
| 24. LCS compounds within control limits. | X | | | X | | X |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | X |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | X | | | X | | |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

% RSD of Mn in N034662-004D failed. For rerun.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date:

2nd Level Reviewer 4/3/2019 Date:

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 73031
**ASSET #:** N034662

**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 4/1/2019

**Method:**

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | X |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | X | | | X | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | X |
| 24. LCS compounds within control limits. | X | | | X | | X |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | X |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

Mn rerun for N034662-004

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: —

2nd Level Reviewer 4/3/2019 Date: —

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA 6020
**TEST NAME:** Heavy Metals by ICP-MS
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Manganese concentration, in ug/L , in the original sample as follows:

Manganese , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N034662-004D** , the concentration in ug/L is calculated as follows:

Manganese , ug/L = 0.67974 * 1 *( 125 / 25 )

Manganese , ug/L = 0.67974

Reporting results in two significant figures,

**Manganese , ug/L = 0.68**

NS 4/3/2019

# % RSD SUMMARY

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 107 Ag [3] | | | | 111 Cd [3] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.072 | 8.11 | 15 | PASS | 0.081 | 22.19 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.47 | 1.29 | 15 | PASS | 0.52 | 7.66 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 4.97 | 0.28 | 15 | PASS | 4.97 | 2.42 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 9.97 | 0.75 | 15 | PASS | 10.35 | 0.53 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.15 | 0.46 | 15 | PASS | 20.099 | 0.24 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 39.84 | 0.74 | 15 | PASS | 40.24 | 0.41 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.039 | 0.55 | 15 | PASS | 100.91 | 0.7 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 194.6 | 1.6 | 15 | PASS | 199.47 | 0.63 | 15 | PASS |
| ICV | ICV | 1 | 10.28 | 0.11 | 15 | PASS | 10.033 | 0.31 | 15 | PASS |
| ICB | ICB | 1 | 0.01 | 13.33 | 15 | PASS | 0.0034 | 149.18 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.52 | 3.53 | 20 | PASS | 0.49 | 10.82 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 19.73 | 0.28 | 15 | PASS | 17.23 | 0.54 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.58 | 4.35 | 20 | PASS | 0.48 | 1.9 | 20 | PASS |
| MB-73031 | MBLK | 1 | 0.027 | 22.17 | 15 | <PQL | 0.0037 | 0.56 | 15 | PASS |
| LCS-73031 | LCS | 1 | 10.19 | 1.016 | 15 | PASS | 10.13 | 0.15 | 15 | PASS |
| N034599-001A | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034661-001A | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034661-001A | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034661-001A-PS | PS | 1 | 8.75 | 1.16 | 15 | PASS | 10.98 | 20.99 | 15 | NR! |
| N034661-001AMS | MS | 1 | 8.92 | 1.34 | 15 | PASS | 9.49 | 1.59 | 15 | PASS |
| N034661-001AMSD | MSD | 1 | 8.86 | 1.11 | 15 | PASS | 9.55 | 0.97 | 15 | PASS |
| N034661-001A-PS | PS | 1 | 8.83 | 1.04 | 15 | PASS | 9.57 | 1.8 | 15 | PASS |
| N034661-001A | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV1 | CCV | 1 | 19.92 | 0.33 | 15 | PASS | 19.84 | 0.21 | 15 | PASS |
| CCB1 | CCB | 1 | 0.02 | 45.72 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-002E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 0.076 | 15.77 | 15 | <PQL |
| N034689-002E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-003E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 0.069 | 8.47 | 15 | PASS |
| N034689-003E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-004E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 0.017 | 16.38 | 15 | <PQL |
| N034689-004E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-005E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-005E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-006E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-006E | SAMP | 25 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV2 | CCV | 1 | 20.13 | 0.24 | 15 | PASS | 19.97 | 0.36 | 15 | PASS |
| CCB2 | CCB | 1 | 0.027 | 25.62 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-004E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-007E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 107 Ag [3] | | | | 111 Cd [3] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034689-007E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034661-001A | SAMP | 25 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034661-001A-PS | PS | 5 | 1.9 | 3.23 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034661-001AMS | MS | 5 | 3.12 | 69.32 | 15 | NR! | <0.000 | N/A | 15 | <PQL |
| N034661-001AMSD | MSD | 5 | 1.94 | 4.65 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034689-007E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-007E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-001F | SAMP | 100 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV3 | CCV | 1 | 19.96 | 0.73 | 15 | PASS | 20.088 | 0.59 | 15 | PASS |
| CCB3 | CCB | 1 | 0.0094 | 78.46 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 19.88 | 0.48 | 15 | PASS | 16.92 | 2.18 | 15 | PASS |
| N034707-001F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-001F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-001F | SAMP | 25 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 25 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 100 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 25 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 50 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV4 | CCV | 1 | 20.17 | 0.45 | 15 | PASS | 20 | 2.14 | 15 | PASS |
| CCB4 | CCB | 1 | 0.074 | 10.16 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 25 | 0.003 | 253.55 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 50 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV5 | CCV | 1 | 20.15 | 0.15 | 15 | PASS | 20.18 | 1.093 | 15 | PASS |
| CCB5 | CCB | 1 | 0.068 | 6.27 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 19.96 | 0.42 | 15 | PASS | 17.65 | 0.43 | 15 | PASS |
| N034662-001D | SAMP | 25 | 0.012 | 14.42 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034662-001D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-001D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-002D | SAMP | 25 | 0.0021 | 247.49 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-002D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-002D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-003D | SAMP | 25 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-003D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 107 Ag [3] | | | | 111 Cd [3] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034662-003D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-004D | SAMP | 25 | 0.00035 | 1489.82 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV6 | CCV | 1 | 20.23 | 0.59 | 15 | PASS | 20.088 | 0.38 | 15 | PASS |
| CCB6 | CCB | 1 | 0.079 | 22.42 | 15 | <PQL | 0.0043 | 239.56 | 15 | <PQL |
| N034662-004D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-004D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV7 | CCV | 1 | 20.053 | 0.69 | 15 | PASS | 20.24 | 1.59 | 15 | PASS |
| CCB7 | CCB | 1 | 0.082 | 24.5 | 15 | <PQL | 0.0067 | 106.97 | 15 | <PQL |
| ICSA4 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 19.85 | 1.17 | 15 | PASS | 17.54 | 2.71 | 15 | PASS |
| CCV9 | CCV | 1 | 20.071 | 0.64 | 15 | PASS | 20.083 | 1.37 | 15 | PASS |
| CCB9 | CCB | 1 | 0.071 | 19.98 | 15 | <PQL | 0.0058 | 1.11 | 15 | PASS |
| CCV10 | CCV | 1 | 20.12 | 0.65 | 15 | PASS | 20.015 | 1.19 | 15 | PASS |
| CCB10 | CCB | 1 | 0.088 | 19.24 | 15 | <PQL | 0.00031 | 968.29 | 15 | <PQL |
| ICSA5 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB5 | ICSAB | 1 | 19.77 | 0.67 | 15 | PASS | 17.6 | 1.5 | 15 | PASS |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 121 Sb [3] | | | | 137 Ba [3] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.087 | 14.53 | 15 | PASS | 0.11 | 2.15 | 15 | PASS |
| Std2-0.5/5 ppb | ICAL | 1 | 0.5 | 3.88 | 15 | PASS | 0.46 | 2.85 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 4.97 | 1.66 | 15 | PASS | 5.024 | 2.045 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 9.99 | 0.61 | 15 | PASS | 10.086 | 2.95 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.8 | 0.85 | 15 | PASS | 20.36 | 0.53 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 39.84 | 0.5 | 15 | PASS | 41.066 | 0.28 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.079 | 0.42 | 15 | PASS | 101.2 | 1.51 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 200.015 | 0.2 | 15 | PASS | 199.14 | 0.71 | 15 | PASS |
| ICV | ICV | 1 | 10.25 | 0.64 | 15 | PASS | 9.9 | 1.43 | 15 | PASS |
| ICB | ICB | 1 | 0.051 | 8.16 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.53 | 3.055 | 20 | PASS | 0.99 | 9.78 | 20 | PASS |
| ICSA1 | ICSA | 1 | 0.072 | 11.92 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 21.79 | 0.21 | 15 | PASS | 17.28 | 1.77 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.56 | 4.84 | 20 | PASS | 1.065 | 5.49 | 20 | PASS |
| MB-73031 | MBLK | 1 | 0.01 | 69.58 | 15 | <PQL | 0.0023 | 305.51 | 15 | <PQL |
| LCS-73031 | LCS | 1 | 10 | 1.57 | 15 | PASS | 9.95 | 2.64 | 15 | PASS |
| N034599-001A | SAMP | 1 | 0.11 | 5.32 | 15 | PASS | 177.92 | 0.096 | 15 | PASS |
| N034661-001A | SAMP | 1 | 0.17 | 3.4 | 15 | PASS | 67.65 | 1.7 | 15 | PASS |
| N034661-001A | SAMP | 5 | 0.033 | 17.21 | 15 | <PQL | 0.41 | 18.84 | 15 | <PQL |
| N034661-001A-PS | PS | 1 | 12.46 | 29.51 | 15 | NR! | 84.24 | 17.45 | 15 | NR! |
| N034661-001AMS | MS | 1 | 10.36 | 0.42 | 15 | PASS | 77.53 | 1.57 | 15 | PASS |
| N034661-001AMSD | MSD | 1 | 10.33 | 0.64 | 15 | PASS | 78.71 | 1.036 | 15 | PASS |
| N034661-001A-PS | PS | 1 | 10.37 | 1.0049 | 15 | PASS | 76.29 | 0.96 | 15 | PASS |
| N034661-001A | SAMP | 1 | 0.22 | 6.24 | 15 | PASS | 68.17 | 0.87 | 15 | PASS |
| CCV1 | CCV | 1 | 19.83 | 0.6 | 15 | PASS | 21.35 | 1.024 | 15 | PASS |
| CCB1 | CCB | 1 | 0.023 | 71.57 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-002E | SAMP | 1 | 0.24 | 2.35 | 15 | PASS | 95.19 | 1.69 | 15 | PASS |
| N034689-002E | SAMP | 5 | 0.038 | 22.62 | 15 | <PQL | 15.24 | 2.32 | 15 | PASS |
| N034689-003E | SAMP | 1 | 0.22 | 9.78 | 15 | PASS | 101.4 | 0.26 | 15 | PASS |
| N034689-003E | SAMP | 5 | 0.034 | 17.76 | 15 | <PQL | 16.18 | 3.76 | 15 | PASS |
| N034689-004E | SAMP | 1 | 0.17 | 9.89 | 15 | PASS | 122.17 | 3.88 | 15 | PASS |
| N034689-004E | SAMP | 5 | 0.042 | 98.84 | 15 | <PQL | 22.21 | 3.8 | 15 | PASS |
| N034689-005E | SAMP | 1 | 0.33 | 10.3 | 15 | PASS | 66.011 | 0.8 | 15 | PASS |
| N034689-005E | SAMP | 5 | 0.049 | 12.37 | 15 | PASS | 0.15 | 205.074 | 15 | <PQL |
| N034689-006E | SAMP | 1 | 0.31 | 7.18 | 15 | PASS | 53.083 | 0.19 | 15 | PASS |
| N034689-006E | SAMP | 25 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV2 | CCV | 1 | 19.89 | 0.7 | 15 | PASS | 20.76 | 1.16 | 15 | PASS |
| CCB2 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-004E | SAMP | 1 | 0.16 | 2.83 | 15 | PASS | 105.2 | 4.57 | 15 | PASS |
| N034689-007E | SAMP | 1 | 0.38 | 2.28 | 15 | PASS | 158.44 | 1.71 | 15 | PASS |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 121 Sb [3] | | | | 137 Ba [3] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034689-007E | SAMP | 5 | 0.068 | 8.19 | 15 | PASS | 34.22 | 0.39 | 15 | PASS |
| N034661-001A | SAMP | 25 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034661-001A-PS | PS | 5 | 2.21 | 3.58 | 15 | PASS | 1.43 | 15.022 | 15 | NR! |
| N034661-001AMS | MS | 5 | 2.18 | 2.56 | 15 | PASS | 1.77 | 7.21 | 15 | PASS |
| N034661-001AMSD | MSD | 5 | 2.21 | 2.17 | 15 | PASS | 1.98 | 4.019 | 15 | PASS |
| N034689-007E | SAMP | 1 | 0.41 | 5.69 | 15 | PASS | 154.81 | 0.48 | 15 | PASS |
| N034689-007E | SAMP | 5 | 0.05 | 14.18 | 15 | PASS | 32.66 | 2.31 | 15 | PASS |
| N034707-001F | SAMP | 100 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV3 | CCV | 1 | 19.89 | 0.38 | 15 | PASS | 20.38 | 1.56 | 15 | PASS |
| CCB3 | CCB | 1 | 0.0054 | 76.03 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0.039 | 29.46 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 21.89 | 0.22 | 15 | PASS | 16.49 | 1.2 | 15 | PASS |
| N034707-001F | SAMP | 5 | 0.034 | 43.12 | 15 | <PQL | 7.2 | 0.72 | 15 | PASS |
| N034707-001F | SAMP | 1 | 0.17 | 10.56 | 15 | PASS | 33.66 | 1.64 | 15 | PASS |
| N034707-001F | SAMP | 25 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 5 | 0.0012 | 355.39 | 15 | <PQL | 7.21 | 1.63 | 15 | PASS |
| N034707-002F | SAMP | 25 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 100 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 0.56 | 7.85 | 15 | PASS |
| N034707-003F | SAMP | 5 | 0.0084 | 16.55 | 15 | <PQL | 2.6 | 1.95 | 15 | PASS |
| N034707-003F | SAMP | 50 | <0.000 | N/A | 15 | <PQL | 0.29 | 12.023 | 15 | PASS |
| N034707-004F | SAMP | 5 | 0.044 | 27.045 | 15 | <PQL | 2.54 | 5.11 | 15 | PASS |
| CCV4 | CCV | 1 | 20.16 | 0.16 | 15 | PASS | 20.78 | 0.57 | 15 | PASS |
| CCB4 | CCB | 1 | 0.028 | 19.6 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 25 | 0.013 | 43.19 | 15 | <PQL | 0.51 | 14.16 | 15 | PASS |
| N034707-002F | SAMP | 1 | 0.13 | 8.37 | 15 | PASS | 33.26 | 1.1 | 15 | PASS |
| N034707-003F | SAMP | 1 | 0.13 | 5.95 | 15 | PASS | 33.38 | 0.75 | 15 | PASS |
| N034707-004F | SAMP | 50 | <0.000 | N/A | 15 | <PQL | 0.21 | 20.97 | 15 | <PQL |
| N034707-004F | SAMP | 1 | 0.31 | 3.78 | 15 | PASS | 12.85 | 1.92 | 15 | PASS |
| CCV5 | CCV | 1 | 20.22 | 0.64 | 15 | PASS | 20.51 | 0.5 | 15 | PASS |
| CCB5 | CCB | 1 | 0.029 | 42.31 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA3 | ICSA | 1 | 0.039 | 30.29 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 21.91 | 0.1 | 15 | PASS | 17.85 | 0.62 | 15 | PASS |
| N034662-001D | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 1 | 8.46 | 15 | PASS |
| N034662-001D | SAMP | 5 | 0.31 | 143.0056 | 15 | <PQL | 4.96 | 11.2 | 15 | PASS |
| N034662-001D | SAMP | 1 | 0.35 | 11.034 | 15 | PASS | 50.13 | 0.43 | 15 | PASS |
| N034662-002D | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 0.79 | 9.77 | 15 | PASS |
| N034662-002D | SAMP | 5 | 0.057 | 3.58 | 15 | PASS | 4.11 | 2.59 | 15 | PASS |
| N034662-002D | SAMP | 1 | 0.43 | 2.96 | 15 | PASS | 45.62 | 0.76 | 15 | PASS |
| N034662-003D | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 0.86 | 4.96 | 15 | PASS |
| N034662-003D | SAMP | 5 | 0.059 | 22.99 | 15 | <PQL | 4.14 | 4.097 | 15 | PASS |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 121 Sb [3] | | | | 137 Ba [3] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034662-003D | SAMP | 1 | 0.45 | 5.23 | 15 | PASS | 46.21 | 0.9 | 15 | PASS |
| N034662-004D | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 1.27 | 4.72 | 15 | PASS |
| CCV6 | CCV | 1 | 20.44 | 0.31 | 15 | PASS | 21.034 | 0.33 | 15 | PASS |
| CCB6 | CCB | 1 | 0.019 | 35.42 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-004D | SAMP | 5 | 0.082 | 16.7 | 15 | <PQL | 6.55 | 2.62 | 15 | PASS |
| N034662-004D | SAMP | 1 | 0.46 | 2.18 | 15 | PASS | 30.83 | 1.63 | 15 | PASS |
| CCV7 | CCV | 1 | 20.42 | 0.63 | 15 | PASS | 20.65 | 1.99 | 15 | PASS |
| CCB7 | CCB | 1 | 0.028 | 22.32 | 15 | <PQL | 0.052 | 36.39 | 15 | <PQL |
| ICSA4 | ICSA | 1 | 0.03 | 19.22 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 22.2 | 0.59 | 15 | PASS | 18.58 | 2.71 | 15 | PASS |
| CCV9 | CCV | 1 | 20.22 | 0.36 | 15 | PASS | 20.5 | 0.62 | 15 | PASS |
| CCB9 | CCB | 1 | 0.03 | 13.11 | 15 | PASS | 0.012 | 104.75 | 15 | <PQL |
| CCV10 | CCV | 1 | 20.41 | 1.17 | 15 | PASS | 20.26 | 1.53 | 15 | PASS |
| CCB10 | CCB | 1 | 0.026 | 11.67 | 15 | PASS | 0.026 | 23.99 | 15 | <PQL |
| ICSA5 | ICSA | 1 | 0.039 | 8.5 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| ICSAB5 | ICSAB | 1 | 22.028 | 0.79 | 15 | PASS | 18.0091 | 2.22 | 15 | PASS |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 205 Tl [3] | | | | 208 Pb [3] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.092 | 1.45 | 15 | PASS | 0.08 | 14.016 | 15 | PASS |
| Std2-0.5/5 ppb | ICAL | 1 | 0.47 | 0.6 | 15 | PASS | 0.47 | 1.41 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 4.82 | 0.077 | 15 | PASS | 4.9 | 0.32 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 9.71 | 0.16 | 15 | PASS | 9.76 | 0.52 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.41 | 0.51 | 15 | PASS | 19.6 | 0.72 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 38.77 | 0.31 | 15 | PASS | 38.96 | 0.16 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.65 | 0.6 | 15 | PASS | 99.62 | 0.47 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.11 | 0.055 | 15 | PASS | 200.45 | 0.4 | 15 | PASS |
| ICV | ICV | 1 | 9.53 | 0.33 | 15 | PASS | 9.58 | 0.81 | 15 | PASS |
| ICB | ICB | 1 | 0.027 | 32.12 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.42 | 1.8 | 20 | PASS | 0.94 | 0.78 | 20 | PASS |
| ICSA1 | ICSA | 1 | 0.03 | 0.75 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 21.56 | 0.73 | 15 | PASS | 19.59 | 0.11 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.43 | 1.5 | 20 | PASS | 0.96 | 0.33 | 20 | PASS |
| MB-73031 | MBLK | 1 | 0.0098 | 34.88 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LCS-73031 | LCS | 1 | 9.44 | 0.65 | 15 | PASS | 9.57 | 0.061 | 15 | PASS |
| N034599-001A | SAMP | 1 | 0.4 | 2.22 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034661-001A | SAMP | 1 | 0.34 | 3.56 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034661-001A | SAMP | 5 | 0.087 | 3.8 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034661-001A-PS | PS | 1 | 29.96 | 124.07 | 15 | NR! | 10.88 | 18.82 | 15 | NR! |
| N034661-001AMS | MS | 1 | 8.72 | 0.55 | 15 | PASS | 9.61 | 0.29 | 15 | PASS |
| N034661-001AMSD | MSD | 1 | 8.78 | 0.49 | 15 | PASS | 9.7 | 0.17 | 15 | PASS |
| N034661-001A-PS | PS | 1 | 8.84 | 0.7 | 15 | PASS | 9.71 | 0.57 | 15 | PASS |
| N034661-001A | SAMP | 1 | 0.35 | 1.58 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV1 | CCV | 1 | 19.58 | 0.95 | 15 | PASS | 19.7 | 0.65 | 15 | PASS |
| CCB1 | CCB | 1 | 0.027 | 16.41 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-002E | SAMP | 1 | 0.1 | 1.14 | 15 | PASS | 0.065 | 13.92 | 15 | PASS |
| N034689-002E | SAMP | 5 | 0.023 | 14.11 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034689-003E | SAMP | 1 | 0.087 | 3.6 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034689-003E | SAMP | 5 | 0.016 | 9.37 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034689-004E | SAMP | 1 | 0.046 | 21.6 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-004E | SAMP | 5 | 0.042 | 131.62 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-005E | SAMP | 1 | 0.025 | 17.25 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-005E | SAMP | 5 | 0.0028 | 124.38 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-006E | SAMP | 1 | 0.079 | 6.42 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034689-006E | SAMP | 25 | 0.0004 | 472.69 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV2 | CCV | 1 | 19.45 | 0.084 | 15 | PASS | 19.59 | 0.02 | 15 | PASS |
| CCB2 | CCB | 1 | 0.0036 | 118.065 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-004E | SAMP | 1 | 0.03 | 30.2 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-007E | SAMP | 1 | 0.075 | 3.29 | 15 | PASS | <0.000 | N/A | 15 | <PQL |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 205 Tl [3] | | | | 208 Pb [3] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034689-007E | SAMP | 5 | 0.013 | 30.91 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034661-001A | SAMP | 25 | 0.0066 | 74.9 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034661-001A-PS | PS | 5 | 1.78 | 10.33 | 15 | PASS | 0.044 | 10.61 | 15 | PASS |
| N034661-001AMS | MS | 5 | 1.71 | 1.067 | 15 | PASS | 0.027 | 36.091 | 15 | <PQL |
| N034661-001AMSD | MSD | 5 | 1.73 | 1.28 | 15 | PASS | 0.04 | 15.6 | 15 | <PQL |
| N034689-007E | SAMP | 1 | 0.12 | 4.31 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034689-007E | SAMP | 5 | 0.027 | 3.98 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-001F | SAMP | 100 | 0.015 | 45.0043 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV3 | CCV | 1 | 19.5 | 0.24 | 15 | PASS | 19.64 | 0.32 | 15 | PASS |
| CCB3 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0.0036 | 115.9 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 21.53 | 0.61 | 15 | PASS | 19.69 | 0.56 | 15 | PASS |
| N034707-001F | SAMP | 5 | 0.019 | 21.87 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-001F | SAMP | 1 | 0.14 | 7.83 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-001F | SAMP | 25 | 0.0033 | 283.39 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 5 | 0.017 | 16.084 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 25 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 100 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 25 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 5 | 0.028 | 6.88 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 50 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 5 | 0.027 | 5.026 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV4 | CCV | 1 | 19.54 | 0.14 | 15 | PASS | 19.71 | 0.23 | 15 | PASS |
| CCB4 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 25 | 0.0043 | 68.19 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 1 | 0.1 | 10.76 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 1 | 0.2 | 5.82 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 50 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 1 | 0.21 | 2.83 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV5 | CCV | 1 | 19.49 | 0.35 | 15 | PASS | 19.59 | 0.23 | 15 | PASS |
| CCB5 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 21.51 | 0.55 | 15 | PASS | 19.85 | 0.66 | 15 | PASS |
| N034662-001D | SAMP | 25 | 0.037 | 9.36 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034662-001D | SAMP | 5 | 0.17 | 163.95 | 15 | <PQL | 0.18 | 909.3 | 15 | <PQL |
| N034662-001D | SAMP | 1 | 0.045 | 5.24 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034662-002D | SAMP | 25 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-002D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-002D | SAMP | 1 | 0.038 | 9.45 | 15 | PASS | 0.0064 | 163.44 | 15 | <PQL |
| N034662-003D | SAMP | 25 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-003D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 205 Tl [3] | | | | 208 Pb [3] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034662-003D | SAMP | 1 | 0.034 | 6.58 | 15 | PASS | 0.0045 | 158.41 | 15 | <PQL |
| N034662-004D | SAMP | 25 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV6 | CCV | 1 | 19.42 | 0.19 | 15 | PASS | 19.55 | 0.75 | 15 | PASS |
| CCB6 | CCB | 1 | 0.00063 | 123.77 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-004D | SAMP | 5 | 0.0015 | 62.12 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-004D | SAMP | 1 | 0.05 | 8.82 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV7 | CCV | 1 | 19.71 | 0.077 | 15 | PASS | 19.78 | 0.34 | 15 | PASS |
| CCB7 | CCB | 1 | 0.078 | 7.71 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| ICSA4 | ICSA | 1 | 0.052 | 18.16 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 21.37 | 0.47 | 15 | PASS | 19.8 | 0.28 | 15 | PASS |
| CCV9 | CCV | 1 | 19.41 | 0.48 | 15 | PASS | 19.64 | 0.16 | 15 | PASS |
| CCB9 | CCB | 1 | 0.0017 | 217.2 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV10 | CCV | 1 | 19.49 | 0.24 | 15 | PASS | 19.62 | 0.35 | 15 | PASS |
| CCB10 | CCB | 1 | 0.0047 | 62.056 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA5 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB5 | ICSAB | 1 | 21.54 | 0.55 | 15 | PASS | 19.78 | 0.14 | 15 | PASS |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 51 V [2] | | | | 52 Cr [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.062 | 115.39 | 15 | <PQL | 0.087 | 30.74 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.39 | 3.89 | 15 | PASS | 0.48 | 10.13 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 4.98 | 4.57 | 15 | PASS | 5 | 2.89 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 9.82 | 3.95 | 15 | PASS | 9.72 | 3.41 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.72 | 1.73 | 15 | PASS | 19.88 | 2.42 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 39.44 | 1.79 | 15 | PASS | 39.85 | 1.6 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 101.33 | 2.45 | 15 | PASS | 102.18 | 2.32 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.48 | 0.52 | 15 | PASS | 198.97 | 0.68 | 15 | PASS |
| ICV | ICV | 1 | 9.43 | 2.65 | 15 | PASS | 10.094 | 3 | 15 | PASS |
| ICB | ICB | 1 | <0.000 | N/A | 15 | <PQL | 0.0058 | 211.91 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.57 | 4.46 | 20 | PASS | 1.097 | 1.22 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 21.59 | 1.22 | 15 | PASS | 21.41 | 0.86 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.83 | 4.99 | 20 | PASS | 1.029 | 4.48 | 20 | PASS |
| MB-73031 | MBLK | 1 | 0.037 | 212.79 | 15 | <PQL | 0.029 | 8.18 | 15 | PASS |
| LCS-73031 | LCS | 1 | 9.88 | 2.22 | 15 | PASS | 10 | 1.88 | 15 | PASS |
| N034599-001A | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034661-001A | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034661-001A | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034661-001A-PS | PS | 1 | 9.52 | 4.061 | 15 | PASS | 9.099 | 2.77 | 15 | PASS |
| N034661-001AMS | MS | 1 | 9.36 | 1.51 | 15 | PASS | 9.15 | 3.45 | 15 | PASS |
| N034661-001AMSD | MSD | 1 | 9.54 | 1.041 | 15 | PASS | 9.26 | 0.6 | 15 | PASS |
| N034661-001A-PS | PS | 1 | 9.57 | 0.59 | 15 | PASS | 9.36 | 0.41 | 15 | PASS |
| N034661-001A | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV1 | CCV | 1 | 19.71 | 1.62 | 15 | PASS | 20.011 | 1.19 | 15 | PASS |
| CCB1 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.0071 | 58.8 | 15 | <PQL |
| N034689-002E | SAMP | 1 | 5.8 | 2.59 | 15 | PASS | 266.047 | 2.54 | 15 | PASS |
| N034689-002E | SAMP | 5 | 0.76 | 12.9 | 15 | PASS | 53.22 | 0.59 | 15 | PASS |
| N034689-003E | SAMP | 1 | 5.85 | 2.18 | 15 | PASS | 262.65 | 1.65 | 15 | PASS |
| N034689-003E | SAMP | 5 | 0.85 | 10.37 | 15 | PASS | 54.3 | 0.49 | 15 | PASS |
| N034689-004E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 3.94 | 3.17 | 15 | PASS |
| N034689-004E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.84 | 1.53 | 15 | PASS |
| N034689-005E | SAMP | 1 | 1.77 | 5.3 | 15 | PASS | 251.87 | 1.17 | 15 | PASS |
| N034689-005E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 52.91 | 1.94 | 15 | PASS |
| N034689-006E | SAMP | 1 | 0.61 | 8.014 | 15 | PASS | 1493.12 | 1.9 | 15 | PASS |
| N034689-006E | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 59.26 | 0.21 | 15 | PASS |
| CCV2 | CCV | 1 | 19.37 | 0.95 | 15 | PASS | 20.19 | 1.28 | 15 | PASS |
| CCB2 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.06 | 49.74 | 15 | <PQL |
| N034689-004E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 4.068 | 2.84 | 15 | PASS |
| N034689-007E | SAMP | 1 | 6.8 | 3.43 | 15 | PASS | 3.83 | 1.53 | 15 | PASS |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 51 V [2] | | | | 52 Cr [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034689-007E | SAMP | 5 | 1.0074 | 13.012 | 15 | PASS | 0.75 | 3.019 | 15 | PASS |
| N034661-001A | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 0.015 | 74.57 | 15 | <PQL |
| N034661-001A-PS | PS | 5 | 1.54 | 3.33 | 15 | PASS | 1.98 | 3.77 | 15 | PASS |
| N034661-001AMS | MS | 5 | 1.63 | 6.8 | 15 | PASS | 1.97 | 1.62 | 15 | PASS |
| N034661-001AMSD | MSD | 5 | 1.67 | 8.15 | 15 | PASS | 1.97 | 3.27 | 15 | PASS |
| N034689-007E | SAMP | 1 | 6.82 | 3.079 | 15 | PASS | 3.63 | 0.17 | 15 | PASS |
| N034689-007E | SAMP | 5 | 1.029 | 4.68 | 15 | PASS | 0.73 | 5.56 | 15 | PASS |
| N034707-001F | SAMP | 100 | <0.000 | N/A | 15 | <PQL | 67.034 | 1.16 | 15 | PASS |
| CCV3 | CCV | 1 | 19.56 | 1.77 | 15 | PASS | 19.86 | 1.79 | 15 | PASS |
| CCB3 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.021 | 168.63 | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 21.32 | 0.75 | 15 | PASS | 20.47 | 0.83 | 15 | PASS |
| N034707-001F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 1417.2 | 0.72 | 15 | PASS |
| N034707-001F | SAMP | 1 | 1.24 | 13.13 | 15 | PASS | 6495.83 | 2.2 | 15 | PASS |
| N034707-001F | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 283.54 | 2.15 | 15 | PASS |
| N034707-002F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 1433.12 | 1.87 | 15 | PASS |
| N034707-002F | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 291.54 | 0.98 | 15 | PASS |
| N034707-002F | SAMP | 100 | <0.000 | N/A | 15 | <PQL | 72.39 | 1.084 | 15 | PASS |
| N034707-003F | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 167.83 | 1.98 | 15 | PASS |
| N034707-003F | SAMP | 5 | 0.59 | 9.75 | 15 | PASS | 852.7 | 2.046 | 15 | PASS |
| N034707-003F | SAMP | 50 | <0.000 | N/A | 15 | <PQL | 81.33 | 1.32 | 15 | PASS |
| N034707-004F | SAMP | 5 | 0.42 | 31.56 | 15 | <PQL | 841.54 | 1.99 | 15 | PASS |
| CCV4 | CCV | 1 | 18.96 | 0.52 | 15 | PASS | 20.099 | 2.44 | 15 | PASS |
| CCB4 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.34 | 7.28 | 15 | PASS |
| N034707-004F | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 162.36 | 0.98 | 15 | PASS |
| N034707-002F | SAMP | 1 | 1.12 | 5.36 | 15 | PASS | 6599.51 | 2.073 | 15 | PASS |
| N034707-003F | SAMP | 1 | 4.66 | 1.4 | 15 | PASS | 3910.48 | 2.38 | 15 | PASS |
| N034707-004F | SAMP | 50 | <0.000 | N/A | 15 | <PQL | 83.39 | 1.45 | 15 | PASS |
| N034707-004F | SAMP | 1 | 4.42 | 2.19 | 15 | PASS | 3880.065 | 0.32 | 15 | PASS |
| CCV5 | CCV | 1 | 19.38 | 3.15 | 15 | PASS | 20.58 | 2.47 | 15 | PASS |
| CCB5 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.63 | 9.11 | 15 | PASS |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.33 | 3.5 | 15 | PASS |
| ICSAB3 | ICSAB | 1 | 20.89 | 3.24 | 15 | PASS | 21.0078 | 2.59 | 15 | PASS |
| N034662-001D | SAMP | 25 | 0.36 | 13.42 | 15 | PASS | 6.57 | 1.38 | 15 | PASS |
| N034662-001D | SAMP | 5 | 2.59 | 4.86 | 15 | PASS | 27.97 | 1.24 | 15 | PASS |
| N034662-001D | SAMP | 1 | 14.074 | 3.15 | 15 | PASS | 132.93 | 0.59 | 15 | PASS |
| N034662-002D | SAMP | 25 | 0.27 | 27.21 | 15 | <PQL | 6.4 | 3.04 | 15 | PASS |
| N034662-002D | SAMP | 5 | 3.015 | 4.75 | 15 | PASS | 30.69 | 0.66 | 15 | PASS |
| N034662-002D | SAMP | 1 | 16.078 | 1.061 | 15 | PASS | 144.95 | 1.7 | 15 | PASS |
| N034662-003D | SAMP | 25 | 0.27 | 6.26 | 15 | PASS | 6.77 | 2.22 | 15 | PASS |
| N034662-003D | SAMP | 5 | 3.064 | 1.78 | 15 | PASS | 31.19 | 0.71 | 15 | PASS |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 51 V [2] | | | | 52 Cr [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034662-003D | SAMP | 1 | 16.019 | 0.67 | 15 | PASS | 144.86 | 0.39 | 15 | PASS |
| N034662-004D | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 2.077 | 1.74 | 15 | PASS |
| CCV6 | CCV | 1 | 19.031 | 2.9 | 15 | PASS | 19.78 | 0.82 | 15 | PASS |
| CCB6 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.24 | 21.16 | 15 | <PQL |
| N034662-004D | SAMP | 5 | 1.47 | 7.97 | 15 | PASS | 9.014 | 1.72 | 15 | PASS |
| N034662-004D | SAMP | 1 | 8.91 | 2.96 | 15 | PASS | 43.11 | 1.33 | 15 | PASS |
| CCV7 | CCV | 1 | 19.45 | 1.61 | 15 | PASS | 20.35 | 0.88 | 15 | PASS |
| CCB7 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.091 | 20.62 | 15 | <PQL |
| ICSA4 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 21.07 | 1.65 | 15 | PASS | 20.49 | 1.56 | 15 | PASS |
| CCV9 | CCV | 1 | 18.92 | 2.37 | 15 | PASS | 19.78 | 0.89 | 15 | PASS |
| CCB9 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.12 | 2.56 | 15 | PASS |
| CCV10 | CCV | 1 | 19.13 | 1.6 | 15 | PASS | 19.56 | 1.37 | 15 | PASS |
| CCB10 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.11 | 45.47 | 15 | <PQL |
| ICSA5 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB5 | ICSAB | 1 | 20.59 | 3.44 | 15 | PASS | 20.2 | 2.0046 | 15 | PASS |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 55 Mn [2] | | | | 59 Co [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.09 | 52.87 | 15 | <PQL | 0.091 | 4.73 | 15 | PASS |
| Std2-0.5/5 ppb | ICAL | 1 | 0.5 | 7.32 | 15 | PASS | 0.5 | 6.96 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 5.14 | 3.72 | 15 | PASS | 5.06 | 3.24 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 9.95 | 5.37 | 15 | PASS | 9.82 | 2.96 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.91 | 3.71 | 15 | PASS | 19.82 | 2.28 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.8 | 1.93 | 15 | PASS | 40.12 | 1.21 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.28 | 3.025 | 15 | PASS | 102.59 | 2.17 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.71 | 0.97 | 15 | PASS | 198.71 | 0.5 | 15 | PASS |
| ICV | ICV | 1 | 103.52 | 1.017 | 15 | PASS | 9.78 | 1.088 | 15 | PASS |
| ICB | ICB | 1 | <0.000 | N/A | 15 | <PQL | 0.00059 | 288.97 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.54 | 3.11 | 20 | PASS | 0.51 | 5.18 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.021 | 19.69 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 18.49 | 2.7 | 15 | PASS | 21.38 | 1.66 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.49 | 10.085 | 20 | PASS | 0.52 | 1.48 | 20 | PASS |
| MB-73031 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | 0.0014 | 229.32 | 15 | <PQL |
| LCS-73031 | LCS | 1 | 104.75 | 1.13 | 15 | PASS | 9.73 | 2.08 | 15 | PASS |
| N034599-001A | SAMP | 1 | 1116.37 | 2.14 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034661-001A | SAMP | 1 | 726.19 | 0.79 | 15 | PASS | 0.57 | 4.27 | 15 | PASS |
| N034661-001A | SAMP | 5 | 148.34 | 0.34 | 15 | PASS | 0.11 | 1.65 | 15 | PASS |
| N034661-001A-PS | PS | 1 | 798.64 | 2.21 | 15 | PASS | 9.14 | 3.4 | 15 | PASS |
| N034661-001AMS | MS | 1 | 808.56 | 1.7 | 15 | PASS | 9.072 | 1.091 | 15 | PASS |
| N034661-001AMSD | MSD | 1 | 812.48 | 0.33 | 15 | PASS | 9.23 | 0.94 | 15 | PASS |
| N034661-001A-PS | PS | 1 | 799.074 | 0.89 | 15 | PASS | 9.25 | 0.49 | 15 | PASS |
| N034661-001A | SAMP | 1 | 720.89 | 1.98 | 15 | PASS | 0.55 | 6.31 | 15 | PASS |
| CCV1 | CCV | 1 | 19.89 | 0.65 | 15 | PASS | 20.0007 | 0.53 | 15 | PASS |
| CCB1 | CCB | 1 | 0.047 | 14.91 | 15 | PASS | 0.001 | 211.91 | 15 | <PQL |
| N034689-002E | SAMP | 1 | 152.71 | 3.15 | 15 | PASS | 0.14 | 14.3 | 15 | PASS |
| N034689-002E | SAMP | 5 | 31.31 | 1.099 | 15 | PASS | 0.026 | 35.69 | 15 | <PQL |
| N034689-003E | SAMP | 1 | 158.72 | 0.97 | 15 | PASS | 0.13 | 11.3 | 15 | PASS |
| N034689-003E | SAMP | 5 | 32.61 | 2.18 | 15 | PASS | 0.023 | 18.78 | 15 | <PQL |
| N034689-004E | SAMP | 1 | 213.57 | 1.44 | 15 | PASS | 0.13 | 8.14 | 15 | PASS |
| N034689-004E | SAMP | 5 | 44.65 | 0.87 | 15 | PASS | 0.017 | 30 | 15 | <PQL |
| N034689-005E | SAMP | 1 | 148.64 | 1.14 | 15 | PASS | 0.031 | 20.12 | 15 | <PQL |
| N034689-005E | SAMP | 5 | 31.25 | 2.56 | 15 | PASS | 0.0084 | 11.23 | 15 | PASS |
| N034689-006E | SAMP | 1 | 55.88 | 1.7 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034689-006E | SAMP | 25 | 2.41 | 2.53 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV2 | CCV | 1 | 20.009 | 2.4 | 15 | PASS | 19.86 | 1.63 | 15 | PASS |
| CCB2 | CCB | 1 | 0.013 | 145.7 | 15 | <PQL | 0.0014 | 117.4 | 15 | <PQL |
| N034689-004E | SAMP | 1 | 214.36 | 0.89 | 15 | PASS | 0.11 | 4.44 | 15 | PASS |
| N034689-007E | SAMP | 1 | 16.97 | 1.81 | 15 | PASS | <0.000 | N/A | 15 | <PQL |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 55 Mn [2] | | | | 59 Co [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034689-007E | SAMP | 5 | 3.58 | 1.098 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034661-001A | SAMP | 25 | 30.87 | 0.66 | 15 | PASS | 0.02 | 18.058 | 15 | <PQL |
| N034661-001A-PS | PS | 5 | 168.89 | 0.3 | 15 | PASS | 2.0096 | 3.95 | 15 | PASS |
| N034661-001AMS | MS | 5 | 177.31 | 1.36 | 15 | PASS | 2.031 | 2.36 | 15 | PASS |
| N034661-001AMSD | MSD | 5 | 175.25 | 1.38 | 15 | PASS | 2.018 | 3.0097 | 15 | PASS |
| N034689-007E | SAMP | 1 | 16.75 | 1.47 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034689-007E | SAMP | 5 | 3.56 | 2.45 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-001F | SAMP | 100 | 0.81 | 1.6 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV3 | CCV | 1 | 20.039 | 1.72 | 15 | PASS | 19.85 | 1.55 | 15 | PASS |
| CCB3 | CCB | 1 | 0.02 | 119.02 | 15 | <PQL | 0.0029 | 144.74 | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.028 | 10.47 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | 18.56 | 0.98 | 15 | PASS | 20.43 | 1.3 | 15 | PASS |
| N034707-001F | SAMP | 5 | 15.87 | 2.37 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-001F | SAMP | 1 | 73.78 | 1.51 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-001F | SAMP | 25 | 3.41 | 3.93 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 5 | 15.075 | 1.8 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 25 | 3.14 | 2.49 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 100 | 0.82 | 9.36 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 25 | 0.024 | 152.91 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 5 | 0.074 | 69.87 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 50 | 0.02 | 249.25 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 5 | 0.32 | 35.044 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV4 | CCV | 1 | 19.96 | 2.2 | 15 | PASS | 19.67 | 0.69 | 15 | PASS |
| CCB4 | CCB | 1 | 0.031 | 55.74 | 15 | <PQL | 0.0055 | 68.51 | 15 | <PQL |
| N034707-004F | SAMP | 25 | 0.083 | 50.36 | 15 | <PQL | 0.00099 | 125.97 | 15 | <PQL |
| N034707-002F | SAMP | 1 | 70.72 | 2.59 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 1 | 0.28 | 17.69 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 50 | 0.031 | 146.86 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 1 | 1.75 | 7.88 | 15 | PASS | 0.022 | 55.33 | 15 | <PQL |
| CCV5 | CCV | 1 | 20.091 | 1.87 | 15 | PASS | 19.88 | 2.9 | 15 | PASS |
| CCB5 | CCB | 1 | 0.033 | 93.89 | 15 | <PQL | 0.0081 | 65.075 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.025 | 25.45 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 17.97 | 4.0036 | 15 | PASS | 19.79 | 2.68 | 15 | PASS |
| N034662-001D | SAMP | 25 | 0.013 | 55.11 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-001D | SAMP | 5 | 0.017 | 560.15 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-001D | SAMP | 1 | 0.24 | 26.47 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-002D | SAMP | 25 | 0.22 | 25.52 | 15 | <PQL | 0.0038 | 19.079 | 15 | <PQL |
| N034662-002D | SAMP | 5 | 0.86 | 9.76 | 15 | PASS | 0.023 | 6.43 | 15 | PASS |
| N034662-002D | SAMP | 1 | 5.48 | 4.99 | 15 | PASS | 0.11 | 10.11 | 15 | PASS |
| N034662-003D | SAMP | 25 | 0.17 | 26.28 | 15 | <PQL | 0.0021 | 294.39 | 15 | <PQL |
| N034662-003D | SAMP | 5 | 0.88 | 4.18 | 15 | PASS | 0.022 | 50.7 | 15 | <PQL |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 55 Mn [2] | | | | 59 Co [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034662-003D | SAMP | 1 | 4.43 | 3.74 | 15 | PASS | 0.14 | 10.26 | 15 | PASS |
| N034662-004D | SAMP | 25 | 0.059 | 49.18 | 15 | <PQL | 0.0018 | 205.58 | 15 | <PQL |
| CCV6 | CCV | 1 | 20.19 | 2.8 | 15 | PASS | 19.71 | 0.99 | 15 | PASS |
| CCB6 | CCB | 1 | 0.0018 | 318.84 | 15 | <PQL | 0.0059 | 45.044 | 15 | <PQL |
| N034662-004D | SAMP | 5 | 0.26 | 10.12 | 15 | PASS | 0.0037 | 183.29 | 15 | <PQL |
| N034662-004D | SAMP | 1 | 0.85 | 38.17 | 15 | NR! | 0.0024 | 373.99 | 15 | <PQL |
| CCV7 | CCV | 1 | 20.64 | 0.77 | 15 | PASS | 20.018 | 1.66 | 15 | PASS |
| CCB7 | CCB | 1 | 0.074 | 22.89 | 15 | <PQL | 0.0062 | 25.66 | 15 | <PQL |
| ICSA4 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.028 | 3.83 | 15 | PASS |
| ICSAB4 | ICSAB | 1 | 18.68 | 1.45 | 15 | PASS | 20.026 | 2.092 | 15 | PASS |
| CCV9 | CCV | 1 | 20.72 | 0.57 | 15 | PASS | 19.55 | 0.53 | 15 | PASS |
| CCB9 | CCB | 1 | 0.027 | 92.02 | 15 | <PQL | 0.0052 | 26.78 | 15 | <PQL |
| CCV10 | CCV | 1 | 20.16 | 1.43 | 15 | PASS | 19.36 | 1.13 | 15 | PASS |
| CCB10 | CCB | 1 | 0.036 | 107.85 | 15 | <PQL | 0.011 | 43.47 | 15 | <PQL |
| ICSA5 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.02 | 36.92 | 15 | <PQL |
| ICSAB5 | ICSAB | 1 | 18.34 | 2.46 | 15 | PASS | 19.56 | 0.56 | 15 | PASS |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 60 Ni [2] | | | | 63 Cu [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.1 | 33.28 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.53 | 12.53 | 15 | PASS | 0.14 | 85.22 | 15 | <PQL |
| Std3-5/50 ppb | ICAL | 1 | 5.073 | 5.17 | 15 | PASS | 4.65 | 4.55 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.23 | 1.75 | 15 | PASS | 9.67 | 1.35 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.95 | 1.012 | 15 | PASS | 19.64 | 1.98 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.19 | 2.64 | 15 | PASS | 39.86 | 2.13 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 102.22 | 1.74 | 15 | PASS | 102.28 | 1.9 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 198.84 | 1.041 | 15 | PASS | 198.95 | 1.2 | 15 | PASS |
| ICV | ICV | 1 | 10.46 | 0.14 | 15 | PASS | 9.63 | 3.0059 | 15 | PASS |
| ICB | ICB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LLICV | CCV1 | 1 | 1.042 | 9.43 | 20 | PASS | 1.36 | 6.29 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 21.57 | 1.89 | 15 | PASS | 20.21 | 1.16 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.97 | 11.91 | 20 | PASS | 1.53 | 8.98 | 20 | PASS |
| MB-73031 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LCS-73031 | LCS | 1 | 10.019 | 2.32 | 15 | PASS | 9.26 | 1.2 | 15 | PASS |
| N034599-001A | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034661-001A | SAMP | 1 | 1.32 | 2.61 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034661-001A | SAMP | 5 | 0.31 | 7.44 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034661-001A-PS | PS | 1 | 10.76 | 4.6 | 15 | PASS | 4.28 | 6.26 | 15 | PASS |
| N034661-001AMS | MS | 1 | 10.8 | 2.26 | 15 | PASS | 3.97 | 4.26 | 15 | PASS |
| N034661-001AMSD | MSD | 1 | 10.86 | 2.15 | 15 | PASS | 3.88 | 3.64 | 15 | PASS |
| N034661-001A-PS | PS | 1 | 11.13 | 1.21 | 15 | PASS | 4.046 | 3.54 | 15 | PASS |
| N034661-001A | SAMP | 1 | 1.34 | 5.5 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV1 | CCV | 1 | 20.81 | 1.86 | 15 | PASS | 19.68 | 4.32 | 15 | PASS |
| CCB1 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-002E | SAMP | 1 | 1.22 | 1.23 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034689-002E | SAMP | 5 | 0.28 | 15.14 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-003E | SAMP | 1 | 1.08 | 5.7 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034689-003E | SAMP | 5 | 0.25 | 15.87 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-004E | SAMP | 1 | 0.41 | 5.96 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034689-004E | SAMP | 5 | 0.095 | 15.9 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-005E | SAMP | 1 | 0.77 | 9.35 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034689-005E | SAMP | 5 | 0.22 | 9.99 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034689-006E | SAMP | 1 | 2.013 | 4.78 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034689-006E | SAMP | 25 | 0.38 | 14.41 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV2 | CCV | 1 | 20.75 | 2.48 | 15 | PASS | 19.71 | 1.024 | 15 | PASS |
| CCB2 | CCB | 1 | 0.06 | 70.27 | 15 | <PQL | 0.41 | 19.12 | 15 | <PQL |
| N034689-004E | SAMP | 1 | 0.59 | 27.37 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-007E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 60 Ni [2] | | | | 63 Cu [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034689-007E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034661-001A | SAMP | 25 | 0.33 | 21.44 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034661-001A-PS | PS | 5 | 2.6 | 5.11 | 15 | PASS | 0.11 | 28.21 | 15 | <PQL |
| N034661-001AMS | MS | 5 | 2.31 | 3.48 | 15 | PASS | 0.053 | 144.6 | 15 | <PQL |
| N034661-001AMSD | MSD | 5 | 2.32 | 2.96 | 15 | PASS | 0.11 | 67.73 | 15 | <PQL |
| N034689-007E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-007E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-001F | SAMP | 100 | 0.12 | 6.75 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV3 | CCV | 1 | 20.49 | 0.96 | 15 | PASS | 20.45 | 3.51 | 15 | PASS |
| CCB3 | CCB | 1 | 0.021 | 140.6 | 15 | <PQL | 0.41 | 23.92 | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 20.98 | 3.35 | 15 | PASS | 18.95 | 2.78 | 15 | PASS |
| N034707-001F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-001F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-001F | SAMP | 25 | 0.015 | 40.69 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 5 | 0.38 | 28.33 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 25 | 0.12 | 34.39 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 100 | 0.12 | 24.45 | 15 | <PQL | 0.17 | 73.8 | 15 | <PQL |
| N034707-003F | SAMP | 25 | 0.24 | 46.59 | 15 | <PQL | 0.76 | 3.12 | 15 | PASS |
| N034707-003F | SAMP | 5 | 0.23 | 31.34 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 50 | 0.2 | 13.71 | 15 | PASS | 0.82 | 16.63 | 15 | <PQL |
| N034707-004F | SAMP | 5 | 0.53 | 15.69 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV4 | CCV | 1 | 20.56 | 1.0038 | 15 | PASS | 21.77 | 2.12 | 15 | PASS |
| CCB4 | CCB | 1 | 0.059 | 9.66 | 15 | PASS | 0.77 | 16.75 | 15 | <PQL |
| N034707-004F | SAMP | 25 | 0.14 | 38.29 | 15 | <PQL | 0.37 | 39.064 | 15 | <PQL |
| N034707-002F | SAMP | 1 | 0.68 | 16.58 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 1 | 0.38 | 7.25 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 50 | 0.22 | 14.95 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 1 | 2.16 | 4.36 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV5 | CCV | 1 | 20.9 | 3.94 | 15 | PASS | 20.6 | 4.4 | 15 | PASS |
| CCB5 | CCB | 1 | 0.52 | 23.17 | 15 | <PQL | 0.14 | 18.41 | 15 | <PQL |
| ICSA3 | ICSA | 1 | 0.18 | 55.64 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 20.73 | 2.12 | 15 | PASS | 19.27 | 2.00085 | 15 | PASS |
| N034662-001D | SAMP | 25 | 0.13 | 13.58 | 15 | PASS | 0.49 | 17.42 | 15 | <PQL |
| N034662-001D | SAMP | 5 | 0.77 | 7.39 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034662-001D | SAMP | 1 | 3.19 | 4.56 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034662-002D | SAMP | 25 | 0.17 | 11.74 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034662-002D | SAMP | 5 | 0.65 | 5.24 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034662-002D | SAMP | 1 | 2.93 | 3.8 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034662-003D | SAMP | 25 | 0.18 | 8.17 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034662-003D | SAMP | 5 | 0.85 | 6.18 | 15 | PASS | <0.000 | N/A | 15 | <PQL |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 60 Ni [2] | | | | 63 Cu [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034662-003D | SAMP | 1 | 3.47 | 4.97 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034662-004D | SAMP | 25 | 0.23 | 35.73 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV6 | CCV | 1 | 19.95 | 3.22 | 15 | PASS | 20.43 | 1.39 | 15 | PASS |
| CCB6 | CCB | 1 | 0.32 | 21.16 | 15 | <PQL | 0.36 | 18.31 | 15 | <PQL |
| N034662-004D | SAMP | 5 | 0.66 | 4.76 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034662-004D | SAMP | 1 | 2.067 | 6.36 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV7 | CCV | 1 | 20.4 | 0.33 | 15 | PASS | 19.15 | 0.38 | 15 | PASS |
| CCB7 | CCB | 1 | 0.65 | 5.77 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| ICSA4 | ICSA | 1 | 0.29 | 2.46 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 20.7 | 3.091 | 15 | PASS | 18.92 | 1.9 | 15 | PASS |
| CCV9 | CCV | 1 | 19.47 | 0.79 | 15 | PASS | 19.36 | 3.29 | 15 | PASS |
| CCB9 | CCB | 1 | 0.3 | 15.049 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV10 | CCV | 1 | 19.44 | 0.94 | 15 | PASS | 19.17 | 1.78 | 15 | PASS |
| CCB10 | CCB | 1 | 0.17 | 35.76 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA5 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB5 | ICSAB | 1 | 20.21 | 4.039 | 15 | PASS | 19.019 | 4.25 | 15 | PASS |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 66 Zn [2] | | | | 75 As [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.025 | 123.11 | 15 | <PQL | 0.11 | 56.8 | 15 | NR! |
| Std2-0.5/5 ppb | ICAL | 1 | 0.35 | 36.48 | 15 | <PQL | 0.52 | 3.0093 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 4.97 | 1.83 | 15 | PASS | 5.21 | 6.81 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.39 | 1.9 | 15 | PASS | 10.13 | 2.52 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20 | 6.21 | 15 | PASS | 20.2 | 1.79 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.33 | 3.37 | 15 | PASS | 39.82 | 2.76 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 102.27 | 1.44 | 15 | PASS | 98.49 | 1.21 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 198.78 | 1.26 | 15 | PASS | 200.76 | 1.77 | 15 | PASS |
| ICV | ICV | 1 | 10.17 | 3.36 | 15 | PASS | 9.94 | 2.28 | 15 | PASS |
| ICB | ICB | 1 | 0.0097 | 268.7 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LLICV | CCV1 | 1 | 10.24 | 6.34 | 20 | PASS | 0.074 | 66.5 | 20 | <PQL |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 19.41 | 4.42 | 15 | PASS | 22.52 | 1.041 | 15 | PASS |
| LLICV | CCV1 | 1 | 10.24 | 2.25 | 20 | PASS | 0.12 | 14.27 | 20 | PASS |
| MB-73031 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LCS-73031 | LCS | 1 | 9.67 | 6.44 | 15 | PASS | 9.66 | 2.13 | 15 | PASS |
| N034599-001A | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 0.61 | 23.5 | 15 | NR! |
| N034661-001A | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 0.91 | 16.27 | 15 | NR! |
| N034661-001A | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.16 | 11.3 | 15 | PASS |
| N034661-001A-PS | PS | 1 | 8.73 | 3.37 | 15 | PASS | 11.25 | 1.36 | 15 | PASS |
| N034661-001AMS | MS | 1 | 8.24 | 7.16 | 15 | PASS | 11.31 | 1.52 | 15 | PASS |
| N034661-001AMSD | MSD | 1 | 8.11 | 7.74 | 15 | PASS | 11.22 | 2.43 | 15 | PASS |
| N034661-001A-PS | PS | 1 | 8.48 | 1.78 | 15 | PASS | 11.23 | 4.49 | 15 | PASS |
| N034661-001A | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 0.94 | 12.51 | 15 | PASS |
| CCV1 | CCV | 1 | 20.29 | 2.69 | 15 | PASS | 20.13 | 3.76 | 15 | PASS |
| CCB1 | CCB | 1 | 0.0079 | 181.75 | 15 | <PQL | 0.016 | 136.42 | 15 | <PQL |
| N034689-002E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 27.27 | 0.68 | 15 | PASS |
| N034689-002E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 5.47 | 5.9 | 15 | PASS |
| N034689-003E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 29.21 | 1.41 | 15 | PASS |
| N034689-003E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 5.97 | 4.093 | 15 | PASS |
| N034689-004E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 4.77 | 2.18 | 15 | PASS |
| N034689-004E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 1.00013 | 9.42 | 15 | PASS |
| N034689-005E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.96 | 6.98 | 15 | PASS |
| N034689-005E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.62 | 14.23 | 15 | PASS |
| N034689-006E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 3.48 | 7.8 | 15 | PASS |
| N034689-006E | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 0.17 | 21.055 | 15 | NR! |
| CCV2 | CCV | 1 | 19.89 | 3.28 | 15 | PASS | 19.98 | 2.36 | 15 | PASS |
| CCB2 | CCB | 1 | 0.038 | 203.5 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-004E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 4.8 | 2.29 | 15 | PASS |
| N034689-007E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 9.59 | 4.72 | 15 | PASS |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 66 Zn [2] | | | | 75 As [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034689-007E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 2.036 | 8.73 | 15 | PASS |
| N034661-001A | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 0.023 | 128.95 | 15 | <PQL |
| N034661-001A-PS | PS | 5 | 1.73 | 9.34 | 15 | PASS | 2.33 | 9.47 | 15 | PASS |
| N034661-001AMS | MS | 5 | 1.82 | 2.7 | 15 | PASS | 2.25 | 3.19 | 15 | PASS |
| N034661-001AMSD | MSD | 5 | 1.88 | 6.29 | 15 | PASS | 2.18 | 2.9 | 15 | PASS |
| N034689-007E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 9.35 | 3.08 | 15 | PASS |
| N034689-007E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 1.73 | 5.69 | 15 | PASS |
| N034707-001F | SAMP | 100 | <0.000 | N/A | 15 | <PQL | 0.041 | 84.14 | 15 | <PQL |
| CCV3 | CCV | 1 | 20.016 | 2.21 | 15 | PASS | 19.69 | 3.56 | 15 | PASS |
| CCB3 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 18.52 | 3.97 | 15 | PASS | 22.08 | 3.12 | 15 | PASS |
| N034707-001F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.76 | 12.32 | 15 | PASS |
| N034707-001F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 3.87 | 7.99 | 15 | PASS |
| N034707-001F | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 0.14 | 19.088 | 15 | NR! |
| N034707-002F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.58 | 15.92 | 15 | NR! |
| N034707-002F | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 0.075 | 94.33 | 15 | <PQL |
| N034707-002F | SAMP | 100 | <0.000 | N/A | 15 | <PQL | 0.0065 | 289.53 | 15 | <PQL |
| N034707-003F | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 0.032 | 102.52 | 15 | <PQL |
| N034707-003F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.24 | 10.55 | 15 | PASS |
| N034707-003F | SAMP | 50 | <0.000 | N/A | 15 | <PQL | 0.0022 | 2296.74 | 15 | <PQL |
| N034707-004F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.22 | 16.67 | 15 | NR! |
| CCV4 | CCV | 1 | 20.16 | 4.7 | 15 | PASS | 20.49 | 2.46 | 15 | PASS |
| CCB4 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.00019 | 27595.34 | 15 | <PQL |
| N034707-004F | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 0.096 | 89.59 | 15 | <PQL |
| N034707-002F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 3.47 | 4.065 | 15 | PASS |
| N034707-003F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 1.22 | 9.023 | 15 | PASS |
| N034707-004F | SAMP | 50 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 1.16 | 13.82 | 15 | PASS |
| CCV5 | CCV | 1 | 19.74 | 3.28 | 15 | PASS | 19.31 | 1.93 | 15 | PASS |
| CCB5 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.0057 | 891.64 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 19.24 | 1.76 | 15 | PASS | 21.55 | 2.093 | 15 | PASS |
| N034662-001D | SAMP | 25 | 0.53 | 19.77 | 15 | <PQL | 0.086 | 38.0073 | 15 | <PQL |
| N034662-001D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.39 | 12.79 | 15 | PASS |
| N034662-001D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 1.81 | 2.25 | 15 | PASS |
| N034662-002D | SAMP | 25 | 0.4 | 20.87 | 15 | <PQL | 0.074 | 20.31 | 15 | <PQL |
| N034662-002D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.43 | 30.34 | 15 | NR! |
| N034662-002D | SAMP | 1 | 1.17 | 21.21 | 15 | <PQL | 2.49 | 6.18 | 15 | PASS |
| N034662-003D | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 0.056 | 36.45 | 15 | <PQL |
| N034662-003D | SAMP | 5 | 0.21 | 11.44 | 15 | PASS | 0.47 | 20.9 | 15 | NR! |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 66 Zn [2] | | | | 75 As [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034662-003D | SAMP | 1 | 0.79 | 30.8 | 15 | <PQL | 2.52 | 5.31 | 15 | PASS |
| N034662-004D | SAMP | 25 | <0.000 | N/A | 15 | <PQL | 0.053 | 83.68 | 15 | <PQL |
| CCV6 | CCV | 1 | 20.17 | 1.26 | 15 | PASS | 19.67 | 3.24 | 15 | PASS |
| CCB6 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.02 | 232.26 | 15 | <PQL |
| N034662-004D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.24 | 10.94 | 15 | PASS |
| N034662-004D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 1.29 | 18.28 | 15 | NR! |
| CCV7 | CCV | 1 | 19.64 | 0.56 | 15 | PASS | 19.75 | 3.11 | 15 | PASS |
| CCB7 | CCB | 1 | 0.08 | 145.019 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA4 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 18.8 | 3.074 | 15 | PASS | 21.64 | 1.43 | 15 | PASS |
| CCV9 | CCV | 1 | 20.39 | 1.32 | 15 | PASS | 19.54 | 2.35 | 15 | PASS |
| CCB9 | CCB | 1 | 0.037 | 216.49 | 15 | <PQL | 0.046 | 91.076 | 15 | <PQL |
| CCV10 | CCV | 1 | 19.92 | 1.79 | 15 | PASS | 19.37 | 3.15 | 15 | PASS |
| CCB10 | CCB | 1 | 0.02 | 135.28 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA5 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB5 | ICSAB | 1 | 18.4 | 2.37 | 15 | PASS | 21.44 | 3.36 | 15 | PASS |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | | 9 Be [3] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.026 | 173.21 | 15 | <PQL | 0.1 | 11.21 | 15 | PASS |
| Std2-0.5/5 ppb | ICAL | 1 | 0.49 | 47.46 | 15 | <PQL | 0.47 | 3.15 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 4.22 | 9.44 | 15 | PASS | 4.91 | 1.08 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.47 | 12.99 | 15 | PASS | 9.91 | 0.63 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.76 | 6.5 | 15 | PASS | 19.76 | 0.85 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 38.96 | 8.55 | 15 | PASS | 40.12 | 1.037 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.45 | 3.3 | 15 | PASS | 99.6 | 1.14 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 182.92 | 4.18 | 15 | PASS | 200.2 | 0.85 | 15 | PASS |
| ICV | ICV | 1 | 9.96 | 10.91 | 15 | PASS | 9.82 | 1.05 | 15 | PASS |
| ICB | ICB | 1 | 0.027 | 173.21 | 15 | <PQL | 0.01 | 27.48 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.59 | 32.8 | 20 | NR! | 0.52 | 5.43 | 20 | PASS |
| ICSA1 | ICSA | 1 | 0.08 | 2.11 | 15 | PASS | 0.025 | 30.018 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 18.6 | 12.08 | 15 | PASS | 21.31 | 1.49 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.72 | 28.57 | 20 | NR! | 0.52 | 5.39 | 20 | PASS |
| MB-73031 | MBLK | 1 | 0 | N/A | 15 | <PQL | 0.0049 | 31.67 | 15 | <PQL |
| LCS-73031 | LCS | 1 | 9.77 | 6.76 | 15 | PASS | 9.54 | 0.9 | 15 | PASS |
| N034599-001A | SAMP | 1 | 1.075 | 2.12 | 15 | PASS | 0.021 | 24.3 | 15 | <PQL |
| N034661-001A | SAMP | 1 | 21.83 | 1.58 | 15 | PASS | 0.048 | 8.49 | 15 | PASS |
| N034661-001A | SAMP | 5 | 4.29 | 9.12 | 15 | PASS | 0.024 | 17.44 | 15 | <PQL |
| N034661-001A-PS | PS | 1 | 32.54 | 3.21 | 15 | PASS | 11.56 | 11.31 | 15 | PASS |
| N034661-001AMS | MS | 1 | 34.59 | 5.16 | 15 | PASS | 12.23 | 0.77 | 15 | PASS |
| N034661-001AMSD | MSD | 1 | 34.36 | 6.7 | 15 | PASS | 12 | 1.54 | 15 | PASS |
| N034661-001A-PS | PS | 1 | 32.33 | 3.94 | 15 | PASS | 12.24 | 2.14 | 15 | PASS |
| N034661-001A | SAMP | 1 | 25.11 | 10.2 | 15 | PASS | 0.035 | 13.17 | 15 | PASS |
| CCV1 | CCV | 1 | 19.35 | 5.5 | 15 | PASS | 20.17 | 1.5 | 15 | PASS |
| CCB1 | CCB | 1 | 0.08 | 102.32 | 15 | <PQL | 0.015 | 12.063 | 15 | PASS |
| N034689-002E | SAMP | 1 | 11.56 | 1 | 15 | PASS | 0.022 | 39.054 | 15 | <PQL |
| N034689-002E | SAMP | 5 | 2.66 | 22.27 | 15 | NR! | 0.0075 | 45.25 | 15 | <PQL |
| N034689-003E | SAMP | 1 | 10.12 | 8.9 | 15 | PASS | 0.016 | 49.23 | 15 | <PQL |
| N034689-003E | SAMP | 5 | 2.67 | 22.49 | 15 | NR! | 0.0082 | 28.83 | 15 | <PQL |
| N034689-004E | SAMP | 1 | 3.26 | 19.88 | 15 | NR! | 0.0081 | 52.38 | 15 | <PQL |
| N034689-004E | SAMP | 5 | 0.76 | 55.95 | 15 | NR! | 0.024 | 121.75 | 15 | <PQL |
| N034689-005E | SAMP | 1 | 23.52 | 8.54 | 15 | PASS | 0.0053 | 18.7 | 15 | <PQL |
| N034689-005E | SAMP | 5 | 4.95 | 9.88 | 15 | PASS | 0.0065 | 24.53 | 15 | <PQL |
| N034689-006E | SAMP | 1 | 9.038 | 9.031 | 15 | PASS | 0.024 | 19.59 | 15 | <PQL |
| N034689-006E | SAMP | 25 | 0.49 | 7.84 | 15 | PASS | 0.0094 | 37.66 | 15 | <PQL |
| CCV2 | CCV | 1 | 19.22 | 6.83 | 15 | PASS | 19.49 | 1.067 | 15 | PASS |
| CCB2 | CCB | 1 | 0.066 | 86.6 | 15 | <PQL | 0.0071 | 97.31 | 15 | <PQL |
| N034689-004E | SAMP | 1 | 3.13 | 8.22 | 15 | PASS | 0.014 | 18.8 | 15 | <PQL |
| N034689-007E | SAMP | 1 | 0.45 | 3.66 | 15 | PASS | 0.045 | 18.25 | 15 | <PQL |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | | 9 Be [3] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034689-007E | SAMP | 5 | 0.15 | 91.38 | 15 | <PQL | 0.016 | 22.91 | 15 | <PQL |
| N034661-001A | SAMP | 25 | 0.86 | 24.13 | 15 | NR! | 0.01 | 44.46 | 15 | <PQL |
| N034661-001A-PS | PS | 5 | 6.92 | 25.83 | 15 | NR! | 2.11 | 0.48 | 15 | PASS |
| N034661-001AMS | MS | 5 | 6.91 | 7.14 | 15 | PASS | 2.21 | 0.84 | 15 | PASS |
| N034661-001AMSD | MSD | 5 | 5.68 | 28.78 | 15 | NR! | 2.17 | 4.033 | 15 | PASS |
| N034689-007E | SAMP | 1 | 0.42 | 40.99 | 15 | <PQL | 0.061 | 16.72 | 15 | <PQL |
| N034689-007E | SAMP | 5 | 0.062 | 86.62 | 15 | <PQL | 0.026 | 13.77 | 15 | PASS |
| N034707-001F | SAMP | 100 | 0.24 | 35.76 | 15 | <PQL | 0.013 | 31.12 | 15 | <PQL |
| CCV3 | CCV | 1 | 19.69 | 3.26 | 15 | PASS | 19.47 | 0.97 | 15 | PASS |
| CCB3 | CCB | 1 | 0 | N/A | 15 | <PQL | 0.015 | 47.95 | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0.12 | 42.23 | 15 | <PQL | 0.022 | 59.93 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 19.031 | 11.73 | 15 | PASS | 21.077 | 1.0065 | 15 | PASS |
| N034707-001F | SAMP | 5 | 3.72 | 12.91 | 15 | PASS | 0.0096 | 23.51 | 15 | <PQL |
| N034707-001F | SAMP | 1 | 21 | 9.0042 | 15 | PASS | 0.028 | 50.21 | 15 | <PQL |
| N034707-001F | SAMP | 25 | 1.35 | 16.56 | 15 | NR! | 0.014 | 21.14 | 15 | <PQL |
| N034707-002F | SAMP | 5 | 4.15 | 28.21 | 15 | NR! | 0.0065 | 12.73 | 15 | PASS |
| N034707-002F | SAMP | 25 | 0.87 | 6.57 | 15 | PASS | 0.00024 | 1144.28 | 15 | <PQL |
| N034707-002F | SAMP | 100 | 0.42 | 25.43 | 15 | <PQL | 0.0069 | 29.11 | 15 | <PQL |
| N034707-003F | SAMP | 25 | 0.47 | 10.47 | 15 | PASS | 0.0055 | 42.34 | 15 | <PQL |
| N034707-003F | SAMP | 5 | 2.34 | 8.77 | 15 | PASS | 0.0021 | 219.75 | 15 | <PQL |
| N034707-003F | SAMP | 50 | 0.21 | 49.83 | 15 | <PQL | 0.00037 | 380.27 | 15 | <PQL |
| N034707-004F | SAMP | 5 | 2.0089 | 15.14 | 15 | NR! | 0.00023 | 1072.31 | 15 | <PQL |
| CCV4 | CCV | 1 | 17.86 | 7.13 | 15 | PASS | 19.52 | 0.84 | 15 | PASS |
| CCB4 | CCB | 1 | 0.17 | 35.27 | 15 | <PQL | 0.011 | 33.68 | 15 | <PQL |
| N034707-004F | SAMP | 25 | 0.34 | 15.87 | 15 | <PQL | 0.0044 | 91.95 | 15 | <PQL |
| N034707-002F | SAMP | 1 | 21.25 | 5.76 | 15 | PASS | 0.011 | 81.98 | 15 | <PQL |
| N034707-003F | SAMP | 1 | 10.77 | 9.039 | 15 | PASS | 0.0047 | 118.6 | 15 | <PQL |
| N034707-004F | SAMP | 50 | 0.4 | 22.59 | 15 | <PQL | 0.0024 | 109.55 | 15 | <PQL |
| N034707-004F | SAMP | 1 | 10.22 | 9.014 | 15 | PASS | 0.0054 | 82.92 | 15 | <PQL |
| CCV5 | CCV | 1 | 19.94 | 9.15 | 15 | PASS | 19.53 | 0.72 | 15 | PASS |
| CCB5 | CCB | 1 | 0.072 | 173.21 | 15 | <PQL | 0.013 | 9.22 | 15 | PASS |
| ICSA3 | ICSA | 1 | 0 | N/A | 15 | <PQL | 0.018 | 19.16 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 19.96 | 4.34 | 15 | PASS | 21.19 | 0.59 | 15 | PASS |
| N034662-001D | SAMP | 25 | 0.24 | 99.89 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-001D | SAMP | 5 | 0.89 | 6.85 | 15 | PASS | 0.067 | 187.36 | 15 | <PQL |
| N034662-001D | SAMP | 1 | 6.1 | 20.45 | 15 | NR! | <0.000 | N/A | 15 | <PQL |
| N034662-002D | SAMP | 25 | 0.32 | 56.95 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-002D | SAMP | 5 | 1.66 | 42.65 | 15 | NR! | <0.000 | N/A | 15 | <PQL |
| N034662-002D | SAMP | 1 | 6.032 | 4.88 | 15 | PASS | 2.8E-06 | 137355.3 | 15 | <PQL |
| N034662-003D | SAMP | 25 | 0.34 | 46.19 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-003D | SAMP | 5 | 1.34 | 39.89 | 15 | NR! | <0.000 | N/A | 15 | <PQL |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | | 9 Be [3] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034662-003D | SAMP | 1 | 7.6 | 8.68 | 15 | PASS | 0.0026 | 170.43 | 15 | <PQL |
| N034662-004D | SAMP | 25 | 0.21 | 131.13 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV6 | CCV | 1 | 19.45 | 4.095 | 15 | PASS | 19.81 | 0.56 | 15 | PASS |
| CCB6 | CCB | 1 | 0.071 | 86.61 | 15 | <PQL | 0.011 | 10.54 | 15 | PASS |
| N034662-004D | SAMP | 5 | 1.19 | 38.64 | 15 | NR! | 0.0038 | 69.41 | 15 | <PQL |
| N034662-004D | SAMP | 1 | 4.77 | 17.57 | 15 | NR! | 0.0037 | 110.42 | 15 | <PQL |
| CCV7 | CCV | 1 | 18.88 | 3.58 | 15 | PASS | 20.054 | 0.45 | 15 | PASS |
| CCB7 | CCB | 1 | 0.11 | 173.21 | 15 | <PQL | 0.017 | 77.87 | 15 | <PQL |
| ICSA4 | ICSA | 1 | 0.033 | 173.21 | 15 | <PQL | 0.019 | 32.58 | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 18.84 | 9.47 | 15 | PASS | 21.33 | 0.49 | 15 | PASS |
| CCV9 | CCV | 1 | 19.59 | 4.062 | 15 | PASS | 19.82 | 0.75 | 15 | PASS |
| CCB9 | CCB | 1 | 0.11 | 102.77 | 15 | <PQL | 0.0087 | 44.8 | 15 | <PQL |
| CCV10 | CCV | 1 | 19.4 | 9.73 | 15 | PASS | 19.81 | 0.2 | 15 | PASS |
| CCB10 | CCB | 1 | 0.077 | 86.65 | 15 | <PQL | 0.0076 | 47.5 | 15 | <PQL |
| ICSA5 | ICSA | 1 | 0.033 | 173.21 | 15 | <PQL | 0.015 | 42.54 | 15 | <PQL |
| ICSAB5 | ICSAB | 1 | 19.71 | 1.83 | 15 | PASS | 21.2 | 0.13 | 15 | PASS |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.014 | 126.66 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.34 | 8.17 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 4.5 | 3.88 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 9.44 | 1.4 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.75 | 1.7 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.33 | 0.67 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 105.58 | 0.33 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 210.24 | 0.81 | 15 | PASS |
| ICV | ICV | 1 | 9.85 | 1.2 | 15 | PASS |
| ICB | ICB | 1 | <0.000 | N/A | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.54 | 21.28 | 20 | NR! |
| ICSA1 | ICSA | 1 | 0.013 | 111.36 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 21.38 | 0.89 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.76 | 6.64 | 20 | PASS |
| MB-73031 | MBLK | 1 | <0.000 | N/A | 15 | <PQL |
| LCS-73031 | LCS | 1 | 9.067 | 0.77 | 15 | PASS |
| N034599-001A | SAMP | 1 | 37.36 | 0.73 | 15 | PASS |
| N034661-001A | SAMP | 1 | 19.88 | 1.53 | 15 | PASS |
| N034661-001A | SAMP | 5 | 3.69 | 3.4 | 15 | PASS |
| N034661-001A-PS | PS | 1 | 30.74 | 2.28 | 15 | PASS |
| N034661-001AMS | MS | 1 | 32.27 | 1.4 | 15 | PASS |
| N034661-001AMSD | MSD | 1 | 31.59 | 0.31 | 15 | PASS |
| N034661-001A-PS | PS | 1 | 31.098 | 0.81 | 15 | PASS |
| N034661-001A | SAMP | 1 | 19.51 | 0.57 | 15 | PASS |
| CCV1 | CCV | 1 | 19.91 | 0.65 | 15 | PASS |
| CCB1 | CCB | 1 | 0.017 | 16.75 | 15 | <PQL |
| N034689-002E | SAMP | 1 | 104.0059 | 0.44 | 15 | PASS |
| N034689-002E | SAMP | 5 | 20.95 | 0.84 | 15 | PASS |
| N034689-003E | SAMP | 1 | 114.73 | 0.55 | 15 | PASS |
| N034689-003E | SAMP | 5 | 22.19 | 1.19 | 15 | PASS |
| N034689-004E | SAMP | 1 | 44.59 | 1.7 | 15 | PASS |
| N034689-004E | SAMP | 5 | 8.8 | 1.031 | 15 | PASS |
| N034689-005E | SAMP | 1 | 53.78 | 2.29 | 15 | PASS |
| N034689-005E | SAMP | 5 | 10.095 | 3.23 | 15 | PASS |
| N034689-006E | SAMP | 1 | 18.018 | 1.1 | 15 | PASS |
| N034689-006E | SAMP | 25 | 0.92 | 11.21 | 15 | PASS |
| CCV2 | CCV | 1 | 19.89 | 1.38 | 15 | PASS |
| CCB2 | CCB | 1 | 0.059 | 26.22 | 15 | <PQL |
| N034689-004E | SAMP | 1 | 44.17 | 0.69 | 15 | PASS |
| N034689-007E | SAMP | 1 | 74.52 | 0.11 | 15 | PASS |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| N034689-007E | SAMP | 5 | 14.72 | 0.24 | 15 | PASS |
| N034661-001A | SAMP | 25 | 1.047 | 12.31 | 15 | PASS |
| N034661-001A-PS | PS | 5 | 5.71 | 1.96 | 15 | PASS |
| N034661-001AMS | MS | 5 | 6.099 | 4.71 | 15 | PASS |
| N034661-001AMSD | MSD | 5 | 5.79 | 3.55 | 15 | PASS |
| N034689-007E | SAMP | 1 | 74.34 | 0.58 | 15 | PASS |
| N034689-007E | SAMP | 5 | 14.49 | 1.2 | 15 | PASS |
| N034707-001F | SAMP | 100 | 0.55 | 15.43 | 15 | NR! |
| CCV3 | CCV | 1 | 19.43 | 2.92 | 15 | PASS |
| CCB3 | CCB | 1 | 0.042 | 99.51 | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0.1 | 55.026 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 21.9 | 4.2 | 15 | PASS |
| N034707-001F | SAMP | 5 | 4.1 | 3.44 | 15 | PASS |
| N034707-001F | SAMP | 1 | 22.55 | 1.24 | 15 | PASS |
| N034707-001F | SAMP | 25 | 1.043 | 4.74 | 15 | PASS |
| N034707-002F | SAMP | 5 | 4.14 | 1.5 | 15 | PASS |
| N034707-002F | SAMP | 25 | 0.8 | 1.69 | 15 | PASS |
| N034707-002F | SAMP | 100 | 0.14 | 8.43 | 15 | PASS |
| N034707-003F | SAMP | 25 | 0.17 | 27.43 | 15 | <PQL |
| N034707-003F | SAMP | 5 | 1.15 | 11.64 | 15 | PASS |
| N034707-003F | SAMP | 50 | 0.066 | 44.88 | 15 | <PQL |
| N034707-004F | SAMP | 5 | 1.18 | 5.043 | 15 | PASS |
| CCV4 | CCV | 1 | 18.83 | 0.77 | 15 | PASS |
| CCB4 | CCB | 1 | 0.32 | 16.6 | 15 | <PQL |
| N034707-004F | SAMP | 25 | 0.27 | 6.88 | 15 | PASS |
| N034707-002F | SAMP | 1 | 22.53 | 2.13 | 15 | PASS |
| N034707-003F | SAMP | 1 | 6.55 | 4.39 | 15 | PASS |
| N034707-004F | SAMP | 50 | 0.11 | 30.61 | 15 | <PQL |
| N034707-004F | SAMP | 1 | 6.76 | 5.082 | 15 | PASS |
| CCV5 | CCV | 1 | 18.83 | 1.58 | 15 | PASS |
| CCB5 | CCB | 1 | 0.32 | 25.48 | 15 | <PQL |
| ICSA3 | ICSA | 1 | 0.059 | 71.55 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 22.037 | 0.29 | 15 | PASS |
| N034662-001D | SAMP | 25 | <0.000 | N/A | 15 | <PQL |
| N034662-001D | SAMP | 5 | 0.53 | 3.92 | 15 | PASS |
| N034662-001D | SAMP | 1 | 3.38 | 6.7 | 15 | PASS |
| N034662-002D | SAMP | 25 | 0.57 | 8.7 | 15 | PASS |
| N034662-002D | SAMP | 5 | 3.45 | 5.0059 | 15 | PASS |
| N034662-002D | SAMP | 1 | 19.15 | 1.71 | 15 | PASS |
| N034662-003D | SAMP | 25 | 0.84 | 4.83 | 15 | PASS |
| N034662-003D | SAMP | 5 | 3.62 | 3.13 | 15 | PASS |

**PERCENT RSD SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| N034662-003D | SAMP | 1 | 19.72 | 1.32 | 15 | PASS |
| N034662-004D | SAMP | 25 | 0.4 | 30.79 | 15 | <PQL |
| CCV6 | CCV | 1 | 18.88 | 0.67 | 15 | PASS |
| CCB6 | CCB | 1 | 0.31 | 18.67 | 15 | <PQL |
| N034662-004D | SAMP | 5 | 1.06 | 11.96 | 15 | PASS |
| N034662-004D | SAMP | 1 | 5.79 | 4.16 | 15 | PASS |
| CCV7 | CCV | 1 | 19.53 | 1.92 | 15 | PASS |
| CCB7 | CCB | 1 | 0.27 | 18.88 | 15 | <PQL |
| ICSA4 | ICSA | 1 | 0.057 | 106.25 | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 22.28 | 1.81 | 15 | PASS |
| CCV9 | CCV | 1 | 18.63 | 1.62 | 15 | PASS |
| CCB9 | CCB | 1 | 0.3 | 30.46 | 15 | <PQL |
| CCV10 | CCV | 1 | 18.92 | 3.049 | 15 | PASS |
| CCB10 | CCB | 1 | 0.33 | 23.11 | 15 | <PQL |
| ICSA5 | ICSA | 1 | 0.11 | 32.96 | 15 | <PQL |
| ICSAB5 | ICSAB | 1 | 22.13 | 0.87 | 15 | PASS |

**PERCENT RSD SUMMARY: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 107 Ag [3] | | | | 111 Cd [3] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.082 | 6.2 | 15 | PASS | 0.11 | 17.086 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.46 | 4.49 | 15 | PASS | 0.53 | 4.54 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 4.96 | 0.92 | 15 | PASS | 5.2 | 1.17 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.003 | 0.87 | 15 | PASS | 10.28 | 1.73 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.063 | 0.33 | 15 | PASS | 20.4 | 1.19 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 39.79 | 0.67 | 15 | PASS | 40.58 | 0.72 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.074 | 0.43 | 15 | PASS | 101.52 | 0.66 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 196.075 | 1.59 | 15 | PASS | 199.065 | 0.37 | 15 | PASS |
| ICV | ICV | 1 | 10.18 | 1.025 | 15 | PASS | 10.1 | 0.98 | 15 | PASS |
| ICB | ICB | 1 | 0.034 | 32.68 | 15 | <PQL | 0.024 | 19.43 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.95 | 7.11 | 20 | PASS | 0.56 | 9.11 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 18.056 | 0.35 | 15 | PASS | 17.54 | 1.19 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.94 | 3.67 | 20 | PASS | 0.55 | 3.68 | 20 | PASS |
| CCV1 | CCV | 1 | 19.7 | 0.68 | 15 | PASS | 20.11 | 1.024 | 15 | PASS |
| CCB1 | CCB | 1 | 0.08 | 15.68 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV2 | CCV | 1 | 19.96 | 0.93 | 15 | PASS | 19.79 | 0.55 | 15 | PASS |
| CCB2 | CCB | 1 | 0.068 | 21.43 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| MB-73031 | MBLK | 1 | 0.0017 | 513.68 | 15 | <PQL | 0.00027 | 1471.75 | 15 | <PQL |
| LCS-73031 | LCS | 1 | 10.026 | 0.65 | 15 | PASS | 10.073 | 1 | 15 | PASS |
| N034661-001A | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034661-001A | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.0018 | 424.62 | 15 | <PQL |
| N034661-001A-PS | PS | 1 | 8.81 | 0.74 | 15 | PASS | 9.56 | 0.52 | 15 | PASS |
| N034661-001AMS | MS | 1 | 8.86 | 0.61 | 15 | PASS | 9.6 | 1.061 | 15 | PASS |
| N034661-001AMSD | MSD | 1 | 8.87 | 0.43 | 15 | PASS | 9.41 | 1.84 | 15 | PASS |
| CCV3 | CCV | 1 | 19.87 | 0.33 | 15 | PASS | 19.8 | 1.44 | 15 | PASS |
| CCB3 | CCB | 1 | 0.094 | 16.71 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 17.98 | 0.13 | 15 | PASS | 17.37 | 0.83 | 15 | PASS |
| N034689-002E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 0.12 | 15.028 | 15 | <PQL |
| N034689-002E | SAMP | 5 | 0.029 | 25.85 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-003E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 0.11 | 10.81 | 15 | PASS |
| N034689-003E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-004E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 0.027 | 26.9 | 15 | <PQL |
| N034689-004E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-005E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 0.009 | 100.42 | 15 | <PQL |
| N034689-005E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.022 | 17.76 | 15 | <PQL |
| N034689-006E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-006E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV4 | CCV | 1 | 19.92 | 0.37 | 15 | PASS | 20.054 | 1.075 | 15 | PASS |

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4/3/2019

**PERCENT RSD SUMMARY: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 107 Ag [3] | | | | 111 Cd [3] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| CCB4 | CCB | 1 | 0.084 | 9.73 | 15 | PASS | 0.0029 | 180.74 | 15 | <PQL |
| N034689-007E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-007E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-001F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-001F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV5 | CCV | 1 | 19.81 | 0.63 | 15 | PASS | 19.86 | 0.48 | 15 | PASS |
| CCB5 | CCB | 1 | 0.067 | 13.55 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-001D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-001D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-002D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-002D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-003D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-003D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-004D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-004D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV6 | CCV | 1 | 19.73 | 1.25 | 15 | PASS | 19.99 | 0.21 | 15 | PASS |
| CCB6 | CCB | 1 | 0.082 | 3.92 | 15 | PASS | 0.0089 | 31.7 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 17.91 | 0.21 | 15 | PASS | 17.83 | 1.27 | 15 | PASS |

**PERCENT RSD SUMMARY: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 121 Sb [3] | | | | 137 Ba [3] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.093 | 6.18 | 15 | PASS | 0.11 | 9.73 | 15 | PASS |
| Std2-0.5/5 ppb | ICAL | 1 | 0.48 | 3.046 | 15 | PASS | 0.53 | 1.62 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 4.96 | 0.71 | 15 | PASS | 5.18 | 1.81 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 9.84 | 0.71 | 15 | PASS | 10.14 | 1.84 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.66 | 0.54 | 15 | PASS | 20.16 | 0.53 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 38.85 | 0.17 | 15 | PASS | 39.86 | 0.21 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 97.98 | 0.48 | 15 | PASS | 97.44 | 1.17 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 201.28 | 1.29 | 15 | PASS | 194.73 | 0.76 | 15 | PASS |
| ICV | ICV | 1 | 9.77 | 0.92 | 15 | PASS | 9.64 | 1.16 | 15 | PASS |
| ICB | ICB | 1 | 0.00031 | 1771.12 | 15 | <PQL | 0.018 | 0.45 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.51 | 2.25 | 20 | PASS | 0.94 | 1.84 | 20 | PASS |
| ICSA1 | ICSA | 1 | 0.15 | 6.61 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 19.74 | 0.51 | 15 | PASS | 17.16 | 0.85 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.5 | 3.12 | 20 | PASS | 1.025 | 2.35 | 20 | PASS |
| CCV1 | CCV | 1 | 19.34 | 0.46 | 15 | PASS | 20.91 | 1.21 | 15 | PASS |
| CCB1 | CCB | 1 | 0.034 | 12.05 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV2 | CCV | 1 | 19.34 | 0.63 | 15 | PASS | 21.1 | 2.14 | 15 | PASS |
| CCB2 | CCB | 1 | 0.014 | 35.88 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| MB-73031 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LCS-73031 | LCS | 1 | 9.6 | 0.66 | 15 | PASS | 10.45 | 1.44 | 15 | PASS |
| N034661-001A | SAMP | 1 | 0.16 | 5.087 | 15 | PASS | 67.41 | 0.74 | 15 | PASS |
| N034661-001A | SAMP | 5 | 0.013 | 35.97 | 15 | <PQL | 13.74 | 0.76 | 15 | PASS |
| N034661-001A-PS | PS | 1 | 9.98 | 0.57 | 15 | PASS | 76.43 | 0.82 | 15 | PASS |
| N034661-001AMS | MS | 1 | 10.026 | 0.48 | 15 | PASS | 77.82 | 0.41 | 15 | PASS |
| N034661-001AMSD | MSD | 1 | 9.97 | 0.3 | 15 | PASS | 78.24 | 0.25 | 15 | PASS |
| CCV3 | CCV | 1 | 19.27 | 0.8 | 15 | PASS | 21.6 | 0.49 | 15 | PASS |
| CCB3 | CCB | 1 | 0.024 | 15.21 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0.038 | 14.56 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 19.57 | 0.89 | 15 | PASS | 18.29 | 0.82 | 15 | PASS |
| N034689-002E | SAMP | 1 | 0.26 | 1.59 | 15 | PASS | 98.095 | 0.71 | 15 | PASS |
| N034689-002E | SAMP | 5 | 0.051 | 8.88 | 15 | PASS | 15.6 | 0.91 | 15 | PASS |
| N034689-003E | SAMP | 1 | 0.21 | 7.13 | 15 | PASS | 103.63 | 0.75 | 15 | PASS |
| N034689-003E | SAMP | 5 | 0.023 | 21.24 | 15 | <PQL | 15.97 | 1.037 | 15 | PASS |
| N034689-004E | SAMP | 1 | 0.16 | 9.23 | 15 | PASS | 121.68 | 0.63 | 15 | PASS |
| N034689-004E | SAMP | 5 | 0.0088 | 60.15 | 15 | <PQL | 21.26 | 0.92 | 15 | PASS |
| N034689-005E | SAMP | 1 | 0.3 | 3.12 | 15 | PASS | 65.8 | 0.63 | 15 | PASS |
| N034689-005E | SAMP | 5 | 0.039 | 6.28 | 15 | PASS | 13.73 | 0.89 | 15 | PASS |
| N034689-006E | SAMP | 1 | 0.3 | 8.34 | 15 | PASS | 52.81 | 0.8 | 15 | PASS |
| N034689-006E | SAMP | 5 | 0.038 | 4.019 | 15 | PASS | 10.97 | 0.51 | 15 | PASS |
| CCV4 | CCV | 1 | 19.34 | 0.81 | 15 | PASS | 21.56 | 0.72 | 15 | PASS |

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**PERCENT RSD SUMMARY: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 121 Sb [3] | | | | 137 Ba [3] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| CCB4 | CCB | 1 | 0.012 | 30.35 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-007E | SAMP | 1 | 0.38 | 2.13 | 15 | PASS | 155.7 | 1.13 | 15 | PASS |
| N034689-007E | SAMP | 5 | 0.065 | 5.73 | 15 | PASS | 33.15 | 0.54 | 15 | PASS |
| N034707-001F | SAMP | 1 | 0.16 | 7.63 | 15 | PASS | 34.36 | 0.75 | 15 | PASS |
| N034707-001F | SAMP | 5 | 0.013 | 26.69 | 15 | <PQL | 7.22 | 1.95 | 15 | PASS |
| N034707-002F | SAMP | 1 | 0.1 | 3.97 | 15 | PASS | 34.79 | 0.7 | 15 | PASS |
| N034707-002F | SAMP | 5 | 0.00065 | 1139.67 | 15 | <PQL | 7.37 | 3.36 | 15 | PASS |
| N034707-003F | SAMP | 1 | 0.12 | 4.083 | 15 | PASS | 34.16 | 1.024 | 15 | PASS |
| N034707-003F | SAMP | 5 | 0.0034 | 29.052 | 15 | <PQL | 2.054 | 3.12 | 15 | PASS |
| CCV5 | CCV | 1 | 19.46 | 0.43 | 15 | PASS | 21.72 | 0.38 | 15 | PASS |
| CCB5 | CCB | 1 | 0.014 | 31.26 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 1 | 0.31 | 2.4 | 15 | PASS | 33.35 | 1.39 | 15 | PASS |
| N034707-004F | SAMP | 5 | 0.058 | 6.91 | 15 | PASS | 2.24 | 3.49 | 15 | PASS |
| N034662-001D | SAMP | 1 | 0.34 | 4.49 | 15 | PASS | 52.016 | 0.72 | 15 | PASS |
| N034662-001D | SAMP | 5 | 0.051 | 11.73 | 15 | PASS | 4.22 | 2.45 | 15 | PASS |
| N034662-002D | SAMP | 1 | 0.43 | 3.25 | 15 | PASS | 46.79 | 0.2 | 15 | PASS |
| N034662-002D | SAMP | 5 | 0.065 | 17.59 | 15 | <PQL | 3.38 | 1.69 | 15 | PASS |
| N034662-003D | SAMP | 1 | 0.43 | 2.95 | 15 | PASS | 47.6 | 0.66 | 15 | PASS |
| N034662-003D | SAMP | 5 | 0.064 | 9.7 | 15 | PASS | 3.33 | 2.61 | 15 | PASS |
| N034662-004D | SAMP | 1 | 0.41 | 2.73 | 15 | PASS | 49.66 | 0.42 | 15 | PASS |
| N034662-004D | SAMP | 5 | 0.069 | 4.74 | 15 | PASS | 6.026 | 2.88 | 15 | PASS |
| CCV6 | CCV | 1 | 19.37 | 0.52 | 15 | PASS | 21.59 | 1.24 | 15 | PASS |
| CCB6 | CCB | 1 | 0.018 | 13.21 | 15 | PASS | 0.0049 | 244.3 | 15 | <PQL |
| ICSA3 | ICSA | 1 | 0.037 | 13.91 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 19.64 | 1.27 | 15 | PASS | 20.31 | 1.88 | 15 | PASS |

**PERCENT RSD SUMMARY: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 205 Tl [3] | | | | 208 Pb [3] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.085 | 7.2 | 15 | PASS | 0.097 | 2.83 | 15 | PASS |
| Std2-0.5/5 ppb | ICAL | 1 | 0.48 | 1.88 | 15 | PASS | 0.49 | 1.77 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 5.041 | 0.13 | 15 | PASS | 4.93 | 0.17 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 9.86 | 1.19 | 15 | PASS | 9.69 | 1.8 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.99 | 0.32 | 15 | PASS | 19.51 | 0.26 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.033 | 0.61 | 15 | PASS | 38.92 | 0.24 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 105.17 | 0.55 | 15 | PASS | 100.51 | 0.52 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 205.51 | 0.46 | 15 | PASS | 200.025 | 0.77 | 15 | PASS |
| ICV | ICV | 1 | 9.89 | 1.071 | 15 | PASS | 9.53 | 0.75 | 15 | PASS |
| ICB | ICB | 1 | 0.022 | 8.46 | 15 | PASS | 0.0074 | 16.83 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.41 | 1.26 | 20 | PASS | 0.96 | 1.59 | 20 | PASS |
| ICSA1 | ICSA | 1 | 0.037 | 16.52 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 20.42 | 0.41 | 15 | PASS | 17.61 | 0.72 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.38 | 3.48 | 20 | PASS | 0.98 | 0.72 | 20 | PASS |
| CCV1 | CCV | 1 | 19.25 | 0.5 | 15 | PASS | 18.75 | 0.32 | 15 | PASS |
| CCB1 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV2 | CCV | 1 | 19.43 | 1.0028 | 15 | PASS | 18.92 | 1.2 | 15 | PASS |
| CCB2 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.0014 | 186.95 | 15 | <PQL |
| MB-73031 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LCS-73031 | LCS | 1 | 9.52 | 1.23 | 15 | PASS | 9.22 | 0.66 | 15 | PASS |
| N034661-001A | SAMP | 1 | 0.46 | 3.058 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034661-001A | SAMP | 5 | 0.086 | 6.71 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034661-001A-PS | PS | 1 | 9.14 | 0.16 | 15 | PASS | 9.44 | 0.36 | 15 | PASS |
| N034661-001AMS | MS | 1 | 9.24 | 0.2 | 15 | PASS | 9.49 | 0.17 | 15 | PASS |
| N034661-001AMSD | MSD | 1 | 9.24 | 0.97 | 15 | PASS | 9.44 | 0.16 | 15 | PASS |
| CCV3 | CCV | 1 | 19.59 | 0.35 | 15 | PASS | 18.97 | 0.18 | 15 | PASS |
| CCB3 | CCB | 1 | 0.05 | 10.32 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0.037 | 14.24 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 20.39 | 0.46 | 15 | PASS | 17.36 | 0.66 | 15 | PASS |
| N034689-002E | SAMP | 1 | 0.093 | 8.07 | 15 | PASS | 0.072 | 6.39 | 15 | PASS |
| N034689-002E | SAMP | 5 | 0.0078 | 112.32 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-003E | SAMP | 1 | 0.057 | 16.95 | 15 | <PQL | 0.016 | 27.32 | 15 | <PQL |
| N034689-003E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-004E | SAMP | 1 | 0.0087 | 38.77 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-004E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-005E | SAMP | 1 | 0.0074 | 15.19 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-005E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-006E | SAMP | 1 | 0.067 | 6.16 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034689-006E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV4 | CCV | 1 | 19.41 | 1.2 | 15 | PASS | 18.91 | 1.09 | 15 | PASS |

NR

**PERCENT RSD SUMMARY: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 205 Tl [3] | | | | 208 Pb [3] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| CCB4 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-007E | SAMP | 1 | 0.082 | 8.95 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034689-007E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-001F | SAMP | 1 | 0.12 | 2.39 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-001F | SAMP | 5 | 0.0061 | 56.89 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 1 | 0.1 | 4.78 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 1 | 0.19 | 5.54 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 5 | 0.013 | 10.3 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV5 | CCV | 1 | 19.57 | 0.95 | 15 | PASS | 19.11 | 0.48 | 15 | PASS |
| CCB5 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 1 | 0.2 | 3.34 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 5 | 0.015 | 30.72 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-001D | SAMP | 1 | 0.029 | 20.11 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-001D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-002D | SAMP | 1 | 0.024 | 13.92 | 15 | PASS | 0.0096 | 23.61 | 15 | <PQL |
| N034662-002D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-003D | SAMP | 1 | 0.024 | 19.047 | 15 | <PQL | 0.01 | 7.75 | 15 | PASS |
| N034662-003D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-004D | SAMP | 1 | 0.042 | 10.81 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034662-004D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV6 | CCV | 1 | 19.29 | 0.19 | 15 | PASS | 18.77 | 0.43 | 15 | PASS |
| CCB6 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.002 | 105.33 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 20.34 | 1.3 | 15 | PASS | 17.43 | 0.55 | 15 | PASS |

**PERCENT RSD SUMMARY: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 51 V [2] | | | | 55 Mn [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.05 | 24.93 | 15 | <PQL | 0.093 | 19.43 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.48 | 3.61 | 15 | PASS | 0.55 | 3.58 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 5.096 | 1 | 15 | PASS | 5.066 | 0.36 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.08 | 1.54 | 15 | PASS | 10.15 | 1.97 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.1 | 0.73 | 15 | PASS | 20.46 | 3.43 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 41.12 | 2.12 | 15 | PASS | 40.87 | 1.85 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 99.52 | 0.63 | 15 | PASS | 100.51 | 0.29 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 197.26 | 1.19 | 15 | PASS | 199.51 | 1.75 | 15 | PASS |
| ICV | ICV | 1 | 10.37 | 1.16 | 15 | PASS | 105.69 | 0.81 | 15 | PASS |
| ICB | ICB | 1 | 0.19 | 22.41 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LLICV | CCV1 | 1 | 1.19 | 8.32 | 20 | PASS | 0.52 | 3.11 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 20.27 | 2.29 | 15 | PASS | 16.93 | 2.87 | 15 | PASS |
| LLICV | CCV1 | 1 | 1.5 | 2.59 | 20 | PASS | 0.54 | 7.69 | 20 | PASS |
| CCV1 | CCV | 1 | 19.84 | 1.12 | 15 | PASS | 20.25 | 0.77 | 15 | PASS |
| CCB1 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.0051 | 135.17 | 15 | <PQL |
| CCV2 | CCV | 1 | 19.92 | 1.62 | 15 | PASS | 20.29 | 3.69 | 15 | PASS |
| CCB2 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.0096 | 78.88 | 15 | <PQL |
| MB-73031 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | 0.0051 | 261.52 | 15 | <PQL |
| LCS-73031 | LCS | 1 | 9.72 | 0.49 | 15 | PASS | 102.86 | 1.66 | 15 | PASS |
| N034661-001A | SAMP | 1 | 0.18 | 17.47 | 15 | <PQL | 723.034 | 1.037 | 15 | PASS |
| N034661-001A | SAMP | 5 | 0.11 | 31.74 | 15 | <PQL | 147.35 | 1.57 | 15 | PASS |
| N034661-001A-PS | PS | 1 | 10.097 | 1.28 | 15 | PASS | 798.66 | 2.57 | 15 | PASS |
| N034661-001AMS | MS | 1 | 9.85 | 2.089 | 15 | PASS | 803.38 | 1.86 | 15 | PASS |
| N034661-001AMSD | MSD | 1 | 10.074 | 2.16 | 15 | PASS | 826.67 | 2.14 | 15 | PASS |
| CCV3 | CCV | 1 | 20.048 | 1.45 | 15 | PASS | 20.36 | 0.63 | 15 | PASS |
| CCB3 | CCB | 1 | 0.09 | 12.86 | 15 | PASS | 0.093 | 15.82 | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 19.82 | 0.63 | 15 | PASS | 18.16 | 2.58 | 15 | PASS |
| N034689-002E | SAMP | 1 | 6.18 | 2.27 | 15 | PASS | 150.92 | 1.22 | 15 | PASS |
| N034689-002E | SAMP | 5 | 1.53 | 3.0029 | 15 | PASS | 31.17 | 1.67 | 15 | PASS |
| N034689-003E | SAMP | 1 | 6.46 | 2.14 | 15 | PASS | 161.18 | 1.47 | 15 | PASS |
| N034689-003E | SAMP | 5 | 1.5 | 1.95 | 15 | PASS | 32.7 | 1.82 | 15 | PASS |
| N034689-004E | SAMP | 1 | 0.4 | 6.3 | 15 | PASS | 212.59 | 0.5 | 15 | PASS |
| N034689-004E | SAMP | 5 | 0.28 | 4.18 | 15 | PASS | 45.49 | 1.2 | 15 | PASS |
| N034689-005E | SAMP | 1 | 2.46 | 4.74 | 15 | PASS | 151.088 | 0.97 | 15 | PASS |
| N034689-005E | SAMP | 5 | 0.53 | 5.05 | 15 | PASS | 30.82 | 0.39 | 15 | PASS |
| N034689-006E | SAMP | 1 | 1.26 | 4.88 | 15 | PASS | 56.42 | 2.41 | 15 | PASS |
| N034689-006E | SAMP | 5 | 0.23 | 12.74 | 15 | PASS | 11.85 | 2.95 | 15 | PASS |
| CCV4 | CCV | 1 | 19.82 | 2.56 | 15 | PASS | 20.21 | 1.23 | 15 | PASS |

NR

**PERCENT RSD SUMMARY: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 51 V [2] | | | | 55 Mn [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| CCB4 | CCB | 1 | 0.026 | 67.6 | 15 | <PQL | 0.025 | 38.28 | 15 | <PQL |
| N034689-007E | SAMP | 1 | 7.38 | 2.26 | 15 | PASS | 17.057 | 0.67 | 15 | PASS |
| N034689-007E | SAMP | 5 | 1.54 | 3.34 | 15 | PASS | 3.73 | 3.14 | 15 | PASS |
| N034707-001F | SAMP | 1 | 1.81 | 4.075 | 15 | PASS | 74.48 | 1.97 | 15 | PASS |
| N034707-001F | SAMP | 5 | 0.29 | 13.9 | 15 | PASS | 15.67 | 2.25 | 15 | PASS |
| N034707-002F | SAMP | 1 | 1.59 | 2.88 | 15 | PASS | 70.15 | 0.82 | 15 | PASS |
| N034707-002F | SAMP | 5 | 0.24 | 12.13 | 15 | PASS | 15.37 | 2.76 | 15 | PASS |
| N034707-003F | SAMP | 1 | 5.35 | 5.28 | 15 | PASS | 0.072 | 212.24 | 15 | <PQL |
| N034707-003F | SAMP | 5 | 1.12 | 7.57 | 15 | PASS | 0.034 | 151.83 | 15 | <PQL |
| CCV5 | CCV | 1 | 19.71 | 0.88 | 15 | PASS | 20.23 | 1.75 | 15 | PASS |
| CCB5 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.005 | 368.93 | 15 | <PQL |
| N034707-004F | SAMP | 1 | 4.83 | 3.44 | 15 | PASS | 1.52 | 10.39 | 15 | PASS |
| N034707-004F | SAMP | 5 | 1.05 | 4.73 | 15 | PASS | 0.41 | 11.74 | 15 | PASS |
| N034662-001D | SAMP | 1 | 14.61 | 1.085 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034662-001D | SAMP | 5 | 3.065 | 2.084 | 15 | PASS | 0.11 | 14.64 | 15 | PASS |
| N034662-002D | SAMP | 1 | 16.59 | 1.91 | 15 | PASS | 5.13 | 2.52 | 15 | PASS |
| N034662-002D | SAMP | 5 | 3.45 | 1.66 | 15 | PASS | 1.084 | 6.97 | 15 | PASS |
| N034662-003D | SAMP | 1 | 16.69 | 1.85 | 15 | PASS | 4.36 | 0.93 | 15 | PASS |
| N034662-003D | SAMP | 5 | 3.51 | 3.61 | 15 | PASS | 0.9 | 7.24 | 15 | PASS |
| N034662-004D | SAMP | 1 | 9.52 | 1.77 | 15 | PASS | 0.77 | 19.3 | 15 | NR! |
| N034662-004D | SAMP | 5 | 2.037 | 3.47 | 15 | PASS | 0.24 | 14.32 | 15 | PASS |
| CCV6 | CCV | 1 | 20.013 | 1.41 | 15 | PASS | 20.27 | 2.96 | 15 | PASS |
| CCB6 | CCB | 1 | 0.034 | 78.47 | 15 | <PQL | 0.02 | 84.99 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 19.8 | 2.015 | 15 | PASS | 18.48 | 2.61 | 15 | PASS |

**PERCENT RSD SUMMARY: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 59 Co [2] | | | | 60 Ni [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.091 | 3.99 | 15 | PASS | 0.1 | 18.97 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.51 | 2.25 | 15 | PASS | 0.48 | 5.33 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 5.12 | 1.68 | 15 | PASS | 5.17 | 4.19 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.23 | 1.043 | 15 | PASS | 10.21 | 0.58 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.65 | 1.05 | 15 | PASS | 20.3 | 1.31 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 41.94 | 1.41 | 15 | PASS | 42.73 | 0.11 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 101.85 | 1.028 | 15 | PASS | 101.2 | 0.55 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 198.6 | 0.9 | 15 | PASS | 198.81 | 2.87 | 15 | PASS |
| ICV | ICV | 1 | 10.17 | 1.71 | 15 | PASS | 10.47 | 2.64 | 15 | PASS |
| ICB | ICB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.5 | 6.29 | 20 | PASS | 1.081 | 6.81 | 20 | PASS |
| ICSA1 | ICSA | 1 | 0.019 | 15.52 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 19.82 | 3.14 | 15 | PASS | 20.3 | 1.47 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.55 | 2.51 | 20 | PASS | 1.047 | 7.24 | 20 | PASS |
| CCV1 | CCV | 1 | 20.19 | 0.64 | 15 | PASS | 20.39 | 1.11 | 15 | PASS |
| CCB1 | CCB | 1 | 0.0022 | 4.95 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV2 | CCV | 1 | 19.92 | 0.41 | 15 | PASS | 19.84 | 0.45 | 15 | PASS |
| CCB2 | CCB | 1 | 0.005 | 28.044 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| MB-73031 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LCS-73031 | LCS | 1 | 9.45 | 1.19 | 15 | PASS | 9.66 | 1.093 | 15 | PASS |
| N034661-001A | SAMP | 1 | 0.55 | 1.63 | 15 | PASS | 1.12 | 3.13 | 15 | PASS |
| N034661-001A | SAMP | 5 | 0.12 | 11.3 | 15 | PASS | 0.24 | 7.89 | 15 | PASS |
| N034661-001A-PS | PS | 1 | 9.26 | 3.33 | 15 | PASS | 10.18 | 1.58 | 15 | PASS |
| N034661-001AMS | MS | 1 | 9.13 | 2.25 | 15 | PASS | 10.042 | 0.95 | 15 | PASS |
| N034661-001AMSD | MSD | 1 | 9.19 | 0.61 | 15 | PASS | 10.11 | 1 | 15 | PASS |
| CCV3 | CCV | 1 | 20.058 | 2.0055 | 15 | PASS | 19.75 | 0.45 | 15 | PASS |
| CCB3 | CCB | 1 | 0.000067 | 3886.86 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0.021 | 28.58 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 18.49 | 0.97 | 15 | PASS | 18.72 | 1.75 | 15 | PASS |
| N034689-002E | SAMP | 1 | 0.12 | 17.43 | 15 | <PQL | 1.2 | 5.54 | 15 | PASS |
| N034689-002E | SAMP | 5 | 0.025 | 19.71 | 15 | <PQL | 0.22 | 10.73 | 15 | PASS |
| N034689-003E | SAMP | 1 | 0.12 | 10.86 | 15 | PASS | 0.98 | 3.72 | 15 | PASS |
| N034689-003E | SAMP | 5 | 0.02 | 26.5 | 15 | <PQL | 0.19 | 30.26 | 15 | <PQL |
| N034689-004E | SAMP | 1 | 0.1 | 7.41 | 15 | PASS | 0.43 | 1.076 | 15 | PASS |
| N034689-004E | SAMP | 5 | 0.024 | 32.047 | 15 | <PQL | 0.053 | 44.95 | 15 | <PQL |
| N034689-005E | SAMP | 1 | 0.0054 | 285.62 | 15 | <PQL | 0.7 | 5.77 | 15 | PASS |
| N034689-005E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.12 | 15.93 | 15 | <PQL |
| N034689-006E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 1.62 | 7.13 | 15 | PASS |
| N034689-006E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.46 | 8.3 | 15 | PASS |
| CCV4 | CCV | 1 | 19.67 | 1.71 | 15 | PASS | 19.7 | 3.18 | 15 | PASS |

NR

**PERCENT RSD SUMMARY: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 59 Co [2] | | | | 60 Ni [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| CCB4 | CCB | 1 | 0.002 | 83.93 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-007E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-007E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-001F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-001F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 0.62 | 5.1 | 15 | PASS |
| N034707-002F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.092 | 42.49 | 15 | <PQL |
| N034707-003F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 0.16 | 17.029 | 15 | <PQL |
| N034707-003F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.043 | 63.92 | 15 | <PQL |
| CCV5 | CCV | 1 | 19.72 | 0.67 | 15 | PASS | 19.73 | 2.31 | 15 | PASS |
| CCB5 | CCB | 1 | 0.00028 | 588.34 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 1 | 0.011 | 24.75 | 15 | <PQL | 1.8 | 5.0036 | 15 | PASS |
| N034707-004F | SAMP | 5 | 0.0015 | 177.15 | 15 | <PQL | 0.39 | 18.46 | 15 | <PQL |
| N034662-001D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.85 | 4.47 | 15 | PASS |
| N034662-001D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.55 | 3.69 | 15 | PASS |
| N034662-002D | SAMP | 1 | 0.1 | 16.67 | 15 | <PQL | 2.7 | 5.13 | 15 | PASS |
| N034662-002D | SAMP | 5 | 0.026 | 28.76 | 15 | <PQL | 0.57 | 2.66 | 15 | PASS |
| N034662-003D | SAMP | 1 | 0.12 | 12.51 | 15 | PASS | 2.9 | 5.53 | 15 | PASS |
| N034662-003D | SAMP | 5 | 0.016 | 57.72 | 15 | <PQL | 0.61 | 9.93 | 15 | PASS |
| N034662-004D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 1.56 | 4.28 | 15 | PASS |
| N034662-004D | SAMP | 5 | 0.00033 | 1556.66 | 15 | <PQL | 0.35 | 7.5 | 15 | PASS |
| CCV6 | CCV | 1 | 19.74 | 1.63 | 15 | PASS | 19.35 | 2.67 | 15 | PASS |
| CCB6 | CCB | 1 | 0.0022 | 187.012 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA3 | ICSA | 1 | 0.018 | 51.59 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 18.6 | 0.15 | 15 | PASS | 18.19 | 0.81 | 15 | PASS |

**PERCENT RSD SUMMARY: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 63 Cu [2] | | | | 66 Zn [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.069 | 51.9 | 15 | <PQL | 0.12 | 53.85 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.5 | 5.1 | 15 | PASS | 0.65 | 18.79 | 15 | <PQL |
| Std3-5/50 ppb | ICAL | 1 | 5.26 | 1.099 | 15 | PASS | 5.22 | 0.66 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.29 | 2.8 | 15 | PASS | 10.25 | 1.65 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.6 | 1.12 | 15 | PASS | 20.076 | 1.14 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 43.12 | 1.44 | 15 | PASS | 42.044 | 1.15 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 101.043 | 0.98 | 15 | PASS | 100.067 | 1.43 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 198.77 | 3.18 | 15 | PASS | 199.53 | 3.71 | 15 | PASS |
| ICV | ICV | 1 | 10.45 | 2 | 15 | PASS | 10.23 | 1.8 | 15 | PASS |
| ICB | ICB | 1 | <0.000 | N/A | 15 | <PQL | 0.018 | 189.57 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.71 | 11.92 | 20 | PASS | 10.53 | 5.25 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 18.71 | 1.56 | 15 | PASS | 17.75 | 3.84 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.92 | 4.47 | 20 | PASS | 10.83 | 4.044 | 20 | PASS |
| CCV1 | CCV | 1 | 20.2 | 1.7 | 15 | PASS | 19.96 | 1.99 | 15 | PASS |
| CCB1 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.024 | 45.59 | 15 | <PQL |
| CCV2 | CCV | 1 | 19.98 | 0.95 | 15 | PASS | 19.61 | 0.66 | 15 | PASS |
| CCB2 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| MB-73031 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LCS-73031 | LCS | 1 | 9.57 | 1.39 | 15 | PASS | 9.66 | 3.059 | 15 | PASS |
| N034661-001A | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034661-001A | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034661-001A-PS | PS | 1 | 4.095 | 2.32 | 15 | PASS | 7.9 | 4.37 | 15 | PASS |
| N034661-001AMS | MS | 1 | 3.98 | 0.24 | 15 | PASS | 7.48 | 5.72 | 15 | PASS |
| N034661-001AMSD | MSD | 1 | 3.95 | 1.3 | 15 | PASS | 7.25 | 6.33 | 15 | PASS |
| CCV3 | CCV | 1 | 19.39 | 1.0068 | 15 | PASS | 19.66 | 0.78 | 15 | PASS |
| CCB3 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 16.85 | 1.69 | 15 | PASS | 16.9 | 4.46 | 15 | PASS |
| N034689-002E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-002E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-003E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-003E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-004E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-004E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-005E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-005E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-006E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-006E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV4 | CCV | 1 | 19.72 | 1.76 | 15 | PASS | 19.61 | 4.49 | 15 | PASS |

NR

**PERCENT RSD SUMMARY: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 63 Cu [2] | | | | 66 Zn [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| CCB4 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-007E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034689-007E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-001F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-001F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-002F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-003F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV5 | CCV | 1 | 19.56 | 0.75 | 15 | PASS | 19.89 | 1.056 | 15 | PASS |
| CCB5 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034707-004F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-001D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-001D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.019 | 250.5 | 15 | <PQL |
| N034662-002D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 0.77 | 25.14 | 15 | <PQL |
| N034662-002D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.14 | 15.52 | 15 | <PQL |
| N034662-003D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 0.76 | 2.74 | 15 | PASS |
| N034662-003D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.24 | 10.5 | 15 | PASS |
| N034662-004D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034662-004D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV6 | CCV | 1 | 19.4 | 1.43 | 15 | PASS | 19.73 | 4.023 | 15 | PASS |
| CCB6 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 16.5 | 1.41 | 15 | PASS | 16.29 | 1.41 | 15 | PASS |

**PERCENT RSD SUMMARY: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 75 As [2] | | | | 78 Se [1] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.078 | 26.43 | 15 | <PQL | 0.11 | 124.55 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.54 | 18.66 | 15 | NR! | 0.83 | 64.72 | 15 | NR! |
| Std3-5/50 ppb | ICAL | 1 | 5.067 | 1.58 | 15 | PASS | 5.6 | 7.88 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.15 | 4.88 | 15 | PASS | 9.68 | 10.18 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.91 | 1.074 | 15 | PASS | 20.51 | 3.57 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 39.46 | 1.53 | 15 | PASS | 39.74 | 5.17 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.21 | 0.51 | 15 | PASS | 103.15 | 2.82 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 193.87 | 4.0047 | 15 | PASS | 206.82 | 2.85 | 15 | PASS |
| ICV | ICV | 1 | 9.93 | 3.86 | 15 | PASS | 10.27 | 4.44 | 15 | PASS |
| ICB | ICB | 1 | 0.00014 | 25429.28 | 15 | <PQL | 0 | N/A | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.1 | 4.9 | 20 | PASS | 0.73 | 22.87 | 20 | NR! |
| ICSA1 | ICSA | 1 | 0.033 | 128.92 | 15 | <PQL | 0.025 | 173.21 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 20.39 | 3.36 | 15 | PASS | 19.53 | 1.68 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.11 | 27.48 | 20 | NR! | 0.55 | 7.62 | 20 | PASS |
| CCV1 | CCV | 1 | 20.086 | 0.88 | 15 | PASS | 19.34 | 3.41 | 15 | PASS |
| CCB1 | CCB | 1 | 0.049 | 59.51 | 15 | <PQL | 0.08 | 42.67 | 15 | <PQL |
| CCV2 | CCV | 1 | 19.89 | 3.49 | 15 | PASS | 19.99 | 10.76 | 15 | PASS |
| CCB2 | CCB | 1 | 0.021 | 131.1 | 15 | <PQL | 0.081 | 112.49 | 15 | <PQL |
| MB-73031 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| LCS-73031 | LCS | 1 | 9.64 | 5 | 15 | PASS | 9.6 | 7.041 | 15 | PASS |
| N034661-001A | SAMP | 1 | 0.85 | 17.95 | 15 | NR! | 24.85 | 7.17 | 15 | PASS |
| N034661-001A | SAMP | 5 | 0.13 | 38.0043 | 15 | NR! | 4.7 | 7.81 | 15 | PASS |
| N034661-001A-PS | PS | 1 | 11.037 | 2.21 | 15 | PASS | 31.072 | 0.86 | 15 | PASS |
| N034661-001AMS | MS | 1 | 11.022 | 2.41 | 15 | PASS | 33.91 | 5.21 | 15 | PASS |
| N034661-001AMSD | MSD | 1 | 11.16 | 0.8 | 15 | PASS | 32.53 | 7.099 | 15 | PASS |
| CCV3 | CCV | 1 | 19.9 | 2.44 | 15 | PASS | 20.51 | 3.58 | 15 | PASS |
| CCB3 | CCB | 1 | 0.04 | 59.66 | 15 | <PQL | 0.078 | 43.018 | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.02 | 173.21 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 20.61 | 0.94 | 15 | PASS | 18.15 | 4.99 | 15 | PASS |
| N034689-002E | SAMP | 1 | 27.002 | 3.035 | 15 | PASS | 10.92 | 2.15 | 15 | PASS |
| N034689-002E | SAMP | 5 | 5.63 | 3.64 | 15 | PASS | 2.46 | 12.83 | 15 | PASS |
| N034689-003E | SAMP | 1 | 28.57 | 2.64 | 15 | PASS | 12.15 | 11.1 | 15 | PASS |
| N034689-003E | SAMP | 5 | 5.83 | 1.43 | 15 | PASS | 2.27 | 24.1 | 15 | NR! |
| N034689-004E | SAMP | 1 | 4.9 | 4.87 | 15 | PASS | 2.81 | 34.86 | 15 | NR! |
| N034689-004E | SAMP | 5 | 1.027 | 13.33 | 15 | PASS | 0.66 | 11.27 | 15 | PASS |
| N034689-005E | SAMP | 1 | 2.93 | 4.25 | 15 | PASS | 22.16 | 4.2 | 15 | PASS |
| N034689-005E | SAMP | 5 | 0.62 | 7.57 | 15 | PASS | 4.35 | 12.19 | 15 | PASS |
| N034689-006E | SAMP | 1 | 3.3 | 1.97 | 15 | PASS | 8.81 | 13.48 | 15 | PASS |
| N034689-006E | SAMP | 5 | 0.62 | 8.047 | 15 | PASS | 2.13 | 5.52 | 15 | PASS |
| CCV4 | CCV | 1 | 20.12 | 0.63 | 15 | PASS | 19.6 | 7.72 | 15 | PASS |

NR

**PERCENT RSD SUMMARY: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 75 As [2] | | | | 78 Se [1] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| CCB4 | CCB | 1 | 0.016 | 129.23 | 15 | <PQL | 0.16 | 56.5 | 15 | <PQL |
| N034689-007E | SAMP | 1 | 9.055 | 2.23 | 15 | PASS | 0.45 | 27.52 | 15 | <PQL |
| N034689-007E | SAMP | 5 | 1.86 | 7.61 | 15 | PASS | 0.14 | 25.12 | 15 | <PQL |
| N034707-001F | SAMP | 1 | 3.81 | 3.58 | 15 | PASS | 21.8 | 5.54 | 15 | PASS |
| N034707-001F | SAMP | 5 | 0.72 | 7.89 | 15 | PASS | 4.05 | 9.15 | 15 | PASS |
| N034707-002F | SAMP | 1 | 3.41 | 8.86 | 15 | PASS | 21.23 | 4.2 | 15 | PASS |
| N034707-002F | SAMP | 5 | 0.68 | 3.42 | 15 | PASS | 4.62 | 7.95 | 15 | PASS |
| N034707-003F | SAMP | 1 | 1.24 | 2.39 | 15 | PASS | 10.46 | 9.11 | 15 | PASS |
| N034707-003F | SAMP | 5 | 0.19 | 23.37 | 15 | NR! | 2.19 | 28.53 | 15 | NR! |
| CCV5 | CCV | 1 | 19.72 | 3.75 | 15 | PASS | 18.41 | 6.48 | 15 | PASS |
| CCB5 | CCB | 1 | 0.042 | 131.51 | 15 | <PQL | 0.061 | 98.066 | 15 | <PQL |
| N034707-004F | SAMP | 1 | 1.2 | 0.23 | 15 | PASS | 10.67 | 3.92 | 15 | PASS |
| N034707-004F | SAMP | 5 | 0.22 | 24.38 | 15 | NR! | 1.85 | 23.35 | 15 | NR! |
| N034662-001D | SAMP | 1 | 1.79 | 7.0083 | 15 | PASS | 5.65 | 11.044 | 15 | PASS |
| N034662-001D | SAMP | 5 | 0.39 | 12.92 | 15 | PASS | 1.3 | 10.6 | 15 | PASS |
| N034662-002D | SAMP | 1 | 2.43 | 8.8 | 15 | PASS | 7.18 | 7.62 | 15 | PASS |
| N034662-002D | SAMP | 5 | 0.46 | 6.066 | 15 | PASS | 1.4 | 30.96 | 15 | NR! |
| N034662-003D | SAMP | 1 | 2.55 | 1.59 | 15 | PASS | 6.74 | 4.048 | 15 | PASS |
| N034662-003D | SAMP | 5 | 0.51 | 13.12 | 15 | PASS | 1.028 | 16.035 | 15 | NR! |
| N034662-004D | SAMP | 1 | 1.52 | 1.74 | 15 | PASS | 5.46 | 7.61 | 15 | PASS |
| N034662-004D | SAMP | 5 | 0.28 | 12.57 | 15 | PASS | 0.8 | 52.07 | 15 | NR! |
| CCV6 | CCV | 1 | 19.82 | 2.66 | 15 | PASS | 18.21 | 11.14 | 15 | PASS |
| CCB6 | CCB | 1 | 0.033 | 26.23 | 15 | <PQL | 0.12 | 86.098 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.061 | 173.21 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 20.18 | 3.29 | 15 | PASS | 18.96 | 8.49 | 15 | PASS |

**PERCENT RSD SUMMARY: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 9 Be [3] | | | | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.099 | 7.48 | 15 | PASS | 0.0024 | 816.73 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.49 | 2.55 | 15 | PASS | 0.36 | 24.28 | 15 | <PQL |
| Std3-5/50 ppb | ICAL | 1 | 4.91 | 1.68 | 15 | PASS | 4.088 | 1.72 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 9.89 | 1.64 | 15 | PASS | 8.77 | 3.57 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.94 | 0.61 | 15 | PASS | 18.89 | 1.47 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 39.38 | 1.43 | 15 | PASS | 37.098 | 0.36 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.064 | 0.32 | 15 | PASS | 101.55 | 1.13 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 200.11 | 0.43 | 15 | PASS | 197.93 | 0.54 | 15 | PASS |
| ICV | ICV | 1 | 9.59 | 0.93 | 15 | PASS | 9.052 | 2.12 | 15 | PASS |
| ICB | ICB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.49 | 1.59 | 20 | PASS | 0.27 | 18.55 | 20 | PASS |
| ICSA1 | ICSA | 1 | 0.012 | 12.53 | 15 | PASS | 0.14 | 42.92 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 19.89 | 0.47 | 15 | PASS | 19.039 | 2.13 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.49 | 2.024 | 20 | PASS | 0.46 | 4.43 | 20 | PASS |
| CCV1 | CCV | 1 | 20.25 | 0.45 | 15 | PASS | 19.13 | 0.3 | 15 | PASS |
| CCB1 | CCB | 1 | 0.0043 | 84.82 | 15 | <PQL | 0.44 | 9.054 | 15 | PASS |
| CCV2 | CCV | 1 | 19.66 | 1 | 15 | PASS | 18.72 | 0.37 | 15 | PASS |
| CCB2 | CCB | 1 | 0.0058 | 35.32 | 15 | <PQL | 0.33 | 19.85 | 15 | <PQL |
| MB-73031 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LCS-73031 | LCS | 1 | 9.48 | 0.42 | 15 | PASS | 9.16 | 1.77 | 15 | PASS |
| N034661-001A | SAMP | 1 | 0.0036 | 16.057 | 15 | <PQL | 18.62 | 1.34 | 15 | PASS |
| N034661-001A | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 3.41 | 3.95 | 15 | PASS |
| N034661-001A-PS | PS | 1 | 11.89 | 1.16 | 15 | PASS | 29.063 | 1.21 | 15 | PASS |
| N034661-001AMS | MS | 1 | 12.0035 | 0.67 | 15 | PASS | 29.86 | 0.74 | 15 | PASS |
| N034661-001AMSD | MSD | 1 | 12.0017 | 1.84 | 15 | PASS | 30.75 | 0.43 | 15 | PASS |
| CCV3 | CCV | 1 | 19.89 | 0.87 | 15 | PASS | 19.24 | 2.0046 | 15 | PASS |
| CCB3 | CCB | 1 | 0.0008 | 186.09 | 15 | <PQL | 0.35 | 23.78 | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0.017 | 16.63 | 15 | <PQL | 0.094 | 59.56 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 19.98 | 0.54 | 15 | PASS | 19.9 | 0.93 | 15 | PASS |
| N034689-002E | SAMP | 1 | 0.014 | 19.7 | 15 | <PQL | 102.74 | 0.31 | 15 | PASS |
| N034689-002E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 20.41 | 2.3 | 15 | PASS |
| N034689-003E | SAMP | 1 | 0.0029 | 68.037 | 15 | <PQL | 110.91 | 0.16 | 15 | PASS |
| N034689-003E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 21.65 | 2.16 | 15 | PASS |
| N034689-004E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 42.93 | 1.065 | 15 | PASS |
| N034689-004E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 8.47 | 2.81 | 15 | PASS |
| N034689-005E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 51 | 0.69 | 15 | PASS |
| N034689-005E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 9.98 | 1.26 | 15 | PASS |
| N034689-006E | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 17.7 | 0.51 | 15 | PASS |
| N034689-006E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 3.31 | 0.88 | 15 | PASS |
| CCV4 | CCV | 1 | 20 | 0.7 | 15 | PASS | 19.1 | 0.13 | 15 | PASS |

NR

**PERCENT RSD SUMMARY: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 9 Be [3] | | | | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| CCB4 | CCB | 1 | 0.0061 | 32.59 | 15 | <PQL | 0.33 | 24.5 | 15 | <PQL |
| N034689-007E | SAMP | 1 | 0.0058 | 91.76 | 15 | <PQL | 71.45 | 0.69 | 15 | PASS |
| N034689-007E | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 13.75 | 1.54 | 15 | PASS |
| N034707-001F | SAMP | 1 | 0.0088 | 145.39 | 15 | <PQL | 21.95 | 2.1 | 15 | PASS |
| N034707-001F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 4.26 | 1.54 | 15 | PASS |
| N034707-002F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 21.93 | 0.93 | 15 | PASS |
| N034707-002F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 4.41 | 2.84 | 15 | PASS |
| N034707-003F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 6.44 | 1.67 | 15 | PASS |
| N034707-003F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 1.18 | 4.44 | 15 | PASS |
| CCV5 | CCV | 1 | 19.71 | 1.46 | 15 | PASS | 18.63 | 0.92 | 15 | PASS |
| CCB5 | CCB | 1 | 0.00098 | 294.036 | 15 | <PQL | 0.29 | 11.93 | 15 | PASS |
| N034707-004F | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 6.98 | 3.88 | 15 | PASS |
| N034707-004F | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 1.32 | 6.82 | 15 | PASS |
| N034662-001D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 3.64 | 2.3 | 15 | PASS |
| N034662-001D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.6 | 6.081 | 15 | PASS |
| N034662-002D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 19.049 | 1.0075 | 15 | PASS |
| N034662-002D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 3.57 | 0.39 | 15 | PASS |
| N034662-003D | SAMP | 1 | 0.00042 | 849.27 | 15 | <PQL | 19.82 | 0.72 | 15 | PASS |
| N034662-003D | SAMP | 5 | 0.021 | 225.41 | 15 | <PQL | 3.81 | 1.77 | 15 | PASS |
| N034662-004D | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 5.82 | 4.33 | 15 | PASS |
| N034662-004D | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 1.076 | 8 | 15 | PASS |
| CCV6 | CCV | 1 | 20.0099 | 0.45 | 15 | PASS | 18.83 | 0.69 | 15 | PASS |
| CCB6 | CCB | 1 | 0.00018 | 1887.77 | 15 | <PQL | 0.24 | 26.15 | 15 | <PQL |
| ICSA3 | ICSA | 1 | 0.011 | 30.68 | 15 | <PQL | 0.048 | 77.13 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 19.65 | 1.29 | 15 | PASS | 20.32 | 0.69 | 15 | PASS |

**PERCENT RSD SUMMARY: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 55 Mn [2] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.095 | 27.17 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.55 | 3.6 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 5.38 | 1.33 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.28 | 0.59 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.51 | 1.4 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 41.11 | 1.22 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.34 | 1.29 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.53 | 0.49 | 15 | PASS |
| ICV | ICV | 1 | 106.82 | 2.17 | 15 | PASS |
| ICB | ICB | 1 | <0.000 | N/A | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.55 | 6.9 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 18.27 | 2.099 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.44 | 5.41 | 20 | PASS |
| N034662-004D | SAMP | 1 | 0.68 | 6.16 | 15 | PASS |
| CCV1 | CCV | 1 | 20.48 | 1.74 | 15 | PASS |
| CCB1 | CCB | 1 | 0.0087 | 48.39 | 15 | <PQL |
| CCV2 | CCV | 1 | 20.64 | 2.49 | 15 | PASS |
| CCB2 | CCB | 1 | 0.054 | 53.18 | 15 | <PQL |
| CCV3 | CCV | 1 | 20.29 | 1.5 | 15 | PASS |
| CCB3 | CCB | 1 | 0.083 | 54.5 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 19.23 | 1.28 | 15 | PASS |
| CCV4 | CCV | 1 | 20.77 | 0.54 | 15 | PASS |
| CCB4 | CCB | 1 | 0.069 | 14.67 | 15 | PASS |
| CCV5 | CCV | 1 | 20.97 | 1.48 | 15 | PASS |
| CCB5 | CCB | 1 | 0.044 | 31.22 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 19.6 | 3.4 | 15 | PASS |
| CCV6 | CCV | 1 | 21.44 | 0.41 | 15 | PASS |
| CCB6 | CCB | 1 | 0.14 | 13.57 | 15 | PASS |
| CCV7 | CCV | 1 | 21.72 | 0.57 | 15 | PASS |
| CCB7 | CCB | 1 | 0.13 | 25.26 | 15 | <PQL |
| ICSA4 | ICSA | 1 | <0.000 | N/A | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 19.48 | 0.58 | 15 | PASS |
| CCV8 | CCV | 1 | 21.7 | 1.9 | 15 | PASS |
| CCB8 | CCB | 1 | 0.25 | 16.84 | 15 | <PQL |
| CCV9 | CCV | 1 | 21.079 | 2.61 | 15 | PASS |
| CCB9 | CCB | 1 | 0.17 | 20.34 | 15 | <PQL |
| CCV10 | CCV | 1 | 21.91 | 3.54 | 15 | PASS |

**PERCENT RSD SUMMARY: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 55 Mn [2] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| CCB10 | CCB | 1 | 0.36 | 14.0093 | 15 | PASS |
| ICSA5 | ICSA | 1 | <0.000 | N/A | 15 | <PQL |
| ICSAB5 | ICSAB | 1 | 18.97 | 3.41 | 15 | PASS |
| CCV11 | CCV | 1 | 21.46 | 1.63 | 15 | PASS |
| CCB11 | CCB | 1 | 0.31 | 25.45 | 15 | <PQL |
| CCV12 | CCV | 1 | 21.088 | 2.34 | 15 | PASS |
| CCB12 | CCB | 1 | 0.22 | 24.49 | 15 | <PQL |
| CCV13 | CCV | 1 | 21.58 | 1.19 | 15 | PASS |
| CCB13 | CCB | 1 | 0.28 | 18.4 | 15 | <PQL |
| CCV14 | CCV | 1 | 21.85 | 2.72 | 15 | PASS |
| CCB14 | CCB | 1 | 0.24 | 26.067 | 15 | <PQL |
| CCV15 | CCV | 1 | 22.47 | 1.55 | 15 | PASS |
| CCB15 | CCB | 1 | 0.29 | 10.63 | 15 | PASS |
| CCV15 | CCV | 1 | 21.43 | 0.81 | 15 | PASS |
| CCB15 | CCB | 1 | 0.17 | 28.054 | 15 | <PQL |
| CCV16 | CCV | 1 | 21.77 | 2.87 | 15 | PASS |
| CCV16 | CCV | 1 | 21.49 | 3.29 | 15 | PASS |
| CCB16 | CCB | 1 | 0.15 | 41.38 | 15 | <PQL |

# ANALYSIS RUN LOG

**INJECTION LOG: 190328B**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| B0328001.D | RINSE | RINSE | 1 | 03/28/19 1:25 PM |
| B0328002.D | Cal Blank | IBLK | 1 | 03/28/19 1:31 PM |
| B0328003.D | Std1-0.1/1 ppb | ICAL | 1 | 03/28/19 1:37 PM |
| B0328004.D | Std2-0.5/5 ppb | ICAL | 1 | 03/28/19 1:43 PM |
| B0328005.D | Std3-5/50 ppb | ICAL | 1 | 03/28/19 1:49 PM |
| B0328006.D | Std4-10/100 ppb | ICAL | 1 | 03/28/19 1:55 PM |
| B0328007.D | Std5-20/200 ppb | ICAL | 1 | 03/28/19 2:01 PM |
| B0328008.D | Std6-40/400 ppb | ICAL | 1 | 03/28/19 2:07 PM |
| B0328009.D | Std7-100/1000 ppb | ICAL | 1 | 03/28/19 2:21 PM |
| B0328010.D | Std8-200/2000 ppb | ICAL | 1 | 03/28/19 2:27 PM |
| B0328011.D | ICV | ICV | 1 | 03/28/19 2:37 PM |
| B0328012.D | ICB | ICB | 1 | 03/28/19 2:44 PM |
| B0328013.D | LLICV | CCV1 | 1 | 03/28/19 2:52 PM |
| B0328014.D | ICSA1 | ICSA | 1 | 03/28/19 2:56 PM |
| B0328015.D | ICSAB1 | ICSAB | 1 | 03/28/19 3:03 PM |
| B0328016.D | LLICV | CCV1 | 1 | 03/28/19 3:09 PM |
| B0328017.D | MB-73031 | MBLK | 1 | 03/28/19 3:16 PM |
| B0328018.D | LCS-73031 | LCS | 1 | 03/28/19 3:22 PM |
| B0328019.D | N034599-001A | SAMP | 1 | 03/28/19 3:27 PM |
| B0328020.D | N034661-001A | SAMP | 1 | 03/28/19 3:33 PM |
| B0328021.D | N034661-001A | SAMP | 5 | 03/28/19 3:39 PM |
| B0328022.D | N034661-001A-PS | PS | 1 | 03/28/19 3:45 PM |
| B0328023.D | N034661-001AMS | MS | 1 | 03/28/19 3:52 PM |
| B0328024.D | N034661-001AMSD | MSD | 1 | 03/28/19 3:58 PM |
| B0328025.D | N034661-001A-PS | PS | 1 | 03/28/19 4:04 PM |
| B0328026.D | N034661-001A | SAMP | 1 | 03/28/19 4:11 PM |
| B0328027.D | CCV1 | CCV | 1 | 03/28/19 4:17 PM |
| B0328028.D | CCB1 | CCB | 1 | 03/28/19 4:24 PM |
| B0328029.D | N034689-002E | SAMP | 1 | 03/28/19 4:31 PM |
| B0328030.D | N034689-002E | SAMP | 5 | 03/28/19 4:37 PM |
| B0328031.D | N034689-003E | SAMP | 1 | 03/28/19 4:43 PM |
| B0328032.D | N034689-003E | SAMP | 5 | 03/28/19 4:49 PM |
| B0328033.D | N034689-004E | SAMP | 1 | 03/28/19 4:54 PM |
| B0328034.D | N034689-004E | SAMP | 5 | 03/28/19 5:00 PM |
| B0328035.D | N034689-005E | SAMP | 1 | 03/28/19 5:07 PM |
| B0328036.D | N034689-005E | SAMP | 5 | 03/28/19 5:13 PM |
| B0328037.D | N034689-006E | SAMP | 1 | 03/28/19 5:19 PM |
| B0328038.D | N034689-006E | SAMP | 25 | 03/28/19 5:25 PM |
| B0328039.D | CCV2 | CCV | 1 | 03/28/19 5:31 PM |
| B0328040.D | CCB2 | CCB | 1 | 03/28/19 5:38 PM |
| B0328041.D | N034689-004E | SAMP | 1 | 03/28/19 5:45 PM |
| B0328042.D | N034689-007E | SAMP | 1 | 03/28/19 5:51 PM |

**INJECTION LOG: 190328B**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| B0328043.D | N034689-007E | SAMP | 5 | 03/28/19 5:57 PM |
| B0328044.D | N034661-001A | SAMP | 25 | 03/28/19 6:03 PM |
| B0328045.D | N034661-001A-PS | PS | 5 | 03/28/19 6:09 PM |
| B0328046.D | N034661-001AMS | MS | 5 | 03/28/19 6:15 PM |
| B0328047.D | N034661-001AMSD | MSD | 5 | 03/28/19 6:22 PM |
| B0328048.D | N034689-007E | SAMP | 1 | 03/28/19 6:28 PM |
| B0328049.D | N034689-007E | SAMP | 5 | 03/28/19 6:34 PM |
| B0328050.D | N034707-001F | SAMP | 100 | 03/28/19 6:40 PM |
| B0328051.D | CCV3 | CCV | 1 | 03/28/19 6:47 PM |
| B0328052.D | CCB3 | CCB | 1 | 03/28/19 6:54 PM |
| B0328053.D | ICSA2 | ICSA | 1 | 03/28/19 7:02 PM |
| B0328054.D | ICSAB2 | ICSAB | 1 | 03/28/19 7:07 PM |
| B0328055.D | N034707-001F | SAMP | 5 | 03/28/19 7:10 PM |
| B0328056.D | N034707-001F | SAMP | 1 | 03/28/19 7:16 PM |
| B0328057.D | N034707-001F | SAMP | 25 | 03/28/19 7:22 PM |
| B0328058.D | N034707-002F | SAMP | 5 | 03/28/19 7:28 PM |
| B0328059.D | N034707-002F | SAMP | 25 | 03/28/19 7:37 PM |
| B0328060.D | N034707-002F | SAMP | 100 | 03/28/19 7:43 PM |
| B0328061.D | N034707-003F | SAMP | 25 | 03/28/19 7:49 PM |
| B0328062.D | N034707-003F | SAMP | 5 | 03/28/19 7:54 PM |
| B0328063.D | N034707-003F | SAMP | 50 | 03/28/19 8:00 PM |
| B0328064.D | N034707-004F | SAMP | 5 | 03/28/19 8:06 PM |
| B0328065.D | CCV4 | CCV | 1 | 03/28/19 8:12 PM |
| B0328066.D | CCB4 | CCB | 1 | 03/28/19 8:18 PM |
| B0328067.D | N034707-004F | SAMP | 25 | 03/28/19 8:24 PM |
| B0328068.D | N034707-002F | SAMP | 1 | 03/28/19 8:30 PM |
| B0328069.D | RINSE | RINSE | 1 | 03/28/19 8:36 PM |
| B0328070.D | N034707-003F | SAMP | 1 | 03/28/19 8:42 PM |
| B0328071.D | RINSE | RINSE | 1 | 03/28/19 8:48 PM |
| B0328072.D | N034707-004F | SAMP | 50 | 03/28/19 8:54 PM |
| B0328073.D | N034707-004F | SAMP | 1 | 03/28/19 9:00 PM |
| B0328074.D | RINSE | RINSE | 1 | 03/28/19 9:05 PM |
| B0328075.D | RINSE | RINSE | 1 | 03/28/19 9:11 PM |
| B0328076.D | CCV5 | CCV | 1 | 03/28/19 9:17 PM |
| B0328077.D | CCB5 | CCB | 1 | 03/28/19 9:23 PM |
| B0328078.D | ICSA3 | ICSA | 1 | 03/28/19 9:29 PM |
| B0328079.D | ICSAB3 | ICSAB | 1 | 03/28/19 9:35 PM |
| B0328080.D | N034662-001D | SAMP | 25 | 03/28/19 9:42 PM |
| B0328081.D | N034662-001D | SAMP | 5 | 03/28/19 9:51 PM |
| B0328082.D | N034662-001D | SAMP | 1 | 03/28/19 9:59 PM |
| B0328083.D | N034662-002D | SAMP | 25 | 03/28/19 10:05 PM |
| B0328084.D | N034662-002D | SAMP | 5 | 03/28/19 10:10 PM |

**INJECTION LOG: 190328B**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| B0328085.D | N034662-002D | SAMP | 1 | 03/28/19 10:16 PM |
| B0328086.D | N034662-003D | SAMP | 25 | 03/28/19 10:22 PM |
| B0328087.D | N034662-003D | SAMP | 5 | 03/28/19 10:28 PM |
| B0328088.D | N034662-003D | SAMP | 1 | 03/28/19 10:34 PM |
| B0328089.D | N034662-004D | SAMP | 25 | 03/28/19 10:40 PM |
| B0328090.D | CCV6 | CCV | 1 | 03/28/19 10:46 PM |
| B0328091.D | CCB6 | CCB | 1 | 03/28/19 10:52 PM |
| B0328092.D | N034662-004D | SAMP | 5 | 03/28/19 10:58 PM |
| B0328093.D | N034662-004D | SAMP | 1 | 03/28/19 11:04 PM |
| B0328094.D | MB-73116 | MBLK | 1 | 03/28/19 11:10 PM |
| B0328095.D | LCS-73116 | LCS | 1 | 03/28/19 11:15 PM |
| B0328096.D | N034793-005A | SAMP | 1 | 03/28/19 11:21 PM |
| B0328097.D | N034793-005A | SAMP | 5 | 03/28/19 11:27 PM |
| B0328098.D | N034793-005A-PS | PS | 1 | 03/28/19 11:33 PM |
| B0328099.D | N034793-005A-MS | MS | 1 | 03/28/19 11:39 PM |
| B0328100.D | N034793-005A-MSD | MSD | 1 | 03/28/19 11:45 PM |
| B0328101.D | N034795-005A | SAMP | 1 | 03/28/19 11:51 PM |
| B0328102.D | CCV7 | CCV | 1 | 03/28/19 11:57 PM |
| B0328103.D | CCB7 | CCB | 1 | 03/29/19 12:03 AM |
| B0328104.D | ICSA4 | ICSA | 1 | 03/29/19 12:09 AM |
| B0328105.D | ICSAB4 | ICSAB | 1 | 03/29/19 12:15 AM |
| B0328106.D | N034795-010A | SAMP | 1 | 03/29/19 12:21 AM |
| B0328107.D | N034795-015A | SAMP | 1 | 03/29/19 12:27 AM |
| B0328108.D | MB-73083 | MBLK | 1 | 03/29/19 12:33 AM |
| B0328109.D | LCS-73083 | LCS | 1 | 03/29/19 12:39 AM |
| B0328110.D | N034696-001A | SAMP | 1 | 03/29/19 12:44 AM |
| B0328111.D | N034696-002A | SAMP | 1 | 03/29/19 12:50 AM |
| B0328112.D | N034696-003A | SAMP | 10 | 03/29/19 12:56 AM |
| B0328113.D | N034696-004A | SAMP | 1 | 03/29/19 1:02 AM |
| B0328114.D | N034720-001C | SAMP | 1 | 03/29/19 1:08 AM |
| B0328115.D | N034720-001C | SAMP | 5 | 03/29/19 1:15 AM |
| B0328116.D | N034749-001A | SAMP | 1 | 03/29/19 1:21 AM |
| B0328117.D | N034749-001A | SAMP | 5 | 03/29/19 1:27 AM |
| B0328118.D | CCV9 | CCV | 1 | 03/29/19 1:33 AM |
| B0328119.D | CCB9 | CCB | 1 | 03/29/19 1:39 AM |
| B0328120.D | N034749-001A-PS | PS | 1 | 03/29/19 1:45 AM |
| B0328121.D | N034749-001A-MS | MS | 1 | 03/29/19 1:51 AM |
| B0328122.D | N034749-001A-MSD | MSD | 1 | 03/29/19 1:57 AM |
| B0328123.D | N034696-002A | SAMP | 5 | 03/29/19 2:03 AM |
| B0328124.D | N034696-003A | SAMP | 50 | 03/29/19 2:09 AM |
| B0328125.D | CCV10 | CCV | 1 | 03/29/19 2:15 AM |
| B0328126.D | CCB10 | CCB | 1 | 03/29/19 2:21 AM |

**INJECTION LOG: 190328B**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| B0328127.D | ICSA5 | ICSA | 1 | 03/29/19 2:27 AM |
| B0328128.D | ICSAB5 | ICSAB | 1 | 03/29/19 2:32 AM |

**INJECTION LOG: 190331A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0331001.D | RINSE | RINSE | 1 | 03/31/19 5:36 PM |
| A0331002.D | Cal Blank | IBLK | 1 | 03/31/19 5:42 PM |
| A0331003.D | Std1-0.1/1 ppb | ICAL | 1 | 03/31/19 5:48 PM |
| A0331004.D | Std2-0.5/5 ppb | ICAL | 1 | 03/31/19 5:54 PM |
| A0331005.D | Std3-5/50 ppb | ICAL | 1 | 03/31/19 6:00 PM |
| A0331006.D | Std4-10/100 ppb | ICAL | 1 | 03/31/19 6:06 PM |
| A0331007.D | Std5-20/200 ppb | ICAL | 1 | 03/31/19 6:12 PM |
| A0331008.D | Std6-40/400 ppb | ICAL | 1 | 03/31/19 6:17 PM |
| A0331009.D | Std7-100/1000 ppb | ICAL | 1 | 03/31/19 6:24 PM |
| A0331010.D | Std8-200/2000 ppb | ICAL | 1 | 03/31/19 6:30 PM |
| A0331011.D | ICV | ICV | 1 | 03/31/19 6:36 PM |
| A0331012.D | ICB | ICB | 1 | 03/31/19 6:42 PM |
| A0331013.D | LLICV | CCV1 | 1 | 03/31/19 6:48 PM |
| A0331014.D | ICSA1 | ICSA | 1 | 03/31/19 6:53 PM |
| A0331015.D | ICSAB1 | ICSAB | 1 | 03/31/19 7:00 PM |
| A0331016.D | LLICV | CCV1 | 1 | 03/31/19 7:06 PM |
| A0331017.D | MB-73029 | MBLK | 1 | 03/31/19 7:12 PM |
| A0331018.D | LCS-73029 | LCS | 1 | 03/31/19 7:17 PM |
| A0331019.D | N034574-004A | SAMP | 1 | 03/31/19 7:23 PM |
| A0331020.D | N034574-004A | SAMP | 5 | 03/31/19 7:29 PM |
| A0331021.D | N034574-004A-PS | PS | 1 | 03/31/19 7:35 PM |
| A0331022.D | N034574-004A-MS | MS | 1 | 03/31/19 7:40 PM |
| A0331023.D | N034574-004A-MSD | MSD | 1 | 03/31/19 7:46 PM |
| A0331024.D | N034689-004F | SAMP | 1 | 03/31/19 7:52 PM |
| A0331025.D | N034689-004F | SAMP | 5 | 03/31/19 7:58 PM |
| A0331026.D | N034689-007F | SAMP | 1 | 03/31/19 8:04 PM |
| A0331027.D | CCV1 | CCV | 1 | 03/31/19 8:10 PM |
| A0331028.D | CCB1 | CCB | 1 | 03/31/19 8:16 PM |
| A0331029.D | N034689-007F | SAMP | 1 | 03/31/19 8:21 PM |
| A0331030.D | N034689-002F | SAMP | 1 | 03/31/19 8:27 PM |
| A0331031.D | N034689-003F | SAMP | 1 | 03/31/19 8:33 PM |
| A0331032.D | N034689-003F | SAMP | 5 | 03/31/19 8:39 PM |
| A0331033.D | N034689-005F | SAMP | 1 | 03/31/19 8:45 PM |
| A0331034.D | N034689-006F | SAMP | 1 | 03/31/19 8:53 PM |
| A0331035.D | N034707-001G | SAMP | 1 | 03/31/19 8:59 PM |
| A0331036.D | N034707-002G | SAMP | 1 | 03/31/19 9:05 PM |
| A0331037.D | RINSE | RINSE | 1 | 03/31/19 9:12 PM |
| A0331038.D | RINSE | RINSE | 1 | 03/31/19 9:18 PM |
| A0331039.D | CCV2 | CCV | 1 | 03/31/19 9:24 PM |
| A0331040.D | CCB2 | CCB | 1 | 03/31/19 9:30 PM |
| A0331041.D | N034707-003G | SAMP | 1 | 03/31/19 9:36 PM |
| A0331042.D | N034707-004G | SAMP | 1 | 03/31/19 9:42 PM |

**INJECTION LOG: 190331A**

**Instrument ID: ICPMS-02**

NR

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0331043.D | RINSE | RINSE | 1 | 03/31/19 9:48 PM |
| A0331044.D | MB-73031 | MBLK | 1 | 03/31/19 9:54 PM |
| A0331045.D | LCS-73031 | LCS | 1 | 03/31/19 9:59 PM |
| A0331046.D | N034661-001A | SAMP | 1 | 03/31/19 10:05 PM |
| A0331047.D | N034661-001A | SAMP | 5 | 03/31/19 10:11 PM |
| A0331048.D | N034661-001A-PS | PS | 1 | 03/31/19 10:17 PM |
| A0331049.D | N034661-001AMS | MS | 1 | 03/31/19 10:23 PM |
| A0331050.D | N034661-001AMSD | MSD | 1 | 03/31/19 10:29 PM |
| A0331051.D | CCV3 | CCV | 1 | 03/31/19 10:35 PM |
| A0331052.D | CCB3 | CCB | 1 | 03/31/19 10:41 PM |
| A0331053.D | ICSA2 | ICSA | 1 | 03/31/19 10:47 PM |
| A0331054.D | ICSAB2 | ICSAB | 1 | 03/31/19 10:52 PM |
| A0331055.D | N034689-002E | SAMP | 1 | 03/31/19 10:58 PM |
| A0331056.D | N034689-002E | SAMP | 5 | 03/31/19 11:04 PM |
| A0331057.D | N034689-003E | SAMP | 1 | 03/31/19 11:10 PM |
| A0331058.D | N034689-003E | SAMP | 5 | 03/31/19 11:16 PM |
| A0331059.D | N034689-004E | SAMP | 1 | 03/31/19 11:22 PM |
| A0331060.D | N034689-004E | SAMP | 5 | 03/31/19 11:28 PM |
| A0331061.D | N034689-005E | SAMP | 1 | 03/31/19 11:34 PM |
| A0331062.D | N034689-005E | SAMP | 5 | 03/31/19 11:40 PM |
| A0331063.D | N034689-006E | SAMP | 1 | 03/31/19 11:46 PM |
| A0331064.D | N034689-006E | SAMP | 5 | 03/31/19 11:52 PM |
| A0331065.D | CCV4 | CCV | 1 | 03/31/19 11:57 PM |
| A0331066.D | CCB4 | CCB | 1 | 04/01/19 12:03 AM |
| A0331067.D | N034689-007E | SAMP | 1 | 04/01/19 12:09 AM |
| A0331068.D | N034689-007E | SAMP | 5 | 04/01/19 12:15 AM |
| A0331069.D | N034707-001F | SAMP | 1 | 04/01/19 12:21 AM |
| A0331070.D | N034707-001F | SAMP | 5 | 04/01/19 12:27 AM |
| A0331071.D | N034707-002F | SAMP | 1 | 04/01/19 12:33 AM |
| A0331072.D | N034707-002F | SAMP | 5 | 04/01/19 12:39 AM |
| A0331073.D | N034707-003F | SAMP | 1 | 04/01/19 12:45 AM |
| A0331074.D | N034707-003F | SAMP | 5 | 04/01/19 12:51 AM |
| A0331075.D | RINSE | RINSE | 1 | 04/01/19 12:56 AM |
| A0331076.D | RINSE | RINSE | 1 | 04/01/19 1:02 AM |
| A0331077.D | CCV5 | CCV | 1 | 04/01/19 1:08 AM |
| A0331078.D | CCB5 | CCB | 1 | 04/01/19 1:14 AM |
| A0331079.D | N034707-004F | SAMP | 1 | 04/01/19 1:20 AM |
| A0331080.D | N034707-004F | SAMP | 5 | 04/01/19 1:26 AM |
| A0331081.D | N034662-001D | SAMP | 1 | 04/01/19 1:32 AM |
| A0331082.D | N034662-001D | SAMP | 5 | 04/01/19 1:38 AM |
| A0331083.D | N034662-002D | SAMP | 1 | 04/01/19 1:44 AM |
| A0331084.D | N034662-002D | SAMP | 5 | 04/01/19 1:50 AM |

4/3/2019

**INJECTION LOG: 190331A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0331085.D | N034662-003D | SAMP | 1 | 04/01/19 1:56 AM |
| A0331086.D | N034662-003D | SAMP | 5 | 04/01/19 2:01 AM |
| A0331087.D | N034662-004D | SAMP | 1 | 04/01/19 2:07 AM |
| A0331088.D | N034662-004D | SAMP | 5 | 04/01/19 2:13 AM |
| A0331089.D | CCV6 | CCV | 1 | 04/01/19 2:19 AM |
| A0331090.D | CCB6 | CCB | 1 | 04/01/19 2:25 AM |
| A0331091.D | ICSA3 | ICSA | 1 | 04/01/19 2:31 AM |
| A0331092.D | ICSAB3 | ICSAB | 1 | 04/01/19 2:37 AM |

**INJECTION LOG: 190401A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0401001.D | RINSE | RINSE | 1 | 04/01/19 3:17 PM |
| A0401002.D | Cal Blank | IBLK | 1 | 04/01/19 3:24 PM |
| A0401003.D | Std1-0.1/1 ppb | ICAL | 1 | 04/01/19 3:30 PM |
| A0401004.D | Std2-0.5/5 ppb | ICAL | 1 | 04/01/19 3:36 PM |
| A0401005.D | Std3-5/50 ppb | ICAL | 1 | 04/01/19 3:42 PM |
| A0401006.D | Std4-10/100 ppb | ICAL | 1 | 04/01/19 3:48 PM |
| A0401007.D | Std5-20/200 ppb | ICAL | 1 | 04/01/19 3:53 PM |
| A0401008.D | Std6-40/400 ppb | ICAL | 1 | 04/01/19 3:59 PM |
| A0401009.D | Std7-100/1000 ppb | ICAL | 1 | 04/01/19 4:05 PM |
| A0401010.D | Std8-200/2000 ppb | ICAL | 1 | 04/01/19 4:11 PM |
| A0401011.D | ICV | ICV | 1 | 04/01/19 4:19 PM |
| A0401012.D | ICB | ICB | 1 | 04/01/19 4:26 PM |
| A0401013.D | LLICV | CCV1 | 1 | 04/01/19 4:32 PM |
| A0401014.D | ICSA1 | ICSA | 1 | 04/01/19 4:38 PM |
| A0401015.D | ICSAB1 | ICSAB | 1 | 04/01/19 4:44 PM |
| A0401016.D | LLICV | CCV1 | 1 | 04/01/19 4:54 PM |
| A0401017.D | N034689-007F | SAMP | 1 | 04/01/19 5:00 PM |
| A0401018.D | N034662-004D | SAMP | 1 | 04/01/19 5:07 PM |
| A0401019.D | N034707-003F | SAMP | 1 | 04/01/19 5:13 PM |
| A0401020.D | N034707-004F | SAMP | 1 | 04/01/19 5:19 PM |
| A0401021.D | N034707-003G | SAMP | 1 | 04/01/19 5:25 PM |
| A0401022.D | N034707-004G | SAMP | 1 | 04/01/19 5:31 PM |
| A0401023.D | RINSE | RINSE | 1 | 04/01/19 5:37 PM |
| A0401024.D | RINSE | RINSE | 1 | 04/01/19 5:43 PM |
| A0401025.D | RINSE | RINSE | 1 | 04/01/19 5:49 PM |
| A0401026.D | LCS-73030 | LCS | 1 | 04/01/19 5:55 PM |
| A0401027.D | CCV1 | CCV | 1 | 04/01/19 6:01 PM |
| A0401028.D | CCB1 | CCB | 1 | 04/01/19 6:08 PM |
| A0401029.D | MB-73030 | MBLK | 1 | 04/01/19 6:14 PM |
| A0401030.D | LCS-73030 | LCS | 1 | 04/01/19 6:20 PM |
| A0401031.D | N034644-001A | SAMP | 5 | 04/01/19 6:26 PM |
| A0401032.D | N034644-001A | SAMP | 1 | 04/01/19 6:32 PM |
| A0401033.D | N034644-001A-PS | PS | 1 | 04/01/19 6:38 PM |
| A0401034.D | N034644-001AMS | MS | 1 | 04/01/19 6:44 PM |
| A0401035.D | N034644-001AMSD | MSD | 1 | 04/01/19 6:50 PM |
| A0401036.D | N034644-003B | SAMP | 50 | 04/01/19 6:55 PM |
| A0401037.D | N034644-001A | SAMP | 1 | 04/01/19 7:01 PM |
| A0401038.D | N034644-001A | SAMP | 25 | 04/01/19 7:07 PM |
| A0401039.D | CCV2 | CCV | 1 | 04/01/19 7:13 PM |
| A0401040.D | CCB2 | CCB | 1 | 04/01/19 7:20 PM |
| A0401041.D | N034646-001A | SAMP | 1 | 04/01/19 7:26 PM |
| A0401042.D | N034644-001A-PS | PS | 5 | 04/01/19 7:32 PM |

**INJECTION LOG: 190401A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0401043.D | N034644-001AMS | MS | 5 | 04/01/19 7:37 PM |
| A0401044.D | N034644-001AMSD | MSD | 5 | 04/01/19 7:43 PM |
| A0401045.D | N034644-001A | SAMP | 50 | 04/01/19 7:49 PM |
| A0401046.D | N034644-001A | SAMP | 250 | 04/01/19 7:57 PM |
| A0401047.D | N034644-001A-PS | PS | 50 | 04/01/19 8:03 PM |
| A0401048.D | N034644-001AMS | MS | 50 | 04/01/19 8:09 PM |
| A0401049.D | N034644-001AMSD | MSD | 50 | 04/01/19 8:15 PM |
| A0401050.D | N034706-001A | SAMP | 1 | 04/01/19 8:21 PM |
| A0401051.D | CCV3 | CCV | 1 | 04/01/19 8:26 PM |
| A0401052.D | CCB3 | CCB | 1 | 04/01/19 8:32 PM |
| A0401053.D | ICSA3 2 | ICSA | 1 | 04/01/19 8:38 PM |
| A0401054.D | ICSAB3 2 | ICSAB | 1 | 04/01/19 8:44 PM |
| A0401055.D | N034688-002B | SAMP | 1 | 04/01/19 8:50 PM |
| A0401056.D | N034688-001B | SAMP | 1 | 04/01/19 8:56 PM |
| A0401057.D | N034688-003B | SAMP | 1 | 04/01/19 9:02 PM |
| A0401058.D | N034688-004B | SAMP | 1 | 04/01/19 9:08 PM |
| A0401059.D | N034688-005B | SAMP | 1 | 04/01/19 9:14 PM |
| A0401060.D | N034688-006B | SAMP | 1 | 04/01/19 9:20 PM |
| A0401061.D | N034688-007B | SAMP | 1 | 04/01/19 9:26 PM |
| A0401062.D | N034688-008B | SAMP | 1 | 04/01/19 9:32 PM |
| A0401063.D | N034688-009B | SAMP | 1 | 04/01/19 9:38 PM |
| A0401064.D | N034688-010B | SAMP | 1 | 04/01/19 9:43 PM |
| A0401065.D | CCV4 | CCV | 1 | 04/01/19 9:49 PM |
| A0401066.D | CCB4 | CCB | 1 | 04/01/19 9:54 PM |
| A0401067.D | N034688-011B | SAMP | 1 | 04/01/19 10:01 PM |
| A0401068.D | N034688-012B | SAMP | 1 | 04/01/19 10:07 PM |
| A0401069.D | N034688-013B | SAMP | 1 | 04/01/19 10:13 PM |
| A0401070.D | N034688-014B | SAMP | 1 | 04/01/19 10:19 PM |
| A0401071.D | N034688-015B | SAMP | 1 | 04/01/19 10:25 PM |
| A0401072.D | MB-73139 | MBLK | 1 | 04/01/19 10:31 PM |
| A0401073.D | LCS-73139 | LCS | 1 | 04/01/19 10:37 PM |
| A0401074.D | N034839-001A | SAMP | 1 | 04/01/19 10:43 PM |
| A0401075.D | N034839-001A | SAMP | 5 | 04/01/19 10:49 PM |
| A0401076.D | N034839-001A-PS | PS | 1 | 04/01/19 10:55 PM |
| A0401077.D | CCV5 | CCV | 1 | 04/01/19 11:01 PM |
| A0401078.D | CCB5 | CCB | 1 | 04/01/19 11:08 PM |
| A0401079.D | ICSA3 | ICSA | 1 | 04/01/19 11:12 PM |
| A0401081.D | ICSAB3 | ICSAB | 1 | 04/01/19 11:18 PM |
| A0401082.D | N034839-001A-MS | MS | 1 | 04/01/19 11:24 PM |
| A0401083.D | N034839-001A-MSD | MSD | 1 | 04/01/19 11:30 PM |
| A0401084.D | N034839-002A | SAMP | 1 | 04/01/19 11:36 PM |
| A0401085.D | N034839-003A | SAMP | 1 | 04/01/19 11:42 PM |

**INJECTION LOG: 190401A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0401086.D | N034839-004A | SAMP | 1 | 04/01/19 11:48 PM |
| A0401087.D | N034839-005A | SAMP | 1 | 04/01/19 11:54 PM |
| A0401088.D | N034839-006A | SAMP | 1 | 04/02/19 12:00 AM |
| A0401089.D | N034839-007A | SAMP | 1 | 04/02/19 12:06 AM |
| A0401090.D | N034836-005A | SAMP | 1 | 04/02/19 12:12 AM |
| A0401091.D | N034836-010A | SAMP | 1 | 04/02/19 12:18 AM |
| A0401092.D | CCV6 | CCV | 1 | 04/02/19 12:24 AM |
| A0401093.D | CCB6 | CCB | 1 | 04/02/19 12:30 AM |
| A0401094.D | N034836-015A | SAMP | 1 | 04/02/19 12:36 AM |
| A0401095.D | CCV7 | CCV | 1 | 04/02/19 12:42 AM |
| A0401096.D | CCB7 | CCB | 1 | 04/02/19 12:48 AM |
| A0401097.D | ICSA4 | ICSA | 1 | 04/02/19 12:54 AM |
| A0401098.D | ICSAB4 | ICSAB | 1 | 04/02/19 1:00 AM |
| A0401099.D | MB-73051 | MBLK | 1 | 04/02/19 2:28 AM |
| A0401100.D | LCS-73051 | LCS | 1 | 04/02/19 3:33 AM |
| A0401101.D | N034667-007A | SAMP | 1 | 04/02/19 3:38 AM |
| A0401102.D | N034667-007A | SAMP | 5 | 04/02/19 3:44 AM |
| A0401103.D | N034667-007A-PS | PS | 1 | 04/02/19 3:50 AM |
| A0401104.D | N034667-007A-MS | MS | 1 | 04/02/19 3:56 AM |
| A0401105.D | N034667-007A-MSD | MSD | 1 | 04/02/19 4:02 AM |
| A0401106.D | N034676-001A | SAMP | 1 | 04/02/19 4:08 AM |
| A0401107.D | N034676-002A | SAMP | 1 | 04/02/19 4:14 AM |
| A0401108.D | N034676-003A | SAMP | 1 | 04/02/19 4:20 AM |
| A0401109.D | CCV8 | CCV | 1 | 04/02/19 4:26 AM |
| A0401110.D | CCB8 | CCB | 1 | 04/02/19 4:32 AM |
| A0401111.D | N034677-001A | SAMP | 1 | 04/02/19 4:38 AM |
| A0401112.D | N034677-002A | SAMP | 1 | 04/02/19 4:44 AM |
| A0401113.D | N034677-003A | SAMP | 1 | 04/02/19 4:50 AM |
| A0401114.D | N034667-007A | SAMP | 25 | 04/02/19 4:55 AM |
| A0401115.D | N034667-007A-PS | PS | 5 | 04/02/19 5:01 AM |
| A0401116.D | N034667-007A-MS | MS | 5 | 04/02/19 5:07 AM |
| A0401117.D | N034667-007A-MSD | MSD | 5 | 04/02/19 5:13 AM |
| A0401118.D | N034676-001A | SAMP | 5 | 04/02/19 5:19 AM |
| A0401119.D | N034676-002A | SAMP | 5 | 04/02/19 5:25 AM |
| A0401120.D | N034676-003A | SAMP | 5 | 04/02/19 5:31 AM |
| A0401121.D | CCV9 | CCV | 1 | 04/02/19 5:37 AM |
| A0401122.D | CCB9 | CCB | 1 | 04/02/19 5:43 AM |
| A0401123.D | N034677-001A | SAMP | 5 | 04/02/19 5:49 AM |
| A0401124.D | N034677-002A | SAMP | 5 | 04/02/19 5:55 AM |
| A0401125.D | N034677-003A | SAMP | 5 | 04/02/19 6:01 AM |
| A0401126.D | MB-72980 | MBLK | 1 | 04/02/19 6:08 AM |
| A0401127.D | LCS-72980 | LCS | 1 | 04/02/19 6:12 AM |

**INJECTION LOG: 190401A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0401128.D | N034672-001A | SAMP | 1 | 04/02/19 6:18 AM |
| A0401129.D | N034672-001A | SAMP | 5 | 04/02/19 6:25 AM |
| A0401130.D | N034672-001A-PS | PS | 1 | 04/02/19 6:31 AM |
| A0401131.D | N034672-001A-MS | MS | 1 | 04/02/19 6:37 AM |
| A0401132.D | N034672-001A-MSD | MSD | 1 | 04/02/19 6:43 AM |
| A0401133.D | CCV10 | CCV | 1 | 04/02/19 6:49 AM |
| A0401134.D | CCB10 | CCB | 1 | 04/02/19 6:55 AM |
| A0401135.D | ICSA5 | ICSA | 1 | 04/02/19 7:02 AM |
| A0401136.D | ICSAB5 | ICSAB | 1 | 04/02/19 7:08 AM |
| A0401137.D | N034672-002A | SAMP | 1 | 04/02/19 9:57 AM |
| A0401138.D | N034672-003A | SAMP | 1 | 04/02/19 10:03 AM |
| A0401139.D | N034672-004A | SAMP | 1 | 04/02/19 10:09 AM |
| A0401140.D | N034672-001A | SAMP | 25 | 04/02/19 10:15 AM |
| A0401141.D | N034672-001A-PS | PS | 5 | 04/02/19 10:21 AM |
| A0401142.D | N034672-001A-MS | MS | 5 | 04/02/19 10:27 AM |
| A0401143.D | N034672-001A-MSD | MSD | 5 | 04/02/19 10:34 AM |
| A0401144.D | N034673-001A | SAMP | 1 | 04/02/19 10:40 AM |
| A0401145.D | N034673-002A | SAMP | 1 | 04/02/19 10:46 AM |
| A0401146.D | N034673-003A | SAMP | 1 | 04/02/19 10:52 AM |
| A0401147.D | CCV11 | CCV | 1 | 04/02/19 10:58 AM |
| A0401148.D | CCB11 | CCB | 1 | 04/02/19 11:04 AM |
| A0401149.D | N034673-004A | SAMP | 1 | 04/02/19 11:10 AM |
| A0401150.D | N034673-005A | SAMP | 1 | 04/02/19 11:16 AM |
| A0401151.D | N034673-006A | SAMP | 1 | 04/02/19 11:22 AM |
| A0401152.D | N034673-007A | SAMP | 1 | 04/02/19 11:27 AM |
| A0401153.D | N034673-001A | SAMP | 5 | 04/02/19 11:33 AM |
| A0401154.D | N034673-002A | SAMP | 5 | 04/02/19 11:40 AM |
| A0401155.D | N034673-003A | SAMP | 5 | 04/02/19 11:47 AM |
| A0401156.D | N034673-004A | SAMP | 5 | 04/02/19 11:53 AM |
| A0401157.D | N034673-005A | SAMP | 5 | 04/02/19 11:59 AM |
| A0401158.D | N034673-006A | SAMP | 5 | 04/02/19 12:05 PM |
| A0401159.D | CCV12 | CCV | 1 | 04/02/19 12:11 PM |
| A0401160.D | CCB12 | CCB | 1 | 04/02/19 12:17 PM |
| A0401161.D | N034673-007A | SAMP | 5 | 04/02/19 12:23 PM |
| A0401162.D | N034674-001A | SAMP | 1 | 04/02/19 12:29 PM |
| A0401163.D | N034674-002A | SAMP | 1 | 04/02/19 12:37 PM |
| A0401164.D | N034674-003A | SAMP | 1 | 04/02/19 12:43 PM |
| A0401165.D | N034674-004A | SAMP | 1 | 04/02/19 12:49 PM |
| A0401166.D | N034674-001A | SAMP | 5 | 04/02/19 12:55 PM |
| A0401167.D | N034674-002A | SAMP | 5 | 04/02/19 1:01 PM |
| A0401168.D | N034674-003A | SAMP | 5 | 04/02/19 1:14 PM |
| A0401169.D | N034674-004A | SAMP | 5 | 04/02/19 1:20 PM |

**INJECTION LOG: 190401A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0401170.D | N034675-001A | SAMP | 1 | 04/02/19 1:26 PM |
| A0401171.D | CCV13 | CCV | 1 | 04/02/19 1:32 PM |
| A0401172.D | CCB13 | CCB | 1 | 04/02/19 1:38 PM |
| A0401173.D | MB-73051 | MBLK | 1 | 04/02/19 1:44 PM |
| A0401174.D | MB-72980 | MBLK | 1 | 04/02/19 1:50 PM |
| A0401175.D | N034667-007A | SAMP | 1 | 04/02/19 1:56 PM |
| A0401176.D | N034676-001A | SAMP | 1 | 04/02/19 2:02 PM |
| A0401177.D | N034676-002A | SAMP | 1 | 04/02/19 2:08 PM |
| A0401178.D | N034676-003A | SAMP | 1 | 04/02/19 2:14 PM |
| A0401179.D | N034677-001A | SAMP | 1 | 04/02/19 2:20 PM |
| A0401180.D | N034677-002A | SAMP | 1 | 04/02/19 2:26 PM |
| A0401181.D | N034677-003A | SAMP | 1 | 04/02/19 2:31 PM |
| A0401182.D | N034672-001A | SAMP | 1 | 04/02/19 2:37 PM |
| A0401183.D | CCV14 | CCV | 1 | 04/02/19 2:43 PM |
| A0401184.D | CCB14 | CCB | 1 | 04/02/19 2:49 PM |
| A0401185.D | N034673-001A | SAMP | 1 | 04/02/19 2:55 PM |
| A0401186.D | N034673-002A | SAMP | 1 | 04/02/19 3:01 PM |
| A0401187.D | N034673-002A | SAMP | 5 | 04/02/19 3:07 PM |
| A0401188.D | N034673-002A | SAMP | 25 | 04/02/19 3:14 PM |
| A0401189.D | N034673-003A | SAMP | 1 | 04/02/19 3:20 PM |
| A0401190.D | N034672-002A | SAMP | 1 | 04/02/19 3:26 PM |
| A0401191.D | N034672-002A | SAMP | 5 | 04/02/19 3:32 PM |
| A0401192.D | N034672-003A | SAMP | 1 | 04/02/19 3:38 PM |
| A0401193.D | N034672-004A | SAMP | 1 | 04/02/19 3:44 PM |
| A0401194.D | N034674-001A | SAMP | 1 | 04/02/19 3:50 PM |
| A0401195.D | CCV15 | CCV | 1 | 04/02/19 3:56 PM |
| A0401196.D | CCB15 | CCB | 1 | 04/02/19 4:02 PM |
| A0401197.D | CCV15 | CCV | 1 | 04/02/19 4:08 PM |
| A0401198.D | CCB15 | CCB | 1 | 04/02/19 4:14 PM |
| A0401199.D | N034675-002A | SAMP | 1 | 04/02/19 4:20 PM |
| A0401200.D | N034675-003A | SAMP | 1 | 04/02/19 4:27 PM |
| A0401201.D | N034675-004A | SAMP | 1 | 04/02/19 4:33 PM |
| A0401202.D | N034675-005A | SAMP | 1 | 04/02/19 4:39 PM |
| A0401203.D | N034675-001A | SAMP | 5 | 04/02/19 4:45 PM |
| A0401204.D | N034675-002A | SAMP | 1 | 04/02/19 4:51 PM |
| A0401205.D | N034675-003A | SAMP | 5 | 04/02/19 4:56 PM |
| A0401206.D | N034675-004A | SAMP | 5 | 04/02/19 5:02 PM |
| A0401207.D | N034675-005A | SAMP | 1 | 04/02/19 5:08 PM |
| A0401208.D | N034675-005A | SAMP | 5 | 04/02/19 5:14 PM |
| A0401209.D | CCV16 | CCV | 1 | 04/02/19 5:20 PM |
| A0401210.D | CCV16 | CCV | 1 | 04/02/19 5:22 PM |
| A0401211.D | CCB16 | CCB | 1 | 04/02/19 5:28 PM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/22/2019 8:00:00**
Prep End Date: **3/22/2019 12:30:00**
Reviewed/ Date: NS 4/3/2019
Initials/ Date: for

Prep Batch **73031** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.5** | **02-16** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-73031 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-73031 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034599-001A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034661-001A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034661-001AMS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034661-001AMS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034662-001D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034662-002D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034662-003D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034662-004D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034689-002E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034689-003E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034689-004E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034689-005E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10549 | NITRIC ACID |
| 10553 | HYDROCHLORIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/22/2019 8:00:00**
Prep End Date: **3/22/2019 12:30:00**
Reviewed/ Date: NS 4/3/2019
Initials/ Date: for

Prep Batch **73031** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.5** | **02-16** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| N034689-006E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034689-007E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034707-001F | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034707-002F | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034707-003F | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034707-004F | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10549 | NITRIC ACID |
| 10553 | HYDROCHLORIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

# INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 28 Mar 2019 08:12:47 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 99995.90 | 0.00 | |
| 24 Mg | 311192.00 | 0.00 | |
| 25 Mg | 39836.80 | 0.00 | |
| 26 Mg | 45213.20 | 0.00 | |
| 59 Co | 184305.00 | 0.00 | |
| 115 In | 284091.00 | 0.00 | |
| 206 Pb | 104498.00 | 0.00 | |
| 207 Pb | 93097.30 | 0.00 | |
| 208 Pb | 228556.00 | 0.00 | |

RSD (%)

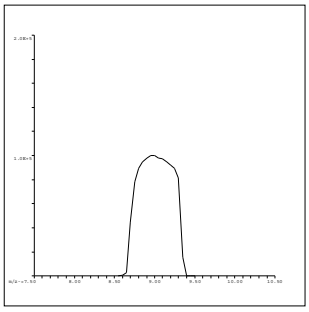
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 1.11 | 5.00 | |
| 24 Mg | 0.61 | 5.00 | |
| 25 Mg | 0.40 | 5.00 | |
| 26 Mg | 0.54 | 5.00 | |
| 59 Co | 0.52 | 5.00 | |
| 115 In | 0.60 | 5.00 | |
| 206 Pb | 0.95 | 5.00 | |
| 207 Pb | 1.19 | 5.00 | |
| 208 Pb | 1.02 | 5.00 | |

Ion Ratio

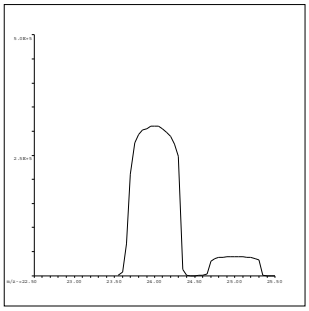
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | | | |
| 24 Mg | | | |
| 25 Mg | | | |
| 26 Mg | | | |
| 59 Co | | | |
| 115 In | | | |
| 206 Pb | | | |
| 207 Pb | | | |
| 208 Pb | | | |

Maximum Bkg. Count(CPS)

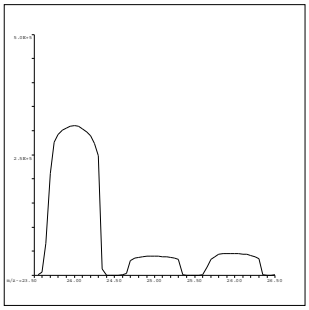
| Element | Actual | Required | Flag |
|---|---|---|---|



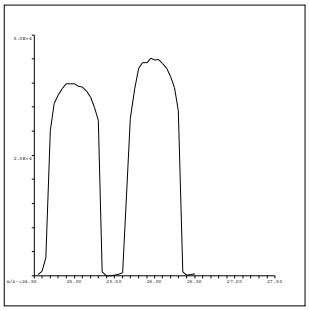
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



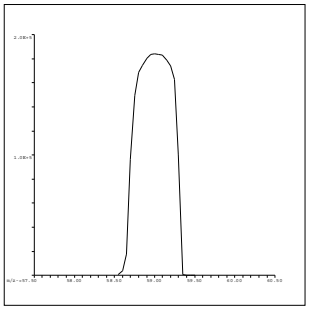
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



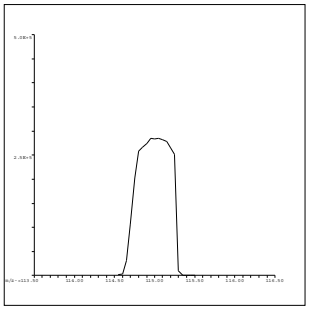
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



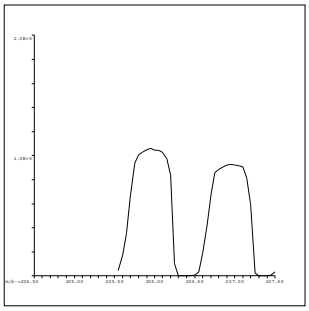
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



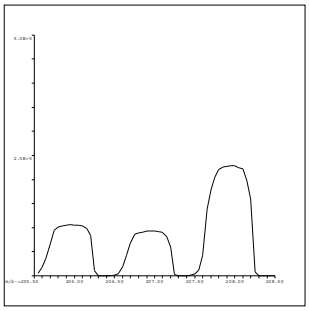
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



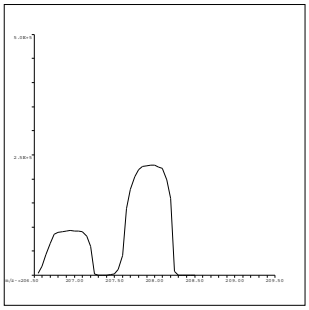
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 31 Mar 2019 10:55:05 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 102159.00 | 0.00 | |
| 24 Mg | 265268.00 | 0.00 | |
| 25 Mg | 33853.00 | 0.00 | |
| 26 Mg | 38106.00 | 0.00 | |
| 59 Co | 168448.00 | 0.00 | |
| 115 In | 254694.00 | 0.00 | |
| 206 Pb | 98205.90 | 0.00 | |
| 207 Pb | 85280.50 | 0.00 | |
| 208 Pb | 210599.00 | 0.00 | |

RSD (%)

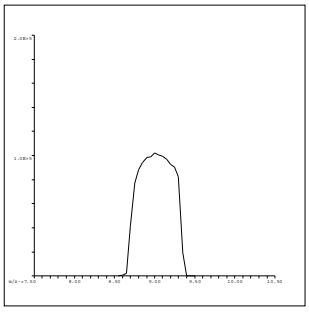
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 1.03 | 5.00 | |
| 24 Mg | 1.10 | 5.00 | |
| 25 Mg | 1.22 | 5.00 | |
| 26 Mg | 0.33 | 5.00 | |
| 59 Co | 0.56 | 5.00 | |
| 115 In | 0.50 | 5.00 | |
| 206 Pb | 0.41 | 5.00 | |
| 207 Pb | 0.84 | 5.00 | |
| 208 Pb | 0.61 | 5.00 | |

Ion Ratio

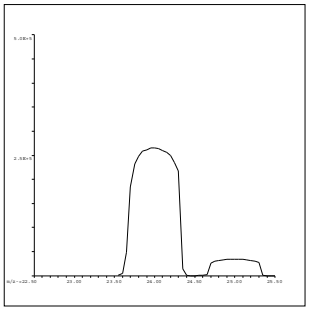
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | | | |
| 24 Mg | | | |
| 25 Mg | | | |
| 26 Mg | | | |
| 59 Co | | | |
| 115 In | | | |
| 206 Pb | | | |
| 207 Pb | | | |
| 208 Pb | | | |

Maximum Bkg. Count(CPS)

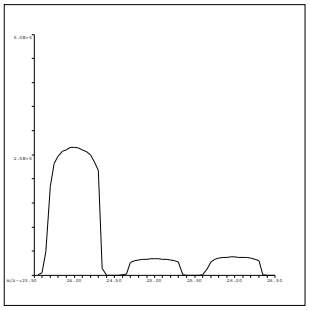
| Element | Actual | Required | Flag |
|---|---|---|---|



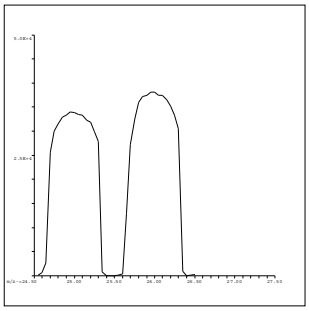
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



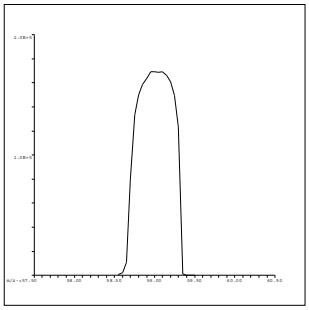
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



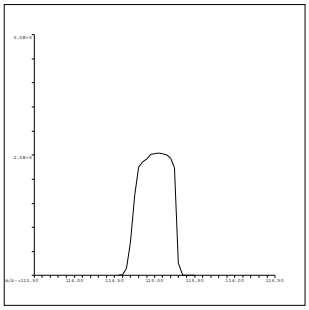
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



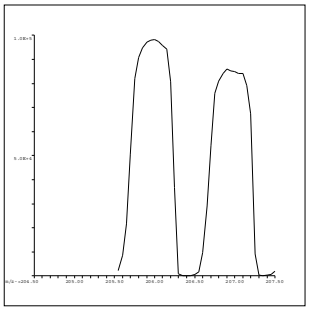
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



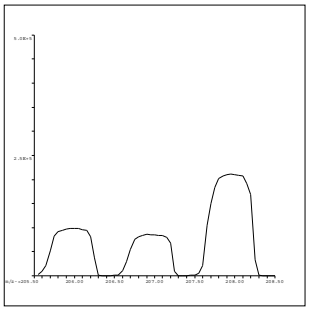
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



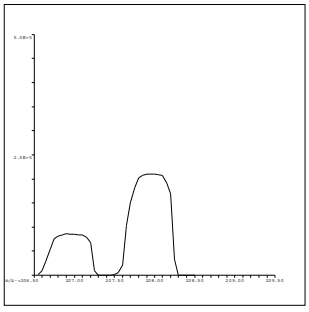
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 1 Apr 2019 08:15:29 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 105221.00 | 0.00 | |
| 24 Mg | 321638.00 | 0.00 | |
| 25 Mg | 40811.20 | 0.00 | |
| 26 Mg | 46107.50 | 0.00 | |
| 59 Co | 184869.00 | 0.00 | |
| 115 In | 270635.00 | 0.00 | |
| 206 Pb | 89481.30 | 0.00 | |
| 207 Pb | 78254.60 | 0.00 | |
| 208 Pb | 192546.00 | 0.00 | |

RSD (%)

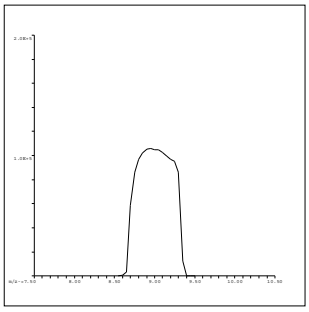
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 0.82 | 5.00 | |
| 24 Mg | 0.64 | 5.00 | |
| 25 Mg | 1.43 | 5.00 | |
| 26 Mg | 1.61 | 5.00 | |
| 59 Co | 1.05 | 5.00 | |
| 115 In | 0.49 | 5.00 | |
| 206 Pb | 1.10 | 5.00 | |
| 207 Pb | 0.74 | 5.00 | |
| 208 Pb | 0.77 | 5.00 | |

Ion Ratio

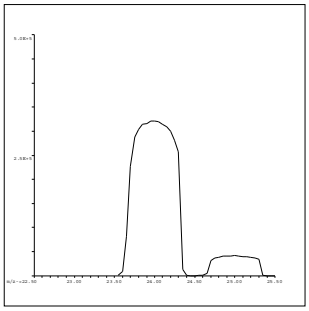
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | | | |
| 24 Mg | | | |
| 25 Mg | | | |
| 26 Mg | | | |
| 59 Co | | | |
| 115 In | | | |
| 206 Pb | | | |
| 207 Pb | | | |
| 208 Pb | | | |

Maximum Bkg. Count(CPS)

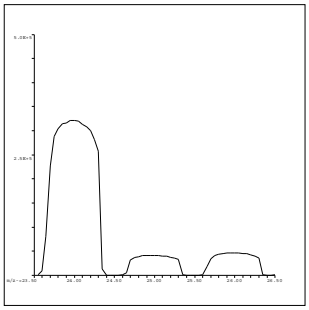
| Element | Actual | Required | Flag |
|---|---|---|---|



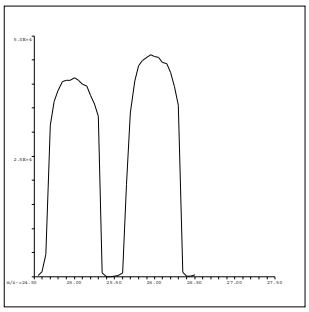
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



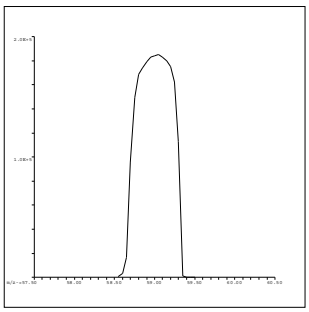
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



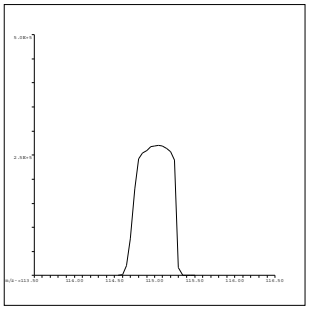
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



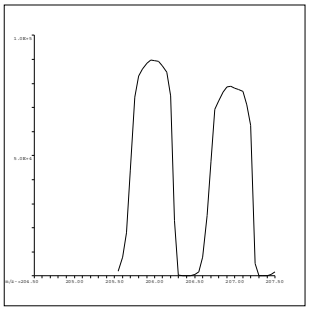
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



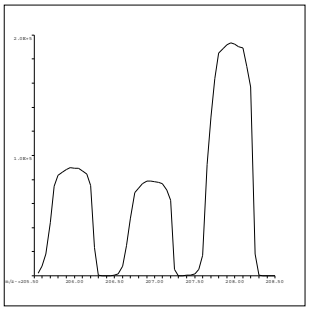
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



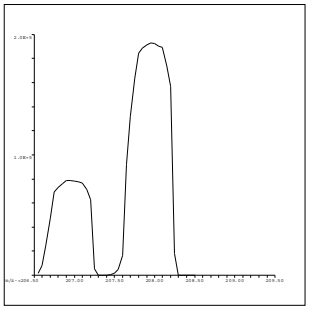
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190328B**

**Instrument ID: ICPMS-02**

| Analyte | Data File | B0328002.D | B0328003.D | B0328004.D | B0328005.D | B0328006.D | B0328007.D | B0328008.D | B0328009.D | B0328010.D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 03/28/2019 01:31 PM | 03/28/2019 01:37 PM | 03/28/2019 01:43 PM | 03/28/2019 01:49 PM | 03/28/2019 01:55 PM | 03/28/2019 02:01 PM | 03/28/2019 02:07 PM | 03/28/2019 02:21 PM | 03/28/2019 02:27 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std1-0.1/1 ppb | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.1/1 ug/L | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 6 Li ( ISTD ) [ 3 ] | CPS | 977921.3 | | 966280.8 | 942820.1 | 934153.3 | 912741 | 898297.8 | 885715.7 | 866618.4 | |
| 9 Be [ 3 ] | CPS | 57.8 | | 2792.6 | 27717.6 | 55317.6 | 107740.8 | 215244.8 | 526758.9 | 1035962.4 | 1.0000 |
| 45 Sc ( ISTD ) [ 2 ] | CPS | 27349.7 | | 27636.9 | 26810 | 27532.3 | 26922.3 | 26607.4 | 24450.8 | 25535.8 | |
| 59 Co [ 2 ] | CPS | 11.1 | | 1673.4 | 16474.1 | 32811 | 64763.8 | 129591.6 | 304407.5 | 615983.5 | 0.9999 |
| 55 Mn [ 2 ] | CPS | 35.9 | | 515.7 | 4797.8 | 9505.8 | 18571.9 | 37584.1 | 84835.7 | 176460.8 | 1.0000 |
| 52 Cr [ 2 ] | CPS | 333.3 | | 1305.6 | 10049.8 | 19731.8 | 39136 | 77228 | 181471.6 | 368857.3 | 0.9999 |
| 51 V [ 2 ] | CPS | 1344.6 | | 1958 | 8689.2 | 16270.7 | 30622.2 | 59236.1 | 137929.5 | 282462.1 | 1.0000 |
| 72 Ge ( ISTD ) [ 1 ] | CPS | 12669.7 | | 12129.3 | 11911.4 | 12138.2 | 11764.6 | 11712.3 | 9809.9 | 10810.6 | |
| 78 Se [ 1 ] | CPS | 0 | | 21.1 | 177.8 | 450 | 824.5 | 1615.7 | 3492.7 | 7010.6 | 0.9999 |
| 72 Ge ( ISTD ) [ 2 ] | CPS | 16239.7 | 15993.8 | 16020.6 | 15481.1 | 15612.4 | 15660.2 | 15442.2 | 14454.6 | 14916.1 | |
| 75 As [ 2 ] | CPS | 19.6 | 41.3 | 124.5 | 1029.4 | 2001.5 | 3983.6 | 7726.3 | 17866.2 | 37558.5 | 1.0000 |
| 66 Zn [ 2 ] | CPS | 103.1 | | 232 | 1896.3 | 3889.7 | 7414.8 | 14643 | 34619.8 | 69350.4 | 0.9999 |
| 63 Cu [ 2 ] | CPS | 4198 | | 4471.5 | 14666.4 | 26424.2 | 49659.4 | 95249 | 222981.7 | 443919.6 | 0.9999 |
| 60 Ni [ 2 ] | CPS | 104.4 | | 571 | 4403.7 | 8864.2 | 17232.5 | 34135.6 | 81129.7 | 162768.5 | 0.9999 |
| 103 Rh ( ISTD ) [ 2 ] | CPS | 453776 | | 445081.7 | 438588.5 | 438608.1 | 432587.1 | 434266.4 | 409560.3 | 413322.3 | |
| 95 Mo [ 2 ] | CPS | 138.9 | | 456.7 | 4259.6 | 8787.1 | 17985.1 | 36722.6 | 90474.1 | 181683 | 0.9998 |
| 103 Rh ( ISTD ) [ 3 ] | CPS | 850576.7 | | 838631.5 | 826271.4 | 821351.5 | 804016.8 | 801867.4 | 776074.6 | 770380.7 | |
| 107 Ag [ 3 ] | CPS | 203.8 | | 3637.3 | 35757 | 71103.8 | 140570.6 | 276945.8 | 672808 | 1298961.6 | 1.0000 |
| 115 In ( ISTD ) [ 3 ] | CPS | 872318.8 | | 865743.5 | 854957.4 | 854457.9 | 841300.7 | 837728.3 | 814444 | 808308.9 | |
| 121 Sb [ 3 ] | CPS | 243.3 | | 3592.7 | 33250.1 | 66531.8 | 129632.4 | 259481.7 | 633410.7 | 1256176 | 1.0000 |
| 111 Cd [ 3 ] | CPS | 7.8 | | 867.3 | 8048.4 | 16741.6 | 32008 | 63796.5 | 155528.9 | 305140.5 | 1.0000 |
| 159 Tb ( ISTD ) [ 3 ] | CPS | 1554270.7 | | 1529992.9 | 1522031.9 | 1531500.9 | 1503720 | 1492427.4 | 1450245.7 | 1479888.9 | |
| 137 Ba [ 3 ] | CPS | 26.2 | | 933.4 | 9994.7 | 20162.4 | 39942.3 | 79919.7 | 191329.4 | 384196 | 1.0000 |
| 209 Bi ( ISTD ) [ 3 ] | CPS | 1151168.9 | | 1154054.5 | 1140209.8 | 1147216.3 | 1135189.5 | 1130363.6 | 1103357.2 | 1098722.9 | |
| 208 Pb [ 3 ] | CPS | 5302.7 | | 18466.9 | 140539.2 | 276324.3 | 544077.1 | 1071852.5 | 2666987.3 | 5338981.5 | 1.0000 |
| 205 Tl [ 3 ] | CPS | 472.3 | | 9984.8 | 95991.2 | 193950.9 | 383399.2 | 761941.6 | 1930310 | 3802152.2 | 0.9999 |

| Standard Code |
|---|
| ICAL: 2MSST-180608B |
| ICAL: 2MSST-180205B |
| ICAL: 2MWST-181001C |
| IS Mix: 2MWST-181126B |

Calibration Acceptance Criteria: > 0.995 Correlation

**INITIAL CALIBRATION SUMMARY: 190331A**

**Instrument ID: ICPMS-02**

| Analyte | Data File | A0331002.D | A0331003.D | A0331004.D | A0331005.D | A0331006.D | A0331007.D | A0331008.D | A0331009.D | A0331010.D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 03/31/2019 05:42 PM | 03/31/2019 05:48 PM | 03/31/2019 05:54 PM | 03/31/2019 06:00 PM | 03/31/2019 06:06 PM | 03/31/2019 06:12 PM | 03/31/2019 06:17 PM | 03/31/2019 06:24 PM | 03/31/2019 06:30 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std1-0.1/1 ppb | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.1/1 ug/L | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 6 Li ( ISTD ) [ 3 ] | CPS | 1593298.9 | | 1543940 | 1498752.1 | 1450359.1 | 1402545.3 | 1416299.3 | 1314199.6 | 1282674.1 | |
| 9 Be [ 3 ] | CPS | 132.2 | | 4425.2 | 42056.8 | 81811.7 | 159418.7 | 317750.3 | 749122.2 | 1461984 | 1.0000 |
| 45 Sc ( ISTD ) [ 2 ] | CPS | 36569.7 | | 36112 | 35287 | 34066.8 | 33158.2 | 30576.5 | 31494.9 | 30997.3 | |
| 59 Co [ 2 ] | CPS | 20.8 | | 2166.7 | 21087.2 | 40707.3 | 79933.1 | 149690.4 | 374383.2 | 718454.8 | 0.9999 |
| 55 Mn [ 2 ] | CPS | 33.9 | | 697.4 | 6022.3 | 11620.4 | 22756.3 | 41901.5 | 106092.1 | 207207.1 | 1.0000 |
| 51 V [ 2 ] | CPS | 423.4 | | 1362.3 | 10292.4 | 19270.6 | 37024.3 | 69471 | 172671.6 | 336450 | 0.9999 |
| 72 Ge ( ISTD ) [ 1 ] | CPS | 14291.1 | | 13679.5 | 13582.7 | 13261.3 | 12736.4 | 10742.8 | 11886.9 | 11838 | |
| 78 Se [ 1 ] | CPS | 0 | | 40 | 266.7 | 450 | 915.6 | 1494.6 | 4296.3 | 8577 | 0.9997 |
| 72 Ge ( ISTD ) [ 2 ] | CPS | 19692.4 | 19305.2 | 18993.8 | 18661.2 | 18268.5 | 17874.7 | 16214.1 | 16953.7 | 16721.3 | |
| 75 As [ 2 ] | CPS | 20 | 39.1 | 152 | 1247.6 | 2426.4 | 4642.9 | 8327.9 | 22092.3 | 42104.6 | 1.0000 |
| 66 Zn [ 2 ] | CPS | 105.6 | | 392.7 | 2412.6 | 4538.3 | 8608.1 | 16256.1 | 40330.7 | 79180.2 | 0.9999 |
| 63 Cu [ 2 ] | CPS | 2202.7 | | 3585.8 | 17235.6 | 31062.5 | 58878.8 | 109800.8 | 266490.2 | 514986.6 | 0.9999 |
| 60 Ni [ 2 ] | CPS | 67.5 | | 589.8 | 5595 | 10757.2 | 20861.9 | 39763.1 | 98396.1 | 190491.5 | 0.9999 |
| 103 Rh ( ISTD ) [ 2 ] | CPS | 527934.1 | | 519622 | 511121.6 | 500484.9 | 489153.9 | 461498.3 | 463402.4 | 451914.9 | |
| 95 Mo [ 2 ] | CPS | 261.1 | | 664.5 | 4849.8 | 9905.6 | 20575.9 | 37899.9 | 103781.4 | 197032.6 | 0.9994 |
| 103 Rh ( ISTD ) [ 3 ] | CPS | 984782.7 | | 960732.6 | 940098.9 | 926425.2 | 913642.5 | 879870.3 | 866433.6 | 846461 | |
| 107 Ag [ 3 ] | CPS | 292.2 | | 4129.4 | 40682.7 | 80609.2 | 159173.5 | 303724 | 751895.7 | 1438958.8 | 1.0000 |
| 115 In ( ISTD ) [ 3 ] | CPS | 1019011.4 | | 996822.1 | 974771.8 | 964226.9 | 957784.2 | 919705 | 912639.7 | 899175.2 | |
| 121 Sb [ 3 ] | CPS | 337.8 | | 4065.1 | 38329.5 | 74918 | 148410.9 | 281328.8 | 703703.9 | 1423897 | 0.9999 |
| 111 Cd [ 3 ] | CPS | -36.7 | | 955.7 | 9498 | 18593.8 | 36693.9 | 70103.8 | 174078.6 | 336344.9 | 1.0000 |
| 159 Tb ( ISTD ) [ 3 ] | CPS | 1726468.2 | | 1708647.3 | 1687155.6 | 1684092 | 1681403.6 | 1604355.8 | 1637815.2 | 1596718.6 | |
| 137 Ba [ 3 ] | CPS | -45.2 | | 1177.2 | 11711.7 | 22934.9 | 45579.6 | 86039.3 | 214746.1 | 418442.3 | 1.0000 |
| 209 Bi ( ISTD ) [ 3 ] | CPS | 1220773.2 | | 1220024.1 | 1212899.5 | 1234490.2 | 1225419.6 | 1171352.7 | 1176136.4 | 1162811.5 | |
| 208 Pb [ 3 ] | CPS | 1607.9 | | 16188.8 | 148356.8 | 295206.8 | 588747.2 | 1121079 | 2904749 | 5713304.6 | 1.0000 |
| 205 Tl [ 3 ] | CPS | 858.9 | | 10844.3 | 105329.6 | 208796.1 | 419511.4 | 802032.6 | 2114348.5 | 4083944.8 | 1.0000 |

| Standard Code |
|---|
| ICAL: 2MSST-180608B |
| ICAL: 2MSST-180205B |
| ICAL: 2MWST-181001C |
| IS Mix: 2MWST-181126B |

Calibration Acceptance Criteria: > 0.995 Correlation

**INITIAL CALIBRATION SUMMARY: 190401A**

**Instrument ID: ICPMS-02**

| Analyte | Data File | A0401002.D | A0401004.D | A0401005.D | A0401006.D | A0401007.D | A0401008.D | A0401009.D | A0401010.D | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 04/01/2019 03:24 PM | 04/01/2019 03:36 PM | 04/01/2019 03:42 PM | 04/01/2019 03:48 PM | 04/01/2019 03:53 PM | 04/01/2019 03:59 PM | 04/01/2019 04:05 PM | 04/01/2019 04:11 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 45 Sc ( ISTD ) [ 2 ] | CPS | 27028.1 | 26872.3 | 27281.9 | 27633.6 | 26788.8 | 27056 | 26429.3 | 25861.9 | |
| 55 Mn [ 2 ] | CPS | 22.2 | 527.2 | 4998.2 | 9653.5 | 18640 | 37723.7 | 89898 | 174921.7 | 1.0000 |

| Standard Code |
|---|
| ICAL: 2MSST-180608B |
| ICAL: 2MSST-180205B |
| ICAL: 2MWST-181001C |
| IS Mix: 2MWST-181126B |

Calibration Acceptance Criteria: > 0.995 Correlation

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333746** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 10.251 | 0.50 | 10.00 | 0 | 103 | 90 | 110 | | | | |
| Arsenic | 9.941 | 0.10 | 10.00 | 0 | 99.4 | 90 | 110 | | | | |
| Barium | 9.903 | 1.0 | 10.00 | 0 | 99.0 | 90 | 110 | | | | |
| Beryllium | 9.825 | 0.50 | 10.00 | 0 | 98.2 | 90 | 110 | | | | |
| Cadmium | 10.033 | 0.50 | 10.00 | 0 | 100 | 90 | 110 | | | | |
| Cobalt | 9.776 | 0.50 | 10.00 | 0 | 97.8 | 90 | 110 | | | | |
| Copper | 9.631 | 1.0 | 10.00 | 0 | 96.3 | 90 | 110 | | | | |
| Lead | 9.576 | 1.0 | 10.00 | 0 | 95.8 | 90 | 110 | | | | |
| Manganese | 103.515 | 0.50 | 100.0 | 0 | 104 | 90 | 110 | | | | |
| Molybdenum | 9.852 | 0.50 | 10.00 | 0 | 98.5 | 90 | 110 | | | | |
| Nickel | 10.463 | 1.0 | 10.00 | 0 | 105 | 90 | 110 | | | | |
| Selenium | 9.959 | 0.50 | 10.00 | 0 | 99.6 | 90 | 110 | | | | |
| Silver | 10.275 | 0.50 | 10.00 | 0 | 103 | 90 | 110 | | | | |
| Thallium | 9.527 | 0.50 | 10.00 | 0 | 95.3 | 90 | 110 | | | | |
| Vanadium | 9.432 | 1.0 | 10.00 | 0 | 94.3 | 90 | 110 | | | | |
| Zinc | 10.170 | 10 | 10.00 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333748** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Copper | 1.357 | 1.0 | 1.000 | 0 | 136 | 80 | 120 | | | | S |
| Molybdenum | 0.535 | 0.50 | 0.5000 | 0 | 107 | 80 | 120 | | | | |
| Selenium | 0.590 | 0.50 | 0.5000 | 0 | 118 | 80 | 120 | | | | |

Cu in LLICV is biased high however, N034662 samples are non-detect for this analyte.

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

4/3/2019

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333751** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 0.565 | 0.50 | 0.5000 | 0 | 113 | 80 | 120 | | | | |
| Arsenic | 0.118 | 0.10 | 0.1000 | 0 | 118 | 80 | 120 | | | | |
| Barium | 1.065 | 1.0 | 1.000 | 0 | 107 | 80 | 120 | | | | |
| Beryllium | 0.516 | 0.50 | 0.5000 | 0 | 103 | 80 | 120 | | | | |
| Cadmium | 0.482 | 0.50 | 0.5000 | 0 | 96.5 | 80 | 120 | | | | |
| Cobalt | 0.520 | 0.50 | 0.5000 | 0 | 104 | 80 | 120 | | | | |
| Lead | 0.963 | 1.0 | 1.000 | 0 | 96.3 | 80 | 120 | | | | |
| Manganese | 0.489 | 0.50 | 0.5000 | 0 | 97.9 | 80 | 120 | | | | |
| Nickel | 0.975 | 1.0 | 1.000 | 0 | 97.5 | 80 | 120 | | | | |
| Silver | 0.579 | 0.50 | 0.5000 | 0 | 116 | 80 | 120 | | | | |
| Thallium | 0.427 | 0.50 | 0.5000 | 0 | 85.3 | 80 | 120 | | | | |
| Vanadium | 0.829 | 1.0 | 1.000 | 0 | 82.9 | 80 | 120 | | | | |
| Zinc | 10.244 | 10 | 10.00 | 0 | 102 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333762** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 19.826 | 0.50 | 20.00 | 0 | 99.1 | 90 | 110 | | | | |
| Arsenic | 20.133 | 0.10 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Barium | 21.347 | 1.0 | 20.00 | 0 | 107 | 90 | 110 | | | | |
| Beryllium | 20.172 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Cadmium | 19.841 | 0.50 | 20.00 | 0 | 99.2 | 90 | 110 | | | | |
| Cobalt | 20.001 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Copper | 19.678 | 1.0 | 20.00 | 0 | 98.4 | 90 | 110 | | | | |
| Lead | 19.699 | 1.0 | 20.00 | 0 | 98.5 | 90 | 110 | | | | |
| Manganese | 19.894 | 0.50 | 20.00 | 0 | 99.5 | 90 | 110 | | | | |
| Molybdenum | 19.910 | 0.50 | 20.00 | 0 | 99.5 | 90 | 110 | | | | |
| Nickel | 20.809 | 1.0 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Selenium | 19.352 | 0.50 | 20.00 | 0 | 96.8 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333762** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Silver | 19.915 | 0.50 | 20.00 | 0 | 99.6 | 90 | 110 | | | | |
| Thallium | 19.581 | 0.50 | 20.00 | 0 | 97.9 | 90 | 110 | | | | |
| Vanadium | 19.713 | 1.0 | 20.00 | 0 | 98.6 | 90 | 110 | | | | |
| Zinc | 20.285 | 10 | 20.00 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333774** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 19.886 | 0.50 | 20.00 | 0 | 99.4 | 90 | 110 | | | | |
| Arsenic | 19.975 | 0.10 | 20.00 | 0 | 99.9 | 90 | 110 | | | | |
| Barium | 20.759 | 1.0 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Beryllium | 19.495 | 0.50 | 20.00 | 0 | 97.5 | 90 | 110 | | | | |
| Cadmium | 19.972 | 0.50 | 20.00 | 0 | 99.9 | 90 | 110 | | | | |
| Cobalt | 19.863 | 0.50 | 20.00 | 0 | 99.3 | 90 | 110 | | | | |
| Copper | 19.711 | 1.0 | 20.00 | 0 | 98.6 | 90 | 110 | | | | |
| Lead | 19.589 | 1.0 | 20.00 | 0 | 97.9 | 90 | 110 | | | | |
| Manganese | 20.009 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Molybdenum | 19.894 | 0.50 | 20.00 | 0 | 99.5 | 90 | 110 | | | | |
| Nickel | 20.746 | 1.0 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Selenium | 19.220 | 0.50 | 20.00 | 0 | 96.1 | 90 | 110 | | | | |
| Silver | 20.127 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Thallium | 19.446 | 0.50 | 20.00 | 0 | 97.2 | 90 | 110 | | | | |
| Vanadium | 19.368 | 1.0 | 20.00 | 0 | 96.8 | 90 | 110 | | | | |
| Zinc | 19.888 | 10 | 20.00 | 0 | 99.4 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333786** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333786** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 19.894 | 0.50 | 20.00 | 0 | 99.5 | 90 | 110 | | | | |
| Arsenic | 19.694 | 0.10 | 20.00 | 0 | 98.5 | 90 | 110 | | | | |
| Barium | 20.375 | 1.0 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Beryllium | 19.474 | 0.50 | 20.00 | 0 | 97.4 | 90 | 110 | | | | |
| Cadmium | 20.088 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Cobalt | 19.847 | 0.50 | 20.00 | 0 | 99.2 | 90 | 110 | | | | |
| Copper | 20.448 | 1.0 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Lead | 19.638 | 1.0 | 20.00 | 0 | 98.2 | 90 | 110 | | | | |
| Manganese | 20.039 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Molybdenum | 19.432 | 0.50 | 20.00 | 0 | 97.2 | 90 | 110 | | | | |
| Nickel | 20.494 | 1.0 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Selenium | 19.688 | 0.50 | 20.00 | 0 | 98.4 | 90 | 110 | | | | |
| Silver | 19.961 | 0.50 | 20.00 | 0 | 99.8 | 90 | 110 | | | | |
| Thallium | 19.496 | 0.50 | 20.00 | 0 | 97.5 | 90 | 110 | | | | |
| Vanadium | 19.557 | 1.0 | 20.00 | 0 | 97.8 | 90 | 110 | | | | |
| Zinc | 20.016 | 10 | 20.00 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333800** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 20.161 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Arsenic | 20.492 | 0.10 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Barium | 20.781 | 1.0 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Beryllium | 19.517 | 0.50 | 20.00 | 0 | 97.6 | 90 | 110 | | | | |
| Cadmium | 19.997 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Cobalt | 19.665 | 0.50 | 20.00 | 0 | 98.3 | 90 | 110 | | | | |
| Copper | 21.772 | 1.0 | 20.00 | 0 | 109 | 90 | 110 | | | | |
| Lead | 19.710 | 1.0 | 20.00 | 0 | 98.5 | 90 | 110 | | | | |
| Manganese | 19.961 | 0.50 | 20.00 | 0 | 99.8 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132861**
Client ID: **CCV** Batch ID: **R132861** TestNo: **EPA 6020** Analysis Date: **3/28/2019** SeqNo: **3333800**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 18.831 | 0.50 | 20.00 | 0 | 94.2 | 90 | 110 | | | | |
| Nickel | 20.556 | 1.0 | 20.00 | 0 | 103 | 90 | 110 | | | | |
| Selenium | 17.860 | 0.50 | 20.00 | 0 | 89.3 | 90 | 110 | | | | S |
| Silver | 20.167 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Thallium | 19.538 | 0.50 | 20.00 | 0 | 97.7 | 90 | 110 | | | | |
| Vanadium | 18.957 | 1.0 | 20.00 | 0 | 94.8 | 90 | 110 | | | | |
| Zinc | 20.162 | 10 | 20.00 | 0 | 101 | 90 | 110 | | | | |

Sample ID **CCV5** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132861**
Client ID: **CCV** Batch ID: **R132861** TestNo: **EPA 6020** Analysis Date: **3/28/2019** SeqNo: **3333807**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 20.224 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Arsenic | 19.315 | 0.10 | 20.00 | 0 | 96.6 | 90 | 110 | | | | |
| Barium | 20.506 | 1.0 | 20.00 | 0 | 103 | 90 | 110 | | | | |
| Beryllium | 19.535 | 0.50 | 20.00 | 0 | 97.7 | 90 | 110 | | | | |
| Cadmium | 20.184 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Cobalt | 19.876 | 0.50 | 20.00 | 0 | 99.4 | 90 | 110 | | | | |
| Copper | 20.596 | 1.0 | 20.00 | 0 | 103 | 90 | 110 | | | | |
| Lead | 19.592 | 1.0 | 20.00 | 0 | 98.0 | 90 | 110 | | | | |
| Manganese | 20.091 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Molybdenum | 18.829 | 0.50 | 20.00 | 0 | 94.1 | 90 | 110 | | | | |
| Nickel | 20.901 | 1.0 | 20.00 | 0 | 105 | 90 | 110 | | | | |
| Silver | 20.147 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Thallium | 19.487 | 0.50 | 20.00 | 0 | 97.4 | 90 | 110 | | | | |
| Vanadium | 19.379 | 1.0 | 20.00 | 0 | 96.9 | 90 | 110 | | | | |
| Zinc | 19.735 | 10 | 20.00 | 0 | 98.7 | 90 | 110 | | | | |
| Selenium | 19.9394 | 0.5 | 20.00 | 0 | 99.7 | 90 | 110 | | | | |

4/3/2019

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

Se in CCV4 is biased low however, N034662 samples were not affected. All analytes except Cr for N034662 were reanalyzed on 3/31/19.

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333821** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 20.436 | 0.50 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Arsenic | 19.669 | 0.10 | 20.00 | 0 | 98.3 | 90 | 110 | | | | |
| Barium | 21.034 | 1.0 | 20.00 | 0 | 105 | 90 | 110 | | | | |
| Beryllium | 19.812 | 0.50 | 20.00 | 0 | 99.1 | 90 | 110 | | | | |
| Cadmium | 20.088 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Cobalt | 19.708 | 0.50 | 20.00 | 0 | 98.5 | 90 | 110 | | | | |
| Copper | 20.426 | 1.0 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Lead | 19.552 | 1.0 | 20.00 | 0 | 97.8 | 90 | 110 | | | | |
| Manganese | 20.190 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Molybdenum | 18.876 | 0.50 | 20.00 | 0 | 94.4 | 90 | 110 | | | | |
| Nickel | 19.950 | 1.0 | 20.00 | 0 | 99.7 | 90 | 110 | | | | |
| Selenium | 19.448 | 0.50 | 20.00 | 0 | 97.2 | 90 | 110 | | | | |
| Silver | 20.235 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Thallium | 19.420 | 0.50 | 20.00 | 0 | 97.1 | 90 | 110 | | | | |
| Vanadium | 19.031 | 1.0 | 20.00 | 0 | 95.2 | 90 | 110 | | | | |
| Zinc | 20.171 | 10 | 20.00 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333833** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 20.418 | 0.50 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Arsenic | 19.751 | 0.10 | 20.00 | 0 | 98.8 | 90 | 110 | | | | |
| Barium | 20.650 | 1.0 | 20.00 | 0 | 103 | 90 | 110 | | | | |
| Beryllium | 20.054 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Cadmium | 20.240 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Cobalt | 20.018 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Copper | 19.145 | 1.0 | 20.00 | 0 | 95.7 | 90 | 110 | | | | |
| Lead | 19.783 | 1.0 | 20.00 | 0 | 98.9 | 90 | 110 | | | | |
| Manganese | 20.639 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333833** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 19.533 | 0.50 | 20.00 | 0 | 97.7 | 90 | 110 | | | | |
| Nickel | 20.397 | 1.0 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Selenium | 18.876 | 0.50 | 20.00 | 0 | 94.4 | 90 | 110 | | | | |
| Silver | 20.053 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Thallium | 19.712 | 0.50 | 20.00 | 0 | 98.6 | 90 | 110 | | | | |
| Vanadium | 19.447 | 1.0 | 20.00 | 0 | 97.2 | 90 | 110 | | | | |
| Zinc | 19.635 | 10 | 20.00 | 0 | 98.2 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **3/31/2019** | SeqNo: **3335143** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 9.768 | 0.50 | 10.00 | 0 | 97.7 | 90 | 110 | | | | |
| Arsenic | 9.928 | 0.10 | 10.00 | 0 | 99.3 | 90 | 110 | | | | |
| Barium | 9.641 | 1.0 | 10.00 | 0 | 96.4 | 90 | 110 | | | | |
| Beryllium | 9.595 | 0.50 | 10.00 | 0 | 95.9 | 90 | 110 | | | | |
| Cadmium | 10.104 | 0.50 | 10.00 | 0 | 101 | 90 | 110 | | | | |
| Cobalt | 10.168 | 0.50 | 10.00 | 0 | 102 | 90 | 110 | | | | |
| Copper | 10.447 | 1.0 | 10.00 | 0 | 104 | 90 | 110 | | | | |
| Lead | 9.530 | 1.0 | 10.00 | 0 | 95.3 | 90 | 110 | | | | |
| Manganese | 105.692 | 0.50 | 100.0 | 0 | 106 | 90 | 110 | | | | |
| Molybdenum | 9.052 | 0.50 | 10.00 | 0 | 90.5 | 90 | 110 | | | | |
| Nickel | 10.469 | 1.0 | 10.00 | 0 | 105 | 90 | 110 | | | | |
| Selenium | 10.273 | 0.50 | 10.00 | 0 | 103 | 90 | 110 | | | | |
| Silver | 10.175 | 0.50 | 10.00 | 0 | 102 | 90 | 110 | | | | |
| Thallium | 9.887 | 0.50 | 10.00 | 0 | 98.9 | 90 | 110 | | | | |
| Vanadium | 10.372 | 1.0 | 10.00 | 0 | 104 | 90 | 110 | | | | |
| Zinc | 10.234 | 10 | 10.00 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **3/31/2019** | SeqNo: **3335145** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 0.511 | 0.50 | 0.5000 | 0 | 102 | 80 | 120 | | | | |
| Arsenic | 0.101 | 0.10 | 0.1000 | 0 | 101 | 80 | 120 | | | | |
| Barium | 0.943 | 1.0 | 1.000 | 0 | 94.3 | 80 | 120 | | | | |
| Beryllium | 0.488 | 0.50 | 0.5000 | 0 | 97.6 | 80 | 120 | | | | |
| Cadmium | 0.555 | 0.50 | 0.5000 | 0 | 111 | 80 | 120 | | | | |
| Cobalt | 0.503 | 0.50 | 0.5000 | 0 | 101 | 80 | 120 | | | | |
| Lead | 0.958 | 1.0 | 1.000 | 0 | 95.8 | 80 | 120 | | | | |
| Manganese | 0.525 | 0.50 | 0.5000 | 0 | 105 | 80 | 120 | | | | |
| Nickel | 1.081 | 1.0 | 1.000 | 0 | 108 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | LLICV | SampType: | CCV1 | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 132884 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132884 | TestNo: | EPA 6020 | | | Analysis Date: | 3/31/2019 | SeqNo: | 3335145 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Thallium | 0.408 | 0.50 | 0.5000 | 0 | 81.6 | 80 | 120 | | | | |
| Vanadium | 1.194 | 1.0 | 1.000 | 0 | 119 | 80 | 120 | | | | |
| Zinc | 10.531 | 10 | 10.00 | 0 | 105 | 80 | 120 | | | | |

| Sample ID | LLICV | SampType: | CCV1 | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 132884 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132884 | TestNo: | EPA 6020 | | | Analysis Date: | 3/31/2019 | SeqNo: | 3335148 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Copper | 0.917 | 1.0 | 1.000 | 0 | 91.7 | 80 | 120 | | | | |
| Molybdenum | 0.464 | 0.50 | 0.5000 | 0 | 92.7 | 80 | 120 | | | | |
| Selenium | 0.546 | 0.50 | 0.5000 | 0 | 109 | 80 | 120 | | | | |
| Silver | 0.936 | 0.50 | 0.5000 | 0 | 187 | 80 | 120 | | | | S |

| Sample ID | CCV1 | SampType: | CCV | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 132884 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | CCV | Batch ID: | R132884 | TestNo: | EPA 6020 | | | Analysis Date: | 3/31/2019 | SeqNo: | 3335159 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 19.336 | 0.50 | 20.00 | 0 | 96.7 | 90 | 110 | | | | |
| Arsenic | 20.086 | 0.10 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Barium | 20.911 | 1.0 | 20.00 | 0 | 105 | 90 | 110 | | | | |
| Beryllium | 20.251 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Cadmium | 20.112 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Cobalt | 20.185 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Copper | 20.200 | 1.0 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Lead | 18.752 | 1.0 | 20.00 | 0 | 93.8 | 90 | 110 | | | | |
| Manganese | 20.247 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Molybdenum | 19.131 | 0.50 | 20.00 | 0 | 95.7 | 90 | 110 | | | | |
| Nickel | 20.387 | 1.0 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Selenium | 19.340 | 0.50 | 20.00 | 0 | 96.7 | 90 | 110 | | | | |
| Silver | 19.703 | 0.50 | 20.00 | 0 | 98.5 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

Ag in LLICV is biased high however, N034662 samples are non-detect for this analyte.

4/3/2019

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **3/31/2019** | SeqNo: **3335159** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Thallium | 19.245 | 0.50 | 20.00 | 0 | 96.2 | 90 | 110 | | | | |
| Vanadium | 19.842 | 1.0 | 20.00 | 0 | 99.2 | 90 | 110 | | | | |
| Zinc | 19.961 | 10 | 20.00 | 0 | 99.8 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **3/31/2019** | SeqNo: **3335169** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 19.343 | 0.50 | 20.00 | 0 | 96.7 | 90 | 110 | | | | |
| Arsenic | 19.892 | 0.10 | 20.00 | 0 | 99.5 | 90 | 110 | | | | |
| Barium | 21.103 | 1.0 | 20.00 | 0 | 106 | 90 | 110 | | | | |
| Beryllium | 19.665 | 0.50 | 20.00 | 0 | 98.3 | 90 | 110 | | | | |
| Cadmium | 19.788 | 0.50 | 20.00 | 0 | 98.9 | 90 | 110 | | | | |
| Cobalt | 19.923 | 0.50 | 20.00 | 0 | 99.6 | 90 | 110 | | | | |
| Copper | 19.980 | 1.0 | 20.00 | 0 | 99.9 | 90 | 110 | | | | |
| Lead | 18.918 | 1.0 | 20.00 | 0 | 94.6 | 90 | 110 | | | | |
| Manganese | 20.292 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Molybdenum | 18.716 | 0.50 | 20.00 | 0 | 93.6 | 90 | 110 | | | | |
| Nickel | 19.837 | 1.0 | 20.00 | 0 | 99.2 | 90 | 110 | | | | |
| Selenium | 19.992 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Silver | 19.960 | 0.50 | 20.00 | 0 | 99.8 | 90 | 110 | | | | |
| Thallium | 19.434 | 0.50 | 20.00 | 0 | 97.2 | 90 | 110 | | | | |
| Vanadium | 19.916 | 1.0 | 20.00 | 0 | 99.6 | 90 | 110 | | | | |
| Zinc | 19.612 | 10 | 20.00 | 0 | 98.1 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **3/31/2019** | SeqNo: **3335180** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 19.265 | 0.50 | 20.00 | 0 | 96.3 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **3/31/2019** | SeqNo: **3335180** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.900 | 0.10 | 20.00 | 0 | 99.5 | 90 | 110 | | | | |
| Barium | 21.599 | 1.0 | 20.00 | 0 | 108 | 90 | 110 | | | | |
| Beryllium | 19.887 | 0.50 | 20.00 | 0 | 99.4 | 90 | 110 | | | | |
| Cadmium | 19.802 | 0.50 | 20.00 | 0 | 99.0 | 90 | 110 | | | | |
| Cobalt | 20.058 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Copper | 19.393 | 1.0 | 20.00 | 0 | 97.0 | 90 | 110 | | | | |
| Lead | 18.972 | 1.0 | 20.00 | 0 | 94.9 | 90 | 110 | | | | |
| Manganese | 20.360 | 0.50 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Molybdenum | 19.238 | 0.50 | 20.00 | 0 | 96.2 | 90 | 110 | | | | |
| Nickel | 19.747 | 1.0 | 20.00 | 0 | 98.7 | 90 | 110 | | | | |
| Selenium | 20.513 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |
| Silver | 19.866 | 0.50 | 20.00 | 0 | 99.3 | 90 | 110 | | | | |
| Thallium | 19.587 | 0.50 | 20.00 | 0 | 97.9 | 90 | 110 | | | | |
| Vanadium | 20.048 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Zinc | 19.661 | 10 | 20.00 | 0 | 98.3 | 90 | 110 | | | | |

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **3/31/2019** | SeqNo: **3335194** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 19.335 | 0.50 | 20.00 | 0 | 96.7 | 90 | 110 | | | | |
| Arsenic | 20.124 | 0.10 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Barium | 21.560 | 1.0 | 20.00 | 0 | 108 | 90 | 110 | | | | |
| Beryllium | 19.996 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Cadmium | 20.054 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Cobalt | 19.667 | 0.50 | 20.00 | 0 | 98.3 | 90 | 110 | | | | |
| Copper | 19.720 | 1.0 | 20.00 | 0 | 98.6 | 90 | 110 | | | | |
| Lead | 18.908 | 1.0 | 20.00 | 0 | 94.5 | 90 | 110 | | | | |
| Manganese | 20.207 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Molybdenum | 19.102 | 0.50 | 20.00 | 0 | 95.5 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **3/31/2019** | SeqNo: **3335194** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nickel | 19.701 | 1.0 | 20.00 | 0 | 98.5 | 90 | 110 | | | | |
| Selenium | 19.599 | 0.50 | 20.00 | 0 | 98.0 | 90 | 110 | | | | |
| Silver | 19.920 | 0.50 | 20.00 | 0 | 99.6 | 90 | 110 | | | | |
| Thallium | 19.410 | 0.50 | 20.00 | 0 | 97.0 | 90 | 110 | | | | |
| Vanadium | 19.815 | 1.0 | 20.00 | 0 | 99.1 | 90 | 110 | | | | |
| Zinc | 19.612 | 10 | 20.00 | 0 | 98.1 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3335204** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 19.457 | 0.50 | 20.00 | 0 | 97.3 | 90 | 110 | | | | |
| Arsenic | 19.720 | 0.10 | 20.00 | 0 | 98.6 | 90 | 110 | | | | |
| Barium | 21.718 | 1.0 | 20.00 | 0 | 109 | 90 | 110 | | | | |
| Beryllium | 19.713 | 0.50 | 20.00 | 0 | 98.6 | 90 | 110 | | | | |
| Cadmium | 19.865 | 0.50 | 20.00 | 0 | 99.3 | 90 | 110 | | | | |
| Cobalt | 19.719 | 0.50 | 20.00 | 0 | 98.6 | 90 | 110 | | | | |
| Copper | 19.563 | 1.0 | 20.00 | 0 | 97.8 | 90 | 110 | | | | |
| Lead | 19.114 | 1.0 | 20.00 | 0 | 95.6 | 90 | 110 | | | | |
| Manganese | 20.235 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Molybdenum | 18.634 | 0.50 | 20.00 | 0 | 93.2 | 90 | 110 | | | | |
| Nickel | 19.733 | 1.0 | 20.00 | 0 | 98.7 | 90 | 110 | | | | |
| Selenium | 18.412 | 0.50 | 20.00 | 0 | 92.1 | 90 | 110 | | | | |
| Silver | 19.808 | 0.50 | 20.00 | 0 | 99.0 | 90 | 110 | | | | |
| Thallium | 19.573 | 0.50 | 20.00 | 0 | 97.9 | 90 | 110 | | | | |
| Vanadium | 19.708 | 1.0 | 20.00 | 0 | 98.5 | 90 | 110 | | | | |
| Zinc | 19.887 | 10 | 20.00 | 0 | 99.4 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3335216** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 19.375 | 0.50 | 20.00 | 0 | 96.9 | 90 | 110 | | | | |
| Arsenic | 19.818 | 0.10 | 20.00 | 0 | 99.1 | 90 | 110 | | | | |
| Barium | 21.588 | 1.0 | 20.00 | 0 | 108 | 90 | 110 | | | | |
| Beryllium | 20.010 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Cadmium | 19.995 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Cobalt | 19.745 | 0.50 | 20.00 | 0 | 98.7 | 90 | 110 | | | | |
| Copper | 19.396 | 1.0 | 20.00 | 0 | 97.0 | 90 | 110 | | | | |
| Lead | 18.766 | 1.0 | 20.00 | 0 | 93.8 | 90 | 110 | | | | |
| Manganese | 20.268 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Molybdenum | 18.831 | 0.50 | 20.00 | 0 | 94.2 | 90 | 110 | | | | |
| Nickel | 19.352 | 1.0 | 20.00 | 0 | 96.8 | 90 | 110 | | | | |
| Selenium | 18.213 | 0.50 | 20.00 | 0 | 91.1 | 90 | 110 | | | | |
| Silver | 19.730 | 0.50 | 20.00 | 0 | 98.7 | 90 | 110 | | | | |
| Thallium | 19.286 | 0.50 | 20.00 | 0 | 96.4 | 90 | 110 | | | | |
| Vanadium | 20.013 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Zinc | 19.728 | 10 | 20.00 | 0 | 98.6 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132908** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132908** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336290** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 106.825 | 0.50 | 100.0 | 0 | 107 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132908** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132908** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336292** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 0.552 | 0.50 | 0.5000 | 0 | 110 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132908** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132908** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336303** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 20.475 | 0.50 | 20.00 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132908** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132908** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336315** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 20.645 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132908** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132908** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336327** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 20.293 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132859** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132859** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333630** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.094 | 1.0 | 10.00 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132859** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132859** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333635** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 1.029 | 1.0 | 1.000 | 0 | 103 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132859** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132859** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333646** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.011 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132859** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132859** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333658** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.188 | 1.0 | 20.00 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132859** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132859** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333670** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.857 | 1.0 | 20.00 | 0 | 99.3 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132859** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132859** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333684** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.099 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132859** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132859** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333691** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.582 | 1.0 | 20.00 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132859** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132859** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333705** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.780 | 1.0 | 20.00 | 0 | 98.9 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132859** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132859** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333717** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.346 | 1.0 | 20.00 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333747** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333763** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **CCB1** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132861**
Client ID: **CCB** Batch ID: **R132861** TestNo: **EPA 6020** Analysis Date: **3/28/2019** SeqNo: **3333763**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

Sample ID **CCB2** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132861**
Client ID: **CCB** Batch ID: **R132861** TestNo: **EPA 6020** Analysis Date: **3/28/2019** SeqNo: **3333775**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **CCB3** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132861**
Client ID: **CCB** Batch ID: **R132861** TestNo: **EPA 6020** Analysis Date: **3/28/2019** SeqNo: **3333787**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

Sample ID **CCB4** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132861**
Client ID: **CCB** Batch ID: **R132861** TestNo: **EPA 6020** Analysis Date: **3/28/2019** SeqNo: **3333801**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | 0.768 | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

Some analytes in CCB4-CCB7 is > 1/2 RL. All analytes except Cr for N034662 were reanalyzed on 3/31/19.

4/3/2019

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333801** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 0.320 | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333808** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.317 | 0.50 | | | | | | | | | |
| Nickel | 0.519 | 1.0 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |
| Selenium | ND | 0.5 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

4/3/2019

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333822** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.307 | 0.50 | | | | | | | | | |
| Nickel | 0.322 | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/29/2019** | SeqNo: **3333834** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.271 | 0.50 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/29/2019** | SeqNo: **3333834** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nickel | 0.647 | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **3/31/2019** | SeqNo: **3335144** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **3/31/2019** | SeqNo: **3335160** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | CCB1 | SampType: | CCB | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 132884 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | CCB | Batch ID: | R132884 | TestNo: | EPA 6020 | | | Analysis Date: | 3/31/2019 | SeqNo: | 3335160 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 0.438 | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

| Sample ID | CCB2 | SampType: | CCB | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 132884 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | CCB | Batch ID: | R132884 | TestNo: | EPA 6020 | | | Analysis Date: | 3/31/2019 | SeqNo: | 3335170 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.330 | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

Mo in most of the CCB is > 1/2 RL however, N034662 samples for this analyte are >5x the CCB detection.

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

4/3/2019

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **3/31/2019** | SeqNo: **3335181** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.346 | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3335195** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3335195** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 0.331 | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3335205** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.290 | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3335217** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.243 | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132908** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132908** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336291** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132908** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132908** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336304** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132908** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132908** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336316** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132908** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132908** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336328** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132859** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132859** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333631** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132859** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132859** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333647** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132859** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132859** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333659** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132859** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132859** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333671** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132859** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132859** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333685** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 0.341 | 1.0 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | CCB5 | SampType: | CCB | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | | RunNo: | 132859 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | CCB | Batch ID: | R132859 | TestNo: | EPA 6020 | | | Analysis Date: | 3/28/2019 | SeqNo: | 3333692 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 0.631 | 1.0 | | | | | | | | | |

| Sample ID | CCB6 | SampType: | CCB | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | | RunNo: | 132859 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | CCB | Batch ID: | R132859 | TestNo: | EPA 6020 | | | Analysis Date: | 3/28/2019 | SeqNo: | 3333706 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 0.235 | 1.0 | | | | | | | | | |

| Sample ID | CCB7 | SampType: | CCB | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | | RunNo: | 132859 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | CCB | Batch ID: | R132859 | TestNo: | EPA 6020 | | | Analysis Date: | 3/29/2019 | SeqNo: | 3333718 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

Cr in CCB5 is > 1/2 RL however, N034662 samples for this analyte are >5x the CCB detection.

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

4/3/2019

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132861**
Client ID: **ICSA** Batch ID: **R132861** TestNo: **EPA 6020** Analysis Date: **3/28/2019** SeqNo: **3333749**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132861**
Client ID: **ICSAB** Batch ID: **R132861** TestNo: **EPA 6020** Analysis Date: **3/28/2019** SeqNo: **3333750**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 21.794 | 0.50 | 20.00 | 0 | 109 | 80 | 120 | | | | |
| Arsenic | 22.519 | 0.10 | 20.00 | 0 | 113 | 80 | 120 | | | | |
| Barium | 17.284 | 1.0 | 20.00 | 0 | 86.4 | 80 | 120 | | | | |
| Beryllium | 21.311 | 0.50 | 20.00 | 0 | 107 | 80 | 120 | | | | |
| Cadmium | 17.234 | 0.50 | 20.00 | 0 | 86.2 | 80 | 120 | | | | |
| Cobalt | 21.375 | 0.50 | 20.00 | 0 | 107 | 80 | 120 | | | | |
| Copper | 20.208 | 1.0 | 20.00 | 0 | 101 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333750** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead | 19.592 | 1.0 | 20.00 | 0 | 98.0 | 80 | 120 | | | | |
| Manganese | 18.491 | 0.50 | 20.00 | 0 | 92.5 | 80 | 120 | | | | |
| Molybdenum | 21.381 | 0.50 | 20.00 | 0 | 107 | 80 | 120 | | | | |
| Nickel | 21.571 | 1.0 | 20.00 | 0 | 108 | 80 | 120 | | | | |
| Selenium | 18.600 | 0.50 | 20.00 | 0 | 93.0 | 80 | 120 | | | | |
| Silver | 19.732 | 0.50 | 20.00 | 0 | 98.7 | 80 | 120 | | | | |
| Thallium | 21.555 | 0.50 | 20.00 | 0 | 108 | 80 | 120 | | | | |
| Vanadium | 21.591 | 1.0 | 20.00 | 0 | 108 | 80 | 120 | | | | |
| Zinc | 19.415 | 10 | 20.00 | 0 | 97.1 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333788** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333789** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 21.894 | 0.50 | 20.00 | 0 | 109 | 80 | 120 | | | | |
| Arsenic | 22.080 | 0.10 | 20.00 | 0 | 110 | 80 | 120 | | | | |
| Barium | 16.487 | 1.0 | 20.00 | 0 | 82.4 | 80 | 120 | | | | |
| Beryllium | 21.077 | 0.50 | 20.00 | 0 | 105 | 80 | 120 | | | | |
| Cadmium | 16.923 | 0.50 | 20.00 | 0 | 84.6 | 80 | 120 | | | | |
| Cobalt | 20.434 | 0.50 | 20.00 | 0 | 102 | 80 | 120 | | | | |
| Copper | 18.951 | 1.0 | 20.00 | 0 | 94.8 | 80 | 120 | | | | |
| Lead | 19.692 | 1.0 | 20.00 | 0 | 98.5 | 80 | 120 | | | | |
| Manganese | 18.563 | 0.50 | 20.00 | 0 | 92.8 | 80 | 120 | | | | |
| Molybdenum | 21.903 | 0.50 | 20.00 | 0 | 110 | 80 | 120 | | | | |
| Nickel | 20.978 | 1.0 | 20.00 | 0 | 105 | 80 | 120 | | | | |
| Selenium | 19.031 | 0.50 | 20.00 | 0 | 95.2 | 80 | 120 | | | | |
| Silver | 19.880 | 0.50 | 20.00 | 0 | 99.4 | 80 | 120 | | | | |
| Thallium | 21.529 | 0.50 | 20.00 | 0 | 108 | 80 | 120 | | | | |
| Vanadium | 21.318 | 1.0 | 20.00 | 0 | 107 | 80 | 120 | | | | |
| Zinc | 18.517 | 10 | 20.00 | 0 | 92.6 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333809** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333809** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132861** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132861** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333810** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 21.905 | 0.50 | 20.00 | 0 | 110 | 80 | 120 | | | | |
| Arsenic | 21.546 | 0.10 | 20.00 | 0 | 108 | 80 | 120 | | | | |
| Barium | 17.849 | 1.0 | 20.00 | 0 | 89.2 | 80 | 120 | | | | |
| Beryllium | 21.192 | 0.50 | 20.00 | 0 | 106 | 80 | 120 | | | | |
| Cadmium | 17.646 | 0.50 | 20.00 | 0 | 88.2 | 80 | 120 | | | | |
| Cobalt | 19.792 | 0.50 | 20.00 | 0 | 99.0 | 80 | 120 | | | | |
| Copper | 19.269 | 1.0 | 20.00 | 0 | 96.3 | 80 | 120 | | | | |
| Lead | 19.846 | 1.0 | 20.00 | 0 | 99.2 | 80 | 120 | | | | |
| Manganese | 17.973 | 0.50 | 20.00 | 0 | 89.9 | 80 | 120 | | | | |
| Molybdenum | 22.037 | 0.50 | 20.00 | 0 | 110 | 80 | 120 | | | | |
| Nickel | 20.726 | 1.0 | 20.00 | 0 | 104 | 80 | 120 | | | | |
| Selenium | 19.955 | 0.50 | 20.00 | 0 | 99.8 | 80 | 120 | | | | |
| Silver | 19.961 | 0.50 | 20.00 | 0 | 99.8 | 80 | 120 | | | | |
| Thallium | 21.506 | 0.50 | 20.00 | 0 | 108 | 80 | 120 | | | | |
| Vanadium | 20.890 | 1.0 | 20.00 | 0 | 104 | 80 | 120 | | | | |
| Zinc | 19.241 | 10 | 20.00 | 0 | 96.2 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **ICSA4** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132861**
Client ID: **ICSA** Batch ID: **R132861** TestNo: **EPA 6020** Analysis Date: **3/29/2019** SeqNo: **3333835**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Nickel | 0.290 | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

Sample ID **ICSAB4** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132861**
Client ID: **ICSAB** Batch ID: **R132861** TestNo: **EPA 6020** Analysis Date: **3/29/2019** SeqNo: **3333836**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 22.201 | 0.50 | 20.00 | 0 | 111 | 80 | 120 | | | | |
| Arsenic | 21.638 | 0.10 | 20.00 | 0 | 108 | 80 | 120 | | | | |
| Barium | 18.576 | 1.0 | 20.00 | 0 | 92.9 | 80 | 120 | | | | |
| Beryllium | 21.330 | 0.50 | 20.00 | 0 | 107 | 80 | 120 | | | | |
| Cadmium | 17.541 | 0.50 | 20.00 | 0 | 87.7 | 80 | 120 | | | | |
| Cobalt | 20.026 | 0.50 | 20.00 | 0 | 100 | 80 | 120 | | | | |
| Copper | 18.921 | 1.0 | 20.00 | 0 | 94.6 | 80 | 120 | | | | |
| Lead | 19.803 | 1.0 | 20.00 | 0 | 99.0 | 80 | 120 | | | | |
| Manganese | 18.685 | 0.50 | 20.00 | 0 | 93.4 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **ICSAB4** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132861**
Client ID: **ICSAB** Batch ID: **R132861** TestNo: **EPA 6020** Analysis Date: **3/29/2019** SeqNo: **3333836**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nickel | 20.700 | 1.0 | 20.00 | 0 | 103 | 80 | 120 | | | | |
| Selenium | 18.838 | 0.50 | 20.00 | 0 | 94.2 | 80 | 120 | | | | |
| Thallium | 21.369 | 0.50 | 20.00 | 0 | 107 | 80 | 120 | | | | |
| Vanadium | 21.070 | 1.0 | 20.00 | 0 | 105 | 80 | 120 | | | | |
| Zinc | 18.801 | 10 | 20.00 | 0 | 94.0 | 80 | 120 | | | | |
| Molydenum | 22.2805 | 0.5 | 20 | 0 | 111 | 80 | 120 | | | | |
| Silver | 19.8508 | 0.5 | 20 | 0 | 99.2 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **3/31/2019** | SeqNo: **3335146** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **3/31/2019** | SeqNo: **3335147** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 19.744 | 0.50 | 20.00 | 0 | 98.7 | 80 | 120 | | | | |
| Arsenic | 20.387 | 0.10 | 20.00 | 0 | 102 | 80 | 120 | | | | |
| Barium | 17.164 | 1.0 | 20.00 | 0 | 85.8 | 80 | 120 | | | | |
| Beryllium | 19.887 | 0.50 | 20.00 | 0 | 99.4 | 80 | 120 | | | | |
| Cadmium | 17.536 | 0.50 | 20.00 | 0 | 87.7 | 80 | 120 | | | | |
| Cobalt | 19.821 | 0.50 | 20.00 | 0 | 99.1 | 80 | 120 | | | | |
| Copper | 18.710 | 1.0 | 20.00 | 0 | 93.5 | 80 | 120 | | | | |
| Lead | 17.615 | 1.0 | 20.00 | 0 | 88.1 | 80 | 120 | | | | |
| Manganese | 16.925 | 0.50 | 20.00 | 0 | 84.6 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | ICSAB1 | SampType: | ICSAB | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 132884 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ICSAB | Batch ID: | R132884 | TestNo: | EPA 6020 | | | Analysis Date: | 3/31/2019 | SeqNo: | 3335147 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 19.039 | 0.50 | 20.00 | 0 | 95.2 | 80 | 120 | | | | |
| Nickel | 20.298 | 1.0 | 20.00 | 0 | 101 | 80 | 120 | | | | |
| Selenium | 19.532 | 0.50 | 20.00 | 0 | 97.7 | 80 | 120 | | | | |
| Silver | 18.056 | 0.50 | 20.00 | 0 | 90.3 | 80 | 120 | | | | |
| Thallium | 20.421 | 0.50 | 20.00 | 0 | 102 | 80 | 120 | | | | |
| Vanadium | 20.270 | 1.0 | 20.00 | 0 | 101 | 80 | 120 | | | | |
| Zinc | 17.745 | 10 | 20.00 | 0 | 88.7 | 80 | 120 | | | | |

| Sample ID | ICSA2 | SampType: | ICSA | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 132884 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ICSA | Batch ID: | R132884 | TestNo: | EPA 6020 | | | Analysis Date: | 3/31/2019 | SeqNo: | 3335182 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **3/31/2019** | SeqNo: **3335183** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 19.568 | 0.50 | 20.00 | 0 | 97.8 | 80 | 120 | | | | |
| Arsenic | 20.610 | 0.10 | 20.00 | 0 | 103 | 80 | 120 | | | | |
| Barium | 18.292 | 1.0 | 20.00 | 0 | 91.5 | 80 | 120 | | | | |
| Beryllium | 19.977 | 0.50 | 20.00 | 0 | 99.9 | 80 | 120 | | | | |
| Cadmium | 17.367 | 0.50 | 20.00 | 0 | 86.8 | 80 | 120 | | | | |
| Cobalt | 18.487 | 0.50 | 20.00 | 0 | 92.4 | 80 | 120 | | | | |
| Copper | 16.845 | 1.0 | 20.00 | 0 | 84.2 | 80 | 120 | | | | |
| Lead | 17.361 | 1.0 | 20.00 | 0 | 86.8 | 80 | 120 | | | | |
| Manganese | 18.165 | 0.50 | 20.00 | 0 | 90.8 | 80 | 120 | | | | |
| Molybdenum | 19.896 | 0.50 | 20.00 | 0 | 99.5 | 80 | 120 | | | | |
| Nickel | 18.724 | 1.0 | 20.00 | 0 | 93.6 | 80 | 120 | | | | |
| Selenium | 18.155 | 0.50 | 20.00 | 0 | 90.8 | 80 | 120 | | | | |
| Silver | 17.981 | 0.50 | 20.00 | 0 | 89.9 | 80 | 120 | | | | |
| Thallium | 20.385 | 0.50 | 20.00 | 0 | 102 | 80 | 120 | | | | |
| Vanadium | 19.823 | 1.0 | 20.00 | 0 | 99.1 | 80 | 120 | | | | |
| Zinc | 16.903 | 10 | 20.00 | 0 | 84.5 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3335218** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3335218** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132884** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132884** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3335219** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 19.645 | 0.50 | 20.00 | 0 | 98.2 | 80 | 120 | | | | |
| Arsenic | 20.179 | 0.10 | 20.00 | 0 | 101 | 80 | 120 | | | | |
| Barium | 20.312 | 1.0 | 20.00 | 0 | 102 | 80 | 120 | | | | |
| Beryllium | 19.648 | 0.50 | 20.00 | 0 | 98.2 | 80 | 120 | | | | |
| Cadmium | 17.828 | 0.50 | 20.00 | 0 | 89.1 | 80 | 120 | | | | |
| Cobalt | 18.597 | 0.50 | 20.00 | 0 | 93.0 | 80 | 120 | | | | |
| Copper | 16.503 | 1.0 | 20.00 | 0 | 82.5 | 80 | 120 | | | | |
| Lead | 17.432 | 1.0 | 20.00 | 0 | 87.2 | 80 | 120 | | | | |
| Manganese | 18.485 | 0.50 | 20.00 | 0 | 92.4 | 80 | 120 | | | | |
| Molybdenum | 20.321 | 0.50 | 20.00 | 0 | 102 | 80 | 120 | | | | |
| Nickel | 18.190 | 1.0 | 20.00 | 0 | 90.9 | 80 | 120 | | | | |
| Selenium | 18.962 | 0.50 | 20.00 | 0 | 94.8 | 80 | 120 | | | | |
| Silver | 17.911 | 0.50 | 20.00 | 0 | 89.6 | 80 | 120 | | | | |
| Thallium | 20.344 | 0.50 | 20.00 | 0 | 102 | 80 | 120 | | | | |
| Vanadium | 19.798 | 1.0 | 20.00 | 0 | 99.0 | 80 | 120 | | | | |
| Zinc | 16.290 | 10 | 20.00 | 0 | 81.4 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132908** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132908** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336293** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132908** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132908** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336294** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 18.270 | 0.50 | 20.00 | 0 | 91.3 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132908** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132908** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336329** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132908** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132908** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336330** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 19.226 | 0.50 | 20.00 | 0 | 96.1 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132859** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132859** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333633** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132859** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132859** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333634** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 21.409 | 1.0 | 20.00 | 0 | 107 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132859** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132859** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333672** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132859** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132859** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333673** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.468 | 1.0 | 20.00 | 0 | 102 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132859** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132859** | TestNo: **EPA 6020** | | Analysis Date: **3/28/2019** | SeqNo: **3333693** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 0.331 | 1.0 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | **ICSAB3** | SampType: | **ICSAB** | TestCode: | **6020DIS_CrP** | Units: | **µg/L** | Prep Date: | | RunNo: | **132859** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ICSAB** | Batch ID: | **R132859** | TestNo: | **EPA 6020** | | | Analysis Date: | **3/28/2019** | SeqNo: | **3333694** | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Chromium | 21.008 | 1.0 | 20.00 | 0 | 105 | 80 | 120 | | | | | |

| Sample ID | **ICSA4** | SampType: | **ICSA** | TestCode: | **6020DIS_CrP** | Units: | **µg/L** | Prep Date: | | RunNo: | **132859** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ICSA** | Batch ID: | **R132859** | TestNo: | **EPA 6020** | | | Analysis Date: | **3/29/2019** | SeqNo: | **3333719** | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Chromium | ND | 1.0 | | | | | | | | | | |

| Sample ID | **ICSAB4** | SampType: | **ICSAB** | TestCode: | **6020DIS_CrP** | Units: | **µg/L** | Prep Date: | | RunNo: | **132859** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **ICSAB** | Batch ID: | **R132859** | TestNo: | **EPA 6020** | | | Analysis Date: | **3/29/2019** | SeqNo: | **3333720** | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Chromium | 20.491 | 1.0 | 20.00 | 0 | 102 | 80 | 120 | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 103 Rh ( ISTD ) [ 3 ] | | | | | 115 In ( ISTD ) [ 3 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 850576.7 | 850576.7 | 100 | PASS | 70-125 | 872318.8 | 872318.8 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 840021.9 | 850576.7 | 98.76 | PASS | 70-125 | 864751.4 | 872318.8 | 99.13 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 838631.5 | 850576.7 | 98.6 | PASS | 70-125 | 865743.5 | 872318.8 | 99.25 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 826271.4 | 850576.7 | 97.14 | PASS | 70-125 | 854957.4 | 872318.8 | 98.01 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 821351.5 | 850576.7 | 96.56 | PASS | 70-125 | 854457.9 | 872318.8 | 97.95 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 804016.8 | 850576.7 | 94.53 | PASS | 70-125 | 841300.7 | 872318.8 | 96.44 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 801867.4 | 850576.7 | 94.27 | PASS | 70-125 | 837728.3 | 872318.8 | 96.035 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 776074.6 | 850576.7 | 91.24 | PASS | 70-125 | 814444 | 872318.8 | 93.37 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 770380.7 | 850576.7 | 90.57 | PASS | 70-125 | 808308.9 | 872318.8 | 92.66 | PASS | 70-125 |
| ICV | ICV | 1 | 773552.5 | 850576.7 | 90.94 | PASS | 70-125 | 808118.2 | 872318.8 | 92.64 | PASS | 70-125 |
| ICB | ICB | 1 | 817337.5 | 850576.7 | 96.092 | PASS | 70-125 | 812366.1 | 872318.8 | 93.13 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 729245.8 | 850576.7 | 85.74 | PASS | 70-125 | 772762 | 872318.8 | 88.59 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 801453.8 | 850576.7 | 94.22 | PASS | 70-125 | 838552.5 | 872318.8 | 96.13 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 818248.4 | 850576.7 | 96.2 | PASS | 70-125 | 851794.7 | 872318.8 | 97.65 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 903866.5 | 850576.7 | 106.27 | PASS | 70-125 | 923960.5 | 872318.8 | 105.92 | PASS | 70-125 |
| MB-73031 | MBLK | 1 | 816647.5 | 850576.7 | 96.011 | PASS | 70-125 | 838814.4 | 872318.8 | 96.16 | PASS | 70-125 |
| LCS-73031 | LCS | 1 | 790671.6 | 850576.7 | 92.96 | PASS | 70-125 | 819345 | 872318.8 | 93.93 | PASS | 70-125 |
| N034599-001A | SAMP | 1 | 646448.1 | 850576.7 | 76.001 | PASS | 70-125 | 699113.9 | 872318.8 | 80.14 | PASS | 70-125 |
| N034661-001A | SAMP | 1 | 739805.4 | 850576.7 | 86.98 | PASS | 70-125 | 803121.2 | 872318.8 | 92.067 | PASS | 70-125 |
| N034661-001A | SAMP | 5 | 798896.6 | 850576.7 | 93.92 | PASS | 70-125 | 857983.9 | 872318.8 | 98.36 | PASS | 70-125 |
| N034661-001A-PS | PS | 1 | 549696.1 | 850576.7 | 64.63 | NR! | 70-125 | 585497.1 | 872318.8 | 67.12 | NR! | 70-125 |
| N034661-001AMS | MS | 1 | 774811.6 | 850576.7 | 91.093 | PASS | 70-125 | 846444.2 | 872318.8 | 97.034 | PASS | 70-125 |
| N034661-001AMSD | MSD | 1 | 783666.1 | 850576.7 | 92.13 | PASS | 70-125 | 855445.6 | 872318.8 | 98.066 | PASS | 70-125 |
| N034661-001A-PS | PS | 1 | 752698.3 | 850576.7 | 88.49 | PASS | 70-125 | 823674.2 | 872318.8 | 94.42 | PASS | 70-125 |
| N034661-001A | SAMP | 1 | 690612.5 | 850576.7 | 81.19 | PASS | 70-125 | 764848.3 | 872318.8 | 87.68 | PASS | 70-125 |
| CCV1 | CCV | 1 | 904847.2 | 850576.7 | 106.38 | PASS | 70-125 | 952152.6 | 872318.8 | 109.15 | PASS | 70-125 |
| CCB1 | CCB | 1 | 837439.9 | 850576.7 | 98.46 | PASS | 70-125 | 877220.5 | 872318.8 | 100.56 | PASS | 70-125 |
| N034689-002E | SAMP | 1 | 717747 | 850576.7 | 84.38 | PASS | 70-125 | 775019 | 872318.8 | 88.85 | PASS | 70-125 |
| N034689-002E | SAMP | 5 | 789208.8 | 850576.7 | 92.79 | PASS | 70-125 | 846026.9 | 872318.8 | 96.99 | PASS | 70-125 |
| N034689-003E | SAMP | 1 | 733624 | 850576.7 | 86.25 | PASS | 70-125 | 790100.1 | 872318.8 | 90.57 | PASS | 70-125 |
| N034689-003E | SAMP | 5 | 779065.7 | 850576.7 | 91.59 | PASS | 70-125 | 837275.2 | 872318.8 | 95.98 | PASS | 70-125 |
| N034689-004E | SAMP | 1 | 701546.7 | 850576.7 | 82.48 | PASS | 70-125 | 751799.8 | 872318.8 | 86.18 | PASS | 70-125 |
| N034689-004E | SAMP | 5 | 553088.8 | 850576.7 | 65.025 | NR! | 70-125 | 578623.8 | 872318.8 | 66.33 | NR! | 70-125 |
| N034689-005E | SAMP | 1 | 686532.6 | 850576.7 | 80.71 | PASS | 70-125 | 754953 | 872318.8 | 86.55 | PASS | 70-125 |
| N034689-005E | SAMP | 5 | 700788.8 | 850576.7 | 82.39 | PASS | 70-125 | 748309.7 | 872318.8 | 85.78 | PASS | 70-125 |
| N034689-006E | SAMP | 1 | 633162.3 | 850576.7 | 74.44 | PASS | 70-125 | 701431 | 872318.8 | 80.41 | PASS | 70-125 |
| N034689-006E | SAMP | 25 | 773596 | 850576.7 | 90.95 | PASS | 70-125 | 839476.7 | 872318.8 | 96.24 | PASS | 70-125 |
| CCV2 | CCV | 1 | 798588.4 | 850576.7 | 93.89 | PASS | 70-125 | 850917.2 | 872318.8 | 97.55 | PASS | 70-125 |
| CCB2 | CCB | 1 | 721036.6 | 850576.7 | 84.77 | PASS | 70-125 | 762391.7 | 872318.8 | 87.4 | PASS | 70-125 |
| N034689-004E | SAMP | 1 | 623867 | 850576.7 | 73.35 | PASS | 70-125 | 667584.6 | 872318.8 | 76.53 | PASS | 70-125 |
| N034689-007E | SAMP | 1 | 509770.2 | 850576.7 | 59.93 | NR! | 70-125 | 565921.8 | 872318.8 | 64.88 | NR! | 70-125 |

**INTERNAL STANDARD: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 103 Rh ( ISTD ) [ 3 ] | | | | | 115 In ( ISTD ) [ 3 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| N034689-007E | SAMP | 5 | 620477.9 | 850576.7 | 72.95 | PASS | 70-125 | 675348.7 | 872318.8 | 77.42 | PASS | 70-125 |
| N034661-001A | SAMP | 25 | 704559.6 | 850576.7 | 82.83 | PASS | 70-125 | 748730 | 872318.8 | 85.83 | PASS | 70-125 |
| N034661-001A-PS | PS | 5 | 640742.3 | 850576.7 | 75.33 | PASS | 70-125 | 689611.6 | 872318.8 | 79.055 | PASS | 70-125 |
| N034661-001AMS | MS | 5 | 680543.5 | 850576.7 | 80.01 | PASS | 70-125 | 751533.1 | 872318.8 | 86.15 | PASS | 70-125 |
| N034661-001AMSD | MSD | 5 | 666044.5 | 850576.7 | 78.31 | PASS | 70-125 | 733171.2 | 872318.8 | 84.049 | PASS | 70-125 |
| N034689-007E | SAMP | 1 | 515407.9 | 850576.7 | 60.6 | NR! | 70-125 | 584879.3 | 872318.8 | 67.049 | NR! | 70-125 |
| N034689-007E | SAMP | 5 | 638418 | 850576.7 | 75.057 | PASS | 70-125 | 709554.7 | 872318.8 | 81.34 | PASS | 70-125 |
| N034707-001F | SAMP | 100 | 656899.7 | 850576.7 | 77.23 | PASS | 70-125 | 685053 | 872318.8 | 78.53 | PASS | 70-125 |
| CCV3 | CCV | 1 | 768418.6 | 850576.7 | 90.34 | PASS | 70-125 | 821551 | 872318.8 | 94.18 | PASS | 70-125 |
| CCB3 | CCB | 1 | 715609 | 850576.7 | 84.13 | PASS | 70-125 | 762034.4 | 872318.8 | 87.36 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 783748.2 | 850576.7 | 92.14 | PASS | 70-125 | 844525.2 | 872318.8 | 96.81 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 701277.2 | 850576.7 | 82.45 | PASS | 70-125 | 756944.5 | 872318.8 | 86.77 | PASS | 70-125 |
| N034707-001F | SAMP | 5 | 577017.2 | 850576.7 | 67.84 | NR! | 70-125 | 632013.8 | 872318.8 | 72.45 | PASS | 70-125 |
| N034707-001F | SAMP | 1 | 480266.3 | 850576.7 | 56.46 | NR! | 70-125 | 542295.2 | 872318.8 | 62.17 | NR! | 70-125 |
| N034707-001F | SAMP | 25 | 577366.4 | 850576.7 | 67.88 | NR! | 70-125 | 606488 | 872318.8 | 69.53 | NR! | 70-125 |
| N034707-002F | SAMP | 5 | 605572.6 | 850576.7 | 71.2 | PASS | 70-125 | 675055.9 | 872318.8 | 77.39 | PASS | 70-125 |
| N034707-002F | SAMP | 25 | 658932.4 | 850576.7 | 77.47 | PASS | 70-125 | 723445.2 | 872318.8 | 82.93 | PASS | 70-125 |
| N034707-002F | SAMP | 100 | 686860.8 | 850576.7 | 80.75 | PASS | 70-125 | 748962.5 | 872318.8 | 85.86 | PASS | 70-125 |
| N034707-003F | SAMP | 25 | 640906.8 | 850576.7 | 75.35 | PASS | 70-125 | 683963 | 872318.8 | 78.41 | PASS | 70-125 |
| N034707-003F | SAMP | 5 | 638108.3 | 850576.7 | 75.021 | PASS | 70-125 | 703824.2 | 872318.8 | 80.68 | PASS | 70-125 |
| N034707-003F | SAMP | 50 | 673556 | 850576.7 | 79.19 | PASS | 70-125 | 731155.2 | 872318.8 | 83.82 | PASS | 70-125 |
| N034707-004F | SAMP | 5 | 615667.7 | 850576.7 | 72.38 | PASS | 70-125 | 678874.6 | 872318.8 | 77.82 | PASS | 70-125 |
| CCV4 | CCV | 1 | 656572.5 | 850576.7 | 77.19 | PASS | 70-125 | 706212.6 | 872318.8 | 80.96 | PASS | 70-125 |
| CCB4 | CCB | 1 | 637870 | 850576.7 | 74.99 | PASS | 70-125 | 681588 | 872318.8 | 78.14 | PASS | 70-125 |
| N034707-004F | SAMP | 25 | 570064.8 | 850576.7 | 67.021 | NR! | 70-125 | 612535.3 | 872318.8 | 70.22 | PASS | 70-125 |
| N034707-002F | SAMP | 1 | 455696.9 | 850576.7 | 53.58 | NR! | 70-125 | 519980.9 | 872318.8 | 59.61 | NR! | 70-125 |
| N034707-003F | SAMP | 1 | 562801.9 | 850576.7 | 66.17 | NR! | 70-125 | 630601.6 | 872318.8 | 72.29 | PASS | 70-125 |
| N034707-004F | SAMP | 50 | 612122.3 | 850576.7 | 71.97 | PASS | 70-125 | 666783.9 | 872318.8 | 76.44 | PASS | 70-125 |
| N034707-004F | SAMP | 1 | 542353.1 | 850576.7 | 63.76 | NR! | 70-125 | 610302.7 | 872318.8 | 69.96 | NR! | 70-125 |
| CCV5 | CCV | 1 | 598136 | 850576.7 | 70.32 | PASS | 70-125 | 648199.3 | 872318.8 | 74.31 | PASS | 70-125 |
| CCB5 | CCB | 1 | 583121.6 | 850576.7 | 68.56 | NR! | 70-125 | 626973.7 | 872318.8 | 71.87 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 641811 | 850576.7 | 75.46 | PASS | 70-125 | 701521.2 | 872318.8 | 80.42 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 591245.1 | 850576.7 | 69.51 | NR! | 70-125 | 642379.2 | 872318.8 | 73.64 | PASS | 70-125 |
| N034662-001D | SAMP | 25 | 609140.3 | 850576.7 | 71.61 | PASS | 70-125 | 659907.7 | 872318.8 | 75.65 | PASS | 70-125 |
| N034662-001D | SAMP | 5 | 398161.5 | 850576.7 | 46.81 | NR! | 70-125 | 436923.3 | 872318.8 | 50.088 | NR! | 70-125 |
| N034662-001D | SAMP | 1 | 531564.3 | 850576.7 | 62.49 | NR! | 70-125 | 599195 | 872318.8 | 68.69 | NR! | 70-125 |
| N034662-002D | SAMP | 25 | 608245.8 | 850576.7 | 71.51 | PASS | 70-125 | 661326.1 | 872318.8 | 75.81 | PASS | 70-125 |
| N034662-002D | SAMP | 5 | 566191.6 | 850576.7 | 66.57 | NR! | 70-125 | 629320.6 | 872318.8 | 72.14 | PASS | 70-125 |
| N034662-002D | SAMP | 1 | 525479.4 | 850576.7 | 61.78 | NR! | 70-125 | 591248.9 | 872318.8 | 67.78 | NR! | 70-125 |
| N034662-003D | SAMP | 25 | 599777.8 | 850576.7 | 70.51 | PASS | 70-125 | 655861.1 | 872318.8 | 75.19 | PASS | 70-125 |
| N034662-003D | SAMP | 5 | 558333.1 | 850576.7 | 65.64 | NR! | 70-125 | 617917.4 | 872318.8 | 70.84 | PASS | 70-125 |

**INTERNAL STANDARD: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 103 Rh ( ISTD ) [ 3 ] | | | | | 115 In ( ISTD ) [ 3 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| N034662-003D | SAMP | 1 | 517615.5 | 850576.7 | 60.85 | NR! | 70-125 | 581385.3 | 872318.8 | 66.65 | NR! | 70-125 |
| N034662-004D | SAMP | 25 | 591743.3 | 850576.7 | 69.57 | NR! | 70-125 | 644639 | 872318.8 | 73.9 | PASS | 70-125 |
| CCV6 | CCV | 1 | 609427 | 850576.7 | 71.65 | PASS | 70-125 | 651858.4 | 872318.8 | 74.73 | PASS | 70-125 |
| CCB6 | CCB | 1 | 586437.3 | 850576.7 | 68.95 | NR! | 70-125 | 629235.7 | 872318.8 | 72.13 | PASS | 70-125 |
| N034662-004D | SAMP | 5 | 545199.2 | 850576.7 | 64.098 | NR! | 70-125 | 601679.3 | 872318.8 | 68.97 | NR! | 70-125 |
| N034662-004D | SAMP | 1 | 501097 | 850576.7 | 58.91 | NR! | 70-125 | 565605 | 872318.8 | 64.84 | NR! | 70-125 |
| CCV7 | CCV | 1 | 573604.8 | 850576.7 | 67.44 | NR! | 70-125 | 613809.6 | 872318.8 | 70.37 | PASS | 70-125 |
| CCB7 | CCB | 1 | 563668.4 | 850576.7 | 66.27 | NR! | 70-125 | 604544.1 | 872318.8 | 69.3 | NR! | 70-125 |
| ICSA4 | ICSA | 1 | 632331.7 | 850576.7 | 74.34 | PASS | 70-125 | 681355.4 | 872318.8 | 78.11 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 583644 | 850576.7 | 68.62 | NR! | 70-125 | 627846.1 | 872318.8 | 71.97 | PASS | 70-125 |
| CCV9 | CCV | 1 | 570371.5 | 850576.7 | 67.057 | NR! | 70-125 | 613568.5 | 872318.8 | 70.34 | PASS | 70-125 |
| CCB9 | CCB | 1 | 562408.5 | 850576.7 | 66.12 | NR! | 70-125 | 601576.8 | 872318.8 | 68.96 | NR! | 70-125 |
| CCV10 | CCV | 1 | 555365.7 | 850576.7 | 65.29 | NR! | 70-125 | 597724.5 | 872318.8 | 68.52 | NR! | 70-125 |
| CCB10 | CCB | 1 | 554615.9 | 850576.7 | 65.2 | NR! | 70-125 | 594278.8 | 872318.8 | 68.13 | NR! | 70-125 |
| ICSA5 | ICSA | 1 | 639481.8 | 850576.7 | 75.18 | PASS | 70-125 | 690276.5 | 872318.8 | 79.13 | PASS | 70-125 |
| ICSAB5 | ICSAB | 1 | 588136.4 | 850576.7 | 69.15 | NR! | 70-125 | 631004.4 | 872318.8 | 72.34 | PASS | 70-125 |

**INTERNAL STANDARD: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 159 Tb ( ISTD ) [ 3 ] | | | | | 209 Bi ( ISTD ) [ 3 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 1554270.7 | 1554270.7 | 100 | PASS | 70-125 | 1151168.9 | 1151168.9 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 1525474.1 | 1554270.7 | 98.15 | PASS | 70-125 | 1151708.3 | 1151168.9 | 100.05 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 1529992.9 | 1554270.7 | 98.44 | PASS | 70-125 | 1154054.5 | 1151168.9 | 100.25 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 1522031.9 | 1554270.7 | 97.93 | PASS | 70-125 | 1140209.8 | 1151168.9 | 99.048 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 1531500.9 | 1554270.7 | 98.54 | PASS | 70-125 | 1147216.3 | 1151168.9 | 99.66 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 1503720 | 1554270.7 | 96.75 | PASS | 70-125 | 1135189.5 | 1151168.9 | 98.61 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 1492427.4 | 1554270.7 | 96.021 | PASS | 70-125 | 1130363.6 | 1151168.9 | 98.19 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 1450245.7 | 1554270.7 | 93.31 | PASS | 70-125 | 1103357.2 | 1151168.9 | 95.85 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 1479888.9 | 1554270.7 | 95.21 | PASS | 70-125 | 1098722.9 | 1151168.9 | 95.44 | PASS | 70-125 |
| ICV | ICV | 1 | 1462238.7 | 1554270.7 | 94.079 | PASS | 70-125 | 1095594.4 | 1151168.9 | 95.17 | PASS | 70-125 |
| ICB | ICB | 1 | 1410620.6 | 1554270.7 | 90.76 | PASS | 70-125 | 1038184.1 | 1151168.9 | 90.19 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 1369094.4 | 1554270.7 | 88.086 | PASS | 70-125 | 1002219.2 | 1151168.9 | 87.061 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 1482810.8 | 1554270.7 | 95.4 | PASS | 70-125 | 993537.3 | 1151168.9 | 86.31 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 1521401.9 | 1554270.7 | 97.89 | PASS | 70-125 | 1003629.9 | 1151168.9 | 87.18 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 1588200.4 | 1554270.7 | 102.18 | PASS | 70-125 | 1169898.6 | 1151168.9 | 101.63 | PASS | 70-125 |
| MB-73031 | MBLK | 1 | 1480607.5 | 1554270.7 | 95.26 | PASS | 70-125 | 1111432.9 | 1151168.9 | 96.55 | PASS | 70-125 |
| LCS-73031 | LCS | 1 | 1466217.8 | 1554270.7 | 94.33 | PASS | 70-125 | 1087769.8 | 1151168.9 | 94.49 | PASS | 70-125 |
| N034599-001A | SAMP | 1 | 1241527.2 | 1554270.7 | 79.88 | PASS | 70-125 | 827385.7 | 1151168.9 | 71.87 | PASS | 70-125 |
| N034661-001A | SAMP | 1 | 1466820.3 | 1554270.7 | 94.37 | PASS | 70-125 | 958787.8 | 1151168.9 | 83.29 | PASS | 70-125 |
| N034661-001A | SAMP | 5 | 1529559.8 | 1554270.7 | 98.41 | PASS | 70-125 | 1063113.1 | 1151168.9 | 92.35 | PASS | 70-125 |
| N034661-001A-PS | PS | 1 | 1066963.7 | 1554270.7 | 68.65 | NR! | 70-125 | 697412.5 | 1151168.9 | 60.58 | NR! | 70-125 |
| N034661-001AMS | MS | 1 | 1524135.9 | 1554270.7 | 98.061 | PASS | 70-125 | 1000182 | 1151168.9 | 86.88 | PASS | 70-125 |
| N034661-001AMSD | MSD | 1 | 1524701.2 | 1554270.7 | 98.098 | PASS | 70-125 | 997712.8 | 1151168.9 | 86.67 | PASS | 70-125 |
| N034661-001A-PS | PS | 1 | 1471714.6 | 1554270.7 | 94.69 | PASS | 70-125 | 953605.6 | 1151168.9 | 82.84 | PASS | 70-125 |
| N034661-001A | SAMP | 1 | 1364744.3 | 1554270.7 | 87.81 | PASS | 70-125 | 884149 | 1151168.9 | 76.8 | PASS | 70-125 |
| CCV1 | CCV | 1 | 1598990.2 | 1554270.7 | 102.88 | PASS | 70-125 | 1154707.7 | 1151168.9 | 100.31 | PASS | 70-125 |
| CCB1 | CCB | 1 | 1512316.2 | 1554270.7 | 97.3 | PASS | 70-125 | 1094376 | 1151168.9 | 95.067 | PASS | 70-125 |
| N034689-002E | SAMP | 1 | 1400972.8 | 1554270.7 | 90.14 | PASS | 70-125 | 927695.3 | 1151168.9 | 80.59 | PASS | 70-125 |
| N034689-002E | SAMP | 5 | 1489025.6 | 1554270.7 | 95.8 | PASS | 70-125 | 1039032.4 | 1151168.9 | 90.26 | PASS | 70-125 |
| N034689-003E | SAMP | 1 | 1427692.6 | 1554270.7 | 91.86 | PASS | 70-125 | 942391.5 | 1151168.9 | 81.86 | PASS | 70-125 |
| N034689-003E | SAMP | 5 | 1462615.1 | 1554270.7 | 94.1 | PASS | 70-125 | 1036541.8 | 1151168.9 | 90.043 | PASS | 70-125 |
| N034689-004E | SAMP | 1 | 1349282.6 | 1554270.7 | 86.81 | PASS | 70-125 | 901362.8 | 1151168.9 | 78.3 | PASS | 70-125 |
| N034689-004E | SAMP | 5 | 1002767.9 | 1554270.7 | 64.52 | NR! | 70-125 | 692515.6 | 1151168.9 | 60.16 | NR! | 70-125 |
| N034689-005E | SAMP | 1 | 1347841.3 | 1554270.7 | 86.72 | PASS | 70-125 | 899848.6 | 1151168.9 | 78.17 | PASS | 70-125 |
| N034689-005E | SAMP | 5 | 1327063.6 | 1554270.7 | 85.38 | PASS | 70-125 | 892374.2 | 1151168.9 | 77.52 | PASS | 70-125 |
| N034689-006E | SAMP | 1 | 1238687.5 | 1554270.7 | 79.7 | PASS | 70-125 | 840549.9 | 1151168.9 | 73.017 | PASS | 70-125 |
| N034689-006E | SAMP | 25 | 1456738.5 | 1554270.7 | 93.72 | PASS | 70-125 | 1025348.5 | 1151168.9 | 89.07 | PASS | 70-125 |
| CCV2 | CCV | 1 | 1480841.1 | 1554270.7 | 95.28 | PASS | 70-125 | 1078754.2 | 1151168.9 | 93.71 | PASS | 70-125 |
| CCB2 | CCB | 1 | 1350739.5 | 1554270.7 | 86.91 | PASS | 70-125 | 1003034.4 | 1151168.9 | 87.13 | PASS | 70-125 |
| N034689-004E | SAMP | 1 | 1225206 | 1554270.7 | 78.83 | PASS | 70-125 | 829103.7 | 1151168.9 | 72.023 | PASS | 70-125 |
| N034689-007E | SAMP | 1 | 1010972.9 | 1554270.7 | 65.045 | NR! | 70-125 | 674190.7 | 1151168.9 | 58.57 | NR! | 70-125 |

**INTERNAL STANDARD: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 159 Tb ( ISTD ) [ 3 ] | | | | | 209 Bi ( ISTD ) [ 3 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| N034689-007E | SAMP | 5 | 1179818.5 | 1554270.7 | 75.91 | PASS | 70-125 | 800589.2 | 1151168.9 | 69.55 | NR! | 70-125 |
| N034661-001A | SAMP | 25 | 1307228.3 | 1554270.7 | 84.11 | PASS | 70-125 | 916324.2 | 1151168.9 | 79.6 | PASS | 70-125 |
| N034661-001A-PS | PS | 5 | 1217210.9 | 1554270.7 | 78.31 | PASS | 70-125 | 842702 | 1151168.9 | 73.2 | PASS | 70-125 |
| N034661-001AMS | MS | 5 | 1361744.5 | 1554270.7 | 87.61 | PASS | 70-125 | 942407.8 | 1151168.9 | 81.87 | PASS | 70-125 |
| N034661-001AMSD | MSD | 5 | 1335190.2 | 1554270.7 | 85.9 | PASS | 70-125 | 919253.2 | 1151168.9 | 79.85 | PASS | 70-125 |
| N034689-007E | SAMP | 1 | 1047120.7 | 1554270.7 | 67.37 | NR! | 70-125 | 686467.6 | 1151168.9 | 59.63 | NR! | 70-125 |
| N034689-007E | SAMP | 5 | 1258616.5 | 1554270.7 | 80.98 | PASS | 70-125 | 850377.9 | 1151168.9 | 73.87 | PASS | 70-125 |
| N034707-001F | SAMP | 100 | 1165249.3 | 1554270.7 | 74.97 | PASS | 70-125 | 798071.9 | 1151168.9 | 69.33 | NR! | 70-125 |
| CCV3 | CCV | 1 | 1450596.6 | 1554270.7 | 93.33 | PASS | 70-125 | 1053440.9 | 1151168.9 | 91.51 | PASS | 70-125 |
| CCB3 | CCB | 1 | 1342052.5 | 1554270.7 | 86.35 | PASS | 70-125 | 991427.2 | 1151168.9 | 86.12 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 1521294.8 | 1554270.7 | 97.88 | PASS | 70-125 | 1004129.4 | 1151168.9 | 87.23 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 1364193.4 | 1554270.7 | 87.77 | PASS | 70-125 | 904063 | 1151168.9 | 78.53 | PASS | 70-125 |
| N034707-001F | SAMP | 5 | 1124003.7 | 1554270.7 | 72.32 | PASS | 70-125 | 801645.5 | 1151168.9 | 69.64 | NR! | 70-125 |
| N034707-001F | SAMP | 1 | 987167.5 | 1554270.7 | 63.51 | NR! | 70-125 | 671756.4 | 1151168.9 | 58.35 | NR! | 70-125 |
| N034707-001F | SAMP | 25 | 1060903.2 | 1554270.7 | 68.26 | NR! | 70-125 | 689036.3 | 1151168.9 | 59.86 | NR! | 70-125 |
| N034707-002F | SAMP | 5 | 1196995.7 | 1554270.7 | 77.013 | PASS | 70-125 | 846085.4 | 1151168.9 | 73.5 | PASS | 70-125 |
| N034707-002F | SAMP | 25 | 1267795.3 | 1554270.7 | 81.57 | PASS | 70-125 | 923723.6 | 1151168.9 | 80.24 | PASS | 70-125 |
| N034707-002F | SAMP | 100 | 1299597.7 | 1554270.7 | 83.61 | PASS | 70-125 | 964787.4 | 1151168.9 | 83.81 | PASS | 70-125 |
| N034707-003F | SAMP | 25 | 1175746.7 | 1554270.7 | 75.65 | PASS | 70-125 | 881407.1 | 1151168.9 | 76.57 | PASS | 70-125 |
| N034707-003F | SAMP | 5 | 1238569.8 | 1554270.7 | 79.69 | PASS | 70-125 | 914407.4 | 1151168.9 | 79.43 | PASS | 70-125 |
| N034707-003F | SAMP | 50 | 1255272.8 | 1554270.7 | 80.76 | PASS | 70-125 | 966864.4 | 1151168.9 | 83.99 | PASS | 70-125 |
| N034707-004F | SAMP | 5 | 1211059.7 | 1554270.7 | 77.92 | PASS | 70-125 | 904016.8 | 1151168.9 | 78.53 | PASS | 70-125 |
| CCV4 | CCV | 1 | 1234207.4 | 1554270.7 | 79.41 | PASS | 70-125 | 959629.5 | 1151168.9 | 83.36 | PASS | 70-125 |
| CCB4 | CCB | 1 | 1198496.2 | 1554270.7 | 77.11 | PASS | 70-125 | 933157.8 | 1151168.9 | 81.062 | PASS | 70-125 |
| N034707-004F | SAMP | 25 | 1076942.1 | 1554270.7 | 69.29 | NR! | 70-125 | 828622.7 | 1151168.9 | 71.98 | PASS | 70-125 |
| N034707-002F | SAMP | 1 | 970462.3 | 1554270.7 | 62.44 | NR! | 70-125 | 677046.5 | 1151168.9 | 58.81 | NR! | 70-125 |
| N034707-003F | SAMP | 1 | 1146341.6 | 1554270.7 | 73.75 | PASS | 70-125 | 818236.5 | 1151168.9 | 71.079 | PASS | 70-125 |
| N034707-004F | SAMP | 50 | 1167784.4 | 1554270.7 | 75.13 | PASS | 70-125 | 913021.9 | 1151168.9 | 79.31 | PASS | 70-125 |
| N034707-004F | SAMP | 1 | 1115765.7 | 1554270.7 | 71.79 | PASS | 70-125 | 804544.6 | 1151168.9 | 69.89 | NR! | 70-125 |
| CCV5 | CCV | 1 | 1149051.6 | 1554270.7 | 73.93 | PASS | 70-125 | 907662.1 | 1151168.9 | 78.85 | PASS | 70-125 |
| CCB5 | CCB | 1 | 1113829.7 | 1554270.7 | 71.66 | PASS | 70-125 | 885496.3 | 1151168.9 | 76.92 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 1279744.3 | 1554270.7 | 82.34 | PASS | 70-125 | 903452.8 | 1151168.9 | 78.48 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 1152188.1 | 1554270.7 | 74.13 | PASS | 70-125 | 815174.5 | 1151168.9 | 70.81 | PASS | 70-125 |
| N034662-001D | SAMP | 25 | 1161471.2 | 1554270.7 | 74.73 | PASS | 70-125 | 888373.2 | 1151168.9 | 77.17 | PASS | 70-125 |
| N034662-001D | SAMP | 5 | 789296.6 | 1554270.7 | 50.78 | NR! | 70-125 | 609649.3 | 1151168.9 | 52.96 | NR! | 70-125 |
| N034662-001D | SAMP | 1 | 1108564.1 | 1554270.7 | 71.32 | PASS | 70-125 | 794015.1 | 1151168.9 | 68.97 | NR! | 70-125 |
| N034662-002D | SAMP | 25 | 1171586.5 | 1554270.7 | 75.38 | PASS | 70-125 | 905742 | 1151168.9 | 78.68 | PASS | 70-125 |
| N034662-002D | SAMP | 5 | 1140806.6 | 1554270.7 | 73.4 | PASS | 70-125 | 855171 | 1151168.9 | 74.29 | PASS | 70-125 |
| N034662-002D | SAMP | 1 | 1089397.5 | 1554270.7 | 70.091 | PASS | 70-125 | 781611.2 | 1151168.9 | 67.9 | NR! | 70-125 |
| N034662-003D | SAMP | 25 | 1158939.5 | 1554270.7 | 74.56 | PASS | 70-125 | 897117.9 | 1151168.9 | 77.93 | PASS | 70-125 |
| N034662-003D | SAMP | 5 | 1117381.1 | 1554270.7 | 71.89 | PASS | 70-125 | 841933.4 | 1151168.9 | 73.14 | PASS | 70-125 |

**INTERNAL STANDARD: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 159 Tb ( ISTD ) [ 3 ] | | | | | 209 Bi ( ISTD ) [ 3 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| N034662-003D | SAMP | 1 | 1075857.8 | 1554270.7 | 69.22 | NR! | 70-125 | 777000.4 | 1151168.9 | 67.5 | NR! | 70-125 |
| N034662-004D | SAMP | 25 | 1140722.1 | 1554270.7 | 73.39 | PASS | 70-125 | 887173 | 1151168.9 | 77.067 | PASS | 70-125 |
| CCV6 | CCV | 1 | 1152136.4 | 1554270.7 | 74.13 | PASS | 70-125 | 909972 | 1151168.9 | 79.048 | PASS | 70-125 |
| CCB6 | CCB | 1 | 1119307 | 1554270.7 | 72.015 | PASS | 70-125 | 883768.8 | 1151168.9 | 76.77 | PASS | 70-125 |
| N034662-004D | SAMP | 5 | 1096071.9 | 1554270.7 | 70.52 | PASS | 70-125 | 834210.2 | 1151168.9 | 72.47 | PASS | 70-125 |
| N034662-004D | SAMP | 1 | 1051606.9 | 1554270.7 | 67.66 | NR! | 70-125 | 766359.6 | 1151168.9 | 66.57 | NR! | 70-125 |
| CCV7 | CCV | 1 | 1109162.7 | 1554270.7 | 71.36 | PASS | 70-125 | 885027.5 | 1151168.9 | 76.88 | PASS | 70-125 |
| CCB7 | CCB | 1 | 1088599.7 | 1554270.7 | 70.039 | PASS | 70-125 | 873886.7 | 1151168.9 | 75.91 | PASS | 70-125 |
| ICSA4 | ICSA | 1 | 1239358.1 | 1554270.7 | 79.74 | PASS | 70-125 | 887782.9 | 1151168.9 | 77.12 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 1125437 | 1554270.7 | 72.41 | PASS | 70-125 | 803170.6 | 1151168.9 | 69.77 | NR! | 70-125 |
| CCV9 | CCV | 1 | 1110484.8 | 1554270.7 | 71.45 | PASS | 70-125 | 892594.3 | 1151168.9 | 77.54 | PASS | 70-125 |
| CCB9 | CCB | 1 | 1087713.4 | 1554270.7 | 69.98 | NR! | 70-125 | 881377.8 | 1151168.9 | 76.56 | PASS | 70-125 |
| CCV10 | CCV | 1 | 1084793.9 | 1554270.7 | 69.79 | NR! | 70-125 | 876411 | 1151168.9 | 76.13 | PASS | 70-125 |
| CCB10 | CCB | 1 | 1079233.6 | 1554270.7 | 69.44 | NR! | 70-125 | 871771.8 | 1151168.9 | 75.73 | PASS | 70-125 |
| ICSA5 | ICSA | 1 | 1254044.7 | 1554270.7 | 80.68 | PASS | 70-125 | 898432.5 | 1151168.9 | 78.045 | PASS | 70-125 |
| ICSAB5 | ICSAB | 1 | 1132427.3 | 1554270.7 | 72.86 | PASS | 70-125 | 807186.1 | 1151168.9 | 70.12 | PASS | 70-125 |

**INTERNAL STANDARD: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 27349.7 | 27349.7 | 100 | PASS | 70-125 | 16239.7 | 16239.7 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 27805 | 27349.7 | 101.66 | PASS | 70-125 | 15993.8 | 16239.7 | 98.49 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 27636.9 | 27349.7 | 101.05 | PASS | 70-125 | 16020.6 | 16239.7 | 98.65 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 26810 | 27349.7 | 98.027 | PASS | 70-125 | 15481.1 | 16239.7 | 95.33 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 27532.3 | 27349.7 | 100.67 | PASS | 70-125 | 15612.4 | 16239.7 | 96.14 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 26922.3 | 27349.7 | 98.44 | PASS | 70-125 | 15660.2 | 16239.7 | 96.43 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 26607.4 | 27349.7 | 97.29 | PASS | 70-125 | 15442.2 | 16239.7 | 95.089 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 24450.8 | 27349.7 | 89.4 | PASS | 70-125 | 14454.6 | 16239.7 | 89.008 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 25535.8 | 27349.7 | 93.37 | PASS | 70-125 | 14916.1 | 16239.7 | 91.85 | PASS | 70-125 |
| ICV | ICV | 1 | 24124.7 | 27349.7 | 88.21 | PASS | 70-125 | 13829.6 | 16239.7 | 85.16 | PASS | 70-125 |
| ICB | ICB | 1 | 27828.3 | 27349.7 | 101.75 | PASS | 70-125 | 16190.7 | 16239.7 | 99.7 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 25061.7 | 27349.7 | 91.63 | PASS | 70-125 | 14374.5 | 16239.7 | 88.51 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 27752.7 | 27349.7 | 101.47 | PASS | 70-125 | 15492.2 | 16239.7 | 95.4 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 27772.7 | 27349.7 | 101.55 | PASS | 70-125 | 15526.8 | 16239.7 | 95.61 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 29893 | 27349.7 | 109.3 | PASS | 70-125 | 17061.6 | 16239.7 | 105.06 | PASS | 70-125 |
| MB-73031 | MBLK | 1 | 25233.1 | 27349.7 | 92.26 | PASS | 70-125 | 14566.9 | 16239.7 | 89.7 | PASS | 70-125 |
| LCS-73031 | LCS | 1 | 25351.1 | 27349.7 | 92.69 | PASS | 70-125 | 14996.2 | 16239.7 | 92.34 | PASS | 70-125 |
| N034599-001A | SAMP | 1 | 25177.4 | 27349.7 | 92.057 | PASS | 70-125 | 13195.7 | 16239.7 | 81.26 | PASS | 70-125 |
| N034661-001A | SAMP | 1 | 27382.1 | 27349.7 | 100.12 | PASS | 70-125 | 14842.7 | 16239.7 | 91.4 | PASS | 70-125 |
| N034661-001A | SAMP | 5 | 29020.4 | 27349.7 | 106.11 | PASS | 70-125 | 16146.2 | 16239.7 | 99.42 | PASS | 70-125 |
| N034661-001A-PS | PS | 1 | 29365.4 | 27349.7 | 107.37 | PASS | 70-125 | 16041.7 | 16239.7 | 98.78 | PASS | 70-125 |
| N034661-001AMS | MS | 1 | 30822.5 | 27349.7 | 112.7 | PASS | 70-125 | 16508.9 | 16239.7 | 101.66 | PASS | 70-125 |
| N034661-001AMSD | MSD | 1 | 30764.6 | 27349.7 | 112.49 | PASS | 70-125 | 17063.8 | 16239.7 | 105.08 | PASS | 70-125 |
| N034661-001A-PS | PS | 1 | 29932 | 27349.7 | 109.44 | PASS | 70-125 | 16340.9 | 16239.7 | 100.62 | PASS | 70-125 |
| N034661-001A | SAMP | 1 | 26690.8 | 27349.7 | 97.59 | PASS | 70-125 | 14544.6 | 16239.7 | 89.56 | PASS | 70-125 |
| CCV1 | CCV | 1 | 33197.2 | 27349.7 | 121.38 | PASS | 70-125 | 18597.7 | 16239.7 | 114.52 | PASS | 70-125 |
| CCB1 | CCB | 1 | 28496 | 27349.7 | 104.19 | PASS | 70-125 | 16496.6 | 16239.7 | 101.58 | PASS | 70-125 |
| N034689-002E | SAMP | 1 | 25484.6 | 27349.7 | 93.18 | PASS | 70-125 | 14709.3 | 16239.7 | 90.58 | PASS | 70-125 |
| N034689-002E | SAMP | 5 | 28829.1 | 27349.7 | 105.41 | PASS | 70-125 | 16452.1 | 16239.7 | 101.31 | PASS | 70-125 |
| N034689-003E | SAMP | 1 | 28079.9 | 27349.7 | 102.67 | PASS | 70-125 | 15406.6 | 16239.7 | 94.87 | PASS | 70-125 |
| N034689-003E | SAMP | 5 | 29536.9 | 27349.7 | 108 | PASS | 70-125 | 16938.1 | 16239.7 | 104.3 | PASS | 70-125 |
| N034689-004E | SAMP | 1 | 28370.4 | 27349.7 | 103.73 | PASS | 70-125 | 16092.8 | 16239.7 | 99.095 | PASS | 70-125 |
| N034689-004E | SAMP | 5 | 29333.1 | 27349.7 | 107.25 | PASS | 70-125 | 16596.7 | 16239.7 | 102.2 | PASS | 70-125 |
| N034689-005E | SAMP | 1 | 27734.8 | 27349.7 | 101.41 | PASS | 70-125 | 15075.2 | 16239.7 | 92.83 | PASS | 70-125 |
| N034689-005E | SAMP | 5 | 28835.5 | 27349.7 | 105.43 | PASS | 70-125 | 16185.2 | 16239.7 | 99.66 | PASS | 70-125 |
| N034689-006E | SAMP | 1 | 27043.7 | 27349.7 | 98.88 | PASS | 70-125 | 14047.6 | 16239.7 | 86.5 | PASS | 70-125 |
| N034689-006E | SAMP | 25 | 30051.1 | 27349.7 | 109.88 | PASS | 70-125 | 16733.4 | 16239.7 | 103.04 | PASS | 70-125 |
| CCV2 | CCV | 1 | 29536.8 | 27349.7 | 108 | PASS | 70-125 | 16850.3 | 16239.7 | 103.76 | PASS | 70-125 |
| CCB2 | CCB | 1 | 24652.2 | 27349.7 | 90.14 | PASS | 70-125 | 14028.6 | 16239.7 | 86.38 | PASS | 70-125 |
| N034689-004E | SAMP | 1 | 25405.5 | 27349.7 | 92.89 | PASS | 70-125 | 14347.8 | 16239.7 | 88.35 | PASS | 70-125 |
| N034689-007E | SAMP | 1 | 23799.8 | 27349.7 | 87.02 | PASS | 70-125 | 12208.3 | 16239.7 | 75.18 | PASS | 70-125 |

**INTERNAL STANDARD: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| N034689-007E | SAMP | 5 | 27766 | 27349.7 | 101.52 | PASS | 70-125 | 14781.6 | 16239.7 | 91.021 | PASS | 70-125 |
| N034661-001A | SAMP | 25 | 28653 | 27349.7 | 104.77 | PASS | 70-125 | 16309.7 | 16239.7 | 100.43 | PASS | 70-125 |
| N034661-001A-PS | PS | 5 | 27068.2 | 27349.7 | 98.97 | PASS | 70-125 | 14831.6 | 16239.7 | 91.33 | PASS | 70-125 |
| N034661-001AMS | MS | 5 | 27061.5 | 27349.7 | 98.95 | PASS | 70-125 | 15357.6 | 16239.7 | 94.57 | PASS | 70-125 |
| N034661-001AMSD | MSD | 5 | 26744.3 | 27349.7 | 97.79 | PASS | 70-125 | 14734.9 | 16239.7 | 90.73 | PASS | 70-125 |
| N034689-007E | SAMP | 1 | 24241.5 | 27349.7 | 88.64 | PASS | 70-125 | 12605.3 | 16239.7 | 77.62 | PASS | 70-125 |
| N034689-007E | SAMP | 5 | 26778.9 | 27349.7 | 97.91 | PASS | 70-125 | 14451.3 | 16239.7 | 88.99 | PASS | 70-125 |
| N034707-001F | SAMP | 100 | 28274.6 | 27349.7 | 103.38 | PASS | 70-125 | 16085 | 16239.7 | 99.047 | PASS | 70-125 |
| CCV3 | CCV | 1 | 28625.2 | 27349.7 | 104.66 | PASS | 70-125 | 16060.6 | 16239.7 | 98.9 | PASS | 70-125 |
| CCB3 | CCB | 1 | 24417.4 | 27349.7 | 89.28 | PASS | 70-125 | 14113.2 | 16239.7 | 86.91 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 28498.3 | 27349.7 | 104.2 | PASS | 70-125 | 15998.3 | 16239.7 | 98.51 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 26813.2 | 27349.7 | 98.038 | PASS | 70-125 | 14727.1 | 16239.7 | 90.69 | PASS | 70-125 |
| N034707-001F | SAMP | 5 | 22347.8 | 27349.7 | 81.71 | PASS | 70-125 | 12293.9 | 16239.7 | 75.7 | PASS | 70-125 |
| N034707-001F | SAMP | 1 | 21458.8 | 27349.7 | 78.46 | PASS | 70-125 | 11784.6 | 16239.7 | 72.57 | PASS | 70-125 |
| N034707-001F | SAMP | 25 | 25694.9 | 27349.7 | 93.95 | PASS | 70-125 | 14699.2 | 16239.7 | 90.51 | PASS | 70-125 |
| N034707-002F | SAMP | 5 | 24315.1 | 27349.7 | 88.9 | PASS | 70-125 | 13286.9 | 16239.7 | 81.82 | PASS | 70-125 |
| N034707-002F | SAMP | 25 | 23560.6 | 27349.7 | 86.15 | PASS | 70-125 | 13649.4 | 16239.7 | 84.05 | PASS | 70-125 |
| N034707-002F | SAMP | 100 | 24931.4 | 27349.7 | 91.16 | PASS | 70-125 | 14538 | 16239.7 | 89.52 | PASS | 70-125 |
| N034707-003F | SAMP | 25 | 25245.3 | 27349.7 | 92.31 | PASS | 70-125 | 14297.8 | 16239.7 | 88.042 | PASS | 70-125 |
| N034707-003F | SAMP | 5 | 24021.3 | 27349.7 | 87.83 | PASS | 70-125 | 13665 | 16239.7 | 84.15 | PASS | 70-125 |
| N034707-003F | SAMP | 50 | 24636.6 | 27349.7 | 90.08 | PASS | 70-125 | 14116.6 | 16239.7 | 86.93 | PASS | 70-125 |
| N034707-004F | SAMP | 5 | 23371.5 | 27349.7 | 85.45 | PASS | 70-125 | 13401.4 | 16239.7 | 82.52 | PASS | 70-125 |
| CCV4 | CCV | 1 | 24220.4 | 27349.7 | 88.56 | PASS | 70-125 | 13390.3 | 16239.7 | 82.45 | PASS | 70-125 |
| CCB4 | CCB | 1 | 22574.8 | 27349.7 | 82.54 | PASS | 70-125 | 12876.5 | 16239.7 | 79.29 | PASS | 70-125 |
| N034707-004F | SAMP | 25 | 22126.4 | 27349.7 | 80.9 | PASS | 70-125 | 12660.8 | 16239.7 | 77.96 | PASS | 70-125 |
| N034707-002F | SAMP | 1 | 19362.9 | 27349.7 | 70.8 | PASS | 70-125 | 10219.1 | 16239.7 | 62.93 | NR! | 70-125 |
| N034707-003F | SAMP | 1 | 22221 | 27349.7 | 81.25 | PASS | 70-125 | 12132.6 | 16239.7 | 74.71 | PASS | 70-125 |
| N034707-004F | SAMP | 50 | 22391.2 | 27349.7 | 81.87 | PASS | 70-125 | 12938.8 | 16239.7 | 79.67 | PASS | 70-125 |
| N034707-004F | SAMP | 1 | 21185.2 | 27349.7 | 77.46 | PASS | 70-125 | 11848 | 16239.7 | 72.96 | PASS | 70-125 |
| CCV5 | CCV | 1 | 21849.3 | 27349.7 | 79.89 | PASS | 70-125 | 12502.9 | 16239.7 | 76.99 | PASS | 70-125 |
| CCB5 | CCB | 1 | 20591 | 27349.7 | 75.29 | PASS | 70-125 | 11904.7 | 16239.7 | 73.31 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 23910 | 27349.7 | 87.42 | PASS | 70-125 | 13410.3 | 16239.7 | 82.58 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 22577 | 27349.7 | 82.55 | PASS | 70-125 | 12455.2 | 16239.7 | 76.7 | PASS | 70-125 |
| N034662-001D | SAMP | 25 | 20061.5 | 27349.7 | 73.35 | PASS | 70-125 | 11476.6 | 16239.7 | 70.67 | PASS | 70-125 |
| N034662-001D | SAMP | 5 | 21576.8 | 27349.7 | 78.89 | PASS | 70-125 | 12126 | 16239.7 | 74.67 | PASS | 70-125 |
| N034662-001D | SAMP | 1 | 20317.4 | 27349.7 | 74.29 | PASS | 70-125 | 11152 | 16239.7 | 68.67 | NR! | 70-125 |
| N034662-002D | SAMP | 25 | 21998.4 | 27349.7 | 80.43 | PASS | 70-125 | 12486.3 | 16239.7 | 76.89 | PASS | 70-125 |
| N034662-002D | SAMP | 5 | 20715.6 | 27349.7 | 75.74 | PASS | 70-125 | 11595.6 | 16239.7 | 71.4 | PASS | 70-125 |
| N034662-002D | SAMP | 1 | 20025.9 | 27349.7 | 73.22 | PASS | 70-125 | 10925 | 16239.7 | 67.27 | NR! | 70-125 |
| N034662-003D | SAMP | 25 | 21525.6 | 27349.7 | 78.71 | PASS | 70-125 | 12367.3 | 16239.7 | 76.15 | PASS | 70-125 |
| N034662-003D | SAMP | 5 | 20703.4 | 27349.7 | 75.7 | PASS | 70-125 | 11722.3 | 16239.7 | 72.18 | PASS | 70-125 |

**INTERNAL STANDARD: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| N034662-003D | SAMP | 1 | 20061.5 | 27349.7 | 73.35 | PASS | 70-125 | 11002.9 | 16239.7 | 67.75 | NR! | 70-125 |
| N034662-004D | SAMP | 25 | 21294.2 | 27349.7 | 77.86 | PASS | 70-125 | 12051.5 | 16239.7 | 74.21 | PASS | 70-125 |
| CCV6 | CCV | 1 | 21902.8 | 27349.7 | 80.084 | PASS | 70-125 | 12352.8 | 16239.7 | 76.065 | PASS | 70-125 |
| CCB6 | CCB | 1 | 20624.4 | 27349.7 | 75.41 | PASS | 70-125 | 11637.8 | 16239.7 | 71.66 | PASS | 70-125 |
| N034662-004D | SAMP | 5 | 20378.5 | 27349.7 | 74.51 | PASS | 70-125 | 11384.3 | 16239.7 | 70.1 | PASS | 70-125 |
| N034662-004D | SAMP | 1 | 19172.7 | 27349.7 | 70.1 | PASS | 70-125 | 10683.8 | 16239.7 | 65.79 | NR! | 70-125 |
| CCV7 | CCV | 1 | 19505.3 | 27349.7 | 71.32 | PASS | 70-125 | 11556.7 | 16239.7 | 71.16 | PASS | 70-125 |
| CCB7 | CCB | 1 | 19087 | 27349.7 | 69.79 | NR! | 70-125 | 11030.7 | 16239.7 | 67.92 | NR! | 70-125 |
| ICSA4 | ICSA | 1 | 22237.6 | 27349.7 | 81.31 | PASS | 70-125 | 12465.1 | 16239.7 | 76.76 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 21422.2 | 27349.7 | 78.33 | PASS | 70-125 | 12027 | 16239.7 | 74.059 | PASS | 70-125 |
| CCV9 | CCV | 1 | 19982.5 | 27349.7 | 73.063 | PASS | 70-125 | 11393.2 | 16239.7 | 70.16 | PASS | 70-125 |
| CCB9 | CCB | 1 | 19328.4 | 27349.7 | 70.67 | PASS | 70-125 | 11023 | 16239.7 | 67.88 | NR! | 70-125 |
| CCV10 | CCV | 1 | 19282.8 | 27349.7 | 70.5 | PASS | 70-125 | 11095.2 | 16239.7 | 68.32 | NR! | 70-125 |
| CCB10 | CCB | 1 | 18765.5 | 27349.7 | 68.61 | NR! | 70-125 | 10880.7 | 16239.7 | 67.001 | NR! | 70-125 |
| ICSA5 | ICSA | 1 | 22807.2 | 27349.7 | 83.39 | PASS | 70-125 | 12833.2 | 16239.7 | 79.024 | PASS | 70-125 |
| ICSAB5 | ICSAB | 1 | 21688.1 | 27349.7 | 79.3 | PASS | 70-125 | 12029.3 | 16239.7 | 74.073 | PASS | 70-125 |

**INTERNAL STANDARD: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | | 6 Li ( ISTD ) [ 3 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 12669.7 | 12669.7 | 100 | PASS | 70-125 | 977921.3 | 977921.3 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 12094.8 | 12669.7 | 95.46 | PASS | 70-125 | 969620.4 | 977921.3 | 99.15 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 12129.3 | 12669.7 | 95.73 | PASS | 70-125 | 966280.8 | 977921.3 | 98.81 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 11911.4 | 12669.7 | 94.015 | PASS | 70-125 | 942820.1 | 977921.3 | 96.41 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 12138.2 | 12669.7 | 95.8 | PASS | 70-125 | 934153.3 | 977921.3 | 95.52 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 11764.6 | 12669.7 | 92.86 | PASS | 70-125 | 912741 | 977921.3 | 93.33 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 11712.3 | 12669.7 | 92.44 | PASS | 70-125 | 898297.8 | 977921.3 | 91.86 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 9809.9 | 12669.7 | 77.43 | PASS | 70-125 | 885715.7 | 977921.3 | 90.57 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 10810.6 | 12669.7 | 85.33 | PASS | 70-125 | 866618.4 | 977921.3 | 88.62 | PASS | 70-125 |
| ICV | ICV | 1 | 10024.5 | 12669.7 | 79.12 | PASS | 70-125 | 879980.1 | 977921.3 | 89.98 | PASS | 70-125 |
| ICB | ICB | 1 | 11781.3 | 12669.7 | 92.99 | PASS | 70-125 | 982461.4 | 977921.3 | 100.46 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 10097.9 | 12669.7 | 79.7 | PASS | 70-125 | 920822.3 | 977921.3 | 94.16 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 11767.9 | 12669.7 | 92.88 | PASS | 70-125 | 969498.6 | 977921.3 | 99.14 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 11369.9 | 12669.7 | 89.74 | PASS | 70-125 | 1023036.4 | 977921.3 | 104.61 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 13475.9 | 12669.7 | 106.36 | PASS | 70-125 | 1074228 | 977921.3 | 109.85 | PASS | 70-125 |
| MB-73031 | MBLK | 1 | 10634.9 | 12669.7 | 83.94 | PASS | 70-125 | 982726.9 | 977921.3 | 100.49 | PASS | 70-125 |
| LCS-73031 | LCS | 1 | 11080.8 | 12669.7 | 87.46 | PASS | 70-125 | 937294.9 | 977921.3 | 95.85 | PASS | 70-125 |
| N034599-001A | SAMP | 1 | 9626.5 | 12669.7 | 75.98 | PASS | 70-125 | 586954.3 | 977921.3 | 60.021 | NR! | 70-125 |
| N034661-001A | SAMP | 1 | 11332.1 | 12669.7 | 89.44 | PASS | 70-125 | 741720.6 | 977921.3 | 75.85 | PASS | 70-125 |
| N034661-001A | SAMP | 5 | 12221.6 | 12669.7 | 96.46 | PASS | 70-125 | 928582.9 | 977921.3 | 94.95 | PASS | 70-125 |
| N034661-001A-PS | PS | 1 | 11651.2 | 12669.7 | 91.96 | PASS | 70-125 | 567810.3 | 977921.3 | 58.063 | NR! | 70-125 |
| N034661-001AMS | MS | 1 | 12239.4 | 12669.7 | 96.6 | PASS | 70-125 | 805492.1 | 977921.3 | 82.37 | PASS | 70-125 |
| N034661-001AMSD | MSD | 1 | 12179.4 | 12669.7 | 96.13 | PASS | 70-125 | 823207.2 | 977921.3 | 84.18 | PASS | 70-125 |
| N034661-001A-PS | PS | 1 | 11755.7 | 12669.7 | 92.79 | PASS | 70-125 | 783808.2 | 977921.3 | 80.15 | PASS | 70-125 |
| N034661-001A | SAMP | 1 | 9600.9 | 12669.7 | 75.78 | PASS | 70-125 | 738502.3 | 977921.3 | 75.52 | PASS | 70-125 |
| CCV1 | CCV | 1 | 13873 | 12669.7 | 109.5 | PASS | 70-125 | 1095736.9 | 977921.3 | 112.05 | PASS | 70-125 |
| CCB1 | CCB | 1 | 11896.9 | 12669.7 | 93.9 | PASS | 70-125 | 1032839.8 | 977921.3 | 105.62 | PASS | 70-125 |
| N034689-002E | SAMP | 1 | 10008.9 | 12669.7 | 79 | PASS | 70-125 | 863499.6 | 977921.3 | 88.3 | PASS | 70-125 |
| N034689-002E | SAMP | 5 | 12277.2 | 12669.7 | 96.9 | PASS | 70-125 | 964804 | 977921.3 | 98.66 | PASS | 70-125 |
| N034689-003E | SAMP | 1 | 11730.1 | 12669.7 | 92.58 | PASS | 70-125 | 849952.8 | 977921.3 | 86.91 | PASS | 70-125 |
| N034689-003E | SAMP | 5 | 12683.1 | 12669.7 | 100.11 | PASS | 70-125 | 944880.2 | 977921.3 | 96.62 | PASS | 70-125 |
| N034689-004E | SAMP | 1 | 12029.2 | 12669.7 | 94.94 | PASS | 70-125 | 853290.4 | 977921.3 | 87.26 | PASS | 70-125 |
| N034689-004E | SAMP | 5 | 12429.6 | 12669.7 | 98.1 | PASS | 70-125 | 690517.2 | 977921.3 | 70.61 | PASS | 70-125 |
| N034689-005E | SAMP | 1 | 11067.4 | 12669.7 | 87.35 | PASS | 70-125 | 808304.6 | 977921.3 | 82.66 | PASS | 70-125 |
| N034689-005E | SAMP | 5 | 11924.7 | 12669.7 | 94.12 | PASS | 70-125 | 884782.8 | 977921.3 | 90.48 | PASS | 70-125 |
| N034689-006E | SAMP | 1 | 10020.1 | 12669.7 | 79.087 | PASS | 70-125 | 678408.6 | 977921.3 | 69.37 | NR! | 70-125 |
| N034689-006E | SAMP | 25 | 12266.1 | 12669.7 | 96.81 | PASS | 70-125 | 941746 | 977921.3 | 96.3 | PASS | 70-125 |
| CCV2 | CCV | 1 | 12309.4 | 12669.7 | 97.16 | PASS | 70-125 | 983831.6 | 977921.3 | 100.6 | PASS | 70-125 |
| CCB2 | CCB | 1 | 9594.2 | 12669.7 | 75.73 | PASS | 70-125 | 911352.3 | 977921.3 | 93.19 | PASS | 70-125 |
| N034689-004E | SAMP | 1 | 10525.9 | 12669.7 | 83.079 | PASS | 70-125 | 743346.7 | 977921.3 | 76.013 | PASS | 70-125 |
| N034689-007E | SAMP | 1 | 8441.4 | 12669.7 | 66.63 | NR! | 70-125 | 362855.8 | 977921.3 | 37.1 | NR! | 70-125 |

**INTERNAL STANDARD: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | | 6 Li ( ISTD ) [ 3 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| N034689-007E | SAMP | 5 | 10582.6 | 12669.7 | 83.53 | PASS | 70-125 | 726717.5 | 977921.3 | 74.31 | PASS | 70-125 |
| N034661-001A | SAMP | 25 | 12082.6 | 12669.7 | 95.37 | PASS | 70-125 | 873204.6 | 977921.3 | 89.29 | PASS | 70-125 |
| N034661-001A-PS | PS | 5 | 10808.4 | 12669.7 | 85.31 | PASS | 70-125 | 782748.7 | 977921.3 | 80.042 | PASS | 70-125 |
| N034661-001AMS | MS | 5 | 10808.3 | 12669.7 | 85.31 | PASS | 70-125 | 829624.3 | 977921.3 | 84.84 | PASS | 70-125 |
| N034661-001AMSD | MSD | 5 | 10880.6 | 12669.7 | 85.88 | PASS | 70-125 | 804044.5 | 977921.3 | 82.22 | PASS | 70-125 |
| N034689-007E | SAMP | 1 | 8287.9 | 12669.7 | 65.42 | NR! | 70-125 | 349415.7 | 977921.3 | 35.73 | NR! | 70-125 |
| N034689-007E | SAMP | 5 | 10075.7 | 12669.7 | 79.53 | PASS | 70-125 | 735244.5 | 977921.3 | 75.18 | PASS | 70-125 |
| N034707-001F | SAMP | 100 | 11683.4 | 12669.7 | 92.22 | PASS | 70-125 | 800769.3 | 977921.3 | 81.88 | PASS | 70-125 |
| CCV3 | CCV | 1 | 11722.3 | 12669.7 | 92.52 | PASS | 70-125 | 929516.4 | 977921.3 | 95.05 | PASS | 70-125 |
| CCB3 | CCB | 1 | 9815.5 | 12669.7 | 77.47 | PASS | 70-125 | 879538.1 | 977921.3 | 89.94 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 10803.9 | 12669.7 | 85.27 | PASS | 70-125 | 993438.2 | 977921.3 | 101.59 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 10518.2 | 12669.7 | 83.019 | PASS | 70-125 | 868019.6 | 977921.3 | 88.76 | PASS | 70-125 |
| N034707-001F | SAMP | 5 | 8773.7 | 12669.7 | 69.25 | NR! | 70-125 | 687577 | 977921.3 | 70.31 | PASS | 70-125 |
| N034707-001F | SAMP | 1 | 7713.2 | 12669.7 | 60.88 | NR! | 70-125 | 448176.8 | 977921.3 | 45.83 | NR! | 70-125 |
| N034707-001F | SAMP | 25 | 10234.6 | 12669.7 | 80.78 | PASS | 70-125 | 702457.5 | 977921.3 | 71.83 | PASS | 70-125 |
| N034707-002F | SAMP | 5 | 9220.7 | 12669.7 | 72.78 | PASS | 70-125 | 714514.1 | 977921.3 | 73.065 | PASS | 70-125 |
| N034707-002F | SAMP | 25 | 9340.8 | 12669.7 | 73.73 | PASS | 70-125 | 806770.8 | 977921.3 | 82.5 | PASS | 70-125 |
| N034707-002F | SAMP | 100 | 10429.2 | 12669.7 | 82.32 | PASS | 70-125 | 832069 | 977921.3 | 85.085 | PASS | 70-125 |
| N034707-003F | SAMP | 25 | 10579.3 | 12669.7 | 83.5 | PASS | 70-125 | 781369.4 | 977921.3 | 79.9 | PASS | 70-125 |
| N034707-003F | SAMP | 5 | 9932.2 | 12669.7 | 78.39 | PASS | 70-125 | 757563.8 | 977921.3 | 77.47 | PASS | 70-125 |
| N034707-003F | SAMP | 50 | 10433.7 | 12669.7 | 82.35 | PASS | 70-125 | 796794.7 | 977921.3 | 81.48 | PASS | 70-125 |
| N034707-004F | SAMP | 5 | 9659.8 | 12669.7 | 76.24 | PASS | 70-125 | 734634.2 | 977921.3 | 75.12 | PASS | 70-125 |
| CCV4 | CCV | 1 | 10179 | 12669.7 | 80.34 | PASS | 70-125 | 782735.7 | 977921.3 | 80.041 | PASS | 70-125 |
| CCB4 | CCB | 1 | 9518.7 | 12669.7 | 75.13 | PASS | 70-125 | 751131.6 | 977921.3 | 76.81 | PASS | 70-125 |
| N034707-004F | SAMP | 25 | 9086.1 | 12669.7 | 71.72 | PASS | 70-125 | 681166.9 | 977921.3 | 69.65 | NR! | 70-125 |
| N034707-002F | SAMP | 1 | 7258.5 | 12669.7 | 57.29 | NR! | 70-125 | 421153.3 | 977921.3 | 43.066 | NR! | 70-125 |
| N034707-003F | SAMP | 1 | 8904.9 | 12669.7 | 70.29 | PASS | 70-125 | 638314.6 | 977921.3 | 65.27 | NR! | 70-125 |
| N034707-004F | SAMP | 50 | 9488.6 | 12669.7 | 74.89 | PASS | 70-125 | 724467.5 | 977921.3 | 74.082 | PASS | 70-125 |
| N034707-004F | SAMP | 1 | 8501.3 | 12669.7 | 67.099 | NR! | 70-125 | 606023.7 | 977921.3 | 61.97 | NR! | 70-125 |
| CCV5 | CCV | 1 | 9092.8 | 12669.7 | 71.77 | PASS | 70-125 | 701286.5 | 977921.3 | 71.71 | PASS | 70-125 |
| CCB5 | CCB | 1 | 8739.3 | 12669.7 | 68.98 | NR! | 70-125 | 680909.5 | 977921.3 | 69.63 | NR! | 70-125 |
| ICSA3 | ICSA | 1 | 9697.6 | 12669.7 | 76.54 | PASS | 70-125 | 767924.5 | 977921.3 | 78.53 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 9364.1 | 12669.7 | 73.91 | PASS | 70-125 | 710040.7 | 977921.3 | 72.61 | PASS | 70-125 |
| N034662-001D | SAMP | 25 | 7933.3 | 12669.7 | 62.62 | NR! | 70-125 | 747405.3 | 977921.3 | 76.43 | PASS | 70-125 |
| N034662-001D | SAMP | 5 | 9151.7 | 12669.7 | 72.23 | PASS | 70-125 | 476390.4 | 977921.3 | 48.71 | NR! | 70-125 |
| N034662-001D | SAMP | 1 | 8205.7 | 12669.7 | 64.77 | NR! | 70-125 | 612097.6 | 977921.3 | 62.59 | NR! | 70-125 |
| N034662-002D | SAMP | 25 | 8935 | 12669.7 | 70.52 | PASS | 70-125 | 721844.5 | 977921.3 | 73.81 | PASS | 70-125 |
| N034662-002D | SAMP | 5 | 8681.5 | 12669.7 | 68.52 | NR! | 70-125 | 668565.5 | 977921.3 | 68.37 | NR! | 70-125 |
| N034662-002D | SAMP | 1 | 8371.3 | 12669.7 | 66.073 | NR! | 70-125 | 600467.5 | 977921.3 | 61.4 | NR! | 70-125 |
| N034662-003D | SAMP | 25 | 9185.1 | 12669.7 | 72.5 | PASS | 70-125 | 706089.2 | 977921.3 | 72.2 | PASS | 70-125 |
| N034662-003D | SAMP | 5 | 8841.6 | 12669.7 | 69.79 | NR! | 70-125 | 656918.2 | 977921.3 | 67.17 | NR! | 70-125 |

**INTERNAL STANDARD: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | | 6 Li ( ISTD ) [ 3 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| N034662-003D | SAMP | 1 | 8050 | 12669.7 | 63.54 | NR! | 70-125 | 595029.5 | 977921.3 | 60.85 | NR! | 70-125 |
| N034662-004D | SAMP | 25 | 9107.3 | 12669.7 | 71.88 | PASS | 70-125 | 697509.2 | 977921.3 | 71.33 | PASS | 70-125 |
| CCV6 | CCV | 1 | 9190.7 | 12669.7 | 72.54 | PASS | 70-125 | 717949.1 | 977921.3 | 73.42 | PASS | 70-125 |
| CCB6 | CCB | 1 | 8957.2 | 12669.7 | 70.7 | PASS | 70-125 | 689036.6 | 977921.3 | 70.46 | PASS | 70-125 |
| N034662-004D | SAMP | 5 | 8462.5 | 12669.7 | 66.79 | NR! | 70-125 | 638389.2 | 977921.3 | 65.28 | NR! | 70-125 |
| N034662-004D | SAMP | 1 | 7881 | 12669.7 | 62.2 | NR! | 70-125 | 562963.3 | 977921.3 | 57.57 | NR! | 70-125 |
| CCV7 | CCV | 1 | 8638.1 | 12669.7 | 68.18 | NR! | 70-125 | 621457.1 | 977921.3 | 63.55 | NR! | 70-125 |
| CCB7 | CCB | 1 | 8306.8 | 12669.7 | 65.56 | NR! | 70-125 | 610138.3 | 977921.3 | 62.39 | NR! | 70-125 |
| ICSA4 | ICSA | 1 | 9546.4 | 12669.7 | 75.35 | PASS | 70-125 | 738018.3 | 977921.3 | 75.47 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 9248.4 | 12669.7 | 73 | PASS | 70-125 | 687297 | 977921.3 | 70.28 | PASS | 70-125 |
| CCV9 | CCV | 1 | 8751.5 | 12669.7 | 69.074 | NR! | 70-125 | 631818.1 | 977921.3 | 64.61 | NR! | 70-125 |
| CCB9 | CCB | 1 | 8553.6 | 12669.7 | 67.51 | NR! | 70-125 | 620650.3 | 977921.3 | 63.47 | NR! | 70-125 |
| CCV10 | CCV | 1 | 8490.3 | 12669.7 | 67.013 | NR! | 70-125 | 621710.3 | 977921.3 | 63.57 | NR! | 70-125 |
| CCB10 | CCB | 1 | 8165.7 | 12669.7 | 64.45 | NR! | 70-125 | 619131.9 | 977921.3 | 63.31 | NR! | 70-125 |
| ICSA5 | ICSA | 1 | 9546.4 | 12669.7 | 75.35 | PASS | 70-125 | 768403.8 | 977921.3 | 78.58 | PASS | 70-125 |
| ICSAB5 | ICSAB | 1 | 9209.6 | 12669.7 | 72.69 | PASS | 70-125 | 716186.8 | 977921.3 | 73.24 | PASS | 70-125 |

**INTERNAL STANDARD: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 453776 | 453776 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 450869 | 453776 | 99.36 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 445081.7 | 453776 | 98.084 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 438588.5 | 453776 | 96.65 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 438608.1 | 453776 | 96.66 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 432587.1 | 453776 | 95.33 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 434266.4 | 453776 | 95.7 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 409560.3 | 453776 | 90.26 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 413322.3 | 453776 | 91.085 | PASS | 70-125 |
| ICV | ICV | 1 | 407261.3 | 453776 | 89.75 | PASS | 70-125 |
| ICB | ICB | 1 | 460905.3 | 453776 | 101.57 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 402365 | 453776 | 88.67 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 409225.8 | 453776 | 90.18 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 419002.3 | 453776 | 92.34 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 475435.1 | 453776 | 104.77 | PASS | 70-125 |
| MB-73031 | MBLK | 1 | 423943.8 | 453776 | 93.43 | PASS | 70-125 |
| LCS-73031 | LCS | 1 | 419638.1 | 453776 | 92.48 | PASS | 70-125 |
| N034599-001A | SAMP | 1 | 336968.4 | 453776 | 74.26 | PASS | 70-125 |
| N034661-001A | SAMP | 1 | 378272.7 | 453776 | 83.36 | PASS | 70-125 |
| N034661-001A | SAMP | 5 | 420043.8 | 453776 | 92.57 | PASS | 70-125 |
| N034661-001A-PS | PS | 1 | 403993.2 | 453776 | 89.029 | PASS | 70-125 |
| N034661-001AMS | MS | 1 | 419057.7 | 453776 | 92.35 | PASS | 70-125 |
| N034661-001AMSD | MSD | 1 | 418264 | 453776 | 92.17 | PASS | 70-125 |
| N034661-001A-PS | PS | 1 | 408449.5 | 453776 | 90.011 | PASS | 70-125 |
| N034661-001A | SAMP | 1 | 374849.4 | 453776 | 82.61 | PASS | 70-125 |
| CCV1 | CCV | 1 | 503420.2 | 453776 | 110.94 | PASS | 70-125 |
| CCB1 | CCB | 1 | 460143.5 | 453776 | 101.4 | PASS | 70-125 |
| N034689-002E | SAMP | 1 | 379478.2 | 453776 | 83.63 | PASS | 70-125 |
| N034689-002E | SAMP | 5 | 430777.6 | 453776 | 94.93 | PASS | 70-125 |
| N034689-003E | SAMP | 1 | 394506.7 | 453776 | 86.94 | PASS | 70-125 |
| N034689-003E | SAMP | 5 | 435626.8 | 453776 | 96 | PASS | 70-125 |
| N034689-004E | SAMP | 1 | 403485 | 453776 | 88.92 | PASS | 70-125 |
| N034689-004E | SAMP | 5 | 433056.5 | 453776 | 95.43 | PASS | 70-125 |
| N034689-005E | SAMP | 1 | 378105.8 | 453776 | 83.32 | PASS | 70-125 |
| N034689-005E | SAMP | 5 | 415031.9 | 453776 | 91.46 | PASS | 70-125 |
| N034689-006E | SAMP | 1 | 356399.9 | 453776 | 78.54 | PASS | 70-125 |
| N034689-006E | SAMP | 25 | 433670.4 | 453776 | 95.57 | PASS | 70-125 |
| CCV2 | CCV | 1 | 449435.7 | 453776 | 99.044 | PASS | 70-125 |
| CCB2 | CCB | 1 | 398861.3 | 453776 | 87.9 | PASS | 70-125 |
| N034689-004E | SAMP | 1 | 364661 | 453776 | 80.36 | PASS | 70-125 |
| N034689-007E | SAMP | 1 | 305507.2 | 453776 | 67.33 | NR! | 70-125 |

**INTERNAL STANDARD: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| N034689-007E | SAMP | 5 | 381874.1 | 453776 | 84.15 | PASS | 70-125 |
| N034661-001A | SAMP | 25 | 424176.5 | 453776 | 93.48 | PASS | 70-125 |
| N034661-001A-PS | PS | 5 | 385848.3 | 453776 | 85.031 | PASS | 70-125 |
| N034661-001AMS | MS | 5 | 387046.3 | 453776 | 85.29 | PASS | 70-125 |
| N034661-001AMSD | MSD | 5 | 379327.9 | 453776 | 83.59 | PASS | 70-125 |
| N034689-007E | SAMP | 1 | 309565 | 453776 | 68.22 | NR! | 70-125 |
| N034689-007E | SAMP | 5 | 367526.8 | 453776 | 80.99 | PASS | 70-125 |
| N034707-001F | SAMP | 100 | 422860.1 | 453776 | 93.19 | PASS | 70-125 |
| CCV3 | CCV | 1 | 436060.5 | 453776 | 96.096 | PASS | 70-125 |
| CCB3 | CCB | 1 | 397308 | 453776 | 87.56 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 420820 | 453776 | 92.74 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 376753.9 | 453776 | 83.026 | PASS | 70-125 |
| N034707-001F | SAMP | 5 | 329906.4 | 453776 | 72.7 | PASS | 70-125 |
| N034707-001F | SAMP | 1 | 290116.5 | 453776 | 63.93 | NR! | 70-125 |
| N034707-001F | SAMP | 25 | 376099.8 | 453776 | 82.88 | PASS | 70-125 |
| N034707-002F | SAMP | 5 | 344373.7 | 453776 | 75.89 | PASS | 70-125 |
| N034707-002F | SAMP | 25 | 363928.8 | 453776 | 80.2 | PASS | 70-125 |
| N034707-002F | SAMP | 100 | 384801.6 | 453776 | 84.8 | PASS | 70-125 |
| N034707-003F | SAMP | 25 | 384420.5 | 453776 | 84.72 | PASS | 70-125 |
| N034707-003F | SAMP | 5 | 359488.2 | 453776 | 79.22 | PASS | 70-125 |
| N034707-003F | SAMP | 50 | 377149.4 | 453776 | 83.11 | PASS | 70-125 |
| N034707-004F | SAMP | 5 | 347926.5 | 453776 | 76.67 | PASS | 70-125 |
| CCV4 | CCV | 1 | 372432.3 | 453776 | 82.074 | PASS | 70-125 |
| CCB4 | CCB | 1 | 355661.7 | 453776 | 78.38 | PASS | 70-125 |
| N034707-004F | SAMP | 25 | 343012.4 | 453776 | 75.59 | PASS | 70-125 |
| N034707-002F | SAMP | 1 | 260421.6 | 453776 | 57.39 | NR! | 70-125 |
| N034707-003F | SAMP | 1 | 311582.8 | 453776 | 68.66 | NR! | 70-125 |
| N034707-004F | SAMP | 50 | 347739 | 453776 | 76.63 | PASS | 70-125 |
| N034707-004F | SAMP | 1 | 300626.7 | 453776 | 66.25 | NR! | 70-125 |
| CCV5 | CCV | 1 | 338043.5 | 453776 | 74.5 | PASS | 70-125 |
| CCB5 | CCB | 1 | 328960.6 | 453776 | 72.49 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 344284.8 | 453776 | 75.87 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 318746.9 | 453776 | 70.24 | PASS | 70-125 |
| N034662-001D | SAMP | 25 | 321621.2 | 453776 | 70.88 | PASS | 70-125 |
| N034662-001D | SAMP | 5 | 319378.2 | 453776 | 70.38 | PASS | 70-125 |
| N034662-001D | SAMP | 1 | 287259.7 | 453776 | 63.3 | NR! | 70-125 |
| N034662-002D | SAMP | 25 | 333431.5 | 453776 | 73.48 | PASS | 70-125 |
| N034662-002D | SAMP | 5 | 309177 | 453776 | 68.13 | NR! | 70-125 |
| N034662-002D | SAMP | 1 | 281138.3 | 453776 | 61.96 | NR! | 70-125 |
| N034662-003D | SAMP | 25 | 329007.8 | 453776 | 72.5 | PASS | 70-125 |
| N034662-003D | SAMP | 5 | 306073.1 | 453776 | 67.45 | NR! | 70-125 |

**INTERNAL STANDARD: 190328B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| N034662-003D | SAMP | 1 | 281281.8 | 453776 | 61.99 | NR! | 70-125 |
| N034662-004D | SAMP | 25 | 323950.3 | 453776 | 71.39 | PASS | 70-125 |
| CCV6 | CCV | 1 | 334966.1 | 453776 | 73.82 | PASS | 70-125 |
| CCB6 | CCB | 1 | 324697 | 453776 | 71.55 | PASS | 70-125 |
| N034662-004D | SAMP | 5 | 298411.4 | 453776 | 65.76 | NR! | 70-125 |
| N034662-004D | SAMP | 1 | 272137.6 | 453776 | 59.97 | NR! | 70-125 |
| CCV7 | CCV | 1 | 315027.3 | 453776 | 69.42 | NR! | 70-125 |
| CCB7 | CCB | 1 | 305774.2 | 453776 | 67.38 | NR! | 70-125 |
| ICSA4 | ICSA | 1 | 319799 | 453776 | 70.48 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 302903.5 | 453776 | 66.75 | NR! | 70-125 |
| CCV9 | CCV | 1 | 311698.5 | 453776 | 68.69 | NR! | 70-125 |
| CCB9 | CCB | 1 | 304030.7 | 453776 | 67 | NR! | 70-125 |
| CCV10 | CCV | 1 | 301883.6 | 453776 | 66.53 | NR! | 70-125 |
| CCB10 | CCB | 1 | 298954.1 | 453776 | 65.88 | NR! | 70-125 |
| ICSA5 | ICSA | 1 | 328608.6 | 453776 | 72.42 | PASS | 70-125 |
| ICSAB5 | ICSAB | 1 | 303055 | 453776 | 66.79 | NR! | 70-125 |

**INTERNAL STANDARD: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 103 Rh ( ISTD ) [ 3 ] | | | | | 115 In ( ISTD ) [ 3 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 984782.7 | 984782.7 | 100 | PASS | 70-125 | 1019011.4 | 1019011.4 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 976308.9 | 984782.7 | 99.14 | PASS | 70-125 | 1008002.2 | 1019011.4 | 98.92 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 960732.6 | 984782.7 | 97.56 | PASS | 70-125 | 996822.1 | 1019011.4 | 97.82 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 940098.9 | 984782.7 | 95.46 | PASS | 70-125 | 974771.8 | 1019011.4 | 95.66 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 926425.2 | 984782.7 | 94.074 | PASS | 70-125 | 964226.9 | 1019011.4 | 94.62 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 913642.5 | 984782.7 | 92.78 | PASS | 70-125 | 957784.2 | 1019011.4 | 93.99 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 879870.3 | 984782.7 | 89.35 | PASS | 70-125 | 919705 | 1019011.4 | 90.25 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 866433.6 | 984782.7 | 87.98 | PASS | 70-125 | 912639.7 | 1019011.4 | 89.56 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 846461 | 984782.7 | 85.95 | PASS | 70-125 | 899175.2 | 1019011.4 | 88.24 | PASS | 70-125 |
| ICV | ICV | 1 | 938157.4 | 984782.7 | 95.27 | PASS | 70-125 | 978438 | 1019011.4 | 96.018 | PASS | 70-125 |
| ICB | ICB | 1 | 856852.2 | 984782.7 | 87.009 | PASS | 70-125 | 888186 | 1019011.4 | 87.16 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 875181.5 | 984782.7 | 88.87 | PASS | 70-125 | 904597.4 | 1019011.4 | 88.77 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 899695.2 | 984782.7 | 91.36 | PASS | 70-125 | 946419.2 | 1019011.4 | 92.88 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 903097.5 | 984782.7 | 91.71 | PASS | 70-125 | 947361.1 | 1019011.4 | 92.97 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 880288.3 | 984782.7 | 89.39 | PASS | 70-125 | 909107.9 | 1019011.4 | 89.21 | PASS | 70-125 |
| CCV1 | CCV | 1 | 1146189.5 | 984782.7 | 116.39 | PASS | 70-125 | 1189031.3 | 1019011.4 | 116.68 | PASS | 70-125 |
| CCB1 | CCB | 1 | 1078598.9 | 984782.7 | 109.53 | PASS | 70-125 | 1115712.9 | 1019011.4 | 109.49 | PASS | 70-125 |
| CCV2 | CCV | 1 | 1088946.2 | 984782.7 | 110.58 | PASS | 70-125 | 1145489.9 | 1019011.4 | 112.41 | PASS | 70-125 |
| CCB2 | CCB | 1 | 1045776.5 | 984782.7 | 106.19 | PASS | 70-125 | 1087896.7 | 1019011.4 | 106.76 | PASS | 70-125 |
| MB-73031 | MBLK | 1 | 1025162.8 | 984782.7 | 104.1 | PASS | 70-125 | 1069236 | 1019011.4 | 104.93 | PASS | 70-125 |
| LCS-73031 | LCS | 1 | 1154367 | 984782.7 | 117.22 | PASS | 70-125 | 1205163.8 | 1019011.4 | 118.27 | PASS | 70-125 |
| N034661-001A | SAMP | 1 | 883825 | 984782.7 | 89.75 | PASS | 70-125 | 970387.5 | 1019011.4 | 95.23 | PASS | 70-125 |
| N034661-001A | SAMP | 5 | 994339.2 | 984782.7 | 100.97 | PASS | 70-125 | 1081161.1 | 1019011.4 | 106.1 | PASS | 70-125 |
| N034661-001A-PS | PS | 1 | 926275.6 | 984782.7 | 94.059 | PASS | 70-125 | 1016302.7 | 1019011.4 | 99.73 | PASS | 70-125 |
| N034661-001AMS | MS | 1 | 966450.1 | 984782.7 | 98.14 | PASS | 70-125 | 1060755.4 | 1019011.4 | 104.1 | PASS | 70-125 |
| N034661-001AMSD | MSD | 1 | 995967.5 | 984782.7 | 101.14 | PASS | 70-125 | 1096674.1 | 1019011.4 | 107.62 | PASS | 70-125 |
| CCV3 | CCV | 1 | 1144843.6 | 984782.7 | 116.25 | PASS | 70-125 | 1189595 | 1019011.4 | 116.74 | PASS | 70-125 |
| CCB3 | CCB | 1 | 1090225.6 | 984782.7 | 110.71 | PASS | 70-125 | 1131953.2 | 1019011.4 | 111.08 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 1046013.8 | 984782.7 | 106.22 | PASS | 70-125 | 1101335.7 | 1019011.4 | 108.08 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 1062538.8 | 984782.7 | 107.9 | PASS | 70-125 | 1121784.8 | 1019011.4 | 110.09 | PASS | 70-125 |
| N034689-002E | SAMP | 1 | 990991.7 | 984782.7 | 100.63 | PASS | 70-125 | 1062671.8 | 1019011.4 | 104.28 | PASS | 70-125 |
| N034689-002E | SAMP | 5 | 987167.6 | 984782.7 | 100.24 | PASS | 70-125 | 1036177 | 1019011.4 | 101.68 | PASS | 70-125 |
| N034689-003E | SAMP | 1 | 997788 | 984782.7 | 101.32 | PASS | 70-125 | 1073068.2 | 1019011.4 | 105.3 | PASS | 70-125 |
| N034689-003E | SAMP | 5 | 1061629.3 | 984782.7 | 107.8 | PASS | 70-125 | 1135228.3 | 1019011.4 | 111.4 | PASS | 70-125 |
| N034689-004E | SAMP | 1 | 1010844.7 | 984782.7 | 102.65 | PASS | 70-125 | 1087073.1 | 1019011.4 | 106.68 | PASS | 70-125 |
| N034689-004E | SAMP | 5 | 1059632.3 | 984782.7 | 107.6 | PASS | 70-125 | 1130659.4 | 1019011.4 | 110.96 | PASS | 70-125 |
| N034689-005E | SAMP | 1 | 966836.3 | 984782.7 | 98.18 | PASS | 70-125 | 1048853.6 | 1019011.4 | 102.93 | PASS | 70-125 |
| N034689-005E | SAMP | 5 | 1053913.2 | 984782.7 | 107.02 | PASS | 70-125 | 1136596.4 | 1019011.4 | 111.54 | PASS | 70-125 |
| N034689-006E | SAMP | 1 | 887686.2 | 984782.7 | 90.14 | PASS | 70-125 | 976014.7 | 1019011.4 | 95.78 | PASS | 70-125 |
| N034689-006E | SAMP | 5 | 1043706.9 | 984782.7 | 105.98 | PASS | 70-125 | 1124275.7 | 1019011.4 | 110.33 | PASS | 70-125 |
| CCV4 | CCV | 1 | 1095677.6 | 984782.7 | 111.26 | PASS | 70-125 | 1145018.4 | 1019011.4 | 112.37 | PASS | 70-125 |

NR

**INTERNAL STANDARD: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 103 Rh ( ISTD ) [ 3 ] | | | | | 115 In ( ISTD ) [ 3 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| CCB4 | CCB | 1 | 1061094.7 | 984782.7 | 107.75 | PASS | 70-125 | 1105771.3 | 1019011.4 | 108.51 | PASS | 70-125 |
| N034689-007E | SAMP | 1 | 786276.4 | 984782.7 | 79.84 | PASS | 70-125 | 866925.8 | 1019011.4 | 85.075 | PASS | 70-125 |
| N034689-007E | SAMP | 5 | 1038696.6 | 984782.7 | 105.47 | PASS | 70-125 | 1119224.4 | 1019011.4 | 109.83 | PASS | 70-125 |
| N034707-001F | SAMP | 1 | 912942.1 | 984782.7 | 92.7 | PASS | 70-125 | 1002809.8 | 1019011.4 | 98.41 | PASS | 70-125 |
| N034707-001F | SAMP | 5 | 1059311.6 | 984782.7 | 107.57 | PASS | 70-125 | 1146280.3 | 1019011.4 | 112.49 | PASS | 70-125 |
| N034707-002F | SAMP | 1 | 944171.6 | 984782.7 | 95.88 | PASS | 70-125 | 1038592.9 | 1019011.4 | 101.92 | PASS | 70-125 |
| N034707-002F | SAMP | 5 | 1059646.6 | 984782.7 | 107.6 | PASS | 70-125 | 1145991.3 | 1019011.4 | 112.46 | PASS | 70-125 |
| N034707-003F | SAMP | 1 | 1067913.8 | 984782.7 | 108.44 | PASS | 70-125 | 1157358.6 | 1019011.4 | 113.58 | PASS | 70-125 |
| N034707-003F | SAMP | 5 | 1092659.5 | 984782.7 | 110.95 | PASS | 70-125 | 1169127 | 1019011.4 | 114.73 | PASS | 70-125 |
| CCV5 | CCV | 1 | 1077513.8 | 984782.7 | 109.42 | PASS | 70-125 | 1127707.5 | 1019011.4 | 110.67 | PASS | 70-125 |
| CCB5 | CCB | 1 | 1038610.9 | 984782.7 | 105.47 | PASS | 70-125 | 1080249.1 | 1019011.4 | 106.01 | PASS | 70-125 |
| N034707-004F | SAMP | 1 | 972433.3 | 984782.7 | 98.75 | PASS | 70-125 | 1057480.2 | 1019011.4 | 103.78 | PASS | 70-125 |
| N034707-004F | SAMP | 5 | 1031704.5 | 984782.7 | 104.76 | PASS | 70-125 | 1108830.2 | 1019011.4 | 108.81 | PASS | 70-125 |
| N034662-001D | SAMP | 1 | 954745.4 | 984782.7 | 96.95 | PASS | 70-125 | 1043193.3 | 1019011.4 | 102.37 | PASS | 70-125 |
| N034662-001D | SAMP | 5 | 1028928.3 | 984782.7 | 104.48 | PASS | 70-125 | 1108591.1 | 1019011.4 | 108.79 | PASS | 70-125 |
| N034662-002D | SAMP | 1 | 970146.8 | 984782.7 | 98.51 | PASS | 70-125 | 1063239.2 | 1019011.4 | 104.34 | PASS | 70-125 |
| N034662-002D | SAMP | 5 | 1022428.2 | 984782.7 | 103.82 | PASS | 70-125 | 1106442.3 | 1019011.4 | 108.58 | PASS | 70-125 |
| N034662-003D | SAMP | 1 | 982134.7 | 984782.7 | 99.73 | PASS | 70-125 | 1069547.7 | 1019011.4 | 104.96 | PASS | 70-125 |
| N034662-003D | SAMP | 5 | 1022564.4 | 984782.7 | 103.84 | PASS | 70-125 | 1103331.2 | 1019011.4 | 108.27 | PASS | 70-125 |
| N034662-004D | SAMP | 1 | 958878.4 | 984782.7 | 97.37 | PASS | 70-125 | 1053344.9 | 1019011.4 | 103.37 | PASS | 70-125 |
| N034662-004D | SAMP | 5 | 1020140.6 | 984782.7 | 103.59 | PASS | 70-125 | 1099828 | 1019011.4 | 107.93 | PASS | 70-125 |
| CCV6 | CCV | 1 | 1054713.8 | 984782.7 | 107.1 | PASS | 70-125 | 1103870.1 | 1019011.4 | 108.33 | PASS | 70-125 |
| CCB6 | CCB | 1 | 1013614.3 | 984782.7 | 102.93 | PASS | 70-125 | 1060696.1 | 1019011.4 | 104.09 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 994718.4 | 984782.7 | 101.01 | PASS | 70-125 | 1052745.8 | 1019011.4 | 103.31 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 1034413.6 | 984782.7 | 105.04 | PASS | 70-125 | 1085368.2 | 1019011.4 | 106.51 | PASS | 70-125 |

**INTERNAL STANDARD: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 159 Tb ( ISTD ) [ 3 ] | | | | | 209 Bi ( ISTD ) [ 3 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 1726468.2 | 1726468.2 | 100 | PASS | 70-125 | 1220773.2 | 1220773.2 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 1725798.2 | 1726468.2 | 99.96 | PASS | 70-125 | 1224167.2 | 1220773.2 | 100.28 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 1708647.3 | 1726468.2 | 98.97 | PASS | 70-125 | 1220024.1 | 1220773.2 | 99.94 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 1687155.6 | 1726468.2 | 97.72 | PASS | 70-125 | 1212899.5 | 1220773.2 | 99.36 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 1684092 | 1726468.2 | 97.55 | PASS | 70-125 | 1234490.2 | 1220773.2 | 101.12 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 1681403.6 | 1726468.2 | 97.39 | PASS | 70-125 | 1225419.6 | 1220773.2 | 100.38 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 1604355.8 | 1726468.2 | 92.93 | PASS | 70-125 | 1171352.7 | 1220773.2 | 95.95 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 1637815.2 | 1726468.2 | 94.87 | PASS | 70-125 | 1176136.4 | 1220773.2 | 96.34 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 1596718.6 | 1726468.2 | 92.48 | PASS | 70-125 | 1162811.5 | 1220773.2 | 95.25 | PASS | 70-125 |
| ICV | ICV | 1 | 1742283.1 | 1726468.2 | 100.92 | PASS | 70-125 | 1254821.3 | 1220773.2 | 102.79 | PASS | 70-125 |
| ICB | ICB | 1 | 1565136.8 | 1726468.2 | 90.66 | PASS | 70-125 | 1132010.4 | 1220773.2 | 92.73 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 1595109.8 | 1726468.2 | 92.39 | PASS | 70-125 | 1152725 | 1220773.2 | 94.43 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 1686639.4 | 1726468.2 | 97.69 | PASS | 70-125 | 1091644.9 | 1220773.2 | 89.42 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 1657368.1 | 1726468.2 | 96 | PASS | 70-125 | 1073704.8 | 1220773.2 | 87.95 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 1586194 | 1726468.2 | 91.88 | PASS | 70-125 | 1147097.6 | 1220773.2 | 93.96 | PASS | 70-125 |
| CCV1 | CCV | 1 | 1957930.2 | 1726468.2 | 113.41 | PASS | 70-125 | 1408917.3 | 1220773.2 | 115.41 | PASS | 70-125 |
| CCB1 | CCB | 1 | 1865738.6 | 1726468.2 | 108.07 | PASS | 70-125 | 1331083.3 | 1220773.2 | 109.04 | PASS | 70-125 |
| CCV2 | CCV | 1 | 1898910.5 | 1726468.2 | 109.99 | PASS | 70-125 | 1349289.6 | 1220773.2 | 110.53 | PASS | 70-125 |
| CCB2 | CCB | 1 | 1798354 | 1726468.2 | 104.16 | PASS | 70-125 | 1284748.8 | 1220773.2 | 105.24 | PASS | 70-125 |
| MB-73031 | MBLK | 1 | 1781001.4 | 1726468.2 | 103.16 | PASS | 70-125 | 1246040.6 | 1220773.2 | 102.07 | PASS | 70-125 |
| NR LCS-73031 | LCS | 1 | 2014366 | 1726468.2 | 116.68 | PASS | 70-125 | 1447820.8 | 1220773.2 | 118.6 | PASS | 70-125 |
| N034661-001A | SAMP | 1 | 1695674.3 | 1726468.2 | 98.22 | PASS | 70-125 | 1058110.2 | 1220773.2 | 86.68 | PASS | 70-125 |
| N034661-001A | SAMP | 5 | 1851902.5 | 1726468.2 | 107.27 | PASS | 70-125 | 1202814.3 | 1220773.2 | 98.53 | PASS | 70-125 |
| N034661-001A-PS | PS | 1 | 1752607.4 | 1726468.2 | 101.51 | PASS | 70-125 | 1098512.3 | 1220773.2 | 89.98 | PASS | 70-125 |
| N034661-001AMS | MS | 1 | 1811446.2 | 1726468.2 | 104.92 | PASS | 70-125 | 1131586.1 | 1220773.2 | 92.69 | PASS | 70-125 |
| N034661-001AMSD | MSD | 1 | 1883240.6 | 1726468.2 | 109.08 | PASS | 70-125 | 1164749.6 | 1220773.2 | 95.41 | PASS | 70-125 |
| CCV3 | CCV | 1 | 1936433.7 | 1726468.2 | 112.16 | PASS | 70-125 | 1379030.6 | 1220773.2 | 112.96 | PASS | 70-125 |
| CCB3 | CCB | 1 | 1863366.8 | 1726468.2 | 107.93 | PASS | 70-125 | 1319817.9 | 1220773.2 | 108.11 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 1855275.4 | 1726468.2 | 107.46 | PASS | 70-125 | 1165883.4 | 1220773.2 | 95.5 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 1866841.4 | 1726468.2 | 108.13 | PASS | 70-125 | 1174701.2 | 1220773.2 | 96.23 | PASS | 70-125 |
| N034689-002E | SAMP | 1 | 1828922.6 | 1726468.2 | 105.93 | PASS | 70-125 | 1150084.2 | 1220773.2 | 94.21 | PASS | 70-125 |
| N034689-002E | SAMP | 5 | 1731207.2 | 1726468.2 | 100.27 | PASS | 70-125 | 1144060.6 | 1220773.2 | 93.72 | PASS | 70-125 |
| N034689-003E | SAMP | 1 | 1833332.3 | 1726468.2 | 106.19 | PASS | 70-125 | 1163073.5 | 1220773.2 | 95.27 | PASS | 70-125 |
| N034689-003E | SAMP | 5 | 1905689.1 | 1726468.2 | 110.38 | PASS | 70-125 | 1309495.1 | 1220773.2 | 107.27 | PASS | 70-125 |
| N034689-004E | SAMP | 1 | 1870447.9 | 1726468.2 | 108.34 | PASS | 70-125 | 1196634 | 1220773.2 | 98.023 | PASS | 70-125 |
| N034689-004E | SAMP | 5 | 1895719.1 | 1726468.2 | 109.8 | PASS | 70-125 | 1276945.2 | 1220773.2 | 104.6 | PASS | 70-125 |
| N034689-005E | SAMP | 1 | 1804689 | 1726468.2 | 104.53 | PASS | 70-125 | 1119599.6 | 1220773.2 | 91.71 | PASS | 70-125 |
| N034689-005E | SAMP | 5 | 1904457.2 | 1726468.2 | 110.31 | PASS | 70-125 | 1242012.5 | 1220773.2 | 101.74 | PASS | 70-125 |
| N034689-006E | SAMP | 1 | 1674304.5 | 1726468.2 | 96.98 | PASS | 70-125 | 1037104.4 | 1220773.2 | 84.95 | PASS | 70-125 |
| N034689-006E | SAMP | 5 | 1893331 | 1726468.2 | 109.66 | PASS | 70-125 | 1223449.7 | 1220773.2 | 100.22 | PASS | 70-125 |
| CCV4 | CCV | 1 | 1884820.5 | 1726468.2 | 109.17 | PASS | 70-125 | 1350113.2 | 1220773.2 | 110.59 | PASS | 70-125 |

**INTERNAL STANDARD: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 159 Tb ( ISTD ) [ 3 ] | | | | | 209 Bi ( ISTD ) [ 3 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| CCB4 | CCB | 1 | 1813221.8 | 1726468.2 | 105.03 | PASS | 70-125 | 1312122.6 | 1220773.2 | 107.48 | PASS | 70-125 |
| N034689-007E | SAMP | 1 | 1517074.9 | 1726468.2 | 87.87 | PASS | 70-125 | 907039.4 | 1220773.2 | 74.3 | PASS | 70-125 |
| N034689-007E | SAMP | 5 | 1902407.3 | 1726468.2 | 110.19 | PASS | 70-125 | 1186747 | 1220773.2 | 97.21 | PASS | 70-125 |
| N034707-001F | SAMP | 1 | 1736524.7 | 1726468.2 | 100.58 | PASS | 70-125 | 1057762.9 | 1220773.2 | 86.65 | PASS | 70-125 |
| N034707-001F | SAMP | 5 | 1939157.4 | 1726468.2 | 112.32 | PASS | 70-125 | 1227637.6 | 1220773.2 | 100.56 | PASS | 70-125 |
| N034707-002F | SAMP | 1 | 1782914.6 | 1726468.2 | 103.27 | PASS | 70-125 | 1084107 | 1220773.2 | 88.8 | PASS | 70-125 |
| N034707-002F | SAMP | 5 | 1929524.1 | 1726468.2 | 111.76 | PASS | 70-125 | 1238273.9 | 1220773.2 | 101.43 | PASS | 70-125 |
| N034707-003F | SAMP | 1 | 1975432.2 | 1726468.2 | 114.42 | PASS | 70-125 | 1239363.8 | 1220773.2 | 101.52 | PASS | 70-125 |
| N034707-003F | SAMP | 5 | 1960242 | 1726468.2 | 113.54 | PASS | 70-125 | 1345483.3 | 1220773.2 | 110.22 | PASS | 70-125 |
| CCV5 | CCV | 1 | 1849450.1 | 1726468.2 | 107.12 | PASS | 70-125 | 1320356.1 | 1220773.2 | 108.16 | PASS | 70-125 |
| CCB5 | CCB | 1 | 1792502.1 | 1726468.2 | 103.82 | PASS | 70-125 | 1246514.5 | 1220773.2 | 102.11 | PASS | 70-125 |
| N034707-004F | SAMP | 1 | 1833377.5 | 1726468.2 | 106.19 | PASS | 70-125 | 1166022 | 1220773.2 | 95.52 | PASS | 70-125 |
| N034707-004F | SAMP | 5 | 1876505.4 | 1726468.2 | 108.69 | PASS | 70-125 | 1284934.1 | 1220773.2 | 105.26 | PASS | 70-125 |
| N034662-001D | SAMP | 1 | 1792991.1 | 1726468.2 | 103.85 | PASS | 70-125 | 1146958.1 | 1220773.2 | 93.95 | PASS | 70-125 |
| N034662-001D | SAMP | 5 | 1873161.1 | 1726468.2 | 108.5 | PASS | 70-125 | 1237700.1 | 1220773.2 | 101.39 | PASS | 70-125 |
| N034662-002D | SAMP | 1 | 1830356.8 | 1726468.2 | 106.02 | PASS | 70-125 | 1150604.3 | 1220773.2 | 94.25 | PASS | 70-125 |
| N034662-002D | SAMP | 5 | 1844974.5 | 1726468.2 | 106.86 | PASS | 70-125 | 1237518.1 | 1220773.2 | 101.37 | PASS | 70-125 |
| N034662-003D | SAMP | 1 | 1835425.2 | 1726468.2 | 106.31 | PASS | 70-125 | 1161349.7 | 1220773.2 | 95.13 | PASS | 70-125 |
| N034662-003D | SAMP | 5 | 1883007.5 | 1726468.2 | 109.07 | PASS | 70-125 | 1233575.9 | 1220773.2 | 101.05 | PASS | 70-125 |
| N034662-004D | SAMP | 1 | 1805282.7 | 1726468.2 | 104.57 | PASS | 70-125 | 1152743.3 | 1220773.2 | 94.43 | PASS | 70-125 |
| N034662-004D | SAMP | 5 | 1850723.4 | 1726468.2 | 107.2 | PASS | 70-125 | 1230173.4 | 1220773.2 | 100.77 | PASS | 70-125 |
| CCV6 | CCV | 1 | 1829121.5 | 1726468.2 | 105.95 | PASS | 70-125 | 1311502.5 | 1220773.2 | 107.43 | PASS | 70-125 |
| CCB6 | CCB | 1 | 1754526.1 | 1726468.2 | 101.63 | PASS | 70-125 | 1230623.9 | 1220773.2 | 100.81 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 1774549.6 | 1726468.2 | 102.78 | PASS | 70-125 | 1122832 | 1220773.2 | 91.98 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 1823797.4 | 1726468.2 | 105.64 | PASS | 70-125 | 1144667.6 | 1220773.2 | 93.77 | PASS | 70-125 |

**INTERNAL STANDARD: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 36569.7 | 36569.7 | 100 | PASS | 70-125 | 19692.4 | 19692.4 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 36497.5 | 36569.7 | 99.8 | PASS | 70-125 | 19305.2 | 19692.4 | 98.034 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 36112 | 36569.7 | 98.75 | PASS | 70-125 | 18993.8 | 19692.4 | 96.45 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 35287 | 36569.7 | 96.49 | PASS | 70-125 | 18661.2 | 19692.4 | 94.76 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 34066.8 | 36569.7 | 93.16 | PASS | 70-125 | 18268.5 | 19692.4 | 92.77 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 33158.2 | 36569.7 | 90.67 | PASS | 70-125 | 17874.7 | 19692.4 | 90.77 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 30576.5 | 36569.7 | 83.61 | PASS | 70-125 | 16214.1 | 19692.4 | 82.34 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 31494.9 | 36569.7 | 86.12 | PASS | 70-125 | 16953.7 | 19692.4 | 86.093 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 30997.3 | 36569.7 | 84.76 | PASS | 70-125 | 16721.3 | 19692.4 | 84.91 | PASS | 70-125 |
| ICV | ICV | 1 | 31616.2 | 36569.7 | 86.45 | PASS | 70-125 | 17043.8 | 19692.4 | 86.55 | PASS | 70-125 |
| ICB | ICB | 1 | 29028.2 | 36569.7 | 79.38 | PASS | 70-125 | 15714.7 | 19692.4 | 79.8 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 31044 | 36569.7 | 84.89 | PASS | 70-125 | 16816.9 | 19692.4 | 85.4 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 34803.7 | 36569.7 | 95.17 | PASS | 70-125 | 18112.8 | 19692.4 | 91.98 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 33302.8 | 36569.7 | 91.067 | PASS | 70-125 | 17033.8 | 19692.4 | 86.5 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 30147.9 | 36569.7 | 82.44 | PASS | 70-125 | 16058.3 | 19692.4 | 81.55 | PASS | 70-125 |
| CCV1 | CCV | 1 | 42877.1 | 36569.7 | 117.25 | PASS | 70-125 | 22637.4 | 19692.4 | 114.96 | PASS | 70-125 |
| CCB1 | CCB | 1 | 39602.2 | 36569.7 | 108.29 | PASS | 70-125 | 21307.8 | 19692.4 | 108.2 | PASS | 70-125 |
| CCV2 | CCV | 1 | 40234.8 | 36569.7 | 110.02 | PASS | 70-125 | 21488 | 19692.4 | 109.12 | PASS | 70-125 |
| CCB2 | CCB | 1 | 38305.7 | 36569.7 | 104.75 | PASS | 70-125 | 20339.9 | 19692.4 | 103.29 | PASS | 70-125 |
| MB-73031 | MBLK | 1 | 38400.5 | 36569.7 | 105.01 | PASS | 70-125 | 20451.1 | 19692.4 | 103.85 | PASS | 70-125 |
| LCS-73031 | LCS | 1 | 42536 | 36569.7 | 116.31 | PASS | 70-125 | 23081.3 | 19692.4 | 117.21 | PASS | 70-125 |
| N034661-001A | SAMP | 1 | 36751.2 | 36569.7 | 100.5 | PASS | 70-125 | 18876.9 | 19692.4 | 95.86 | PASS | 70-125 |
| N034661-001A | SAMP | 5 | 40290.5 | 36569.7 | 110.17 | PASS | 70-125 | 20981.9 | 19692.4 | 106.55 | PASS | 70-125 |
| N034661-001A-PS | PS | 1 | 38515.2 | 36569.7 | 105.32 | PASS | 70-125 | 19952.8 | 19692.4 | 101.32 | PASS | 70-125 |
| N034661-001AMS | MS | 1 | 40465.4 | 36569.7 | 110.65 | PASS | 70-125 | 21058.5 | 19692.4 | 106.94 | PASS | 70-125 |
| N034661-001AMSD | MSD | 1 | 42126.1 | 36569.7 | 115.19 | PASS | 70-125 | 22044.3 | 19692.4 | 111.94 | PASS | 70-125 |
| CCV3 | CCV | 1 | 42377.9 | 36569.7 | 115.88 | PASS | 70-125 | 22786.5 | 19692.4 | 115.71 | PASS | 70-125 |
| CCB3 | CCB | 1 | 39550 | 36569.7 | 108.15 | PASS | 70-125 | 21162.1 | 19692.4 | 107.46 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 41825.4 | 36569.7 | 114.37 | PASS | 70-125 | 21572.6 | 19692.4 | 109.55 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 42850.1 | 36569.7 | 117.17 | PASS | 70-125 | 22123.4 | 19692.4 | 112.34 | PASS | 70-125 |
| N034689-002E | SAMP | 1 | 38394.9 | 36569.7 | 104.99 | PASS | 70-125 | 20762.6 | 19692.4 | 105.43 | PASS | 70-125 |
| N034689-002E | SAMP | 5 | 39921.9 | 36569.7 | 109.17 | PASS | 70-125 | 21435.7 | 19692.4 | 108.85 | PASS | 70-125 |
| N034689-003E | SAMP | 1 | 37983.9 | 36569.7 | 103.87 | PASS | 70-125 | 20432.2 | 19692.4 | 103.76 | PASS | 70-125 |
| N034689-003E | SAMP | 5 | 40309.6 | 36569.7 | 110.23 | PASS | 70-125 | 21715 | 19692.4 | 110.27 | PASS | 70-125 |
| N034689-004E | SAMP | 1 | 39499.7 | 36569.7 | 108.01 | PASS | 70-125 | 20911.7 | 19692.4 | 106.19 | PASS | 70-125 |
| N034689-004E | SAMP | 5 | 40397.5 | 36569.7 | 110.47 | PASS | 70-125 | 22330.3 | 19692.4 | 113.4 | PASS | 70-125 |
| N034689-005E | SAMP | 1 | 38880.5 | 36569.7 | 106.32 | PASS | 70-125 | 20452.2 | 19692.4 | 103.86 | PASS | 70-125 |
| N034689-005E | SAMP | 5 | 41486.8 | 36569.7 | 113.45 | PASS | 70-125 | 21860.7 | 19692.4 | 111.01 | PASS | 70-125 |
| N034689-006E | SAMP | 1 | 38584.3 | 36569.7 | 105.51 | PASS | 70-125 | 20105.1 | 19692.4 | 102.1 | PASS | 70-125 |
| N034689-006E | SAMP | 5 | 41632.6 | 36569.7 | 113.84 | PASS | 70-125 | 21789.5 | 19692.4 | 110.65 | PASS | 70-125 |
| CCV4 | CCV | 1 | 41031.2 | 36569.7 | 112.2 | PASS | 70-125 | 21844 | 19692.4 | 110.93 | PASS | 70-125 |

NR

**INTERNAL STANDARD: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| CCB4 | CCB | 1 | 38271.3 | 36569.7 | 104.65 | PASS | 70-125 | 20648.1 | 19692.4 | 104.85 | PASS | 70-125 |
| N034689-007E | SAMP | 1 | 36702.2 | 36569.7 | 100.36 | PASS | 70-125 | 18202.9 | 19692.4 | 92.44 | PASS | 70-125 |
| N034689-007E | SAMP | 5 | 41520.3 | 36569.7 | 113.54 | PASS | 70-125 | 22011 | 19692.4 | 111.77 | PASS | 70-125 |
| N034707-001F | SAMP | 1 | 39385 | 36569.7 | 107.7 | PASS | 70-125 | 20505.6 | 19692.4 | 104.13 | PASS | 70-125 |
| N034707-001F | SAMP | 5 | 41372 | 36569.7 | 113.13 | PASS | 70-125 | 21386.8 | 19692.4 | 108.6 | PASS | 70-125 |
| N034707-002F | SAMP | 1 | 40182.4 | 36569.7 | 109.88 | PASS | 70-125 | 20601.3 | 19692.4 | 104.62 | PASS | 70-125 |
| N034707-002F | SAMP | 5 | 40639.2 | 36569.7 | 111.13 | PASS | 70-125 | 21648.2 | 19692.4 | 109.93 | PASS | 70-125 |
| N034707-003F | SAMP | 1 | 40295.1 | 36569.7 | 110.19 | PASS | 70-125 | 22061 | 19692.4 | 112.03 | PASS | 70-125 |
| N034707-003F | SAMP | 5 | 40304.9 | 36569.7 | 110.21 | PASS | 70-125 | 22175.6 | 19692.4 | 112.61 | PASS | 70-125 |
| CCV5 | CCV | 1 | 38135.4 | 36569.7 | 104.28 | PASS | 70-125 | 20425.5 | 19692.4 | 103.72 | PASS | 70-125 |
| CCB5 | CCB | 1 | 36320.2 | 36569.7 | 99.32 | PASS | 70-125 | 19629 | 19692.4 | 99.68 | PASS | 70-125 |
| N034707-004F | SAMP | 1 | 36882.6 | 36569.7 | 100.86 | PASS | 70-125 | 19889.4 | 19692.4 | 101 | PASS | 70-125 |
| N034707-004F | SAMP | 5 | 38214.5 | 36569.7 | 104.5 | PASS | 70-125 | 20684.8 | 19692.4 | 105.04 | PASS | 70-125 |
| N034662-001D | SAMP | 1 | 36488.5 | 36569.7 | 99.78 | PASS | 70-125 | 19286.5 | 19692.4 | 97.94 | PASS | 70-125 |
| N034662-001D | SAMP | 5 | 38636.7 | 36569.7 | 105.65 | PASS | 70-125 | 20817.1 | 19692.4 | 105.71 | PASS | 70-125 |
| N034662-002D | SAMP | 1 | 37488.4 | 36569.7 | 102.51 | PASS | 70-125 | 20013.9 | 19692.4 | 101.63 | PASS | 70-125 |
| N034662-002D | SAMP | 5 | 38714.6 | 36569.7 | 105.87 | PASS | 70-125 | 20841.7 | 19692.4 | 105.84 | PASS | 70-125 |
| N034662-003D | SAMP | 1 | 37812.5 | 36569.7 | 103.4 | PASS | 70-125 | 20050.6 | 19692.4 | 101.82 | PASS | 70-125 |
| N034662-003D | SAMP | 5 | 38744.7 | 36569.7 | 105.95 | PASS | 70-125 | 20931.7 | 19692.4 | 106.29 | PASS | 70-125 |
| N034662-004D | SAMP | 1 | 36183.2 | 36569.7 | 98.94 | PASS | 70-125 | 19488.8 | 19692.4 | 98.97 | PASS | 70-125 |
| N034662-004D | SAMP | 5 | 38464.1 | 36569.7 | 105.18 | PASS | 70-125 | 20730.4 | 19692.4 | 105.27 | PASS | 70-125 |
| CCV6 | CCV | 1 | 37646.7 | 36569.7 | 102.95 | PASS | 70-125 | 20322 | 19692.4 | 103.2 | PASS | 70-125 |
| CCB6 | CCB | 1 | 35972.9 | 36569.7 | 98.37 | PASS | 70-125 | 19142.8 | 19692.4 | 97.21 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 37452.8 | 36569.7 | 102.41 | PASS | 70-125 | 19641.2 | 19692.4 | 99.74 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 39323.9 | 36569.7 | 107.53 | PASS | 70-125 | 20836.1 | 19692.4 | 105.81 | PASS | 70-125 |

**INTERNAL STANDARD: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | | 6 Li ( ISTD ) [ 3 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 14291.1 | 14291.1 | 100 | PASS | 70-125 | 1593298.9 | 1593298.9 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 14125.4 | 14291.1 | 98.84 | PASS | 70-125 | 1599389.4 | 1593298.9 | 100.38 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 13679.5 | 14291.1 | 95.72 | PASS | 70-125 | 1543940 | 1593298.9 | 96.9 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 13582.7 | 14291.1 | 95.043 | PASS | 70-125 | 1498752.1 | 1593298.9 | 94.066 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 13261.3 | 14291.1 | 92.79 | PASS | 70-125 | 1450359.1 | 1593298.9 | 91.029 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 12736.4 | 14291.1 | 89.12 | PASS | 70-125 | 1402545.3 | 1593298.9 | 88.028 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 10742.8 | 14291.1 | 75.17 | PASS | 70-125 | 1416299.3 | 1593298.9 | 88.89 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 11886.9 | 14291.1 | 83.18 | PASS | 70-125 | 1314199.6 | 1593298.9 | 82.48 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 11838 | 14291.1 | 82.83 | PASS | 70-125 | 1282674.1 | 1593298.9 | 80.5 | PASS | 70-125 |
| ICV | ICV | 1 | 11542.2 | 14291.1 | 80.76 | PASS | 70-125 | 1519933.7 | 1593298.9 | 95.4 | PASS | 70-125 |
| ICB | ICB | 1 | 10209.1 | 14291.1 | 71.44 | PASS | 70-125 | 1382375.6 | 1593298.9 | 86.76 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 11715.7 | 14291.1 | 81.98 | PASS | 70-125 | 1387881.9 | 1593298.9 | 87.11 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 12704.2 | 14291.1 | 88.9 | PASS | 70-125 | 1467153.4 | 1593298.9 | 92.083 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 11073 | 14291.1 | 77.48 | PASS | 70-125 | 1508335.4 | 1593298.9 | 94.67 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 11034 | 14291.1 | 77.21 | PASS | 70-125 | 1439324.1 | 1593298.9 | 90.34 | PASS | 70-125 |
| CCV1 | CCV | 1 | 17167.3 | 14291.1 | 120.13 | PASS | 70-125 | 1779809.7 | 1593298.9 | 111.71 | PASS | 70-125 |
| CCB1 | CCB | 1 | 15921.5 | 14291.1 | 111.41 | PASS | 70-125 | 1692092.7 | 1593298.9 | 106.2 | PASS | 70-125 |
| CCV2 | CCV | 1 | 16464.4 | 14291.1 | 115.21 | PASS | 70-125 | 1645110.5 | 1593298.9 | 103.25 | PASS | 70-125 |
| CCB2 | CCB | 1 | 15495.6 | 14291.1 | 108.43 | PASS | 70-125 | 1601602.5 | 1593298.9 | 100.52 | PASS | 70-125 |
| MB-73031 | MBLK | 1 | 15103 | 14291.1 | 105.68 | PASS | 70-125 | 1602156.5 | 1593298.9 | 100.56 | PASS | 70-125 |
| LCS-73031 | LCS | 1 | 16759.1 | 14291.1 | 117.27 | PASS | 70-125 | 1759689.8 | 1593298.9 | 110.44 | PASS | 70-125 |
| NR N034661-001A | SAMP | 1 | 13216.8 | 14291.1 | 92.48 | PASS | 70-125 | 1179670.1 | 1593298.9 | 74.039 | PASS | 70-125 |
| N034661-001A | SAMP | 5 | 15589 | 14291.1 | 109.08 | PASS | 70-125 | 1501680 | 1593298.9 | 94.25 | PASS | 70-125 |
| N034661-001A-PS | PS | 1 | 14115.4 | 14291.1 | 98.77 | PASS | 70-125 | 1235776.3 | 1593298.9 | 77.56 | PASS | 70-125 |
| N034661-001AMS | MS | 1 | 15094.1 | 14291.1 | 105.62 | PASS | 70-125 | 1274435.5 | 1593298.9 | 79.99 | PASS | 70-125 |
| N034661-001AMSD | MSD | 1 | 15613.5 | 14291.1 | 109.25 | PASS | 70-125 | 1306215.9 | 1593298.9 | 81.98 | PASS | 70-125 |
| CCV3 | CCV | 1 | 17559.9 | 14291.1 | 122.87 | PASS | 70-125 | 1709621.4 | 1593298.9 | 107.3 | PASS | 70-125 |
| CCB3 | CCB | 1 | 16195.2 | 14291.1 | 113.32 | PASS | 70-125 | 1623842.2 | 1593298.9 | 101.92 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 16399.8 | 14291.1 | 114.76 | PASS | 70-125 | 1614099.8 | 1593298.9 | 101.31 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 16858.1 | 14291.1 | 117.96 | PASS | 70-125 | 1599978.4 | 1593298.9 | 100.42 | PASS | 70-125 |
| N034689-002E | SAMP | 1 | 15624.6 | 14291.1 | 109.33 | PASS | 70-125 | 1437074.3 | 1593298.9 | 90.19 | PASS | 70-125 |
| N034689-002E | SAMP | 5 | 16894.8 | 14291.1 | 118.22 | PASS | 70-125 | 1506703 | 1593298.9 | 94.56 | PASS | 70-125 |
| N034689-003E | SAMP | 1 | 15381 | 14291.1 | 107.63 | PASS | 70-125 | 1425812.8 | 1593298.9 | 89.49 | PASS | 70-125 |
| N034689-003E | SAMP | 5 | 16465.4 | 14291.1 | 115.21 | PASS | 70-125 | 1590011.8 | 1593298.9 | 99.79 | PASS | 70-125 |
| N034689-004E | SAMP | 1 | 15864.8 | 14291.1 | 111.01 | PASS | 70-125 | 1475213 | 1593298.9 | 92.59 | PASS | 70-125 |
| N034689-004E | SAMP | 5 | 16859.2 | 14291.1 | 117.97 | PASS | 70-125 | 1603621.7 | 1593298.9 | 100.65 | PASS | 70-125 |
| N034689-005E | SAMP | 1 | 15009.6 | 14291.1 | 105.03 | PASS | 70-125 | 1380084.5 | 1593298.9 | 86.62 | PASS | 70-125 |
| N034689-005E | SAMP | 5 | 16832.5 | 14291.1 | 117.78 | PASS | 70-125 | 1575223.4 | 1593298.9 | 98.87 | PASS | 70-125 |
| N034689-006E | SAMP | 1 | 13765.1 | 14291.1 | 96.32 | PASS | 70-125 | 1124946 | 1593298.9 | 70.6 | PASS | 70-125 |
| N034689-006E | SAMP | 5 | 16246.4 | 14291.1 | 113.68 | PASS | 70-125 | 1515475.9 | 1593298.9 | 95.12 | PASS | 70-125 |
| CCV4 | CCV | 1 | 16828 | 14291.1 | 117.75 | PASS | 70-125 | 1622741 | 1593298.9 | 101.85 | PASS | 70-125 |

**INTERNAL STANDARD: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | | 6 Li ( ISTD ) [ 3 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| CCB4 | CCB | 1 | 16120.7 | 14291.1 | 112.8 | PASS | 70-125 | 1557064.3 | 1593298.9 | 97.73 | PASS | 70-125 |
| N034689-007E | SAMP | 1 | 11876.9 | 14291.1 | 83.11 | PASS | 70-125 | 640070.3 | 1593298.9 | 40.17 | NR! | 70-125 |
| N034689-007E | SAMP | 5 | 16289.7 | 14291.1 | 113.98 | PASS | 70-125 | 1348769.3 | 1593298.9 | 84.65 | PASS | 70-125 |
| N034707-001F | SAMP | 1 | 14399 | 14291.1 | 100.76 | PASS | 70-125 | 905495.9 | 1593298.9 | 56.83 | NR! | 70-125 |
| N034707-001F | SAMP | 5 | 16356.5 | 14291.1 | 114.45 | PASS | 70-125 | 1412486.2 | 1593298.9 | 88.65 | PASS | 70-125 |
| N034707-002F | SAMP | 1 | 14410.1 | 14291.1 | 100.83 | PASS | 70-125 | 905132.6 | 1593298.9 | 56.81 | NR! | 70-125 |
| N034707-002F | SAMP | 5 | 16558.8 | 14291.1 | 115.87 | PASS | 70-125 | 1385847.4 | 1593298.9 | 86.98 | PASS | 70-125 |
| N034707-003F | SAMP | 1 | 16854.7 | 14291.1 | 117.94 | PASS | 70-125 | 1399599.5 | 1593298.9 | 87.84 | PASS | 70-125 |
| N034707-003F | SAMP | 5 | 17596.7 | 14291.1 | 123.13 | PASS | 70-125 | 1483525.5 | 1593298.9 | 93.11 | PASS | 70-125 |
| CCV5 | CCV | 1 | 16208.5 | 14291.1 | 113.42 | PASS | 70-125 | 1499098.7 | 1593298.9 | 94.088 | PASS | 70-125 |
| CCB5 | CCB | 1 | 15422.2 | 14291.1 | 107.91 | PASS | 70-125 | 1441067.3 | 1593298.9 | 90.45 | PASS | 70-125 |
| N034707-004F | SAMP | 1 | 14981.8 | 14291.1 | 104.83 | PASS | 70-125 | 1293605.1 | 1593298.9 | 81.19 | PASS | 70-125 |
| N034707-004F | SAMP | 5 | 16311.9 | 14291.1 | 114.14 | PASS | 70-125 | 1424134.6 | 1593298.9 | 89.38 | PASS | 70-125 |
| N034662-001D | SAMP | 1 | 14733.7 | 14291.1 | 103.1 | PASS | 70-125 | 1302449 | 1593298.9 | 81.75 | PASS | 70-125 |
| N034662-001D | SAMP | 5 | 16283.1 | 14291.1 | 113.94 | PASS | 70-125 | 1448172.4 | 1593298.9 | 90.89 | PASS | 70-125 |
| N034662-002D | SAMP | 1 | 15059.6 | 14291.1 | 105.38 | PASS | 70-125 | 1343288.7 | 1593298.9 | 84.31 | PASS | 70-125 |
| N034662-002D | SAMP | 5 | 16336.4 | 14291.1 | 114.31 | PASS | 70-125 | 1451760.5 | 1593298.9 | 91.12 | PASS | 70-125 |
| N034662-003D | SAMP | 1 | 15381 | 14291.1 | 107.63 | PASS | 70-125 | 1338616.1 | 1593298.9 | 84.015 | PASS | 70-125 |
| N034662-003D | SAMP | 5 | 16343.1 | 14291.1 | 114.36 | PASS | 70-125 | 1441103.6 | 1593298.9 | 90.45 | PASS | 70-125 |
| N034662-004D | SAMP | 1 | 15086.3 | 14291.1 | 105.56 | PASS | 70-125 | 1296203.8 | 1593298.9 | 81.35 | PASS | 70-125 |
| N034662-004D | SAMP | 5 | 16284.1 | 14291.1 | 113.95 | PASS | 70-125 | 1439597.4 | 1593298.9 | 90.35 | PASS | 70-125 |
| CCV6 | CCV | 1 | 16089.5 | 14291.1 | 112.58 | PASS | 70-125 | 1452247.1 | 1593298.9 | 91.15 | PASS | 70-125 |
| CCB6 | CCB | 1 | 15501.2 | 14291.1 | 108.47 | PASS | 70-125 | 1413858.7 | 1593298.9 | 88.74 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 15268.7 | 14291.1 | 106.84 | PASS | 70-125 | 1378644.1 | 1593298.9 | 86.53 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 16287.5 | 14291.1 | 113.97 | PASS | 70-125 | 1440273.4 | 1593298.9 | 90.4 | PASS | 70-125 |

**INTERNAL STANDARD: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 527934.1 | 527934.1 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 526969.8 | 527934.1 | 99.82 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 519622 | 527934.1 | 98.43 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 511121.6 | 527934.1 | 96.82 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 500484.9 | 527934.1 | 94.8 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 489153.9 | 527934.1 | 92.65 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 461498.3 | 527934.1 | 87.42 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 463402.4 | 527934.1 | 87.78 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 451914.9 | 527934.1 | 85.6 | PASS | 70-125 |
| ICV | ICV | 1 | 491605.8 | 527934.1 | 93.12 | PASS | 70-125 |
| ICB | ICB | 1 | 449886.4 | 527934.1 | 85.22 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 466577.6 | 527934.1 | 88.38 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 461589.3 | 527934.1 | 87.43 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 452459.2 | 527934.1 | 85.7 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 460682.3 | 527934.1 | 87.26 | PASS | 70-125 |
| CCV1 | CCV | 1 | 600655.6 | 527934.1 | 113.77 | PASS | 70-125 |
| CCB1 | CCB | 1 | 564689.5 | 527934.1 | 106.96 | PASS | 70-125 |
| CCV2 | CCV | 1 | 564525.2 | 527934.1 | 106.93 | PASS | 70-125 |
| CCB2 | CCB | 1 | 541879.9 | 527934.1 | 102.64 | PASS | 70-125 |
| MB-73031 | MBLK | 1 | 542951.8 | 527934.1 | 102.84 | PASS | 70-125 |
| LCS-73031 | LCS | 1 | 603474.1 | 527934.1 | 114.31 | PASS | 70-125 |
| N034661-001A | SAMP | 1 | 463067.1 | 527934.1 | 87.71 | PASS | 70-125 |
| N034661-001A | SAMP | 5 | 523477.9 | 527934.1 | 99.16 | PASS | 70-125 |
| N034661-001A-PS | PS | 1 | 484284 | 527934.1 | 91.73 | PASS | 70-125 |
| N034661-001AMS | MS | 1 | 502320 | 527934.1 | 95.15 | PASS | 70-125 |
| N034661-001AMSD | MSD | 1 | 523829.6 | 527934.1 | 99.22 | PASS | 70-125 |
| CCV3 | CCV | 1 | 588373.9 | 527934.1 | 111.45 | PASS | 70-125 |
| CCB3 | CCB | 1 | 556404.8 | 527934.1 | 105.39 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 527695.2 | 527934.1 | 99.95 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 542183.3 | 527934.1 | 102.7 | PASS | 70-125 |
| N034689-002E | SAMP | 1 | 501295.7 | 527934.1 | 94.95 | PASS | 70-125 |
| N034689-002E | SAMP | 5 | 541203.6 | 527934.1 | 102.51 | PASS | 70-125 |
| N034689-003E | SAMP | 1 | 493419.2 | 527934.1 | 93.46 | PASS | 70-125 |
| N034689-003E | SAMP | 5 | 542107.5 | 527934.1 | 102.68 | PASS | 70-125 |
| N034689-004E | SAMP | 1 | 506448.1 | 527934.1 | 95.93 | PASS | 70-125 |
| N034689-004E | SAMP | 5 | 545772.7 | 527934.1 | 103.38 | PASS | 70-125 |
| N034689-005E | SAMP | 1 | 488933.6 | 527934.1 | 92.61 | PASS | 70-125 |
| N034689-005E | SAMP | 5 | 539895.9 | 527934.1 | 102.27 | PASS | 70-125 |
| N034689-006E | SAMP | 1 | 471613 | 527934.1 | 89.33 | PASS | 70-125 |
| N034689-006E | SAMP | 5 | 537008.3 | 527934.1 | 101.72 | PASS | 70-125 |
| CCV4 | CCV | 1 | 567859.1 | 527934.1 | 107.56 | PASS | 70-125 |

NR

**INTERNAL STANDARD: 190331A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| CCB4 | CCB | 1 | 542974.4 | 527934.1 | 102.85 | PASS | 70-125 |
| N034689-007E | SAMP | 1 | 430273.5 | 527934.1 | 81.5 | PASS | 70-125 |
| N034689-007E | SAMP | 5 | 540628.7 | 527934.1 | 102.4 | PASS | 70-125 |
| N034707-001F | SAMP | 1 | 485573.8 | 527934.1 | 91.98 | PASS | 70-125 |
| N034707-001F | SAMP | 5 | 536936.4 | 527934.1 | 101.71 | PASS | 70-125 |
| N034707-002F | SAMP | 1 | 490688.2 | 527934.1 | 92.94 | PASS | 70-125 |
| N034707-002F | SAMP | 5 | 534733.7 | 527934.1 | 101.29 | PASS | 70-125 |
| N034707-003F | SAMP | 1 | 533215.8 | 527934.1 | 101 | PASS | 70-125 |
| N034707-003F | SAMP | 5 | 550687 | 527934.1 | 104.31 | PASS | 70-125 |
| CCV5 | CCV | 1 | 537647.1 | 527934.1 | 101.84 | PASS | 70-125 |
| CCB5 | CCB | 1 | 521707.4 | 527934.1 | 98.82 | PASS | 70-125 |
| N034707-004F | SAMP | 1 | 483580.7 | 527934.1 | 91.6 | PASS | 70-125 |
| N034707-004F | SAMP | 5 | 518025.3 | 527934.1 | 98.12 | PASS | 70-125 |
| N034662-001D | SAMP | 1 | 473988.2 | 527934.1 | 89.78 | PASS | 70-125 |
| N034662-001D | SAMP | 5 | 516206.5 | 527934.1 | 97.78 | PASS | 70-125 |
| N034662-002D | SAMP | 1 | 480809.9 | 527934.1 | 91.074 | PASS | 70-125 |
| N034662-002D | SAMP | 5 | 515814.6 | 527934.1 | 97.7 | PASS | 70-125 |
| N034662-003D | SAMP | 1 | 486315.6 | 527934.1 | 92.12 | PASS | 70-125 |
| N034662-003D | SAMP | 5 | 518988.8 | 527934.1 | 98.31 | PASS | 70-125 |
| N034662-004D | SAMP | 1 | 474602 | 527934.1 | 89.9 | PASS | 70-125 |
| N034662-004D | SAMP | 5 | 516674.8 | 527934.1 | 97.87 | PASS | 70-125 |
| CCV6 | CCV | 1 | 529466.3 | 527934.1 | 100.29 | PASS | 70-125 |
| CCB6 | CCB | 1 | 511515.7 | 527934.1 | 96.89 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 482433.3 | 527934.1 | 91.38 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 506198.5 | 527934.1 | 95.88 | PASS | 70-125 |

**INTERNAL STANDARD: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 27028.1 | 27028.1 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 27497.9 | 27028.1 | 101.74 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 26872.3 | 27028.1 | 99.42 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 27281.9 | 27028.1 | 100.94 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 27633.6 | 27028.1 | 102.24 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 26788.8 | 27028.1 | 99.11 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 27056 | 27028.1 | 100.1 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 26429.3 | 27028.1 | 97.78 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 25861.9 | 27028.1 | 95.69 | PASS | 70-125 |
| ICV | ICV | 1 | 24355.1 | 27028.1 | 90.11 | PASS | 70-125 |
| ICB | ICB | 1 | 25642.6 | 27028.1 | 94.87 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 27103.8 | 27028.1 | 100.28 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 27974.1 | 27028.1 | 103.5 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 27679.2 | 27028.1 | 102.41 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 25170.8 | 27028.1 | 93.13 | PASS | 70-125 |
| N034662-004D | SAMP | 1 | 29131.7 | 27028.1 | 107.78 | PASS | 70-125 |
| CCV1 | CCV | 1 | 30107.9 | 27028.1 | 111.39 | PASS | 70-125 |
| CCB1 | CCB | 1 | 24637.8 | 27028.1 | 91.16 | PASS | 70-125 |
| CCV2 | CCV | 1 | 28617.5 | 27028.1 | 105.88 | PASS | 70-125 |
| CCB2 | CCB | 1 | 20842.5 | 27028.1 | 77.11 | PASS | 70-125 |
| CCV3 | CCV | 1 | 29310.9 | 27028.1 | 108.45 | PASS | 70-125 |
| CCB3 | CCB | 1 | 19883.5 | 27028.1 | 73.57 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 28035.3 | 27028.1 | 103.73 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 29754 | 27028.1 | 110.09 | PASS | 70-125 |
| CCV4 | CCV | 1 | 28477.2 | 27028.1 | 105.36 | PASS | 70-125 |
| CCB4 | CCB | 1 | 19196.1 | 27028.1 | 71.023 | PASS | 70-125 |
| CCV5 | CCV | 1 | 24732.3 | 27028.1 | 91.51 | PASS | 70-125 |
| CCB5 | CCB | 1 | 21363.1 | 27028.1 | 79.04 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 22255.5 | 27028.1 | 82.34 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 27789.4 | 27028.1 | 102.82 | PASS | 70-125 |
| CCV6 | CCV | 1 | 20871.5 | 27028.1 | 77.22 | PASS | 70-125 |
| CCB6 | CCB | 1 | 21003.8 | 27028.1 | 77.71 | PASS | 70-125 |
| CCV7 | CCV | 1 | 22506.9 | 27028.1 | 83.27 | PASS | 70-125 |
| CCB7 | CCB | 1 | 21494.5 | 27028.1 | 79.53 | PASS | 70-125 |
| ICSA4 | ICSA | 1 | 23111.1 | 27028.1 | 85.51 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 25605.8 | 27028.1 | 94.74 | PASS | 70-125 |
| CCV8 | CCV | 1 | 19689.9 | 27028.1 | 72.85 | PASS | 70-125 |
| CCB8 | CCB | 1 | 15657.8 | 27028.1 | 57.93 | NR! | 70-125 |
| CCV9 | CCV | 1 | 18903.5 | 27028.1 | 69.94 | NR! | 70-125 |
| CCB9 | CCB | 1 | 15078.4 | 27028.1 | 55.79 | NR! | 70-125 |
| CCV10 | CCV | 1 | 17859 | 27028.1 | 66.076 | NR! | 70-125 |

**INTERNAL STANDARD: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 45 Sc ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| CCB10 | CCB | 1 | 17024.7 | 27028.1 | 62.99 | NR! | 70-125 |
| ICSA5 | ICSA | 1 | 20615.5 | 27028.1 | 76.27 | PASS | 70-125 |
| ICSAB5 | ICSAB | 1 | 23072.2 | 27028.1 | 85.36 | PASS | 70-125 |
| CCV11 | CCV | 1 | 19395.2 | 27028.1 | 71.76 | PASS | 70-125 |
| CCB11 | CCB | 1 | 17863.4 | 27028.1 | 66.092 | NR! | 70-125 |
| CCV12 | CCV | 1 | 19385.1 | 27028.1 | 71.72 | PASS | 70-125 |
| CCB12 | CCB | 1 | 18119.3 | 27028.1 | 67.039 | NR! | 70-125 |
| CCV13 | CCV | 1 | 20104.9 | 27028.1 | 74.39 | PASS | 70-125 |
| CCB13 | CCB | 1 | 18400.7 | 27028.1 | 68.08 | NR! | 70-125 |
| CCV14 | CCV | 1 | 18582 | 27028.1 | 68.75 | NR! | 70-125 |
| CCB14 | CCB | 1 | 17030.3 | 27028.1 | 63.01 | NR! | 70-125 |
| CCV15 | CCV | 1 | 18115.9 | 27028.1 | 67.026 | NR! | 70-125 |
| CCB15 | CCB | 1 | 16642.2 | 27028.1 | 61.57 | NR! | 70-125 |
| CCV15 | CCV | 1 | 17875.7 | 27028.1 | 66.14 | NR! | 70-125 |
| CCB15 | CCB | 1 | 16019.3 | 27028.1 | 59.27 | NR! | 70-125 |
| CCV16 | CCV | 1 | 16761.1 | 27028.1 | 62.014 | NR! | 70-125 |
| CCV16 | CCV | 1 | 16102.7 | 27028.1 | 59.58 | NR! | 70-125 |
| CCB16 | CCB | 1 | 15491.1 | 27028.1 | 57.31 | NR! | 70-125 |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-MS-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034662
Test Method: EPA 6020
Analysis Date: 03-28 & 31 / 04-01, 2019

Matrix: Groundwater
Batch No.: 73031

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test for Ba failed. However, PS passed criteria.
Dilution test is not applicable to several analytes. The calculated concentration is <25RL.
Dilution test for Se failed.

| Sample ID | Analyte | Symbol | Units | Calc Val | Oqual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|---|
| N034661-001A DT 5x | Antimony | Sb | µg/L | 0 | NA | 0.2247903 | 100.00% | 10 |
| N034661-001A DT 5x | Arsenic | As | µg/L | 0.8013728 | NA | 0.9391438 | 14.67% | 10 |
| N034661-001A DT 5x | Barium | Ba | µg/L | 2.034575 | FAIL | 68.16531 | 97.02% | 10 |
| N034661-001A DT 5x | Beryllium | Be | µg/L | 0 | NA | 0 | | 10 |
| N034661-001A DT 5x | Cadmium | Cd | µg/L | 0 | NA | 0 | | 10 |
| N034661-001A DT 5x | Cobalt | Co | µg/L | 0.5436122 | NA | 0.5535826 | 1.80% | 10 |
| N034661-001A DT 5x | Copper | Cu | µg/L | 0 | NA | 0 | | 10 |
| N034661-001A DT 5x | Lead | Pb | µg/L | 0 | NA | 0 | | 10 |
| N034661-001A DT 5x | Molybdenum | Mo | µg/L | 18.47087 | PASS | 19.50823 | 5.32% | 10 |
| N034661-001A DT 5x | Nickel | Ni | µg/L | 1.551989 | NA | 1.341597 | 15.68% | 10 |
| N034661-001A DT 5x | Selenium | Se | µg/L | 21.43293 | FAIL | 25.11233 | 14.65% | 10 |
| N034661-001A DT 5x | Silver | Ag | µg/L | 0 | NA | 0 | | 10 |
| N034661-001A DT 5x | Thallium | Tl | µg/L | 0 | NA | 0.349415 | 100.00% | 10 |
| N034661-001A DT 5x | Vanadium | Va | µg/L | 0 | NA | 0 | | 10 |
| N034661-001A DT 5x | Zinc | Zn | µg/L | 0 | NA | 0 | | 10 |
| N034661-001A DT 25x | Manganese | Mn | µg/L | 771.8256 | PASS | 741.7179 | 4.06% | 10 |
| N034661-001A DT 5x | Chromium | Cr | µg/L | 0 | NA | 0 | | 10 |

Note: NA - Not Applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | N034661-001A-PS | SampType: | PS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 132861 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73031 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333760 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 10.371 | 0.50 | 10.00 | 0.2248 | 101 | 80 | 120 | | | | |
| Arsenic | 11.235 | 0.10 | 10.00 | 0.9391 | 103 | 80 | 120 | | | | |
| Barium | 76.292 | 1.0 | 10.00 | 68.17 | 81.3 | 80 | 120 | | | | |
| Beryllium | 12.236 | 0.50 | 10.00 | 0 | 122 | 80 | 120 | | | | S |
| Cadmium | 9.574 | 0.50 | 10.00 | 0 | 95.7 | 80 | 120 | | | | |
| Cobalt | 9.248 | 0.50 | 10.00 | 0.5536 | 86.9 | 80 | 120 | | | | |
| Copper | 4.046 | 1.0 | 10.00 | 0 | 40.5 | 80 | 120 | | | | S |
| Lead | 9.714 | 1.0 | 10.00 | 0 | 97.1 | 80 | 120 | | | | |
| Molybdenum | 31.098 | 0.50 | 10.00 | 19.51 | 116 | 80 | 120 | | | | |
| Nickel | 11.126 | 1.0 | 10.00 | 1.342 | 97.8 | 80 | 120 | | | | |
| Selenium | 32.328 | 0.50 | 10.00 | 25.11 | 72.2 | 80 | 120 | | | | S |
| Silver | 8.831 | 0.50 | 10.00 | 0 | 88.3 | 80 | 120 | | | | |
| Thallium | 8.842 | 0.50 | 10.00 | 0.3494 | 84.9 | 80 | 120 | | | | |
| Vanadium | 9.573 | 1.0 | 10.00 | 0 | 95.7 | 80 | 120 | | | | |
| Zinc | 8.483 | 10 | 10.00 | 0 | 84.8 | 80 | 120 | | | | |

| Sample ID | N034661-001A-PS | SampType: | PS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 132861 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73031 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333780 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 844.464 | 2.5 | 100.0 | 741.7 | 103 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | **N034661-001A-PS** | SampType: **PS** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132859** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **73031** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3333644** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.356 | 1.0 | 10.00 | 0 | 93.6 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Amount of Sample:** 25 mL
**Units:** ug/L

| Analyte | AMT SPIKED, ppb | 1 | 2 | 3 | 4 | 5 | 6 | 7 | SD | MDL | LOD | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANTIMONY | 0.50 | 0.525 | 0.514 | 0.473 | 0.500 | 0.492 | 0.486 | 0.530 | 0.0210 | 0.0660 | 0.100 | 0.50 |
| ARSENIC | 0.10 | 0.099 | 0.104 | 0.087 | 0.048 | 0.060 | 0.069 | 0.120 | 0.0259 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 1.00 | 1.041 | 1.059 | 1.052 | 1.011 | 0.967 | 0.957 | 1.023 | 0.0403 | 0.1264 | 0.250 | 1.00 |
| BERYLLIUM | 0.50 | 0.469 | 0.476 | 0.473 | 0.495 | 0.480 | 0.488 | 0.507 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.50 | 0.515 | 0.513 | 0.492 | 0.534 | 0.499 | 0.483 | 0.508 | 0.0168 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 1.00 | 0.979 | 0.986 | 0.940 | 0.990 | 0.946 | 0.978 | 0.977 | 0.0197 | 0.0618 | 0.250 | 1.00 |
| COBALT | 0.50 | 0.499 | 0.489 | 0.486 | 0.488 | 0.465 | 0.502 | 0.505 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| COPPER | 1.00 | 1.110 | 0.667 | 1.039 | 1.060 | 1.006 | 1.099 | 1.075 | 0.1544 | 0.4850 | 0.500 | 1.00 |
| IRON | 10.00 | 10.873 | 10.802 | 10.142 | 9.991 | 9.846 | 9.852 | 10.596 | 0.4463 | 1.4014 | 2.500 | 10.00 |
| LEAD | 1.00 | 0.928 | 0.931 | 0.899 | 0.996 | 0.990 | 0.987 | 0.997 | 0.0406 | 0.1274 | 0.250 | 1.00 |
| MANGANESE | 0.50 | 0.577 | 0.588 | 0.561 | 0.566 | 0.517 | 0.541 | 0.520 | 0.0276 | 0.0866 | 0.100 | 0.50 |
| MOLYBDENUM | 0.50 | 0.514 | 0.504 | 0.467 | 0.478 | 0.456 | 0.433 | 0.527 | 0.0338 | 0.1061 | 0.250 | 0.50 |
| NICKEL | 1.00 | 0.961 | 0.965 | 0.977 | 0.907 | 0.914 | 0.962 | 1.075 | 0.0551 | 0.1731 | 0.250 | 1.00 |
| SELENIUM | 0.50 | 0.450 | 0.478 | 0.419 | 0.693 | 0.707 | 0.495 | 0.555 | 0.1155 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.50 | 0.558 | 0.511 | 0.490 | 0.542 | 0.458 | 0.490 | 0.684 | 0.0745 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.50 | 0.437 | 0.428 | 0.408 | 0.538 | 0.446 | 0.438 | 0.525 | 0.0504 | 0.1583 | 0.250 | 0.50 |
| URANIUM | 0.50 | 0.478 | 0.467 | 0.461 | 0.517 | 0.510 | 0.521 | 0.521 | 0.0267 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 1.00 | 0.950 | 0.969 | 0.900 | 0.844 | 0.829 | 0.848 | 1.053 | 0.0820 | 0.2574 | 0.500 | 1.00 |
| ZINC | 10.00 | 11.259 | 11.279 | 10.915 | 9.620 | 9.849 | 9.745 | 10.241 | 0.7235 | 2.2717 | 2.500 | 10.00 |

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Units:** ug/L

| Analyte | MDLs | MDLb | MDL | LOD | PQL |
|---|---|---|---|---|---|
| ANTIMONY | 0.0660 | 0.1564 | 0.1564 | 0.300 | 0.50 |
| ARSENIC | 0.0813 | 0.0387 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 0.1264 | 0.1497 | 0.1497 | 0.300 | 1.00 |
| BERYLLIUM | 0.0424 | 0.0153 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.0527 | 0.0060 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 0.0618 | 0.1298 | 0.1298 | 0.300 | 1.00 |
| COBALT | 0.0424 | 0.0339 | 0.0424 | 0.100 | 0.50 |
| COPPER | 0.4850 | 0.5459 | 0.5459 | 0.600 | 1.00 |
| IRON | 1.4014 | 4.3484 | 4.3484 | 5.000 | 10.00 |
| LEAD | 0.1274 | 0.1008 | 0.1274 | 0.300 | 1.00 |
| MANGANESE | 0.0866 | 0.2552 | 0.2552 | 0.300 | 0.50 |
| MOLYBDENUM | 0.1061 | 0.2149 | 0.2149 | 0.300 | 0.50 |
| NICKEL | 0.1731 | 0.2606 | 0.2606 | 0.300 | 1.00 |
| SELENIUM | 0.3628 | 0.0953 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.2340 | 0.2023 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.1583 | 0.1924 | 0.1924 | 0.300 | 0.50 |
| URANIUM | 0.0838 | 0.0020 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 0.2574 | 0.2768 | 0.2768 | 0.600 | 1.00 |
| ZINC | 2.2717 | 0.4511 | 2.2717 | 3.000 | 10.00 |

# EPA 7470A
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 72995
**ASSET #:** N034662
**Instrument ID:** AA-01
**Analyst:** MG
**Date Analyzed:** 03/20/2019

**Method:**

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[X] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | x | X | | x |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | x | X | | x |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | x | X | | x |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | x | X | | x |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | x | X | | x |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | X |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

~~% Rec of Hg in N034689-002F PS failed, low bias. However, LCS passed criteria.~~

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: 3/28/2019

2nd Level Reviewer 3/28/2019 Date: —

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**WORKORDER NO:** N034662
**TEST METHOD:** EPA 7470
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Mercury concentration in ug/L in the sample is as follows:

Mercury, ug/L = A * DF

where:
A = ug/L, instrument calculated concentration
DF = Dilution factor

For Sample **N034662-002D** , the concentration in ug/L is calculated as follows:

Mercury, ug/L = -0.2322 * 1

Mercury, ug/L = 0

Reporting results in two significant figures,

**Mercury, ug/L = 0**

Since reporting limit is 0.2 ug/L,

**Mercury, ug/L = ND**

NS 3/28/2019

# % RSD SUMMARY

**RSD SUMMARY: 190320WB**

**Instrument ID: AA-01**

| Sample Name | Type | DF | Concentration | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|
| Calibration Zero | IBLK | 1 | 0 | 2.13 | 20 | PASS |
| Standard #1 | ICAL | 1 | 0.2 | 4.86 | 20 | PASS |
| Standard #2 | ICAL | 1 | 1 | 0.51 | 20 | PASS |
| Standard #3 | ICAL | 1 | 5 | 0.48 | 20 | PASS |
| Standard #4 | ICAL | 1 | 10 | 0.46 | 20 | PASS |
| Standard #5 | ICAL | 1 | 20 | 1.47 | 20 | PASS |
| ICV | ICV | 1 | 10.05525 | 1.56 | 20 | PASS |
| ICB | ICB | 1 | -0.1073 | 4.091 | 20 | PASS |
| MB-72995 | MBLK | 1 | -0.22144 | 2.68 | 20 | PASS |
| LCS-72995 | LCS | 1 | 4.33854 | 0.47 | 20 | PASS |
| N034689-002F-MS | MS | 1 | 4.82348 | 0.65 | 20 | PASS |
| N034689-002F-MSD | MSD | 1 | 4.521 | 0.18 | 20 | PASS |
| N034689-002F-PS | PS | 1 | 4.5507 | 0.69 | 20 | PASS |
| N034689-002F | SAMP | 1 | -0.20256 | 8.22 | 20 | PASS |
| N034689-002F | SAMP | 5 | -0.22293 | 2.48 | 20 | PASS |
| N034689-003F | SAMP | 1 | -0.11103 | 4.31 | 20 | PASS |
| N034689-004F | SAMP | 1 | -0.21527 | 0.89 | 20 | PASS |
| N034689-005F | SAMP | 1 | -0.19654 | 6.49 | 20 | PASS |
| CCV1 | CCV | 1 | 10.43722 | 0.7 | 20 | PASS |
| CCB1 | CCB | 1 | -0.10886 | 0.67 | 20 | PASS |
| N034689-006F | SAMP | 1 | -0.20737 | 3.45 | 20 | PASS |
| N034689-007F | SAMP | 1 | -0.20805 | 1.68 | 20 | PASS |
| N034689-002E | SAMP | 1 | -0.19212 | 8.92 | 20 | PASS |
| N034689-003E | SAMP | 1 | -0.20612 | 1.082 | 20 | PASS |
| N034689-004E | SAMP | 1 | -0.31066 | 1.9 | 20 | PASS |
| N034689-005E | SAMP | 1 | 0.0188 | 92.18 | 20 | <PQL |
| N034689-006E | SAMP | 1 | -0.19037 | 2.61 | 20 | PASS |
| N034689-007E | SAMP | 1 | -0.19345 | 1.99 | 20 | PASS |
| N034662-002D | SAMP | 1 | -0.23223 | 1.11 | 20 | PASS |
| N034662-003D | SAMP | 1 | -0.22801 | 2.13 | 20 | PASS |
| CCV2 | CCV | 1 | 9.69263 | 0.24 | 20 | PASS |
| CCB2 | CCB | 1 | -0.12014 | 8.38 | 20 | PASS |
| N034655-001A | SAMP | 1 | -0.24794 | 0.77 | 20 | PASS |
| N034656-001A | SAMP | 1 | -0.29371 | 0.84 | 20 | PASS |
| N034684-001A | SAMP | 1 | -0.18131 | 2.09 | 20 | PASS |
| CCV3 | CCV | 1 | 10.10534 | 0.21 | 20 | PASS |
| CCB3 | CCB | 1 | -0.11482 | 5.37 | 20 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190320WB**

**Instrument ID: AA-01**

| Sample ID | Type | DF | Date | Time | Comments |
|---|---|---|---|---|---|
| Calibration Zero | IBLK | 1 | 3/20/2019 | 14:53:06 | Reported |
| Standard #1 | ICAL | 1 | 3/20/2019 | 14:55:47 | Reported |
| Standard #2 | ICAL | 1 | 3/20/2019 | 14:58:29 | Reported |
| Standard #3 | ICAL | 1 | 3/20/2019 | 15:01:12 | Reported |
| Standard #4 | ICAL | 1 | 3/20/2019 | 15:03:56 | Reported |
| Standard #5 | ICAL | 1 | 3/20/2019 | 15:06:40 | Reported |
| ICV | ICV | 1 | 3/20/2019 | 15:09:23 | Reported |
| ICB | ICB | 1 | 3/20/2019 | 15:12:04 | Reported |
| MB-72995 | MBLK | 1 | 3/20/2019 | 15:14:46 | Reported |
| LCS-72995 | LCS | 1 | 3/20/2019 | 15:17:29 | Reported |
| N034689-002F-MS | MS | 1 | 3/20/2019 | 15:20:13 | Reported |
| N034689-002F-MSD | MSD | 1 | 3/20/2019 | 15:22:56 | Reported |
| N034689-002F-PS | PS | 1 | 3/20/2019 | 15:25:38 | Reported |
| N034689-002F | SAMP | 1 | 3/20/2019 | 15:28:20 | Reported |
| N034689-002F | SAMP | 5 | 3/20/2019 | 15:31:03 | ~~Not~~ Reported |
| N034689-003F | SAMP | 1 | 3/20/2019 | 15:33:46 | Reported |
| N034689-004F | SAMP | 1 | 3/20/2019 | 15:36:30 | Reported |
| N034689-005F | SAMP | 1 | 3/20/2019 | 15:39:15 | Reported |
| CCV1 | CCV | 1 | 3/20/2019 | 15:41:58 | Reported |
| CCB1 | CCB | 1 | 3/20/2019 | 15:44:40 | Reported |
| N034689-006F | SAMP | 1 | 3/20/2019 | 15:47:23 | Reported |
| N034689-007F | SAMP | 1 | 3/20/2019 | 15:50:05 | Reported |
| N034689-002E | SAMP | 1 | 3/20/2019 | 15:52:48 | Reported |
| N034689-003E | SAMP | 1 | 3/20/2019 | 15:55:31 | Reported |
| N034689-004E | SAMP | 1 | 3/20/2019 | 15:58:15 | Reported |
| N034689-005E | SAMP | 1 | 3/20/2019 | 16:01:00 | Reported |
| N034689-006E | SAMP | 1 | 3/20/2019 | 16:03:45 | Reported |
| N034689-007E | SAMP | 1 | 3/20/2019 | 16:06:29 | Reported |
| N034662-002D | SAMP | 1 | 3/20/2019 | 16:09:12 | Reported |
| N034662-003D | SAMP | 1 | 3/20/2019 | 16:11:56 | Reported |
| CCV2 | CCV | 1 | 3/20/2019 | 16:14:39 | Reported |
| CCB2 | CCB | 1 | 3/20/2019 | 16:17:21 | Reported |
| N034655-001A | SAMP | 1 | 3/20/2019 | 16:20:05 | Reported |
| N034656-001A | SAMP | 1 | 3/20/2019 | 16:22:50 | Reported |
| N034684-001A | SAMP | 1 | 3/20/2019 | 16:25:35 | Reported |
| CCV3 | CCV | 1 | 3/20/2019 | 16:28:19 | Reported |
| CCB3 | CCB | 1 | 3/20/2019 | 16:31:01 | Reported |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/20/2019 7:53:14**
Prep End Date: **3/20/2019 11:30:00**
Prep Batch **72995** Prep Code: **7470_PR**

Reviewed/ Date: NS 3/28/2019
Initials/ Date: for
Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **Db-2-2** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-72995 | Aqueous | | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |
| MB-72995 | Aqueous | | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |
| N034655-001A | Water | <2 | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |
| N034656-001A | Water | <2 | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |
| N034662-002D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |
| N034662-003D | Groundwater | <2 | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |
| N034684-001A | Wastewater | <2 | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |
| N034689-002E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |
| N034689-002F | Groundwater | <2 | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |
| N034689-002F-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |
| N034689-002F-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |
| N034689-003E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |
| N034689-003F | Groundwater | <2 | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |
| N034689-004E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 8541 | Potassium Persulfate |
| 9766 | POTASSIUM PERMANGANATE |
| 9854 | sulfuric acid |
| 9863 | HYDROXYGLAMINE HCl |
| 9864 | SODIUM CHLORIDE |
| 10767 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-190311 | 500 ppb Hg ICAL/CCV | ICAL/CCV | 0.25 |
| 2MWST-190311 | 500 ppb Hg ICV/LCS/LCSD/MS/MSD | ICV/LCS/MS/M | 0.25 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/20/2019 7:53:14**
Prep End Date: **3/20/2019 11:30:00**
Prep Batch **72995** Prep Code: **7470_PR**

Reviewed/ Date: NS 3/28/2019
Initials/ Date: for
Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **Db-2-2** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| N034689-004F | Groundwater | <2 | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |
| N034689-005E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |
| N034689-005F | Groundwater | <2 | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |
| N034689-006E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |
| N034689-006F | Groundwater | <2 | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |
| N034689-007E | Groundwater | <2 | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |
| N034689-007F | Groundwater | <2 | 25 | ☐ | 0 | 0 | 50 | 2.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 8541 | Potassium Persulfate |
| 9766 | POTASSIUM PERMANGANATE |
| 9854 | sulfuric acid |
| 9863 | HYDROXYGLAMINE HCl |
| 9864 | SODIUM CHLORIDE |
| 10767 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-190311 | 500 ppb Hg ICAL/CCV | ICAL/CCV | 0.25 |
| 2MWST-190311 | 500 ppb Hg ICV/LCS/LCSD/MS/MSD | ICV/LCS/MS/M | 0.25 |

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190320WB**

**Instrument ID: AA-01**

| | Stock | Working |
|---|---|---|
| Standard Concentration: | 1,000 PPM | 500 PPB |
| ICAL Standard: | 2MSST-180205A | 2MWST-190311A |

Comments:

Calibration Acceptance Criteria: > 0.995 Correlation

| Sample ID | Date | Time | Concentration | Units | Ave Absorbance | Comments | R |
|---|---|---|---|---|---|---|---|
| Calibration Zero | 03/20/2019 | 14:53:06 | 0 | PPB | 141.74396 | Reported | |
| Standard #1 | 03/20/2019 | 14:55:47 | 0.2 | PPB | 297.46629 | Reported | |
| Standard #2 | 03/20/2019 | 14:58:29 | 1 | PPB | 919.60819 | Reported | |
| Standard #3 | 03/20/2019 | 15:01:12 | 5 | PPB | 3942.39706 | Reported | |
| Standard #4 | 03/20/2019 | 15:03:56 | 10 | PPB | 8230.83089 | Reported | |
| Standard #5 | 03/20/2019 | 15:06:40 | 20 | PPB | 15055.82845 | Reported | 0.99915 |

Analyte Hg



* Please note that the instrument printout for the 'Average Absorbance' were represented in three significant figures. The exact values are represented in the ICAL Summary for calculation purposes.

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 7470_W_DISSPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **7470_W_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132653** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132653** | TestNo: **EPA 7470A** | | Analysis Date: **3/20/2019** | SeqNo: **3324466** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 10.055 | 0.20 | 10.00 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **7470_W_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132653** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132653** | TestNo: **EPA 7470A** | | Analysis Date: **3/20/2019** | SeqNo: **3324478** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 10.437 | 0.20 | 10.00 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **7470_W_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132653** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132653** | TestNo: **EPA 7470A** | | Analysis Date: **3/20/2019** | SeqNo: **3324490** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 9.693 | 0.20 | 10.00 | 0 | 96.9 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **7470_W_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132653** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132653** | TestNo: **EPA 7470A** | | Analysis Date: **3/20/2019** | SeqNo: **3324495** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 10.105 | 0.20 | 10.00 | 0 | 101 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 7470_W_DISSPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **7470_W_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132653** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132653** | TestNo: **EPA 7470A** | | Analysis Date: **3/20/2019** | SeqNo: **3324467** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | -0.1073 | 0.20 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **7470_W_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132653** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132653** | TestNo: **EPA 7470A** | | Analysis Date: **3/20/2019** | SeqNo: **3324479** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | -0.10886 | 0.20 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **7470_W_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132653** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132653** | TestNo: **EPA 7470A** | | Analysis Date: **3/20/2019** | SeqNo: **3324491** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | -0.12014 | 0.20 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **7470_W_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132653** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132653** | TestNo: **EPA 7470A** | | Analysis Date: **3/20/2019** | SeqNo: **3324496** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | -0.11482 | 0.20 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**AA-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034662
Test Method: EPA 7470
Analysis Date: 3/20/2019

Matrix: Groundwater
Batch No.: 72995

Instrument ID: AA-01
Instrument Description: CETAC Hg

Comments:

Analyzed By: Mark Gesmundo

Dilution test is not applicable to Hg. The calculated concentration is <25RL.

| Sample ID | Analyte | Symbol | Units | Calc Val | Oqual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|---|
| N034689-002F DT 5x | Mercury | Hg | µg/L | 0 | NA | 0 | | 10 |

Note: NA - Not Applicable

ASSET Laboratories

**Date:** *21-Mar-19*

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034662
**Project:** PG&E Topock - GMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 7470_W_DISSPGE**

Sample ID **N034689-002F-PS** SampType: **PS** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: RunNo: **132653**
Client ID: **ZZZZZZ** Batch ID: **72995** TestNo: **EPA 7470A** Analysis Date: **3/20/2019** SeqNo: **3324472**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 4.55<br>2.275 | 0.20 | 5.000 | 0 | 91<br>45.5 | 75 | 125 | | | | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

3/28/2019

# MDL STUDY

## Method Detection Limits

Method Name: Mercury
Method Number: EPA Method 7470/245.1
Date of Analysis: 9/21, 9/25, 9/26/2017
Analyst: Claire Ignacio/ Mark Gesmundo

**Matrix:** Water
**Spike Concentration:** 0.2 ug/L

| Compound | #1 | #2 | #3 | #4 | #5 | #6 | #7 | SD | MDL | LOD | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury, ug/L | 0.24 | 0.24 | 0.25 | 0.28 | 0.26 | 0.24 | 0.25 | 0.015 | 0.0458 | 0.10 | 0.20 |

**Method Blank**

**MDL of Method Blanks using 99 percentile = 0.13358 ug/L ( see separate sheet)**

**MDL 0.13358 ug/L**

**LOD Verification @ 0.10 ug/L**

| | |
|---|---|
| Spike Amount: ug/L | 0.100 |
| Actual Amount: ug/L | 0.160 |
| **% Recovery:** | **160%** |

**LOQ Verification @ 0.20 ug/L**

| | |
|---|---|
| Spike Amount: ug/L | 0.200 |
| Actual Amount: ug/L | 0.240 |
| **% Recovery:** | **120%** |

April 09, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034688

RE: PG&E Topock - RMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on March 19, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

# CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Samples N034688-016 (Ambientblank-1-0319) and N034688-017(Ambientblank-2-0319) for Hexavalent Chromium were not analyzed as per COC.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron in QC samples N034688-001B-MS and N034688-001B-MSD possibly due to matrix interference. Dilution Test was performed but not applicable since the result is less than 25x the reporting limit (RL). Post Spike was also performed and passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N034644-001AMS and N034644-001AMSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Molybdenum in QC samples N034644-001A-MS and N034644-001A-MSD possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

## ASSET Laboratories

**Date:** *09-Apr-19*

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034688
**Contract No:**

# Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034688-001A | C-BNS-0319 | Groundwater | 3/19/2019 11:30:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-001B | C-BNS-0319 | Groundwater | 3/19/2019 11:30:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-001C | C-BNS-0319 | Groundwater | 3/19/2019 11:30:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-001D | C-BNS-0319 | Groundwater | 3/19/2019 11:30:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-001E | C-BNS-0319 | Groundwater | 3/19/2019 11:30:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-002A | C-I-3-D-0319 | Groundwater | 3/19/2019 9:30:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-002B | C-I-3-D-0319 | Groundwater | 3/19/2019 9:30:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-002C | C-I-3-D-0319 | Groundwater | 3/19/2019 9:30:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-002D | C-I-3-D-0319 | Groundwater | 3/19/2019 9:30:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-002E | C-I-3-D-0319 | Groundwater | 3/19/2019 9:30:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-003A | C-I-3-S-0319 | Groundwater | 3/19/2019 9:45:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-003B | C-I-3-S-0319 | Groundwater | 3/19/2019 9:45:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-003C | C-I-3-S-0319 | Groundwater | 3/19/2019 9:45:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-003D | C-I-3-S-0319 | Groundwater | 3/19/2019 9:45:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-003E | C-I-3-S-0319 | Groundwater | 3/19/2019 9:45:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-004A | MW-909-Q119 | Groundwater | 3/19/2019 9:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-004B | MW-909-Q119 | Groundwater | 3/19/2019 9:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-004C | MW-909-Q119 | Groundwater | 3/19/2019 9:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-004D | MW-909-Q119 | Groundwater | 3/19/2019 9:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-004E | MW-909-Q119 | Groundwater | 3/19/2019 9:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-005A | C-R22A-D-0319 | Groundwater | 3/19/2019 10:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-005B | C-R22A-D-0319 | Groundwater | 3/19/2019 10:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-005C | C-R22A-D-0319 | Groundwater | 3/19/2019 10:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-005D | C-R22A-D-0319 | Groundwater | 3/19/2019 10:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-005E | C-R22A-D-0319 | Groundwater | 3/19/2019 10:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-006A | C-R22A-S-0319 | Groundwater | 3/19/2019 10:45:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-006B | C-R22A-S-0319 | Groundwater | 3/19/2019 10:45:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-006C | C-R22A-S-0319 | Groundwater | 3/19/2019 10:45:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-006D | C-R22A-S-0319 | Groundwater | 3/19/2019 10:45:00 AM | 3/19/2019 | 4/9/2019 |

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034688
**Contract No:**

# Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034688-006E | C-R22A-S-0319 | Groundwater | 3/19/2019 10:45:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-007A | C-R27-D-0319 | Groundwater | 3/19/2019 11:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-007B | C-R27-D-0319 | Groundwater | 3/19/2019 11:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-007C | C-R27-D-0319 | Groundwater | 3/19/2019 11:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-007D | C-R27-D-0319 | Groundwater | 3/19/2019 11:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-007E | C-R27-D-0319 | Groundwater | 3/19/2019 11:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-008A | C-R27-S-0319 | Groundwater | 3/19/2019 12:05:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-008B | C-R27-S-0319 | Groundwater | 3/19/2019 12:05:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-008C | C-R27-S-0319 | Groundwater | 3/19/2019 12:05:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-008D | C-R27-S-0319 | Groundwater | 3/19/2019 12:05:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-008E | C-R27-S-0319 | Groundwater | 3/19/2019 12:05:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-009A | C-TAZ-D-0319 | Groundwater | 3/19/2019 8:50:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-009B | C-TAZ-D-0319 | Groundwater | 3/19/2019 8:50:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-009C | C-TAZ-D-0319 | Groundwater | 3/19/2019 8:50:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-009D | C-TAZ-D-0319 | Groundwater | 3/19/2019 8:50:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-009E | C-TAZ-D-0319 | Groundwater | 3/19/2019 8:50:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-010A | MW-910-Q119 | Groundwater | 3/19/2019 11:05:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-010B | MW-910-Q119 | Groundwater | 3/19/2019 11:05:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-010C | MW-910-Q119 | Groundwater | 3/19/2019 11:05:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-010D | MW-910-Q119 | Groundwater | 3/19/2019 11:05:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-010E | MW-910-Q119 | Groundwater | 3/19/2019 11:05:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-011A | C-TAZ-S-0319 | Groundwater | 3/19/2019 9:05:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-011B | C-TAZ-S-0319 | Groundwater | 3/19/2019 9:05:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-011C | C-TAZ-S-0319 | Groundwater | 3/19/2019 9:05:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-011D | C-TAZ-S-0319 | Groundwater | 3/19/2019 9:05:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-011E | C-TAZ-S-0319 | Groundwater | 3/19/2019 9:05:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-012A | R-28-0319 | Groundwater | 3/19/2019 12:25:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-012B | R-28-0319 | Groundwater | 3/19/2019 12:25:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-012C | R-28-0319 | Groundwater | 3/19/2019 12:25:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-012D | R-28-0319 | Groundwater | 3/19/2019 12:25:00 PM | 3/19/2019 | 4/9/2019 |

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034688
**Contract No:**

# Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034688-012E | R-28-0319 | Groundwater | 3/19/2019 12:25:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-013A | R63-0319 | Groundwater | 3/19/2019 10:15:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-013B | R63-0319 | Groundwater | 3/19/2019 10:15:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-013C | R63-0319 | Groundwater | 3/19/2019 10:15:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-013D | R63-0319 | Groundwater | 3/19/2019 10:15:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-013E | R63-0319 | Groundwater | 3/19/2019 10:15:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-014A | SW1-0319 | Groundwater | 3/19/2019 2:00:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-014B | SW1-0319 | Groundwater | 3/19/2019 2:00:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-014C | SW1-0319 | Groundwater | 3/19/2019 2:00:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-015A | SW2-0319 | Groundwater | 3/19/2019 2:15:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-015B | SW2-0319 | Groundwater | 3/19/2019 2:15:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-015C | SW2-0319 | Groundwater | 3/19/2019 2:15:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-016A | Ambientblank-1-0319 | Groundwater | 3/19/2019 10:20:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-017A | Ambientblank-2-0319 | Groundwater | 3/19/2019 12:30:00 PM | 3/19/2019 | 4/9/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 820 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 820 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 810 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-909-Q119 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 810 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 820 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 820 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-007

**Client Sample ID:** C-R27-D-0319
**Collection Date:** 3/19/2019 11:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 820 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 12:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 820 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 810 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-910-Q119 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:05:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 830 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-011

**Client Sample ID:** C-TAZ-S-0319
**Collection Date:** 3/19/2019 9:05:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 820 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-28-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 12:25:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 820 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R63-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:15:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 820 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-014

**Client Sample ID:** SW1-0319
**Collection Date:** 3/19/2019 2:00:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 920 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | SW2-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 2:15:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-015 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 890 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID | N034688-001DDUP | SampType: | DUP | TestCode: | 120.1_WPGE | Units: | umhos/cm | Prep Date: | | RunNo: | 132629 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132629 | TestNo: | EPA 120.1 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323318 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 809.000 | 0.10 | | | | | | 815.0 | 0.739 | 2 | |

| Sample ID | N034688-015CDUP | SampType: | DUP | TestCode: | 120.1_WPGE | Units: | umhos/cm | Prep Date: | | RunNo: | 132629 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132629 | TestNo: | EPA 120.1 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323334 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 891.000 | 0.10 | | | | | | 893.0 | 0.224 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-001

**Client Sample ID:** C-BNS-0319
**Collection Date:** 3/19/2019 11:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-002

**Client Sample ID:** C-I-3-D-0319
**Collection Date:** 3/19/2019 9:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-003

**Client Sample ID:** C-I-3-S-0319
**Collection Date:** 3/19/2019 9:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-004

**Client Sample ID:** MW-909-Q119
**Collection Date:** 3/19/2019 9:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-005

**Client Sample ID:** C-R22A-D-0319
**Collection Date:** 3/19/2019 10:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-007

**Client Sample ID:** C-R27-D-0319
**Collection Date:** 3/19/2019 11:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 12:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-009

**Client Sample ID:** C-TAZ-D-0319
**Collection Date:** 3/19/2019 8:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-010

**Client Sample ID:** MW-910-Q119
**Collection Date:** 3/19/2019 11:05:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-011

**Client Sample ID:** C-TAZ-S-0319
**Collection Date:** 3/19/2019 9:05:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-012

**Client Sample ID:** R-28-0319
**Collection Date:** 3/19/2019 12:25:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-013

**Client Sample ID:** R63-0319
**Collection Date:** 3/19/2019 10:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | SW1-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 2:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-014 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.5 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-015

**Client Sample ID:** SW2-0319
**Collection Date:** 3/19/2019 2:15:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.4 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 150.1_4500H+B_W**

Sample ID **N034688-001DDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **132628**
Client ID: **ZZZZZZ** Batch ID: **R132628** TestNo: **SM4500-H+B** Analysis Date: **3/20/2019** SeqNo: **3323301**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 8.210 | 0.10 | | | | | | 8.170 | 0.488 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

Sample ID **N034688-012DDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **132628**
Client ID: **ZZZZZZ** Batch ID: **R132628** TestNo: **SM4500-H+B** Analysis Date: **3/20/2019** SeqNo: **3323313**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 8.270 | 0.10 | | | | | | 8.240 | 0.363 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190320C** | QC Batch: **73004** | | | | PrepDate | **3/20/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/20/2019 11:17 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190320C** | QC Batch: **73004** | | | | PrepDate | **3/20/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/20/2019 11:17 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190320C** | QC Batch: **73004** | | | | PrepDate | **3/20/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/20/2019 11:17 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-909-Q119 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190320C** | QC Batch: **73004** | | | | PrepDate | **3/20/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/20/2019 11:17 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190320C** | QC Batch: **73004** | | | PrepDate | **3/20/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/20/2019 11:17 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190320C** | QC Batch: **73004** | | | | PrepDate | **3/20/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/20/2019 11:17 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190320C** | QC Batch: **73004** | | | | PrepDate | **3/20/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/20/2019 11:17 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 12:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190320C** | QC Batch: **73004** | | | | PrepDate | **3/20/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/20/2019 11:17 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190320C** | QC Batch: **73004** | | | | PrepDate | **3/20/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/20/2019 11:17 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-910-Q119 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:05:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190320C** QC Batch: **73004** | | | | | PrepDate **3/20/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/20/2019 11:17 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:05:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322C** | QC Batch: **73044** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-28-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 12:25:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322C** | QC Batch: **73044** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R63-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:15:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322C** | QC Batch: **73044** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.2_2540D_W**

| Sample ID | LCS-73004 | SampType: | LCS | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 3/20/2019 | RunNo: | 132639 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73004 | TestNo: | SM2540D | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323546 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | 941.000 | 10 | 1000 | 0 | 94.1 | 80 | 120 | | | | |

| Sample ID | MB-73004 | SampType: | MBLK | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 3/20/2019 | RunNo: | 132639 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73004 | TestNo: | SM2540D | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323547 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 10 | | | | | | | | | |

| Sample ID | N034688-001DDUP | SampType: | DUP | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 3/20/2019 | RunNo: | 132639 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73004 | TestNo: | SM2540D | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323549 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 5.0 | | | | | | 0 | 0 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.2_2540D_W**

| Sample ID | LCS-73044 | SampType: | LCS | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 3/22/2019 | RunNo: | 132712 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73044 | TestNo: | SM2540D | | | Analysis Date: | 3/22/2019 | SeqNo: | 3326861 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | 941.000 | 10 | 1000 | 0 | 94.1 | 80 | 120 | | | | |

| Sample ID | MB-73044 | SampType: | MBLK | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 3/22/2019 | RunNo: | 132712 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73044 | TestNo: | SM2540D | | | Analysis Date: | 3/22/2019 | SeqNo: | 3326862 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 10 | | | | | | | | | |

| Sample ID | N034708-011DDUP | SampType: | DUP | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 3/22/2019 | RunNo: | 132712 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73044 | TestNo: | SM2540D | | | Analysis Date: | 3/22/2019 | SeqNo: | 3326867 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 5.0 | | | | | | 0 | 0 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 10:39 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 08:56 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-002

**Client Sample ID:** C-I-3-D-0319
**Collection Date:** 3/19/2019 9:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 10:58 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 08:50 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 11:17 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 09:02 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-909-Q119 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 11:36 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 09:08 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 12:14 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 09:14 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 12:33 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 09:20 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-007

**Client Sample ID:** C-R27-D-0319
**Collection Date:** 3/19/2019 11:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 12:52 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 09:26 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-008

**Client Sample ID:** C-R27-S-0319
**Collection Date:** 3/19/2019 12:05:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 01:11 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 09:32 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** | QC Batch: **R132680** | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 01:30 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 09:38 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-910-Q119 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:05:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** | QC Batch: **R132680** | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 02:37 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 09:43 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:05:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** | QC Batch: **R132680** | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 02:57 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 10:01 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-28-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 12:25:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 03:16 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 10:07 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-013

**Client Sample ID:** R63-0319
**Collection Date:** 3/19/2019 10:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 03:35 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 10:13 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | SW1-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 2:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-014 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** | QC Batch: **R132680** | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 04:13 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 10:19 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | SW2-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 2:15:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-015 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** | QC Batch: **R132680** | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 04:32 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 10:25 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **MB-R132680** | SampType: **MBLK** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132680** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R132680** | TestNo: **EPA 218.6** | | Analysis Date: **3/20/2019** | SeqNo: **3325625** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **LCS-R132680** | SampType: **LCS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132680** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R132680** | TestNo: **EPA 218.6** | | Analysis Date: **3/20/2019** | SeqNo: **3325626** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.186 | 0.20 | 5.000 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **N034688-001AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132680** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132680** | TestNo: **EPA 218.6** | | Analysis Date: **3/20/2019** | SeqNo: **3325628** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.988 | 0.20 | 1.000 | 0 | 98.8 | 90 | 110 | | | | |

| Sample ID **N034688-002AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132680** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132680** | TestNo: **EPA 218.6** | | Analysis Date: **3/20/2019** | SeqNo: **3325630** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.995 | 0.20 | 1.000 | 0 | 99.5 | 90 | 110 | | | | |

| Sample ID **N034688-003AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132680** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132680** | TestNo: **EPA 218.6** | | Analysis Date: **3/20/2019** | SeqNo: **3325632** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.991 | 0.20 | 1.000 | 0 | 99.1 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034688-004AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325634 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.994 | 0.20 | 1.000 | 0 | 99.4 | 90 | 110 | | | | |

| Sample ID | N034688-005AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325638 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.021 | 0.20 | 1.000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID | N034688-006AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325640 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.981 | 0.20 | 1.000 | 0 | 98.1 | 90 | 110 | | | | |

| Sample ID | N034688-007AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325642 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.988 | 0.20 | 1.000 | 0 | 98.8 | 90 | 110 | | | | |

| Sample ID | N034688-008AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325644 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.004 | 0.20 | 1.000 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034688-009AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325646 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.021 | 0.20 | 1.000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID | N034688-001AMSD | SampType: | MSD | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325649 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.008 | 0.20 | 1.000 | 0 | 101 | 90 | 110 | 0.9883 | 1.99 | 20 | |

| Sample ID | N034688-009ADUP | SampType: | DUP | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325650 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | 0 | 0 | 20 | |

| Sample ID | N034688-010AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325652 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.030 | 0.20 | 1.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID | N034688-011AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325654 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.028 | 0.20 | 1.000 | 0 | 103 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034688-012AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325656 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.079 | 0.20 | 1.000 | 0 | 108 | 90 | 110 | | | | |

| Sample ID | N034688-013AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325658 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.038 | 0.20 | 1.000 | 0 | 104 | 90 | 110 | | | | |

| Sample ID | N034688-014AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325662 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.086 | 0.20 | 1.000 | 0 | 109 | 90 | 110 | | | | |

| Sample ID | N034688-015AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325664 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.010 | 0.20 | 1.000 | 0 | 101 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | MB-73030 | SampType: | MBLK | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132910 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73030 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/1/2019 | SeqNo: | 3336424 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-73030 | SampType: | LCS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132910 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73030 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/1/2019 | SeqNo: | 3336425 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.331 | 1.0 | 10.00 | 0 | 103 | 85 | 115 | | | | |

| Sample ID | N034644-001AMS | SampType: | MS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132910 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73030 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/1/2019 | SeqNo: | 3336443 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 4545.997 | 50 | 10.00 | 4451 | 954 | 75 | 125 | | | | S |

| Sample ID | N034644-001AMSD | SampType: | MSD | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132910 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73030 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/1/2019 | SeqNo: | 3336444 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 4443.203 | 50 | 10.00 | 4451 | -74.3 | 75 | 125 | 4546 | 2.29 | 20 | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | **N034644-001A-PS** | SampType: **PS** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **73030** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/1/2019** | SeqNo: **3336442** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 4495.667 | 50 | 10.00 | 4451 | 450 | 80 | 120 | | | | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.42 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.40 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.41 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-909-Q119 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.40 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.37 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.41 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.40 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 12:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.36 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.41 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-910-Q119 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:05:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.38 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:05:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-28-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 12:25:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.38 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R63-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:15:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.36 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | MB-R132808 | SampType: | MBLK | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132808 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132808 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/27/2019 | SeqNo: | 3331137 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID | LCS-R132808 | SampType: | LCS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132808 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132808 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/27/2019 | SeqNo: | 3331138 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.509 | 0.050 | 0.5000 | 0 | 102 | 85 | 115 | | | | |

| Sample ID | N034688-003EDUP | SampType: | DUP | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132808 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132808 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/27/2019 | SeqNo: | 3331142 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.407 | 0.050 | | | | | | 0.4072 | 0 | 20 | |

| Sample ID | N034688-004EMS | SampType: | MS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132808 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132808 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/27/2019 | SeqNo: | 3331144 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.893 | 0.050 | 0.5000 | 0.3951 | 99.6 | 75 | 125 | | | | |

| Sample ID | N034688-004EMSD | SampType: | MSD | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132808 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132808 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/27/2019 | SeqNo: | 3331145 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.928 | 0.050 | 0.5000 | 0.3951 | 106 | 75 | 125 | 0.8930 | 3.79 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 05:54 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/29/2019 08:00 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-002

**Client Sample ID:** C-I-3-D-0319
**Collection Date:** 3/19/2019 9:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 22 | 18 | 20 | | ug/L | 1 | 3/28/2019 06:15 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | 82 | 18 | 20 | | ug/L | 1 | 3/28/2019 09:33 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 06:19 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 09:36 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-004

**Client Sample ID:** MW-909-Q119
**Collection Date:** 3/19/2019 9:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 06:23 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 09:40 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 06:36 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 09:44 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 06:40 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | 20 | 18 | 20 | | ug/L | 1 | 3/28/2019 09:48 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-007

**Client Sample ID:** C-R27-D-0319
**Collection Date:** 3/19/2019 11:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 25 | 18 | 20 | | ug/L | 1 | 3/28/2019 06:43 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | 45 | 18 | 20 | | ug/L | 1 | 3/28/2019 10:01 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 12:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 06:47 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | 25 | 18 | 20 | | ug/L | 1 | 3/28/2019 10:05 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 06:51 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | 31 | 18 | 20 | | ug/L | 1 | 3/28/2019 10:09 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-910-Q119 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:05:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 06:55 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | 23 | 18 | 20 | | ug/L | 1 | 3/28/2019 10:12 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:05:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190408A** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 4/8/2019 10:11 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 10:16 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-28-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 12:25:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 07:02 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 10:20 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-013

**Client Sample ID:** R63-0319
**Collection Date:** 3/19/2019 10:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 07:06 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 10:24 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **MB-73016** | SampType: **MBLK** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **3/21/2019** | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **73016** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3332987** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID **LCS-73016** | SampType: **LCS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **3/21/2019** | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **73016** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3332988** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 100.897 | 20 | 100.0 | 0 | 101 | 85 | 115 | | | | |

| Sample ID **N034688-001B-MS** | SampType: **MS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **3/21/2019** | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73016** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3332992** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 126.030 | 20 | 100.0 | 0 | 126 | 75 | 125 | | | | S |

| Sample ID **N034688-001B-MSD** | SampType: **MSD** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **3/21/2019** | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73016** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3332993** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 125.296 | 20 | 100.0 | 0 | 125 | 75 | 125 | 126.0 | 0.584 | 20 | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID | MB-73002 | SampType: | MBLK | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 3/20/2019 | RunNo: | 132851 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73002 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333187 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID | LCS-73002 | SampType: | LCS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 3/20/2019 | RunNo: | 132851 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73002 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333188 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 95.596 | 20 | 100.0 | 0 | 95.6 | 85 | 115 | | | | |

| Sample ID | N034688-001C-MS | SampType: | MS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 3/20/2019 | RunNo: | 132851 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73002 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333196 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 118.377 | 20 | 100.0 | 19.63 | 98.7 | 75 | 125 | | | | |

| Sample ID | N034688-001C-MSD | SampType: | MSD | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 3/20/2019 | RunNo: | 132851 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73002 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333197 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 118.650 | 20 | 100.0 | 19.63 | 99.0 | 75 | 125 | 118.4 | 0.230 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID | **N034688-001B-PS** | SampType: **PS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **73016** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3332991** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 104.589 | 20 | 100.0 | 0 | 105 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID | N034688-001C-PS | SampType: | PS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | | RunNo: | 132851 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73002 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333195 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 118.631 | 20 | 100.0 | 19.63 | 99.0 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-001

**Client Sample ID:** C-BNS-0319
**Collection Date:** 3/19/2019 11:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 08:56 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 08:56 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 08:56 PM |
| Molybdenum | 5.2 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 08:56 PM |
| Selenium | 1.4 | 0.36 | 0.50 | | µg/L | 1 | 4/1/2019 08:56 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-002

**Client Sample ID:** C-I-3-D-0319
**Collection Date:** 3/19/2019 9:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.4 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 08:50 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 08:50 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 08:50 PM |
| Molybdenum | 5.6 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 08:50 PM |
| Selenium | 1.9 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 09:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | | PrepDate | **3/22/2019** | Analyst: **CEI** |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 09:02 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 09:02 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 09:02 PM |
| Molybdenum | 5.2 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 09:02 PM |
| Selenium | 2.1 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 09:17 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-909-Q119 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | | PrepDate | **3/22/2019** | Analyst: **CEI** |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 09:08 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 09:08 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 09:08 PM |
| Molybdenum | 5.6 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 09:08 PM |
| Selenium | 2.4 | 0.36 | 0.50 | | µg/L | 1 | 4/1/2019 09:08 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-005

**Client Sample ID:** C-R22A-D-0319
**Collection Date:** 3/19/2019 10:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 09:14 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 09:14 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 09:14 PM |
| Molybdenum | 5.3 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 09:14 PM |
| Selenium | 1.9 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 05:36 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | | PrepDate | **3/22/2019** | Analyst: **CEI** |
| Arsenic | 2.4 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 09:20 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 09:20 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 09:20 PM |
| Molybdenum | 5.4 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 09:20 PM |
| Selenium | 1.7 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 09:22 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-007

**Client Sample ID:** C-R27-D-0319
**Collection Date:** 3/19/2019 11:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 09:26 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 09:26 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 09:26 PM |
| Molybdenum | 5.1 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 09:26 PM |
| Selenium | 1.5 | 0.36 | 0.50 | | µg/L | 1 | 4/1/2019 09:26 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 12:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | | PrepDate | **3/22/2019** | Analyst: **CEI** |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 09:32 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 09:32 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 09:32 PM |
| Molybdenum | 4.8 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 09:32 PM |
| Selenium | 1.8 | 0.36 | 0.50 | | µg/L | 1 | 4/1/2019 09:32 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-009

**Client Sample ID:** C-TAZ-D-0319
**Collection Date:** 3/19/2019 8:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 09:38 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 09:38 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 09:38 PM |
| Molybdenum | 4.9 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 09:38 PM |
| Selenium | 1.3 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 09:27 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-910-Q119 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:05:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | | PrepDate | **3/22/2019** | Analyst: **CEI** |
| Arsenic | 2.3 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 09:43 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 09:43 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 09:43 PM |
| Molybdenum | 5.2 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 09:43 PM |
| Selenium | 1.3 | 0.36 | 0.50 | | µg/L | 1 | 4/1/2019 09:43 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-011

**Client Sample ID:** C-TAZ-S-0319
**Collection Date:** 3/19/2019 9:05:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.3 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 10:01 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 10:01 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 10:01 PM |
| Molybdenum | 5.3 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 10:01 PM |
| Selenium | 2.1 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 09:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-012

**Client Sample ID:** R-28-0319
**Collection Date:** 3/19/2019 12:25:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 10:07 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 10:07 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 10:07 PM |
| Molybdenum | 5.3 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 10:07 PM |
| Selenium | 2.0 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 09:43 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-013

**Client Sample ID:** R63-0319
**Collection Date:** 3/19/2019 10:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 10:13 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 10:13 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 10:13 PM |
| Molybdenum | 5.1 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 10:13 PM |
| Selenium | 1.9 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 09:47 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **MB-73030** | SampType: **MBLK** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **73030** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/1/2019** | SeqNo: **3336546** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **LCS-73030** | SampType: **LCS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **73030** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/1/2019** | SeqNo: **3336547** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.934 | 0.10 | 10.00 | 0 | 99.3 | 85 | 115 | | | | |
| Barium | 10.365 | 1.0 | 10.00 | 0 | 104 | 85 | 115 | | | | |
| Manganese | 104.597 | 0.50 | 100.0 | 0 | 105 | 85 | 115 | | | | |
| Molybdenum | 9.595 | 0.50 | 10.00 | 0 | 95.9 | 85 | 115 | | | | |
| Selenium | 10.789 | 0.50 | 10.00 | 0 | 108 | 85 | 115 | | | | |

| Sample ID **N034644-001AMS** | SampType: **MS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73030** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/1/2019** | SeqNo: **3336551** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.743 | 0.10 | 10.00 | 1.154 | 106 | 75 | 125 | | | | |
| Barium | 43.579 | 1.0 | 10.00 | 33.92 | 96.6 | 75 | 125 | | | | |
| Manganese | 170.821 | 0.50 | 100.0 | 71.49 | 99.3 | 75 | 125 | | | | |
| Molybdenum | 36.622 | 0.50 | 10.00 | 24.01 | 126 | 75 | 125 | | | | S |
| Selenium | 22.718 | 0.50 | 10.00 | 11.76 | 110 | 75 | 125 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | N034644-001AMSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132910 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73030 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/1/2019 | SeqNo: | 3336552 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.854 | 0.10 | 10.00 | 1.154 | 107 | 75 | 125 | 11.74 | 0.935 | 20 | |
| Barium | 43.768 | 1.0 | 10.00 | 33.92 | 98.5 | 75 | 125 | 43.58 | 0.432 | 20 | |
| Manganese | 172.302 | 0.50 | 100.0 | 71.49 | 101 | 75 | 125 | 170.8 | 0.863 | 20 | |
| Molybdenum | 36.802 | 0.50 | 10.00 | 24.01 | 128 | 75 | 125 | 36.62 | 0.489 | 20 | S |
| Selenium | 21.333 | 0.50 | 10.00 | 11.76 | 95.7 | 75 | 125 | 22.72 | 6.29 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | **N034644-001A-PS** | SampType: **PS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **73030** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/1/2019** | SeqNo: **3336550** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.664 | 0.10 | 10.00 | 1.154 | 105 | 80 | 120 | | | | |
| Barium | 42.722 | 1.0 | 10.00 | 33.92 | 88.0 | 80 | 120 | | | | |
| Manganese | 169.616 | 0.50 | 100.0 | 71.49 | 98.1 | 80 | 120 | | | | |
| Molybdenum | 36.604 | 0.50 | 10.00 | 24.01 | 126 | 80 | 120 | | | | S |
| Selenium | 21.338 | 0.50 | 10.00 | 11.76 | 95.8 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

N034688

# ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

## CHAIN OF CUSTODY RECORD


Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com


Page 1 of 3

| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID: |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State: |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.mgore@critigen.com | Address: | Sample Receipt Condition: 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number 2 |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661 | Email to: mbloes@pivox.com P.O.# | 6. Method of Cooling: ICE 3.1°C/3.1°C |
| Submitted By: Jason Main | Phone: 916-786-3302 Fax: | Phone: 949-727-1400, ext 200 Fax: | Sample Temp: 4.3°C/3.8°C/3.8°C/3.4 |
| Title: Project manager | | | |
| Signature: Date: 3/19/19 | Sampled By: Nana Tay | Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid | Courier: ABSCET |
| I hereby authorize ASSET Labs to perform the tests indicated below. | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | | Tracking No.: |
| Project Name: PG&E Topock - RMP | Signature: Date: 3/19/19 | | |
| Project Number: RC000753.801D | | | |

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly) | Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (500mL poly) | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (500mL poly) | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (500mL poly) | Total metals (SW6010B); HNO3 Fe (500 mL poly) | Anions (E300.0); Br, Cl, SO4 (1 liter poly) | Specific Conductance (E120.1) (1 liter poly) | pH (SM4500HB) (1 liter poly) | TDS (SM2540C) (1 liter poly) | Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly) | TSS (SM2540) (1 liter poly) | Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 (125 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034688-01 | C-BNS-0319 | 3/19/2019 | 11:30 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | BNS | |
| 4 | -02 | C-I-3-D-0319 | 3/19/2019 | 09:30 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | BNS | |
| 8 | -03 | C-I-3-S-0319 | 3/19/2019 | 09:45 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | BNS | |
| 13 | -04 | MW-909-Q119 | 3/19/2019 | 9:55 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | BNS | |

| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| Nana Tay | 3/19/19 1600 | JORDAN LEE | 3/19/19 1600 |
| JORDAN LEE | 3/19/19 1821 | JORDAN LEE | 3/19/19 1821 |
| | | | |

**Turn Around Time (TAT)**

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis.
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

| Preservatives: | | | | Container Type: | | |
|---|---|---|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C | T=Tube | V=VOA | P=Pint |
| Z=$Zn(AC)_2$ | O=NaOH | T=$Na_2S_2O_3$ | | J=Jar | B=Tedlar | G=Glass |
| Others/Specify: | B | (NH4)2SO4/NH4OH | | M=Metal | M=Metal | C=Can |

White=Laboratory Copy

Yellow=Customer's Copy

# ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

## CHAIN OF CUSTODY RECORD


Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436
www.assetlaboratories.com


Page 2 of 3

| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓ |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | Specify: RWQCB |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: | Global ID: |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@pivox.com P.O.# | QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State: |
| Submitted By: Jason Mahn | | Phone: 949-727-1400, ext 200 Fax: | |
| Title: Project Manager | Phone: 916-786-3302 Fax: | | |
| Signature: 3/19/19 Date: | Sampled By: Nam Tay | | |
| I hereby authorize ASSET Labs to perform the tests indicated below | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | | |
| Project Name: PG&E Topock - RMP | Signature: Date: 3/19/19 | | |
| Project Number: RC000753.0801 | | | |

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Sample Receipt Condition: 1. Chilled Y; 2. Headspace; 3. Container Intact; 4. Seal Present; 5. IR number 2; 6. Method of Cooling: ICE 3.1°/3.1°; Sample Temp: 3.8°c/3.8°c/3.4°c; 4.3°

Courier: ASSET; Tracking No.:

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly) | Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (500mL poly) | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (500mL poly) | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (500mL poly) | Total metals (SW6010B); HNO3 Fe (500 mL poly) | Anions (E300.0); Br, Cl, SO4 (1 liter poly) | Specific Conductance (E120.1) (1 liter poly) | pH (SM4500HB) (1 liter poly) | TDS (SM2540C) (1 liter poly) | Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly) | TSS (SM2540) (1 liter poly) | Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 (125 mL poly) | Oxygen and deuterium stable isotopes (CFIRM) (1 250 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | N034688-05 | C-R22A-D-0319 | 3/19/2019 | 10:55 | | X | | X | | X | X | | X | X | | | X | X | | | | E | 7 | P | BNS | |
| 3 | -06 | C-R22A-S-0319 | 3/19/2019 | 10:45 | | X | | X | | X | X | | X | X | | | X | X | | | | E | 7 | P | BNS | |
| 4 | -07 | C-R27-D-0319 | 3/19/2019 | 11:55 | | X | | X | | X | X | | X | X | | | X | X | | | | E | 7 | P | BNS | |
| 5 | -08 | C-R27-S-0319 | 3/19/2019 | 12:05 | | X | | X | | X | X | | X | X | | | X | X | | | | E | 7 | P | BNS | |
| | -09 | C-TAZ-D-0319 | 3/19/2019 | 08:50 | | X | | X | | X | X | | X | X | | | X | X | | | | E | 7 | P | BNS | |
| 7 | -10 | MW-910-Q119 | 3/19/2019 | 11:05 | | X | | X | | X | X | | X | X | | | X | X | | | | E | 7 | P | BNS | |
| 8 | -11 | C-TAZ-S-0319 | 3/19/2019 | 09:05 | | X | | X | | X | X | | X | X | | | X | X | | | | E | 7 | P | BNS | |
| 10 | -12 | R-28-0319 | 3/19/2019 | 12:25 | | X | | X | | X | X | | X | X | | | X | X | | | | E | 7 | P | BNS | |
| 11 | -13 | R63-0319 | 3/19/2019 | 10:15 | | X | | X | | X | X | | X | X | | | X | X | | | | E | 7 | P | BNS | |
| 13 | -14 | SW1-0319 | 3/19/2019 | 14:00 | | X | | X | | | | | X | X | | | | | | | | E | 5 | P | BNS | |
| 14 | -15 | SW2-0319 | 3/19/2019 | 14:15 | | X | | X | | | | | X | X | | | | | | | | E | 5 | P | BNS | |

Relinquished by (Signature and Printed Name): Nam Tay Date/Time: 3/19/19 1500
Received by (Signature and Printed Name): JORDAN LEE Date/Time: 3/19/19 1600
Relinquished by (Signature and Printed Name): JORDAN LEE Date/Time: 3/19/19 1821
Received by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

| Preservatives: | | | | Container Type: | | |
|---|---|---|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C | T=Tube | V=VOA | P=Pint |
| Z=Zn(AC)$_2$ | O=NaOH | T=$Na_2S_2O_3$ | | J=Jar | B=Tedlar | G=Glass |
| Others/Specify: | B | (NH4)2SO4/NH4OH | | M=Metal | M=Metal | C=Can |

White=Laboratory Copy

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# CHAIN OF CUSTODY RECORD

Page 3 of 3

| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID: |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State: |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.mgore@critigen.com | Address: | Sample Receipt Condition: Y / N — 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number 2 |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661 | Email to: mbloes@pivox.com P.O.# | 6. Method of Cooling: ICE 3.1°C / 3.1°C |
| Submitted By: | Phone: 916-786-3302 Fax: | Phone: 949-727-1400, ext 200 Fax: | Sample Temp: 4.3°C / 3.8°C / 3.8°C / 3.4°C |
| Title: Project Manager | Sampled By: Nana Tay | | Courier: ASSET |
| Signature: Date: 3/19/19 | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | | Tracking No.: |
| I hereby request ASSET Labs to perform the tests indicated below. | | | |
| Project Name: PG&E Topock - RMP | Signature: Date: 3/19/19 | | |
| Project Number: RC000753.0801 | | | |

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly) | Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 ml Poly) | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (500 mL poly) | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (500 mL poly) | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (500 mL poly) | Total metals (SW6010B); HNO3 Fe (500 mL poly) | Anions (E300.0); Br, Cl, SO4 (1 liter poly) | Specific Conductance (E120.1) (1 liter poly) | pH (SM4500HB) (1 liter poly) | TDS (SM2540C) (1 liter poly) | Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly) | TSS (SM2540) (1 liter poly) | Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 (125 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N034688-16 | Ambientblank-1-0319 | 3/19/2019 | 10:20 | | | X | | | | | | | | | | | | E | 1 | P | BN | Hold |
| | -17 | Ambientblank-2-0319 | 3/19/2019 | 12:30 | | | X | | | | | | | | | | | | E | 1 | P | BN | Hold |

Relinquished by (Signature and Printed Name): Nana Tay Date/Time: 3/19/19 1600
Received by (Signature and Printed Name): JORDAN LEO Date/Time: 3/19/19 1600
Relinquished by (Signature and Printed Name): JORDAN LEO Date/Time: 3/19/19 1821
Received by (Signature and Printed Name): Jordan Leo Date/Time: 3/19/19 1821
Relinquished by (Signature and Printed Name): Date/Time:
Received by (Signature and Printed Name): Date/Time:

**Turn Around Time (TAT)**

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

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2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

| Preservatives: | | | | Container Type: | | |
|---|---|---|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C | T=Tube | V=VOA | P=Pint |
| Z=$Zn(AC)_2$ | O=NaOH | T=$Na_2S_2O_3$ | | J=Jar | B=Tedlar | G=Glass |
| Others/Specify: | B | (NH4)2SO4/NH4OH | | M=Metal | M=Metal | C=Can |

White=Laboratory Copy
Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 3/19/2019 | Workorder: | N034688 |
| Rep sample Temp (Deg C): | 3.1/3.1/4.3/3.8/3.8/3.4 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | NA | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☐ | No ☑ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☑ | No ☐ | NA ☐ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments: Sampls for pH were past holding time upon receipt.

Checklist Completed By: YR 3/20/2019

Reviewed By: LG 032419

**Subject:** RE: PG&E Topock - RMP (Asset Labs No. N034688)
**From:** "Madsen, Laura" <Laura.Madsen@arcadis.com>
**Date:** 3/20/2019 1:06 PM
**To:** Yoandra Rodriguez <yoandra@assetlaboratories.com>
**CC:** "maryann.balilu@assetlaboratoriesph.com" <maryann.balilu@assetlaboratoriesph.com>, "'Andreafe. Gallardo'" <andrea.gallardo@assetlaboratories.com>, "'Sonny. Lorenzo'" <sonny.lorenzo@assetlaboratories.com>

Please use RC000753.801D

---

**From:** Yoandra Rodriguez <yoandra@assetlaboratories.com>
**Sent:** Wednesday, March 20, 2019 3:09 PM
**To:** Madsen, Laura <Laura.Madsen@arcadis.com>
**Cc:** maryann.balilu@assetlaboratoriesph.com; 'Andreafe. Gallardo' <andrea.gallardo@assetlaboratories.com>; 'Sonny. Lorenzo' <sonny.lorenzo@assetlaboratories.com>
**Subject:** PG&E Topock - RMP (Asset Labs No. N034688)

Hi Laura,

Please kindly confirm which Project number to use for the attached COC: RC000753.801D (page 1) or RC000753.801 (pages 2 and 3).

--
**Thanks,**

**Yoandra Rodriguez**
Sample Control Officer
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436

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# ASSET Laboratories

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034688

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/19/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-001A | C-BNS-0319 | 3/19/2019 11:30:00 AM | 4/2/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-001B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-001C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-001D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-001E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-002A | C-I-3-D-0319 | 3/19/2019 9:30:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-002B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-002C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-002D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |

# ASSET Laboratories

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034688

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/19/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-002D | C-I-3-D-0319 | 3/19/2019 9:30:00 AM | 4/2/2019 | Groundwater | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-002E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-003A | C-I-3-S-0319 | 3/19/2019 9:45:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-003B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-003C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-003D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-003E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-004A | MW-909-Q119 | 3/19/2019 9:55:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-004B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034688

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/19/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-004B | MW-909-Q119 | 3/19/2019 9:55:00 AM | 4/2/2019 | Groundwater | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-004C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-004D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-004E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-005A | C-R22A-D-0319 | 3/19/2019 10:55:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-005B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-005C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-005D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |

# ASSET Laboratories

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034688

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/19/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-005E | C-R22A-D-0319 | 3/19/2019 10:55:00 AM | 4/2/2019 | Groundwater | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-006A | C-R22A-S-0319 | 3/19/2019 10:45:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-006B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-006C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-006D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-006E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-007A | C-R27-D-0319 | 3/19/2019 11:55:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-007B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-007C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034688

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/19/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-007C | C-R27-D-0319 | 3/19/2019 11:55:00 AM | 4/2/2019 | Groundwater | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-007D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-007E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-008A | C-R27-S-0319 | 3/19/2019 12:05:00 PM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-008B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-008C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-008D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-008E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-009A | C-TAZ-D-0319 | 3/19/2019 8:50:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-009B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034688

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/19/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-009B | C-TAZ-D-0319 | 3/19/2019 8:50:00 AM | 4/2/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-009C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-009D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-009E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-010A | MW-910-Q119 | 3/19/2019 11:05:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-010B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-010C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-010D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |

# ASSET Laboratories

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034688

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/19/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-010D | MW-910-Q119 | 3/19/2019 11:05:00 AM | 4/2/2019 | Groundwater | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-010E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-011A | C-TAZ-S-0319 | 3/19/2019 9:05:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-011B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-011C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-011D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-011E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-012A | R-28-0319 | 3/19/2019 12:25:00 PM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-012B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034688

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/19/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-012C | R-28-0319 | 3/19/2019 12:25:00 PM | 4/2/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-012D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-012E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-013A | R63-0319 | 3/19/2019 10:15:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-013B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-013C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-013D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-013E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-014A | SW1-0319 | 3/19/2019 2:00:00 PM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034688

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/19/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-014B | SW1-0319 | 3/19/2019 2:00:00 PM | 4/2/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-014C | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| N034688-015A | SW2-0319 | 3/19/2019 2:15:00 PM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-015B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-015C | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| N034688-016A | Ambientblank-1-0319 | 3/19/2019 10:20:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☑ | ☐ | ☐ | WW |
| N034688-017A | Ambientblank-2-0319 | 3/19/2019 12:30:00 PM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☑ | ☐ | ☐ | WW |
| N034688-018A | FOLDER | 4/2/2019 | 4/2/2019 | | EDD | Client specific project | ☐ | ☐ | ☐ | LAB |
| | | | 4/2/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 4/2/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# *ARCADIS*

Project: PG&E Topock - RMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N034688

## *ANALYTICAL and QC RESULTS*
## *SAMPLE RECEIVING ITEMS*

*PRIVILEGED AND CONFIDENTIAL*

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## ASSET Laboratories Work Order: N034688


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April 09, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034688

RE: PG&E Topock - RMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on March 19, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034688

# CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Samples N034688-016 (Ambientblank-1-0319) and N034688-017(Ambientblank-2-0319) for Hexavalent Chromium were not analyzed as per COC.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron in QC samples N034688-001B-MS and N034688-001B-MSD possibly due to matrix interference. Dilution Test was performed but not applicable since the result is less than 25x the reporting limit (RL). Post Spike was also performed and passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N034644-001AMS and N034644-001AMSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Molybdenum in QC samples N034644-001A-MS and N034644-001A-MSD possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

## ASSET Laboratories

**Date:** *09-Apr-19*

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034688
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034688-001A | C-BNS-0319 | Groundwater | 3/19/2019 11:30:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-001B | C-BNS-0319 | Groundwater | 3/19/2019 11:30:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-001C | C-BNS-0319 | Groundwater | 3/19/2019 11:30:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-001D | C-BNS-0319 | Groundwater | 3/19/2019 11:30:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-001E | C-BNS-0319 | Groundwater | 3/19/2019 11:30:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-002A | C-I-3-D-0319 | Groundwater | 3/19/2019 9:30:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-002B | C-I-3-D-0319 | Groundwater | 3/19/2019 9:30:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-002C | C-I-3-D-0319 | Groundwater | 3/19/2019 9:30:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-002D | C-I-3-D-0319 | Groundwater | 3/19/2019 9:30:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-002E | C-I-3-D-0319 | Groundwater | 3/19/2019 9:30:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-003A | C-I-3-S-0319 | Groundwater | 3/19/2019 9:45:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-003B | C-I-3-S-0319 | Groundwater | 3/19/2019 9:45:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-003C | C-I-3-S-0319 | Groundwater | 3/19/2019 9:45:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-003D | C-I-3-S-0319 | Groundwater | 3/19/2019 9:45:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-003E | C-I-3-S-0319 | Groundwater | 3/19/2019 9:45:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-004A | MW-909-Q119 | Groundwater | 3/19/2019 9:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-004B | MW-909-Q119 | Groundwater | 3/19/2019 9:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-004C | MW-909-Q119 | Groundwater | 3/19/2019 9:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-004D | MW-909-Q119 | Groundwater | 3/19/2019 9:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-004E | MW-909-Q119 | Groundwater | 3/19/2019 9:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-005A | C-R22A-D-0319 | Groundwater | 3/19/2019 10:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-005B | C-R22A-D-0319 | Groundwater | 3/19/2019 10:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-005C | C-R22A-D-0319 | Groundwater | 3/19/2019 10:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-005D | C-R22A-D-0319 | Groundwater | 3/19/2019 10:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-005E | C-R22A-D-0319 | Groundwater | 3/19/2019 10:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-006A | C-R22A-S-0319 | Groundwater | 3/19/2019 10:45:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-006B | C-R22A-S-0319 | Groundwater | 3/19/2019 10:45:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-006C | C-R22A-S-0319 | Groundwater | 3/19/2019 10:45:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-006D | C-R22A-S-0319 | Groundwater | 3/19/2019 10:45:00 AM | 3/19/2019 | 4/9/2019 |

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034688
**Contract No:**

# Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034688-006E | C-R22A-S-0319 | Groundwater | 3/19/2019 10:45:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-007A | C-R27-D-0319 | Groundwater | 3/19/2019 11:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-007B | C-R27-D-0319 | Groundwater | 3/19/2019 11:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-007C | C-R27-D-0319 | Groundwater | 3/19/2019 11:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-007D | C-R27-D-0319 | Groundwater | 3/19/2019 11:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-007E | C-R27-D-0319 | Groundwater | 3/19/2019 11:55:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-008A | C-R27-S-0319 | Groundwater | 3/19/2019 12:05:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-008B | C-R27-S-0319 | Groundwater | 3/19/2019 12:05:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-008C | C-R27-S-0319 | Groundwater | 3/19/2019 12:05:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-008D | C-R27-S-0319 | Groundwater | 3/19/2019 12:05:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-008E | C-R27-S-0319 | Groundwater | 3/19/2019 12:05:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-009A | C-TAZ-D-0319 | Groundwater | 3/19/2019 8:50:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-009B | C-TAZ-D-0319 | Groundwater | 3/19/2019 8:50:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-009C | C-TAZ-D-0319 | Groundwater | 3/19/2019 8:50:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-009D | C-TAZ-D-0319 | Groundwater | 3/19/2019 8:50:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-009E | C-TAZ-D-0319 | Groundwater | 3/19/2019 8:50:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-010A | MW-910-Q119 | Groundwater | 3/19/2019 11:05:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-010B | MW-910-Q119 | Groundwater | 3/19/2019 11:05:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-010C | MW-910-Q119 | Groundwater | 3/19/2019 11:05:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-010D | MW-910-Q119 | Groundwater | 3/19/2019 11:05:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-010E | MW-910-Q119 | Groundwater | 3/19/2019 11:05:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-011A | C-TAZ-S-0319 | Groundwater | 3/19/2019 9:05:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-011B | C-TAZ-S-0319 | Groundwater | 3/19/2019 9:05:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-011C | C-TAZ-S-0319 | Groundwater | 3/19/2019 9:05:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-011D | C-TAZ-S-0319 | Groundwater | 3/19/2019 9:05:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-011E | C-TAZ-S-0319 | Groundwater | 3/19/2019 9:05:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-012A | R-28-0319 | Groundwater | 3/19/2019 12:25:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-012B | R-28-0319 | Groundwater | 3/19/2019 12:25:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-012C | R-28-0319 | Groundwater | 3/19/2019 12:25:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-012D | R-28-0319 | Groundwater | 3/19/2019 12:25:00 PM | 3/19/2019 | 4/9/2019 |

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034688
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034688-012E | R-28-0319 | Groundwater | 3/19/2019 12:25:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-013A | R63-0319 | Groundwater | 3/19/2019 10:15:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-013B | R63-0319 | Groundwater | 3/19/2019 10:15:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-013C | R63-0319 | Groundwater | 3/19/2019 10:15:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-013D | R63-0319 | Groundwater | 3/19/2019 10:15:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-013E | R63-0319 | Groundwater | 3/19/2019 10:15:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-014A | SW1-0319 | Groundwater | 3/19/2019 2:00:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-014B | SW1-0319 | Groundwater | 3/19/2019 2:00:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-014C | SW1-0319 | Groundwater | 3/19/2019 2:00:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-015A | SW2-0319 | Groundwater | 3/19/2019 2:15:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-015B | SW2-0319 | Groundwater | 3/19/2019 2:15:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-015C | SW2-0319 | Groundwater | 3/19/2019 2:15:00 PM | 3/19/2019 | 4/9/2019 |
| N034688-016A | Ambientblank-1-0319 | Groundwater | 3/19/2019 10:20:00 AM | 3/19/2019 | 4/9/2019 |
| N034688-017A | Ambientblank-2-0319 | Groundwater | 3/19/2019 12:30:00 PM | 3/19/2019 | 4/9/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 820 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-002

**Client Sample ID:** C-I-3-D-0319
**Collection Date:** 3/19/2019 9:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 820 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-003

**Client Sample ID:** C-I-3-S-0319
**Collection Date:** 3/19/2019 9:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 810 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-909-Q119 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 810 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-005

**Client Sample ID:** C-R22A-D-0319
**Collection Date:** 3/19/2019 10:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 820 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-006

**Client Sample ID:** C-R22A-S-0319
**Collection Date:** 3/19/2019 10:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 820 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-007

**Client Sample ID:** C-R27-D-0319
**Collection Date:** 3/19/2019 11:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 820 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-008

**Client Sample ID:** C-R27-S-0319
**Collection Date:** 3/19/2019 12:05:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 820 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-009

**Client Sample ID:** C-TAZ-D-0319
**Collection Date:** 3/19/2019 8:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 810 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-910-Q119 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:05:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 830 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:05:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 820 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-012

**Client Sample ID:** R-28-0319
**Collection Date:** 3/19/2019 12:25:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 820 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-013

**Client Sample ID:** R63-0319
**Collection Date:** 3/19/2019 10:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 820 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | SW1-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 2:00:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-014 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 920 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | SW2-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 2:15:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-015 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190320B** | QC Batch: **R132629** | | PrepDate | | | | Analyst: **LR** |
| Specific Conductance | 890 | 0.10 | 0.10 | | umhos/cm | 1 | 3/20/2019 10:45 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID | N034688-001DDUP | SampType: | DUP | TestCode: | 120.1_WPGE | Units: | umhos/cm | Prep Date: | | RunNo: | 132629 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132629 | TestNo: | EPA 120.1 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323318 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 809.000 | 0.10 | | | | | | 815.0 | 0.739 | 2 | |

| Sample ID | N034688-015CDUP | SampType: | DUP | TestCode: | 120.1_WPGE | Units: | umhos/cm | Prep Date: | | RunNo: | 132629 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132629 | TestNo: | EPA 120.1 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323334 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 891.000 | 0.10 | | | | | | 893.0 | 0.224 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-004

**Client Sample ID:** MW-909-Q119
**Collection Date:** 3/19/2019 9:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-007

**Client Sample ID:** C-R27-D-0319
**Collection Date:** 3/19/2019 11:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-008

**Client Sample ID:** C-R27-S-0319
**Collection Date:** 3/19/2019 12:05:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-010

**Client Sample ID:** MW-910-Q119
**Collection Date:** 3/19/2019 11:05:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-011

**Client Sample ID:** C-TAZ-S-0319
**Collection Date:** 3/19/2019 9:05:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-012

**Client Sample ID:** R-28-0319
**Collection Date:** 3/19/2019 12:25:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-013

**Client Sample ID:** R63-0319
**Collection Date:** 3/19/2019 10:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.3 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-014

**Client Sample ID:** SW1-0319
**Collection Date:** 3/19/2019 2:00:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.5 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | SW2-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 2:15:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-015 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190320A** | QC Batch: **R132628** | | | PrepDate | | | Analyst: **LR** |
| pH | 7.4 | 0.10 | 0.10 | H | pH Units | 1 | 3/20/2019 10:05 AM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/20/2019 10:05 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 150.1_4500H+B_W**

Sample ID **N034688-001DDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **132628**
Client ID: **ZZZZZZ** Batch ID: **R132628** TestNo: **SM4500-H+B** Analysis Date: **3/20/2019** SeqNo: **3323301**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 8.210 | 0.10 | | | | | | 8.170 | 0.488 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

Sample ID **N034688-012DDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **132628**
Client ID: **ZZZZZZ** Batch ID: **R132628** TestNo: **SM4500-H+B** Analysis Date: **3/20/2019** SeqNo: **3323313**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 8.270 | 0.10 | | | | | | 8.240 | 0.363 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190320C** QC Batch: **73004** | | | | PrepDate | **3/20/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/20/2019 11:17 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190320C** QC Batch: **73004** | | | | PrepDate | **3/20/2019** | Analyst: **LR** | |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/20/2019 11:17 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190320C** QC Batch: **73004** | | | | PrepDate | **3/20/2019** | Analyst: **LR** | |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/20/2019 11:17 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-909-Q119 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190320C** QC Batch: **73004** | | | | PrepDate | **3/20/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/20/2019 11:17 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190320C** | QC Batch: **73004** | | | PrepDate | **3/20/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/20/2019 11:17 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190320C** QC Batch: **73004** | | | | PrepDate | **3/20/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/20/2019 11:17 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190320C** | QC Batch: **73004** | | | | PrepDate | **3/20/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/20/2019 11:17 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 12:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190320C** | QC Batch: **73004** | | | | PrepDate | **3/20/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/20/2019 11:17 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190320C** | QC Batch: **73004** | | | PrepDate | **3/20/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/20/2019 11:17 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-910-Q119 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:05:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190320C** QC Batch: **73004** | | | | | PrepDate **3/20/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/20/2019 11:17 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-011

**Client Sample ID:** C-TAZ-S-0319
**Collection Date:** 3/19/2019 9:05:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322C** | QC Batch: **73044** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-28-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 12:25:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190322C** | QC Batch: **73044** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R63-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:15:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322C** | QC Batch: **73044** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.2_2540D_W**

| Sample ID | LCS-73004 | SampType: | LCS | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 3/20/2019 | RunNo: | 132639 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73004 | TestNo: | SM2540D | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323546 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | 941.000 | 10 | 1000 | 0 | 94.1 | 80 | 120 | | | | |

| Sample ID | MB-73004 | SampType: | MBLK | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 3/20/2019 | RunNo: | 132639 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73004 | TestNo: | SM2540D | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323547 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 10 | | | | | | | | | |

| Sample ID | N034688-001DDUP | SampType: | DUP | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 3/20/2019 | RunNo: | 132639 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73004 | TestNo: | SM2540D | | | Analysis Date: | 3/20/2019 | SeqNo: | 3323549 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 5.0 | | | | | | 0 | 0 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.2_2540D_W**

| Sample ID | LCS-73044 | SampType: | LCS | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 3/22/2019 | RunNo: | 132712 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73044 | TestNo: | SM2540D | | | Analysis Date: | 3/22/2019 | SeqNo: | 3326861 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | 941.000 | 10 | 1000 | 0 | 94.1 | 80 | 120 | | | | |

| Sample ID | MB-73044 | SampType: | MBLK | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 3/22/2019 | RunNo: | 132712 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73044 | TestNo: | SM2540D | | | Analysis Date: | 3/22/2019 | SeqNo: | 3326862 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 10 | | | | | | | | | |

| Sample ID | N034708-011DDUP | SampType: | DUP | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 3/22/2019 | RunNo: | 132712 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73044 | TestNo: | SM2540D | | | Analysis Date: | 3/22/2019 | SeqNo: | 3326867 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 5.0 | | | | | | 0 | 0 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | **EPA 218.6** | | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 10:39 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 08:56 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | **EPA 218.6** | | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 10:58 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 08:50 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | **EPA 218.6** | | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 11:17 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 09:02 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-004

**Client Sample ID:** MW-909-Q119
**Collection Date:** 3/19/2019 9:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 11:36 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 09:08 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-005

**Client Sample ID:** C-R22A-D-0319
**Collection Date:** 3/19/2019 10:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 12:14 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 09:14 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-006

**Client Sample ID:** C-R22A-S-0319
**Collection Date:** 3/19/2019 10:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 12:33 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 09:20 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-007

**Client Sample ID:** C-R27-D-0319
**Collection Date:** 3/19/2019 11:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 12:52 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 09:26 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 12:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 01:11 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 09:32 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-009

**Client Sample ID:** C-TAZ-D-0319
**Collection Date:** 3/19/2019 8:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 01:30 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 09:38 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-010

**Client Sample ID:** MW-910-Q119
**Collection Date:** 3/19/2019 11:05:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 02:37 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 09:43 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-011

**Client Sample ID:** C-TAZ-S-0319
**Collection Date:** 3/19/2019 9:05:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 02:57 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 10:01 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-28-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 12:25:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 03:16 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | | **EPA 3010A** | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 10:07 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R63-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:15:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** | QC Batch: **R132680** | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 03:35 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 10:13 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-014

**Client Sample ID:** SW1-0319
**Collection Date:** 3/19/2019 2:00:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 04:13 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 10:19 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-015

**Client Sample ID:** SW2-0319
**Collection Date:** 3/19/2019 2:15:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190320A** QC Batch: **R132680** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/20/2019 04:32 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** QC Batch: **73030** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/1/2019 10:25 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | MB-R132680 | SampType: | MBLK | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325625 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID | LCS-R132680 | SampType: | LCS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325626 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.186 | 0.20 | 5.000 | 0 | 104 | 90 | 110 | | | | |

| Sample ID | N034688-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325628 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.988 | 0.20 | 1.000 | 0 | 98.8 | 90 | 110 | | | | |

| Sample ID | N034688-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325630 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.995 | 0.20 | 1.000 | 0 | 99.5 | 90 | 110 | | | | |

| Sample ID | N034688-003AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325632 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.991 | 0.20 | 1.000 | 0 | 99.1 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **N034688-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132680**
Client ID: **ZZZZZZ** Batch ID: **R132680** TestNo: **EPA 218.6** Analysis Date: **3/20/2019** SeqNo: **3325634**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.994 | 0.20 | 1.000 | 0 | 99.4 | 90 | 110 | | | | |

Sample ID **N034688-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132680**
Client ID: **ZZZZZZ** Batch ID: **R132680** TestNo: **EPA 218.6** Analysis Date: **3/20/2019** SeqNo: **3325638**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.021 | 0.20 | 1.000 | 0 | 102 | 90 | 110 | | | | |

Sample ID **N034688-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132680**
Client ID: **ZZZZZZ** Batch ID: **R132680** TestNo: **EPA 218.6** Analysis Date: **3/20/2019** SeqNo: **3325640**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.981 | 0.20 | 1.000 | 0 | 98.1 | 90 | 110 | | | | |

Sample ID **N034688-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132680**
Client ID: **ZZZZZZ** Batch ID: **R132680** TestNo: **EPA 218.6** Analysis Date: **3/20/2019** SeqNo: **3325642**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.988 | 0.20 | 1.000 | 0 | 98.8 | 90 | 110 | | | | |

Sample ID **N034688-008AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132680**
Client ID: **ZZZZZZ** Batch ID: **R132680** TestNo: **EPA 218.6** Analysis Date: **3/20/2019** SeqNo: **3325644**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.004 | 0.20 | 1.000 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **N034688-009AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132680**
Client ID: **ZZZZZZ** Batch ID: **R132680** TestNo: **EPA 218.6** Analysis Date: **3/20/2019** SeqNo: **3325646**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.021 | 0.20 | 1.000 | 0 | 102 | 90 | 110 | | | | |

Sample ID **N034688-001AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132680**
Client ID: **ZZZZZZ** Batch ID: **R132680** TestNo: **EPA 218.6** Analysis Date: **3/20/2019** SeqNo: **3325649**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.008 | 0.20 | 1.000 | 0 | 101 | 90 | 110 | 0.9883 | 1.99 | 20 | |

Sample ID **N034688-009ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132680**
Client ID: **ZZZZZZ** Batch ID: **R132680** TestNo: **EPA 218.6** Analysis Date: **3/20/2019** SeqNo: **3325650**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | 0 | 0 | 20 | |

Sample ID **N034688-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132680**
Client ID: **ZZZZZZ** Batch ID: **R132680** TestNo: **EPA 218.6** Analysis Date: **3/20/2019** SeqNo: **3325652**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.030 | 0.20 | 1.000 | 0 | 103 | 90 | 110 | | | | |

Sample ID **N034688-011AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132680**
Client ID: **ZZZZZZ** Batch ID: **R132680** TestNo: **EPA 218.6** Analysis Date: **3/20/2019** SeqNo: **3325654**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.028 | 0.20 | 1.000 | 0 | 103 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034688-012AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325656 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.079 | 0.20 | 1.000 | 0 | 108 | 90 | 110 | | | | |

| Sample ID | N034688-013AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325658 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.038 | 0.20 | 1.000 | 0 | 104 | 90 | 110 | | | | |

| Sample ID | N034688-014AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325662 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.086 | 0.20 | 1.000 | 0 | 109 | 90 | 110 | | | | |

| Sample ID | N034688-015AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132680 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132680 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/20/2019 | SeqNo: | 3325664 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.010 | 0.20 | 1.000 | 0 | 101 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | MB-73030 | SampType: | MBLK | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132910 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73030 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/1/2019 | SeqNo: | 3336424 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-73030 | SampType: | LCS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132910 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73030 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/1/2019 | SeqNo: | 3336425 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.331 | 1.0 | 10.00 | 0 | 103 | 85 | 115 | | | | |

| Sample ID | N034644-001AMS | SampType: | MS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132910 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73030 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/1/2019 | SeqNo: | 3336443 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 4545.997 | 50 | 10.00 | 4451 | 954 | 75 | 125 | | | | S |

| Sample ID | N034644-001AMSD | SampType: | MSD | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132910 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73030 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/1/2019 | SeqNo: | 3336444 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 4443.203 | 50 | 10.00 | 4451 | -74.3 | 75 | 125 | 4546 | 2.29 | 20 | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID **N034644-001A-PS** | SampType: **PS** | TestCode: **6020DIS_CrP** | Units: **µg/L** | | Prep Date: | | | | | RunNo: **132910** | |
| Client ID: **ZZZZZZ** | Batch ID: **73030** | TestNo: **EPA 6020** | **EPA 3010A** | | Analysis Date: **4/1/2019** | | | | | SeqNo: **3336442** | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Chromium | 4495.667 | 50 | 10.00 | 4451 | 450 | 80 | 120 | | | | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-BNS-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.42 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.40 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.41 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-909-Q119 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.40 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-005

**Client Sample ID:** C-R22A-D-0319
**Collection Date:** 3/19/2019 10:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.37 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | Analyst: **QBM** | |
| Nitrate/Nitrite as N | 0.41 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.40 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-008

**Client Sample ID:** C-R27-S-0319
**Collection Date:** 3/19/2019 12:05:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.36 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.41 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-910-Q119 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:05:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.38 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:05:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-28-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 12:25:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.38 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R63-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:15:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190327B** | QC Batch: **R132808** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.36 | 0.032 | 0.050 | | mg/L | 1 | 3/27/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **MB-R132808** | **MBLK** | **4500N03F_W** | **mg/L** | | **132808** |
| Client ID: **PBW** | Batch ID: **R132808** | TestNo: **SM4500-NO3** | | Analysis Date: **3/27/2019** | SeqNo: **3331137** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **LCS-R132808** | **LCS** | **4500N03F_W** | **mg/L** | | **132808** |
| Client ID: **LCSW** | Batch ID: **R132808** | TestNo: **SM4500-NO3** | | Analysis Date: **3/27/2019** | SeqNo: **3331138** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.509 | 0.050 | 0.5000 | 0 | 102 | 85 | 115 | | | | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **N034688-003EDUP** | **DUP** | **4500N03F_W** | **mg/L** | | **132808** |
| Client ID: **ZZZZZZ** | Batch ID: **R132808** | TestNo: **SM4500-NO3** | | Analysis Date: **3/27/2019** | SeqNo: **3331142** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.407 | 0.050 | | | | | | 0.4072 | 0 | 20 | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **N034688-004EMS** | **MS** | **4500N03F_W** | **mg/L** | | **132808** |
| Client ID: **ZZZZZZ** | Batch ID: **R132808** | TestNo: **SM4500-NO3** | | Analysis Date: **3/27/2019** | SeqNo: **3331144** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.893 | 0.050 | 0.5000 | 0.3951 | 99.6 | 75 | 125 | | | | |

| Sample ID | SampType | TestCode | Units | Prep Date | RunNo |
|---|---|---|---|---|---|
| **N034688-004EMSD** | **MSD** | **4500N03F_W** | **mg/L** | | **132808** |
| Client ID: **ZZZZZZ** | Batch ID: **R132808** | TestNo: **SM4500-NO3** | | Analysis Date: **3/27/2019** | SeqNo: **3331145** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.928 | 0.050 | 0.5000 | 0.3951 | 106 | 75 | 125 | 0.8930 | 3.79 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-001

**Client Sample ID:** C-BNS-0319
**Collection Date:** 3/19/2019 11:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 05:54 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/29/2019 08:00 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-I-3-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 22 | 18 | 20 | | ug/L | 1 | 3/28/2019 06:15 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | 82 | 18 | 20 | | ug/L | 1 | 3/28/2019 09:33 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-003

**Client Sample ID:** C-I-3-S-0319
**Collection Date:** 3/19/2019 9:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 06:19 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 09:36 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-909-Q119 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 06:23 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 09:40 PM |

| | | | | | |
|---|---|---|---|---|---|
| **Qualifiers:** | B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| | H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| | S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| | DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-D-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:55:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 06:36 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 09:44 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R22A-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 06:40 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | 20 | 18 | 20 | | ug/L | 1 | 3/28/2019 09:48 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-007

**Client Sample ID:** C-R27-D-0319
**Collection Date:** 3/19/2019 11:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 25 | 18 | 20 | | ug/L | 1 | 3/28/2019 06:43 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | 45 | 18 | 20 | | ug/L | 1 | 3/28/2019 10:01 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-R27-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 12:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 06:47 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | 25 | 18 | 20 | | ug/L | 1 | 3/28/2019 10:05 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-009

**Client Sample ID:** C-TAZ-D-0319
**Collection Date:** 3/19/2019 8:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 06:51 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | 31 | 18 | 20 | | ug/L | 1 | 3/28/2019 10:09 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-910-Q119 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 11:05:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 06:55 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | 23 | 18 | 20 | | ug/L | 1 | 3/28/2019 10:12 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-011

**Client Sample ID:** C-TAZ-S-0319
**Collection Date:** 3/19/2019 9:05:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190408A** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 4/8/2019 10:11 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 10:16 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-28-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 12:25:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 07:02 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 10:20 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-013

**Client Sample ID:** R63-0319
**Collection Date:** 3/19/2019 10:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73016** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 07:06 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73002** | | | PrepDate | **3/20/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 10:24 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **MB-73016** | SampType: **MBLK** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **3/21/2019** | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **73016** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3332987** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID **LCS-73016** | SampType: **LCS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **3/21/2019** | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **73016** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3332988** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 100.897 | 20 | 100.0 | 0 | 101 | 85 | 115 | | | | |

| Sample ID **N034688-001B-MS** | SampType: **MS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **3/21/2019** | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73016** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3332992** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 126.030 | 20 | 100.0 | 0 | 126 | 75 | 125 | | | | S |

| Sample ID **N034688-001B-MSD** | SampType: **MSD** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **3/21/2019** | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73016** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3332993** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 125.296 | 20 | 100.0 | 0 | 125 | 75 | 125 | 126.0 | 0.584 | 20 | S |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID | MB-73002 | SampType: | MBLK | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 3/20/2019 | RunNo: | 132851 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73002 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333187 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID | LCS-73002 | SampType: | LCS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 3/20/2019 | RunNo: | 132851 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73002 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333188 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 95.596 | 20 | 100.0 | 0 | 95.6 | 85 | 115 | | | | |

| Sample ID | N034688-001C-MS | SampType: | MS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 3/20/2019 | RunNo: | 132851 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73002 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333196 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 118.377 | 20 | 100.0 | 19.63 | 98.7 | 75 | 125 | | | | |

| Sample ID | N034688-001C-MSD | SampType: | MSD | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 3/20/2019 | RunNo: | 132851 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73002 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333197 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 118.650 | 20 | 100.0 | 19.63 | 99.0 | 75 | 125 | 118.4 | 0.230 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID **N034688-001B-PS** | SampType: **PS** | TestCode: **6010_WDPG** | Units: **ug/L** | | Prep Date: | | | | | RunNo: **132850** | | |
| Client ID: **ZZZZZZ** | Batch ID: **73016** | TestNo: **EPA 6010B** | **EPA 3010A** | | Analysis Date: **3/28/2019** | | | | | SeqNo: **3332991** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Iron | 104.589 | 20 | 100.0 | 0 | 105 | 80 | 120 | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID | N034688-001C-PS | SampType: | PS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | | RunNo: | 132851 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73002 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333195 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 118.631 | 20 | 100.0 | 19.63 | 99.0 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-001

**Client Sample ID:** C-BNS-0319
**Collection Date:** 3/19/2019 11:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 08:56 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 08:56 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 08:56 PM |
| Molybdenum | 5.2 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 08:56 PM |
| Selenium | 1.4 | 0.36 | 0.50 | | µg/L | 1 | 4/1/2019 08:56 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-002

**Client Sample ID:** C-I-3-D-0319
**Collection Date:** 3/19/2019 9:30:00 AM
**Matrix:** GROUNDWATER

## DISSOLVED METALS BY ICP-MS

**EPA 3010A** **EPA 6020**

RunID: **NV00922-ICP7_190401B** QC Batch: **73030** PrepDate **3/22/2019** Analyst: **CEI**

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| Arsenic | 2.4 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 08:50 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 08:50 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 08:50 PM |
| Molybdenum | 5.6 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 08:50 PM |
| Selenium | 1.9 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 09:10 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-003

**Client Sample ID:** C-I-3-S-0319
**Collection Date:** 3/19/2019 9:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 09:02 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 09:02 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 09:02 PM |
| Molybdenum | 5.2 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 09:02 PM |
| Selenium | 2.1 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 09:17 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-004

**Client Sample ID:** MW-909-Q119
**Collection Date:** 3/19/2019 9:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 09:08 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 09:08 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 09:08 PM |
| Molybdenum | 5.6 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 09:08 PM |
| Selenium | 2.4 | 0.36 | 0.50 | | µg/L | 1 | 4/1/2019 09:08 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**ASSET Laboratories**

# ANALYTICAL RESULTS

**Print Date:** *05-Apr-19*

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-005

**Client Sample ID:** C-R22A-D-0319
**Collection Date:** 3/19/2019 10:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 09:14 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 09:14 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 09:14 PM |
| Molybdenum | 5.3 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 09:14 PM |
| Selenium | 1.9 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 05:36 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-006

**Client Sample ID:** C-R22A-S-0319
**Collection Date:** 3/19/2019 10:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.4 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 09:20 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 09:20 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 09:20 PM |
| Molybdenum | 5.4 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 09:20 PM |
| Selenium | 1.7 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 09:22 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-007

**Client Sample ID:** C-R27-D-0319
**Collection Date:** 3/19/2019 11:55:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 09:26 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 09:26 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 09:26 PM |
| Molybdenum | 5.1 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 09:26 PM |
| Selenium | 1.5 | 0.36 | 0.50 | | µg/L | 1 | 4/1/2019 09:26 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-008

**Client Sample ID:** C-R27-S-0319
**Collection Date:** 3/19/2019 12:05:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 09:32 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 09:32 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 09:32 PM |
| Molybdenum | 4.8 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 09:32 PM |
| Selenium | 1.8 | 0.36 | 0.50 | | µg/L | 1 | 4/1/2019 09:32 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-009

**Client Sample ID:** C-TAZ-D-0319
**Collection Date:** 3/19/2019 8:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 09:38 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 09:38 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 09:38 PM |
| Molybdenum | 4.9 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 09:38 PM |
| Selenium | 1.3 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 09:27 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-010

**Client Sample ID:** MW-910-Q119
**Collection Date:** 3/19/2019 11:05:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.3 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 09:43 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 09:43 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 09:43 PM |
| Molybdenum | 5.2 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 09:43 PM |
| Selenium | 1.3 | 0.36 | 0.50 | | µg/L | 1 | 4/1/2019 09:43 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-TAZ-S-0319 |
| **Lab Order:** | N034688 | **Collection Date:** | 3/19/2019 9:05:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034688-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | | PrepDate | **3/22/2019** | Analyst: **CEI** |
| Arsenic | 2.3 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 10:01 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 10:01 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 10:01 PM |
| Molybdenum | 5.3 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 10:01 PM |
| Selenium | 2.1 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 09:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-012

**Client Sample ID:** R-28-0319
**Collection Date:** 3/19/2019 12:25:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 10:07 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 10:07 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 10:07 PM |
| Molybdenum | 5.3 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 10:07 PM |
| Selenium | 2.0 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 09:43 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034688-013

**Client Sample ID:** R63-0319
**Collection Date:** 3/19/2019 10:15:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190401B** | QC Batch: **73030** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/1/2019 10:13 PM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/1/2019 10:13 PM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/1/2019 10:13 PM |
| Molybdenum | 5.1 | 0.21 | 0.50 | | µg/L | 1 | 4/1/2019 10:13 PM |
| Selenium | 1.9 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 09:47 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **MB-73030** | SampType: **MBLK** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **73030** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/1/2019** | SeqNo: **3336546** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **LCS-73030** | SampType: **LCS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **73030** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/1/2019** | SeqNo: **3336547** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.934 | 0.10 | 10.00 | 0 | 99.3 | 85 | 115 | | | | |
| Barium | 10.365 | 1.0 | 10.00 | 0 | 104 | 85 | 115 | | | | |
| Manganese | 104.597 | 0.50 | 100.0 | 0 | 105 | 85 | 115 | | | | |
| Molybdenum | 9.595 | 0.50 | 10.00 | 0 | 95.9 | 85 | 115 | | | | |
| Selenium | 10.789 | 0.50 | 10.00 | 0 | 108 | 85 | 115 | | | | |

| Sample ID **N034644-001AMS** | SampType: **MS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73030** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/1/2019** | SeqNo: **3336551** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.743 | 0.10 | 10.00 | 1.154 | 106 | 75 | 125 | | | | |
| Barium | 43.579 | 1.0 | 10.00 | 33.92 | 96.6 | 75 | 125 | | | | |
| Manganese | 170.821 | 0.50 | 100.0 | 71.49 | 99.3 | 75 | 125 | | | | |
| Molybdenum | 36.622 | 0.50 | 10.00 | 24.01 | 126 | 75 | 125 | | | | S |
| Selenium | 22.718 | 0.50 | 10.00 | 11.76 | 110 | 75 | 125 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | N034644-001AMSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132910 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73030 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/1/2019 | SeqNo: | 3336552 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.854 | 0.10 | 10.00 | 1.154 | 107 | 75 | 125 | 11.74 | 0.935 | 20 | |
| Barium | 43.768 | 1.0 | 10.00 | 33.92 | 98.5 | 75 | 125 | 43.58 | 0.432 | 20 | |
| Manganese | 172.302 | 0.50 | 100.0 | 71.49 | 101 | 75 | 125 | 170.8 | 0.863 | 20 | |
| Molybdenum | 36.802 | 0.50 | 10.00 | 24.01 | 128 | 75 | 125 | 36.62 | 0.489 | 20 | S |
| Selenium | 21.333 | 0.50 | 10.00 | 11.76 | 95.7 | 75 | 125 | 22.72 | 6.29 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | **N034644-001A-PS** | SampType: **PS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **73030** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/1/2019** | SeqNo: **3336550** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.664 | 0.10 | 10.00 | 1.154 | 105 | 80 | 120 | | | | |
| Barium | 42.722 | 1.0 | 10.00 | 33.92 | 88.0 | 80 | 120 | | | | |
| Manganese | 169.616 | 0.50 | 100.0 | 71.49 | 98.1 | 80 | 120 | | | | |
| Molybdenum | 36.604 | 0.50 | 10.00 | 24.01 | 126 | 80 | 120 | | | | S |
| Selenium | 21.338 | 0.50 | 10.00 | 11.76 | 95.8 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SAMPLE RECEIVING ITEMS

N034688

# ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

## CHAIN OF CUSTODY RECORD


Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com


Page 1 of 3

| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID: |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State: |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.mgore@critigen.com | Address: | Sample Receipt Condition: 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number; 6. Method of Cooling: ICE 3.1°C/3.1°C |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661 | Email to: mbloes@pivox.com P.O.# | Sample Temp: 4.3°C/3.8°C/3.8°C/3.4°C |
| Submitted By: Jason Main | Phone: 916-786-3302 Fax: | Phone: 949-727-1400, ext 200 Fax: | |
| Title: Project manager | | | |
| Signature: Date: 3/19/19 | Sampled By: Nana Tay | | Courier: ASSET |
| I hereby authorize ASSET Labs to perform the tests indicated below. | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | | Tracking No.: |
| Project Name: PG&E Topock - RMP | Signature: Date: 3/19/19 | | |
| Project Number: RC000753.801D | | | |

Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly) | Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH | Dissolved metals (SW6010B/SW6020Ads) FF; HNO3 Cr (500mL poly) | Dissolved metals (SW6010B/SW6020Ads) FF; HNO3 Ca, Mg, K, Na, B (500mL poly) | Dissolved metals (SW6010B/SW6020Ads) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (500mL poly) | Total metals (SW6010B); HNO3 Fe (500 mL poly) | Anions (E300.0); Br, Cl, SO4 (1 liter poly) | Specific Conductance (E120.1) (1 liter poly) | pH (SM4500HB) (1 liter poly) | TDS (SM2540C) (1 liter poly) | Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly) | TSS (SM2540) (1 liter poly) | Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 (125 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034688-01 | C-BNS-0319 | 3/19/2019 | 11:30 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | BNS |
| 4 | -02 | C-I-3-D-0319 | 3/19/2019 | 09:30 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | BNS |
| 8 | -03 | C-I-3-S-0319 | 3/19/2019 | 09:45 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | BNS |
| 13 | -04 | MW-909-Q119 | 3/19/2019 | 9:55 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | BNS |

| Relinquished by (Signature and Printed Name) | Date/Time | Received by (Signature and Printed Name) | Date/Time |
|---|---|---|---|
| Nana Tay | 3/19/19 1600 | JORDAN LEE | 3/19/19 1600 |
| JORDAN LEE | 3/19/19 1821 | JORDAN LEE | 3/19/19 1821 |
| | | | |

**Turn Around Time (TAT)**

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis.
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

| Preservatives: | | | | Container Type: | | |
|---|---|---|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C | T=Tube | V=VOA | P=Pint |
| Z=$Zn(AC)_2$ | O=NaOH | T=$Na_2S_2O_3$ | | J=Jar | B=Tedlar | G=Glass |
| Others/Specify: | B | (NH4)2SO4/NH4OH | | M=Metal | M=Metal | C=Can |

White=Laboratory Copy

Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436
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# CHAIN OF CUSTODY RECORD

Page 2 of 3

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement | | QA/QC | | Sample Receipt Condition |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | Excel EDD | | RTNE | | Y N |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@critigen.com | Address: | Geotracker | | RWQCB | ✓ | 1. Chilled |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@pivox.com P.O.# | Labspec | | CalTrans | | 2. Headspace |
| Submitted By: Jason Mahn | | Phone: 949-727-1400, ext 200 Fax: | Others | ✓ | LEVEL III | | 3. Container Intact |
| Title: Project Manager | Phone: 916-786-3302 Fax: | | Specify: RWQCB | | LEVEL IV | | 4. Seal Present |
| Signature: Date: 3/19/19 | Sampled By: Nam Tay | | Global ID: | | Regulatory | | 5. IR number |
| I hereby authorize ASSET Labs to perform the tests indicated below | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | Matrix: Ground x Sediment; Potable Soil; NPDES Other Solid; Surface | | | Specify State: | | 6. Method of Cooling: ICE 3.1°/3.1° |
| Project Name: PG&E Topock - RMP | Signature: Date: 3/19/19 | | | | | | Sample Temp: 3.8°/3.8°/3.4° 4.3° |
| Project Number: RC000753.0801 | | | | | | | Courier: ASSET Tracking No.: |

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 3x250 mL poly | Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr 500mL poly | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B 500mL poly | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba 500mL poly | Total metals (SW6010B); HNO3 Fe 500 mL poly | Anions (E300.0); Br, Cl, SO4 1 liter poly | Specific Conductance (E120.1) 1 liter poly | pH (SM4500HB) 1 liter poly | TDS (SM2540C) 1 liter poly | Alkalinity (Total, reported as CaCO3) (SM2320B) 1 liter poly | TSS (SM2540) 1 liter poly | Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 125 mL poly | Oxygen and deuterium stable isotopes (CFIRM) 1 250 mL poly | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | N034688-05 | C-R22A-D-0319 | 3/19/2019 | 10:55 | | X | | X | | X | X | | X | X | | | X | X | | E | 7 | P | BNS | |
| 3 | -06 | C-R22A-S-0319 | 3/19/2019 | 10:45 | | X | | X | | X | X | | X | X | | | X | X | | E | 7 | P | BNS | |
| 4 | -07 | C-R27-D-0319 | 3/19/2019 | 11:55 | | X | | X | | X | X | | X | X | | | X | X | | E | 7 | P | BNS | |
| 5 | -08 | C-R27-S-0319 | 3/19/2019 | 12:05 | | X | | X | | X | X | | X | X | | | X | X | | E | 7 | P | BNS | |
| | -09 | C-TAZ-D-0319 | 3/19/2019 | 08:50 | | X | | X | | X | X | | X | X | | | X | X | | E | 7 | P | BNS | |
| 7 | -10 | MW-910-Q119 | 3/19/2019 | 11:05 | | X | | X | | X | X | | X | X | | | X | X | | E | 7 | P | BNS | |
| 8 | -11 | C-TAZ-S-0319 | 3/19/2019 | 09:05 | | X | | X | | X | X | | X | X | | | X | X | | E | 7 | P | BNS | |
| 10 | -12 | R-28-0319 | 3/19/2019 | 12:25 | | X | | X | | X | X | | X | X | | | X | X | | E | 7 | P | BNS | |
| 11 | -13 | R63-0319 | 3/19/2019 | 10:15 | | X | | X | | X | X | | X | X | | | X | X | | E | 7 | P | BNS | |
| 13 | -14 | SW1-0319 | 3/19/2019 | 14:00 | | X | | X | | | | | X | X | | | | | | E | 5 | P | BNS | |
| 14 | -15 | SW2-0319 | 3/19/2019 | 14:15 | | X | | X | | | | | X | X | | | | | | E | 5 | P | BNS | |

Relinquished by (Signature and Printed Name): Nam Tay Date/Time: 3/19/19 1300
Received by (Signature and Printed Name): JORDAN LEE Date/Time: 3/19/19 1600
Relinquished by (Signature and Printed Name): JORDAN LEE Date/Time: 3/19/19 1821
Received by (Signature and Printed Name): Date/Time:

**Turn Around Time (TAT)**

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

| Preservatives: | | | | Container Type: | | |
|---|---|---|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C | T=Tube | V=VOA | P=Pint |
| Z=Zn(AC)$_2$ | O=NaOH | T=$Na_2S_2O_3$ | | J=Jar | B=Tedlar | G=Glass |
| Others/Specify: | B | (NH4)2SO4/NH4OH | | M=Metal | M=Metal | C=Can |

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD

Page 3 of 3

| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID: |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State: |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.mgore@critigen.com | Address: | Sample Receipt Condition: Y / N |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@pivox.com P.O.# | 1. Chilled ✓ |
| Submitted By: Jason Mahr | | Phone: 949-727-1400, ext 200 Fax: | 2. Headspace |
| Title: Project Manager | Phone: 916-786-3302 Fax: | | 3. Container Intact ✓ |
| Signature: Date: 3/19/19 | Sampled By: Nana Tay | | 4. Seal Present ✓ |
| I hereby authorize ASSET Labs to perform the tests indicated below | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | | 5. IR number 4.3 / 3.8 / 3.8 / 3.4 |
| Project Name: PG&E Topock - RMP | Signature: Date: 3/19/19 | | 6. Method of Cooling: ICE 3.1 / 3.1 |
| Project Number: RC000753.0801 | | | Sample Temp: |

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Courier: Asset
Tracking No.:

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly) | Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 ml Poly) | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (500 mL poly) | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (500 mL poly) | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (500 mL poly) | Total metals (SW6010B); HNO3 Fe (500 mL poly) | Anions (E300.0); Br, Cl, SO4 (1 liter poly) | Specific Conductance (E120.1) (1 liter poly) | pH (SM4500HB) (1 liter poly) | TDS (SM2540C) (1 liter poly) | Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly) | TSS (SM2540) (1 liter poly) | Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 (125 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N034688-16 | Ambientblank-1-0319 | 3/19/2019 | 10:20 | | | X | | | | | | | | | | | | E | 1 | P | BN | Hold |
| | -17 | Ambientblank-2-0319 | 3/19/2019 | 12:30 | | | X | | | | | | | | | | | | E | 1 | P | BN | Hold |

| Relinquished by (Signature and Printed Name): | Date/Time: | Received by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| Nana Tay | 3/19/19 1600 | JORDAN LEO | 3/19/19 1600 |
| JORDAN LEO | 3/19/19 1821 | JORDAN LEO | 3/19/19 1821 |
| | | | |

**Turn Around Time (TAT)**

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instruction:**

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

| Preservatives: | | | | Container Type: | | |
|---|---|---|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C | T=Tube | V=VOA | P=Pint |
| Z=$Zn(AC)_2$ | O=NaOH | T=$Na_2S_2O_3$ | | J=Jar | B=Tedlar | G=Glass |
| Others/Specify: | B | (NH4)2SO4/NH4OH | | M=Metal | M=Metal | C=Can |

White=Laboratory Copy
Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 3/19/2019 | Workorder: | N034688 |
| Rep sample Temp (Deg C): | 3.1/3.1/4.3/3.8/3.8/3.4 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | NA | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☐ | No ☑ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☑ | No ☐ | NA ☐ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments: Sampls for pH were past holding time upon receipt.

Checklist Completed By: YR 3/20/2019

Reviewed By: LG 032419

**Subject:** RE: PG&E Topock - RMP (Asset Labs No. N034688)
**From:** "Madsen, Laura" <Laura.Madsen@arcadis.com>
**Date:** 3/20/2019 1:06 PM
**To:** Yoandra Rodriguez <yoandra@assetlaboratories.com>
**CC:** "maryann.balilu@assetlaboratoriesph.com" <maryann.balilu@assetlaboratoriesph.com>, "'Andreafe. Gallardo'" <andrea.gallardo@assetlaboratories.com>, "'Sonny. Lorenzo'" <sonny.lorenzo@assetlaboratories.com>

Please use RC000753.801D

---

**From:** Yoandra Rodriguez <yoandra@assetlaboratories.com>
**Sent:** Wednesday, March 20, 2019 3:09 PM
**To:** Madsen, Laura <Laura.Madsen@arcadis.com>
**Cc:** maryann.balilu@assetlaboratoriesph.com; 'Andreafe. Gallardo' <andrea.gallardo@assetlaboratories.com>; 'Sonny. Lorenzo' <sonny.lorenzo@assetlaboratories.com>
**Subject:** PG&E Topock - RMP (Asset Labs No. N034688)

Hi Laura,

Please kindly confirm which Project number to use for the attached COC: RC000753.801D (page 1) or RC000753.801 (pages 2 and 3).

--
**Thanks,**

**Yoandra Rodriguez**
Sample Control Officer
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436

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# ASSET Laboratories

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034688

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/19/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-001A | C-BNS-0319 | 3/19/2019 11:30:00 AM | 4/2/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-001B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-001C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-001D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-001E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-002A | C-I-3-D-0319 | 3/19/2019 9:30:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-002B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-002C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-002D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |

# WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034688

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/19/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-002D | C-I-3-D-0319 | 3/19/2019 9:30:00 AM | 4/2/2019 | Groundwater | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-002E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-003A | C-I-3-S-0319 | 3/19/2019 9:45:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-003B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-003C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-003D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-003E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-004A | MW-909-Q119 | 3/19/2019 9:55:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-004B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034688

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/19/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-004B | MW-909-Q119 | 3/19/2019 9:55:00 AM | 4/2/2019 | Groundwater | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-004C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-004D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-004E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-005A | C-R22A-D-0319 | 3/19/2019 10:55:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-005B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-005C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-005D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |

# WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034688

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/19/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-005E | C-R22A-D-0319 | 3/19/2019 10:55:00 AM | 4/2/2019 | Groundwater | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-006A | C-R22A-S-0319 | 3/19/2019 10:45:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-006B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-006C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-006D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-006E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-007A | C-R27-D-0319 | 3/19/2019 11:55:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-007B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-007C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034688

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/19/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-007C | C-R27-D-0319 | 3/19/2019 11:55:00 AM | 4/2/2019 | Groundwater | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-007D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-007E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-008A | C-R27-S-0319 | 3/19/2019 12:05:00 PM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-008B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-008C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-008D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-008E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-009A | C-TAZ-D-0319 | 3/19/2019 8:50:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-009B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034688

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/19/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-009B | C-TAZ-D-0319 | 3/19/2019 8:50:00 AM | 4/2/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-009C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-009D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-009E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-010A | MW-910-Q119 | 3/19/2019 11:05:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-010B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-010C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-010D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |

# WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034688

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/19/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-010D | MW-910-Q119 | 3/19/2019 11:05:00 AM | 4/2/2019 | Groundwater | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-010E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-011A | C-TAZ-S-0319 | 3/19/2019 9:05:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-011B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-011C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-011D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-011E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-012A | R-28-0319 | 3/19/2019 12:25:00 PM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-012B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034688

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/19/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-012C | R-28-0319 | 3/19/2019 12:25:00 PM | 4/2/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-012D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-012E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-013A | R63-0319 | 3/19/2019 10:15:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-013B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-013C | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034688-013D | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | LSR |
| N034688-013E | | | 4/2/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034688-014A | SW1-0319 | 3/19/2019 2:00:00 PM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034688

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/19/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-014B | SW1-0319 | 3/19/2019 2:00:00 PM | 4/2/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-014C | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| N034688-015A | SW2-0319 | 3/19/2019 2:15:00 PM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034688-015B | | | 4/2/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/2/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034688-015C | | | 4/2/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 4/2/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | LSR |
| N034688-016A | Ambientblank-1-0319 | 3/19/2019 10:20:00 AM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☑ | ☐ | ☐ | WW |
| N034688-017A | Ambientblank-2-0319 | 3/19/2019 12:30:00 PM | 4/2/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☑ | ☐ | ☐ | WW |
| N034688-018A | FOLDER | 4/2/2019 | 4/2/2019 | | EDD | Client specific project | ☐ | ☐ | ☐ | LAB |
| | | | 4/2/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 4/2/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# List of Analysts

## ASSET Laboratories Work Order: N034688

| NAME | TEST METHOD |
|---|---|
| Quennie Manimtim | SM 4500-NO3F |
| Claire Ignacio | EPA 6010B_Dissolved, EPA 6010B, EPA 6020_Dissolved |
| Ria Abes | EPA 218.6 |
| Lilia Ramit | EPA 120.1, SM 4500-H+B, SM 2540D |

# EPA 120.1

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R132629 **Analyst:** LSR

**ASSET #:** N034688 **Date Analyzed:** 20-Mar

**Method:** EPA 120.1

| Initial Calibration | 1st Level Review Y | 1st Level Review N | 1st Level Review N/A | 2nd Level Review Y | 2nd Level Review N | 2nd Level Review N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | | | X | | | |
| 11. LCS compounds within control limits. | | | X | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 3/26/2019

2nd Level Reviewer: 4/1/2019 Date:

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

# Conductivity Logbook

**Date:** 3/19/19 1005
**Analyst:** LSR

| Standard | Std ID | Reading | Comments |
|---|---|---|---|
| 11.26 uS/cm | CNV-181011A | 11.35 @18.9°C | % Rec: (90-110%) |
| 1410 | 190107D | 1415 @19.0°C | |
| 9988 | 180731I | 10070 @18.9°C | |
| 99661 | 181218 | 100850 @18.8°C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | NB34662-001B | H2O | 2690 @17.9°C | |
| 2 | MBDUP | | 2710 @17.5°C | |
| 3 | 2B | | 2520 @17.4°C | |
| 4 | 3B | | 2550 @17.7°C | |
| 5 | 4B | | 2410 @17.7°C | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | 1413 uS/cm | CNV-181022A | 1445 @18.8°C | |
| 10 | 10000 | B | 9870 @18.9°C | |
| Dup | 99922 | CNV-190111H | 96100 @18.9°C | RPD Criteria: 2% |
| | Std Chk: | | | % Rec: (90-110%) |

**Date:** 3/20/19 1045
**Analyst:** LSR

Julia Ramit 3/26/2019

| Standard | Std ID | Reading | Comments |
|---|---|---|---|
| 11.26 uS/cm | CNV-181011A | 11.50 @19.6°C | % Rec: (90-110%) |
| 1410 | 190107D | 1405 @19.4°C | |
| 9965 | 190218B | 9940 @19.4°C | |
| 99661 | 181218 | 103400 @19.2°C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | NB34688-1D | H2O | 815 @18.4°C | |
| 2 | 1DDUP | | 809 @18.1°C | STD CHECK |
| 3 | 2D | | 821 @17.6°C | 1413 CNV181022A |
| 4 | 3D | | 893 @17.9°C | = 1434 @18.4°C |
| 5 | 4D | | 814 @17.6°C | 10000 CNV181022B |
| 6 | 5D | | 817 @17.4°C | = 9890 @19.0°C |
| 7 | 6D | | 819 @17.4°C | 99922 CNV190111H |
| 8 | 7D | | 819 @17.6°C | = 97700 @19.1°C |
| 9 | 8D | | 820 @17.8°C | |
| 10 | 9D | | 813 @17.4°C | |
| Dup | 10D | | 826 @17.5°C | RPD Criteria: 2% |
| | Std Chk: | | | % Rec: (90-110%) |

Logbook # 7

# Conductivity Logbook

Date: 3/20/19 1045
Analyst: LRR

CONT'D

| Standard | Std ID | Reading | Comments |
|---|---|---|---|
| 11.26 uS/cm | CNV-181011A | 11.50 @ 19.6°C | % Rec: (90-110%) |
| 1410 | 190107D | 1405 @ 19.4°C | |
| 9965 | 190218B | 9940 @ 19.4°C | |
| 99661 | 181121B | 103400 @ 19.2°C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | NOS4688-11D | H2O | 815 @ 17.8°C | |
| 2 | 12D | | 818 @ 17.6°C | |
| 3 | 13D | | 828 @ 17.4°C | |
| 4 | 14C | | 918 @ 17.7°C | |
| 5 | 15C | | 893 @ 17.8°C | |
| 6 | 15CDUP | | 891 @ 17.4°C | |
| 7 | | | | |
| 8 | | | | |
| 9 | 1413 uS/cm | CNV-181022A | 1430 @ 18.8°C | |
| 10 | 10000 | B | 9960 @ 19.1°C | |
| Dup | 99922 | CNV-190111H | 99100 @ 19.1°C | RPD Criteria: 2% |
| | Std Chk: | | | % Rec: (90-110%) |

Date: 3/21/19 1435
Analyst: LRR

Julia Ramit 3/26/2019

| Standard | Std ID | Reading | Comments |
|---|---|---|---|
| 11.26 uS/cm | CNV-181011A | 11.75 @ 20.5°C | % Rec: (90-110%) |
| 1410 | 190107D | 1435 @ 20.7°C | |
| 9965 | 190218B | 9970 @ 20.7°C | |
| 99661 | 181121B | 100100 @ 20.7°C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | NOS4708-1D | H2O | 922 @ 19.2°C | |
| 2 | 2D | | 908 @ 19.1°C | |
| 3 | 3D | | 904 @ 18.7°C | STD CHECK |
| 4 | 4D | | 903 @ 18.6°C | 1413 CNV 181022A |
| 5 | 5D | | 908 @ 18.6°C | = 1463 @ 20.3°C |
| 6 | 5DDUP | | 909 @ 18.3°C | 10000 CNV 181022 B |
| 7 | 6D | | 911 @ 18.4°C | = 9760 @ 20.5°C |
| 8 | 7D | | 908 @ 18.6°C | 99922 CNV 190111 H |
| 9 | 8D | | 906 @ 18.7°C | = 95600 @ 19.0°C |
| 10 | 9D | | 912 @ 18.8°C | |
| ~~Dup~~ | 10D | | 915 @ 19.0°C | RPD Criteria: 2% |
| | Std Chk: | | | % Rec: (90-110%) |

Logbook # 7

# SM 4500-H+B

# pH Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R132628 **Instrument ID:** pH meter

**ASSET #:** N034688 **Analyst:** LSR

**Date Analyzed:** 20-Mar

**Method:** EPA 150.1 / SM 4500H+B

| pH Meter Calibration | 1st Level Review Y | 1st Level Review N | 1st Level Review N/A | 2nd Level Review Y | 2nd Level Review N | 2nd Level Review N/A |
|---|---|---|---|---|---|---|
| 1. Was the meter calibrated using 3 buffers (4,7 and 10)? | X | | | | | |
| 2. Was a closing buffer used at the end of analysis? | X | | | | | |
| 3. Was the meter checked every 10 samples? | X | | | | | |
| **Sample Information** | | | | | | |
| 4. Are all samples analyzed within hold time. | | X | | | | |
| **QC Items** | | | | | | |
| 5. Was a duplicate sample analyzed? | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 6. Are Non-Conformances documented | | | X | | | |
| 7. Runlog complete and included in package. | X | | | | | |
| **Preliminary Report** | | | | | | |
| 8. Does the raw data match the preliminary report? | X | | | | | |
| 9. Are analytical results correct? | X | | | | | |
| 10. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 3/26/2019

2nd Level Reviewer: 4/3/2019 Date:

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

# pH Logbook

**Date:** 3/20/19 1005
**Analyst:** LKR

| Standard | Std ID | pH | Comments |
|---|---|---|---|
| Buffer 7 | CNV-190107A | 7.00 @25°C | |
| Buffer 4 | L B | 4.02 @ 25°C | |
| Buffer 10 | CNV-190111G | 10.02 @25°C | |
| Slope | | 96.9% | Acceptance Criteria: 95%-105% |

| | Sample ID | Matrix | pH | Comments |
|---|---|---|---|---|
| 1 | NO34688-1D | " H2O | 8.17 @25C | |
| 2 | 1DDUP | | 8.21 @25C | |
| 3 | 2D | | 8.24 @25C | |
| 4 | 3D | | 8.22 @25°C | |
| 5 | 4D | | 8.25 @25°C | |
| 6 | 5D | | 8.25 @25°C | |
| 7 | 6D | | 8.27 @25C | |
| 8 | 7D | | 8.21 @25C | |
| 9 | 8D | | 8.22 @25°C | |
| 10 | 9D | | 8.29 @25°C | |
| Dup | 10D | | 8.27 @25C | Accept: 10% water, 20% soil |
| | Buffer 7, 4, 10 (Circle one) | CNV-190218A | 6.98 @25°C | Accept: +/-0.05 pH units from expected value |

**Date:** _____ Julia Ramit 3/26/2019
**Analyst:** _____

| Standard | Std ID | pH | Comments |
|---|---|---|---|
| Buffer 7 | | | |
| Buffer 4 | CONTD | | |
| Buffer 10 | | | |
| Slope | | | Acceptance Criteria: 95%-105% |

| | Sample ID | Matrix | pH | Comments |
|---|---|---|---|---|
| 1 | NO34688-11D | H2O | 8.25 @25C | |
| 2 | 12D | | 8.24 @25C | |
| 3 | 12DDUP | | 8.27 @25C | |
| 4 | 13D | | 8.30 @25C | |
| 5 | 14DC | DI H2O | 7.48 @25°C | |
| 6 | 15C | | 7.45 @25C | |
| 7 | | | | |
| 8 | | | | Buffer 7 CNV190218A |
| 9 | | | | = 7.00 @ 25°C |
| 10 | | | | |
| Dup | | | | Accept: 10% water, 20% soil |
| Buffer | | | | Accept: +/-0.05 pH units from expected value |

# SM 2540D

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 73004/73044 **Analyst:** LSR

**ASSET #:** N034688 **Date Analyzed:** 3/20,3/22/19

**Method:** EPA 160.2 / SM 2540D

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | | | |
| 11. LCS compounds within control limits. | X | | | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 3/22/2019

2nd Level Reviewer: Nancy 4/3/2019 Date:

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** SM 2540D
**TEST NAME:** Total Non-Filterable Residue
**MATRIX:** Water

FORMULA:

Calculate TSS concentration in mg/L, in the original sample as follows:

$$\text{TSS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N034688-001D,** TSS concentration in mg/L is calculated as follows:

$$\text{TSS, mg/L} = \frac{(1.4069- 1.4064) *1000000}{200}$$
$$= 2.5 \text{ mg/L}$$

Since reporting limit is 10 mg/L, therefore:

TSS = ND mg/L

Julia Ramit 3/22/2019

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/20/2019 11:17:42**
Prep End Date: **3/20/2019 5:20:00 P**

Reviewed/ Date: 4/3/2019

Initials/ Date: Lilia Ramit 3/22/2019

Prep Batch **73004** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Temp. (°C): **105**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-73004 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-73004 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034688-001D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034688-001D-DU | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034688-002D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034688-003D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034688-004D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034688-005D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034688-006D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034688-007D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034688-008D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034688-009D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034688-010D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10404 | Glass Fiber Filter, 47mm |
| 10405 | Glass Fiber Filter, 47mm |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| IWST190107D | 1000 Talc | LCS | 100 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/20/2019 11:17:42**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 3/22/2019

Prep Batch **73004** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: mL / mL

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-73004 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-73004 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034688-001D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034688-001D-DU | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034688-002D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034688-003D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034688-004D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034688-005D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034688-006D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034688-007D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034688-008D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034688-009D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034688-010D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/22/2019 8:22:45 A**
Prep End Date: **3/22/2019 2:45:00 P**

Reviewed/ Date: 4/3/2019
Initials/ Date: Lilia Ramit 3/22/2019

Prep Batch **73044** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Temp. (°C): **105**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-73044 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-73044 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034688-011D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034688-012D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034688-013D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034708-011D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034708-011D-DU | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034708-012D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034708-013D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10405 | Glass Fiber Filter, 47mm |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| IWST190107D | 1000 ppm Talc | LCS | 100 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/22/2019 8:22:45 A**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 3/22/2019

Prep Batch **73044** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-73044 | Water (WST190107D) | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-73044 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034688-011D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034688-012D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034688-013D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034708-011D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034708-011D-DU | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034708-012D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034708-013D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10405

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

## SOLIDS RAW DATA

TEST: (TSS) TDS/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 3/20/19 1117 MB | MB 73004 | 100 | 1.4167<br>1.4168 | 1.4166<br>1.4166 | |
| LCS | LCS 73004 | 100 | 1.4039<br>1.4039 | 1.4982<br>1.4980 | |
| 1 DI | NO 34678 ID | 200 | 1.4067<br>1.4064 | 1.4068<br>1.4069 | |
| 2 | ID bup | 200 | 1.3919<br>1.3921 | 1.3925<br>1.3925 | |
| 3 | 2D | 200 | 1.3990<br>1.3986 | 1.3993<br>1.3993 | 1 |
| 4 | 3D | 200 | 1.3890<br>1.3889 | 1.3888<br>1.3888 | |
| 5 | 4D | 200 | 1.3945<br>1.3948 | 1.3948<br>1.3949 | |
| 6 | 5D | 200 | 1.3911<br>1.3914 | 1.3914<br>1.3915 | |
| 7 | 6D | 200 | 1.4022<br>1.4025 | 1.4023<br>1.4024 | |
| 8 | 7D | 200 | 1.3961<br>1.3959 | 1.3960<br>1.3961 | |

Julia Ramit 3/22/2019



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ORELAP/NELAP Cert 4046

## SOLIDS RAW DATA

TEST: TSS/ TDS/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 3/20/19 9 | NM4688-8D | 200 | 1.4014<br>1.4016 12 | 1.4013<br>1.4016 | |
| 10 | 9D | 200 | 1.3959<br>1.3958 | 1.3957<br>1.3959 | |
| 11 | 10D | 200 | 1.4101<br>1.4097 | 1.4099<br>1.4099 | |
| | | | | | |
| | | | | | 1 |
| | | | | | |
| | | | | | |
| | | | | | |
| | Julia Ramit 3/22/2019 | | | | |
| | 1.0000 (2) | 1720 | 3/20/19 | | |



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# TOTAL SUSPENDED SOLIDS, TSS

## TSS, mg/L = (A-B) * 10000*PF

**where:**

**A =** weight in g of aluminum dish + filter disc + residue after drying
**B =** weight in g of aluminum dish + filter disc
**PF =** 100/volume of sample used in mL

| Date: | vol of sample (mL) | weight in g of aluminum dish + filter disc (B) | weight in g of aluminum dish + filter disc + residue after drying (A) | A-B*10000 | Prep Fact (PF) | TSS, mg/L | Sample Type |
|---|---|---|---|---|---|---|---|
| 3/20/2019 | | | | | | | |
| MB-73004 | 100 | 1.4168 | 1.4166 | -2.0000 | 1.00 | -2 | MBLK |
| LCS-73004 | 100 | 1.4039 | 1.4980 | 941.0000 | 1.00 | 941 | LCS |
| N034688-001D | 200 | 1.4064 | 1.4069 | 5.0000 | 0.50 | 2.5 | SAMP |
| N034688-001DDUP | 200 | 1.3921 | 1.3925 | 4.0000 | 0.50 | 2 | DUP |
| N034688-002D | 200 | 1.3986 | 1.3993 | 7.0000 | 0.50 | 3.5 | SAMP |
| N034688-003D | 200 | 1.3889 | 1.3888 | -1.0000 | 0.50 | -0.5 | SAMP |
| N034688-004D | 200 | 1.3948 | 1.3949 | 1.0000 | 0.50 | 0.5 | SAMP |
| N034688-005D | 200 | 1.3914 | 1.3915 | 1.0000 | 0.50 | 0.5 | SAMP |
| N034688-006D | 200 | 1.4025 | 1.4024 | -1.0000 | 0.50 | -0.5 | SAMP |
| N034688-007D | 200 | 1.3959 | 1.3961 | 2.0000 | 0.50 | 1 | SAMP |
| N034688-008D | 200 | 1.4012 | 1.4016 | 4.0000 | 0.50 | 2 | SAMP |
| N034688-009D | 200 | 1.3958 | 1.3959 | 1.0000 | 0.50 | 0.5 | SAMP |
| N034688-010D | 200 | 1.4097 | 1.4099 | 2.0000 | 0.50 | 1 | SAMP |

Silvia Ramit 3/22/2019

## SOLIDS RAW DATA

TEST: (TSS) TDS/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 3/22/19 822 | MB2 73044 | 100 | 1.4217<br>1.4215 | 1.4213<br>1.4213 | |
| | LCS2 73044 | 100 | 1.4146<br>1.4147 | 1.5087<br>1.5088 | |
| 11 | NO34688-11D | 200 | 1.4244<br>1.4245 | 1.4244<br>1.4244 | |
| 12 | 12D | 200 | 1.4066<br>1.4066 | 1.4065<br>1.4066 | |
| 13 | 13D | 200 | 1.4214<br>1.4212 | 1.4213<br>1.4213 | 1 |
| 14 | NO34708-11D | 200 | 1.4080<br>1.4076 | 1.4077<br>1.4077 | |
| D2 | 11D DUP | 200 | 1.4096<br>1.4092 | 1.4094<br>1.4094 | |
| 15 | 12D | 200 | 1.4065<br>1.4066 | 1.4064<br>1.4065 | |
| 16 | 13D | 200 | 1.4155<br>1.4151 | 1.4158<br>1.4158 | |
| | 0.9999 @ 1445 3/22/19 | | | UR | |

Julia Ramit 3/22/2019



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ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

# TOTAL SUSPENDED SOLIDS, TSS

## TSS, mg/L = (A-B) * 10000*PF

**where:**

**A =** weight in g of aluminum dish + filter disc + residue after drying
**B =** weight in g of aluminum dish + filter disc
**PF =** 100/volume of sample used in mL

| Date: | vol of sample (mL) | weight in g of aluminum dish + filter disc (B) | weight in g of aluminum dish + filter disc + residue after drying (A) | A-B*10000 | Prep Fact (PF) | TSS, mg/L | Sample Type |
|---|---|---|---|---|---|---|---|
| 3/22/2019 | | | | | | | |
| MB-73044 | 100 | 1.4215 | 1.4213 | -2.0000 | 1.00 | -2 | MBLK |
| LCS-73044 | 100 | 1.4147 | 1.5088 | 941.0000 | 1.00 | 941 | LCS |
| N034688-011D | 200 | 1.4245 | 1.4244 | -1.0000 | 0.50 | -0.5 | SAMP |
| N034688-012D | 200 | 1.4066 | 1.4066 | 0.0000 | 0.50 | 0 | SAMP |
| N034688-013D | 200 | 1.4212 | 1.4213 | 1.0000 | 0.50 | 0.5 | SAMP |
| N034708-011D | 200 | 1.4076 | 1.4077 | 1.0000 | 0.50 | 0.5 | SAMP |
| N034708-011DDUP | 200 | 1.4092 | 1.4094 | 2.0000 | 0.50 | 1 | DUP |
| N034708-012D | 200 | 1.4066 | 1.4065 | -1.0000 | 0.50 | -0.5 | SAMP |
| N034708-013D | 200 | 1.4151 | 1.4158 | 7.0000 | 0.50 | 3.5 | SAMP |

Julia Ramit 3/22/2019

# EPA 218.6

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R132680
**ASSET #:** N034688

**Instrument ID:** IC-07
**Analyst:** RBA
**Date Analyzed:** 3/20/2019

**Method:**

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | | | |
| 3. ICV within ± 10% of expected value. | X | | | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | X | | | | | |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | X | | | | | |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | X | | | | | |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | X | | | | | |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | X | | | | | |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | X | | | | | |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | | | |
| 21. Are all samples analyzed within hold time? | X | | | | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | | | |
| 24. LCS compounds are within control limits. | X | | | | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | |
| 29. All manual integrations initialed, date and reasons included. | X | | | | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | | | |
| 31. All samples and QC raw data present in package. | X | | | | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | | | |
| 34 Is the QC summary report present and complete? | X | | | | | |

Comments:

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer rba Date: 3/22/2019

2nd Level Reviewer 3/26/2019 Date: –

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 218.6
**TEST NAME:** HEXAVALENT CHROMIUM BY IC
**MATRIX:** Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N034688-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.0000 * 1$$

$$Cr^{+6}, \mu g/L = 0.0000$$

Since PQL is 0.2 µg/L,

$$\mathbf{Cr^{+6}, \mu g/L = ND}$$

rba 3/22/2019

# ANALYSIS RUN LOG

**INJECTION LOG: 190313A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:00 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:11 AM | Not Reported |
| 3 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 03/13/19 9:21 AM | Reported |
| 4 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:30 AM | Reported |
| 5 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:41 AM | Not Reported |
| 6 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:53 AM | Reported |
| 7 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:02 AM | Reported |
| 8 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:12 AM | Reported |
| 9 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:21 AM | Reported |
| 10 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:31 AM | Reported |
| 11 | ICV | ICV | 1 | Hexavalent Chromium | 03/13/19 10:49 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 03/13/19 11:00 AM | Reported |
| 13 | ICB | ICB | 1 | Hexavalent Chromium | 03/13/19 11:10 AM | Reported |
| 14 | MB-R132461 | MBLK | 1 | Hexavalent Chromium | 03/13/19 11:19 AM | Reported |
| 15 | LCS-R132461 | LCS | 1 | Hexavalent Chromium | 03/13/19 11:29 AM | Reported |
| 16 | N034570-001A | SAMP | 1 | Hexavalent Chromium | 03/13/19 11:38 AM | Not Reported |
| 17 | N034572-001A | SAMP | 1 | Hexavalent Chromium | 03/13/19 11:48 AM | Not Reported |
| 18 | N034573-002A | SAMP | 1 | Hexavalent Chromium | 03/13/19 11:57 AM | Not Reported |
| 19 | N034570-001AMS | MS | 5 | Hexavalent Chromium | 03/13/19 12:07 PM | Reported |
| 20 | N034572-001AMS | MS | 5 | Hexavalent Chromium | 03/13/19 12:16 PM | Not Reported |
| 21 | N034572-001AMS | MS | 10 | Hexavalent Chromium | 03/13/19 12:33 PM | Reported |
| 22 | N034570-001A | SAMP | 5 | Hexavalent Chromium | 03/13/19 12:45 PM | Reported |
| 23 | N034572-001A | SAMP | 10 | Hexavalent Chromium | 03/13/19 12:54 PM | Reported |
| 24 | CCV-1 | CCV1 | 1 | Hexavalent Chromium | 03/13/19 1:04 PM | Reported |
| 25 | CCB-1 | CCB | 1 | Hexavalent Chromium | 03/13/19 1:13 PM | Reported |
| 26 | N034570-001AMSD | MSD | 5 | Hexavalent Chromium | 03/13/19 1:23 PM | Reported |
| 27 | N034570-001ADUP | DUP | 5 | Hexavalent Chromium | 03/13/19 1:32 PM | Reported |
| 28 | N034570-001AMS | MS | 1 | Hexavalent Chromium | 03/13/19 1:42 PM | Not Reported |
| 29 | N034572-001A | SAMP | 5 | Hexavalent Chromium | 03/13/19 1:51 PM | Not Reported |
| 30 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 2:00 PM | Not Reported |
| 31 | N034573-002A | SAMP | 1 | Hexavalent Chromium | 03/13/19 2:10 PM | Reported |
| 32 | N034573-002AMS | MS | 1 | Hexavalent Chromium | 03/13/19 2:19 PM | Reported |
| 33 | CCV-2 | CCV | 1 | Hexavalent Chromium | 03/13/19 2:29 PM | Reported |
| 34 | CCB-2 | CCB | 1 | Hexavalent Chromium | 03/13/19 2:53 PM | Reported |
| 35 | N034558-001A | SAMP | 5000 | Hexavalent Chromium | 03/13/19 3:14 PM | Reported |
| 36 | N034558-001AREP | DUP | 5000 | Hexavalent Chromium | 03/13/19 3:24 PM | Reported |
| 37 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 3:34 PM | Not Reported |
| 38 | CCV-3 | CCV1 | 1 | Hexavalent Chromium | 03/13/19 3:43 PM | Reported |
| 39 | CCB-3 | CCB | 1 | Hexavalent Chromium | 03/13/19 3:53 PM | Reported |
| 40 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 4:02 PM | Not Reported |
| 41 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 4:12 PM | Not Reported |

jnba 3/17/2019

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190313A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **14/Mar/19 08:23:03** |
| *No. of Injections:* | **44** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 03/13/2019 09:00 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 03/13/2019 09:11 | Finished | BLANK |
| 3 | iBLANK | 3 | 1000 | Unknown | | 03/13/2019 09:21 | Finished | INSTRUMENT BLANK |
| 4 | STD1-0.2 ppb | 4 | 1000 | Calibration Standard | 01 | 03/13/2019 09:30 | Finished | 0.2 ppb, IWST-190221A |
| 5 | STD2-1.0 ppb | 5 | 1000 | Unknown | | 03/13/2019 09:41 | Finished | 1.0 ppb, IWST-190221A |
| 6 | STD3-5.0 ppb | 6 | 1000 | Calibration Standard | 03 | 03/13/2019 09:53 | Finished | 5.0 ppb, IWST-1190221A |
| 7 | STD4-10.0 ppb | 7 | 1000 | Calibration Standard | 04 | 03/13/2019 10:02 | Finished | 10 ppb, IWST-190221A |
| 8 | STD5-15.0 ppb | 8 | 1000 | Calibration Standard | 05 | 03/13/2019 10:12 | Finished | 15 ppb, IWST-190221A |
| 9 | STD6-20.0 ppb | 9 | 1000 | Calibration Standard | 06 | 03/13/2019 10:21 | Finished | 20 ppb, IWST-190221A |
| 10 | STD2-1.0 ppb | 10 | 1000 | Calibration Standard | 02 | 03/13/2019 10:31 | Finished | 1.0 ppb, IWST-190221A |
| 11 | ICV,ICV,1, | 12 | 1000 | Unknown | | 03/13/2019 10:49 | Finished | ICV @5ppb, IWST-190221B |
| 12 | PQL@0.2ppb,CCV2,1 | 13 | 1000 | Unknown | | 03/13/2019 11:00 | Finished | PQL @ 0.2ppb |
| 13 | ICB,ICB,1, | 14 | 1000 | Unknown | | 03/13/2019 11:10 | Finished | ICB R190211C |
| 14 | MB-H2O,MBLK,1, | 15 | 1000 | Unknown | | 03/13/2019 11:19 | Finished | MB R190211C |
| 15 | LCS-H2O,LCS,1, | 16 | 1000 | Unknown | | 03/13/2019 11:29 | Finished | LCS @5ppb, IWST-190221B |
| 16 | N034570-001A,SAMF | 17 | 1000 | Unknown | | 03/13/2019 11:38 | Finished | SAMP,10mL |
| 17 | N034572-001A,SAMF | 18 | 1000 | Unknown | | 03/13/2019 11:48 | Finished | SAMP,10mL |
| 18 | N034573-002A,SAMF | 19 | 1000 | Unknown | | 03/13/2019 11:57 | Finished | SAMP,10mL |
| 19 | N034570-001AMS,MS | 20 | 1000 | Unknown | | 03/13/2019 12:07 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 20 | N034572-001AMS,MS | 21 | 1000 | Unknown | | 03/13/2019 12:16 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 21 | N034572-001AMS,MS | 23 | 1000 | Unknown | | 03/13/2019 12:33 | Finished | MS (1ppb), IWST-190221B,1>1 |
| 22 | N034570-001A,SAMF | 24 | 1000 | Unknown | | 03/13/2019 12:45 | Finished | SAMP,2>10mL |
| 23 | N034572-001A,SAMF | 25 | 1000 | Unknown | | 03/13/2019 12:54 | Finished | SAMP,1>10mL |
| 24 | CCV-1,CCV1,1, | 26 | 1000 | Unknown | | 03/13/2019 13:04 | Finished | CCV @10ppb, IWST-190221A |
| 25 | CCB-1,CCB,1, | 27 | 1000 | Unknown | | 03/13/2019 13:13 | Finished | CCB R190211C |
| 26 | N034570-001AMSD,M | 28 | 1000 | Unknown | | 03/13/2019 13:23 | Finished | MSD (1ppb), IWST-190221B,2 |
| 27 | N034570-001ADUP,D | 29 | 1000 | Unknown | | 03/13/2019 13:32 | Finished | SAMP,10mL |
| 28 | N034570-001AMS,MS | 30 | 1000 | Unknown | | 03/13/2019 13:42 | Finished | MS (1ppb), IWST-190221B,10 |
| 29 | N034572-001A,SAMF | 31 | 1000 | Unknown | | 03/13/2019 13:51 | Finished | SAMP,2>10mL |
| 30 | BLANK | 32 | 1000 | Unknown | | 03/13/2019 14:00 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034573-002A,SAMF | 33 | 1000 | Unknown | | 03/13/2019 14:10 | Finished | SAMP,10mL |
| 32 | N034573-002AMS,MS | 34 | 1000 | Unknown | | 03/13/2019 14:19 | Finished | MS (1ppb), IWST-190221B,10 |
| 33 | CCV-2,CCV,1, | 35 | 1000 | Unknown | | 03/13/2019 14:29 | Finished | CCV @5ppb, IWST-190221A |
| 34 | CCB-2,CCB,1, | 37 | 1000 | Unknown | | 03/13/2019 14:53 | Finished | CCB R190211C |
| 35 | N034558-001A,SAMF | 1 | 1000 | Unknown | | 03/13/2019 15:14 | Finished | SAMP,0.002>10mL |
| 36 | N034558-001AREP,D | 2 | 1000 | Unknown | | 03/13/2019 15:24 | Finished | REP,0.002>10mL |
| 37 | BLANK | 3 | 1000 | Unknown | | 03/13/2019 15:34 | Finished | BLANK |
| 38 | CCV-3,CCV1,1, | 4 | 1000 | Unknown | | 03/13/2019 15:43 | Finished | CCV @10ppb, IWST-190221A |
| 39 | CCB-3,CCB,1, | 5 | 1000 | Unknown | | 03/13/2019 15:53 | Finished | CCB R190211C |
| 40 | BLANK | 6 | 1000 | Unknown | | 03/13/2019 16:02 | Finished | BLANK |
| 41 | BLANK | 7 | 1000 | Unknown | | 03/13/2019 16:12 | Finished | BLANK |
| 42 | SHUTDOWN | 8 | 1000 | Unknown | | 03/13/2019 16:21 | Finished | |
| 43 | Eluent: R190312D | 9 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 44 | PCR: R190312E | 10 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

rba 3/17/2019

**INJECTION LOG: 190320A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:00 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:11 AM | Not Reported |
| 3 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 03/13/19 9:21 AM | Reported |
| 4 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:30 AM | Reported |
| 5 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:41 AM | Not Reported |
| 6 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:53 AM | Reported |
| 7 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:02 AM | Reported |
| 8 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:12 AM | Reported |
| 9 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:21 AM | Reported |
| 10 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:31 AM | Reported |
| 11 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/20/19 9:41 AM | Not Reported |
| 12 | CCV-1 | CCV | 1 | Hexavalent Chromium | 03/20/19 9:52 AM | Reported |
| 13 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 03/20/19 10:02 AM | Reported |
| 14 | CCB-1 | CCB | 1 | Hexavalent Chromium | 03/20/19 10:11 AM | Reported |
| 15 | MB-R132680 | MBLK | 1 | Hexavalent Chromium | 03/20/19 10:21 AM | Reported |
| 16 | LCS-R132680 | LCS | 1 | Hexavalent Chromium | 03/20/19 10:30 AM | Reported |
| 17 | N034688-001A | SAMP | 1 | Hexavalent Chromium | 03/20/19 10:39 AM | Reported |
| 18 | N034688-001AMS | MS | 1 | Hexavalent Chromium | 03/20/19 10:49 AM | Reported |
| 19 | N034688-002A | SAMP | 1 | Hexavalent Chromium | 03/20/19 10:58 AM | Reported |
| 20 | N034688-002AMS | MS | 1 | Hexavalent Chromium | 03/20/19 11:08 AM | Reported |
| 21 | N034688-003A | SAMP | 1 | Hexavalent Chromium | 03/20/19 11:17 AM | Reported |
| 22 | N034688-003AMS | MS | 1 | Hexavalent Chromium | 03/20/19 11:27 AM | Reported |
| 23 | N034688-004A | SAMP | 1 | Hexavalent Chromium | 03/20/19 11:36 AM | Reported |
| 24 | N034688-004AMS | MS | 1 | Hexavalent Chromium | 03/20/19 11:46 AM | Reported |
| 25 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 03/20/19 11:55 AM | Reported |
| 26 | CCB-2 | CCB | 1 | Hexavalent Chromium | 03/20/19 12:05 PM | Reported |
| 27 | N034688-005A | SAMP | 1 | Hexavalent Chromium | 03/20/19 12:14 PM | Reported |
| 28 | N034688-005AMS | MS | 1 | Hexavalent Chromium | 03/20/19 12:24 PM | Reported |
| 29 | N034688-006A | SAMP | 1 | Hexavalent Chromium | 03/20/19 12:33 PM | Reported |
| 30 | N034688-006AMS | MS | 1 | Hexavalent Chromium | 03/20/19 12:42 PM | Reported |
| 31 | N034688-007A | SAMP | 1 | Hexavalent Chromium | 03/20/19 12:52 PM | Reported |
| 32 | N034688-007AMS | MS | 1 | Hexavalent Chromium | 03/20/19 1:01 PM | Reported |
| 33 | N034688-008A | SAMP | 1 | Hexavalent Chromium | 03/20/19 1:11 PM | Reported |
| 34 | N034688-008AMS | MS | 1 | Hexavalent Chromium | 03/20/19 1:20 PM | Reported |
| 35 | N034688-009A | SAMP | 1 | Hexavalent Chromium | 03/20/19 1:30 PM | Reported |
| 36 | N034688-009AMS | MS | 1 | Hexavalent Chromium | 03/20/19 1:39 PM | Reported |
| 37 | CCV-3 | CCV | 1 | Hexavalent Chromium | 03/20/19 1:49 PM | Reported |
| 38 | CCB-3 | CCB | 1 | Hexavalent Chromium | 03/20/19 1:58 PM | Reported |
| 39 | N034688-001AMSD | MSD | 1 | Hexavalent Chromium | 03/20/19 2:08 PM | Reported |
| 40 | N034688-009ADUP | DUP | 1 | Hexavalent Chromium | 03/20/19 2:17 PM | Reported |
| 41 | N034688-010A | SAMP | 1 | Hexavalent Chromium | 03/20/19 2:37 PM | Reported |
| 42 | N034688-010AMS | MS | 1 | Hexavalent Chromium | 03/20/19 2:48 PM | Reported |

**INJECTION LOG: 190320A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034688-011A | SAMP | 1 | Hexavalent Chromium | 03/20/19 2:57 PM | Reported |
| 44 | N034688-011AMS | MS | 1 | Hexavalent Chromium | 03/20/19 3:06 PM | Reported |
| 45 | N034688-012A | SAMP | 1 | Hexavalent Chromium | 03/20/19 3:16 PM | Reported |
| 46 | N034688-012AMS | MS | 1 | Hexavalent Chromium | 03/20/19 3:25 PM | Reported |
| 47 | N034688-013A | SAMP | 1 | Hexavalent Chromium | 03/20/19 3:35 PM | Reported |
| 48 | N034688-013AMS | MS | 1 | Hexavalent Chromium | 03/20/19 3:44 PM | Reported |
| 49 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 03/20/19 3:54 PM | Reported |
| 50 | CCB-4 | CCB | 1 | Hexavalent Chromium | 03/20/19 4:03 PM | Reported |
| 51 | N034688-014A | SAMP | 1 | Hexavalent Chromium | 03/20/19 4:13 PM | Reported |
| 52 | N034688-014AMS | MS | 1 | Hexavalent Chromium | 03/20/19 4:22 PM | Reported |
| 53 | N034688-015A | SAMP | 1 | Hexavalent Chromium | 03/20/19 4:32 PM | Reported |
| 54 | N034688-015AMS | MS | 1 | Hexavalent Chromium | 03/20/19 4:41 PM | Reported |
| 55 | N034688-016A | SAMP | 1 | Hexavalent Chromium | 03/20/19 4:51 PM | Not Reported |
| 56 | N034688-016AMS | MS | 1 | Hexavalent Chromium | 03/20/19 5:00 PM | Not Reported |
| 57 | N034688-017A | SAMP | 1 | Hexavalent Chromium | 03/20/19 5:09 PM | Not Reported |
| 58 | N034688-017AMS | MS | 1 | Hexavalent Chromium | 03/20/19 5:19 PM | Not Reported |
| 59 | CCV-5 | CCV | 1 | Hexavalent Chromium | 03/20/19 5:28 PM | Reported |
| 60 | CCB-5 | CCB | 1 | Hexavalent Chromium | 03/20/19 5:38 PM | Reported |
| 61 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/20/19 5:47 PM | Not Reported |
| 62 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/20/19 5:57 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190320A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **20/Mar/19 18:27:36** |
| *No. of Injections:* | **65** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 03/13/2019 09:00 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 03/13/2019 09:11 | Finished | BLANK |
| 3 | iBLANK | 3 | 1000 | Unknown | | 03/13/2019 09:21 | Finished | INSTRUMENT BLANK |
| 4 | STD1-0.2 ppb | 4 | 1000 | Calibration Standard | 01 | 03/13/2019 09:30 | Finished | 0.2 ppb, IWST-190221A |
| 5 | STD2-1.0 ppb | 5 | 1000 | Unknown | | 03/13/2019 09:41 | Finished | 1.0 ppb, IWST-190221A |
| 6 | STD3-5.0 ppb | 6 | 1000 | Calibration Standard | 03 | 03/13/2019 09:53 | Finished | 5.0 ppb, IWST-1190221A |
| 7 | STD4-10.0 ppb | 7 | 1000 | Calibration Standard | 04 | 03/13/2019 10:02 | Finished | 10 ppb, IWST-190221A |
| 8 | STD5-15.0 ppb | 8 | 1000 | Calibration Standard | 05 | 03/13/2019 10:12 | Finished | 15 ppb, IWST-190221A |
| 9 | STD6-20.0 ppb | 9 | 1000 | Calibration Standard | 06 | 03/13/2019 10:21 | Finished | 20 ppb, IWST-190221A |
| 10 | STD2-1.0 ppb | 10 | 1000 | Calibration Standard | 02 | 03/13/2019 10:31 | Finished | 1.0 ppb, IWST-190221A |
| 11 | BLANK | 1 | 1000 | Unknown | | 03/20/2019 09:41 | Finished | BLANK |
| 12 | CCV-1,CCV,1, | 2 | 1000 | Unknown | | 03/20/2019 09:52 | Finished | ICV @5ppb, IWST-190221B |
| 13 | PQL@0.2ppb,CCV2,1 | 3 | 1000 | Unknown | | 03/20/2019 10:02 | Finished | PQL @ 0.2ppb |
| 14 | CCB-1,CCB,1, | 4 | 1000 | Unknown | | 03/20/2019 10:11 | Finished | ICB R190211C |
| 15 | MB-H2O,MBLK,1, | 5 | 1000 | Unknown | | 03/20/2019 10:21 | Finished | MB R190211C |
| 16 | LCS-H2O,LCS,1, | 6 | 1000 | Unknown | | 03/20/2019 10:30 | Finished | LCS @5ppb, IWST-190221B |
| 17 | N034688-001A,SAMF | 7 | 1000 | Unknown | | 03/20/2019 10:39 | Finished | SAMP,10mL |
| 18 | N034688-001AMS,MS | 8 | 1000 | Unknown | | 03/20/2019 10:49 | Finished | MS (1ppb), IWST-190221B,10 |
| 19 | N034688-002A,SAMF | 9 | 1000 | Unknown | | 03/20/2019 10:58 | Finished | SAMP,10mL |
| 20 | N034688-002AMS,MS | 10 | 1000 | Unknown | | 03/20/2019 11:08 | Finished | MS (1ppb), IWST-190221B,10 |
| 21 | N034688-003A,SAMF | 11 | 1000 | Unknown | | 03/20/2019 11:17 | Finished | SAMP,10mL |
| 22 | N034688-003AMS,MS | 12 | 1000 | Unknown | | 03/20/2019 11:27 | Finished | MS (1ppb), IWST-190221B,10 |
| 23 | N034688-004A,SAMF | 13 | 1000 | Unknown | | 03/20/2019 11:36 | Finished | SAMP,10mL |
| 24 | N034688-004AMS,MS | 14 | 1000 | Unknown | | 03/20/2019 11:46 | Finished | MS (1ppb), IWST-190221B,10 |
| 25 | CCV-2,CCV1,1, | 15 | 1000 | Unknown | | 03/20/2019 11:55 | Finished | CCV @10ppb, IWST-190221A |
| 26 | CCB-2,CCB,1, | 16 | 1000 | Unknown | | 03/20/2019 12:05 | Finished | CCB R190211C |
| 27 | N034688-005A,SAMF | 17 | 1000 | Unknown | | 03/20/2019 12:14 | Finished | SAMP,10mL |
| 28 | N034688-005AMS,MS | 18 | 1000 | Unknown | | 03/20/2019 12:24 | Finished | MS (1ppb), IWST-190221B,10 |
| 29 | N034688-006A,SAMF | 19 | 1000 | Unknown | | 03/20/2019 12:33 | Finished | SAMP,10mL |
| 30 | N034688-006AMS,MS | 20 | 1000 | Unknown | | 03/20/2019 12:42 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034688-007A,SAMF | 21 | 1000 | Unknown | | 03/20/2019 12:52 | Finished | SAMP,10mL |
| 32 | N034688-007AMS,MS | 22 | 1000 | Unknown | | 03/20/2019 13:01 | Finished | MS (1ppb), IWST-190221B,10 |
| 33 | N034688-008A,SAMF | 23 | 1000 | Unknown | | 03/20/2019 13:11 | Finished | SAMP,10mL |
| 34 | N034688-008AMS,MS | 24 | 1000 | Unknown | | 03/20/2019 13:20 | Finished | MS (1ppb), IWST-190221B,10 |
| 35 | N034688-009A,SAMF | 25 | 1000 | Unknown | | 03/20/2019 13:30 | Finished | SAMP,10mL |
| 36 | N034688-009AMS,MS | 26 | 1000 | Unknown | | 03/20/2019 13:39 | Finished | MS (1ppb), IWST-190221B,10 |
| 37 | CCV-3,CCV,1, | 27 | 1000 | Unknown | | 03/20/2019 13:49 | Finished | CCV @5ppb, IWST-190221A |
| 38 | CCB-3,CCB,1, | 28 | 1000 | Unknown | | 03/20/2019 13:58 | Finished | CCB R190211C |
| 39 | N034688-001AMSD,M | 29 | 1000 | Unknown | | 03/20/2019 14:08 | Finished | MSD (1ppb), IWST-190221B,10 |
| 40 | N034688-009ADUP,D | 30 | 1000 | Unknown | | 03/20/2019 14:17 | Finished | DUP,10mL |
| 41 | N034688-010A,SAMF | 1 | 1000 | Unknown | | 03/20/2019 14:37 | Finished | SAMP,10mL |
| 42 | N034688-010AMS,MS | 2 | 1000 | Unknown | | 03/20/2019 14:48 | Finished | MS (1ppb), IWST-190221B,10 |
| 43 | N034688-011A,SAMF | 3 | 1000 | Unknown | | 03/20/2019 14:57 | Finished | SAMP,10mL |
| 44 | N034688-011AMS,MS | 4 | 1000 | Unknown | | 03/20/2019 15:06 | Finished | MS (1ppb), IWST-190221B,10 |
| 45 | N034688-012A,SAMF | 5 | 1000 | Unknown | | 03/20/2019 15:16 | Finished | SAMP,10mL |
| 46 | N034688-012AMS,MS | 6 | 1000 | Unknown | | 03/20/2019 15:25 | Finished | MS (1ppb), IWST-190221B,10 |
| 47 | N034688-013A,SAMF | 7 | 1000 | Unknown | | 03/20/2019 15:35 | Finished | SAMP,10mL |
| 48 | N034688-013AMS,MS | 8 | 1000 | Unknown | | 03/20/2019 15:44 | Finished | MS (1ppb), IWST-190221B,10 |
| 49 | CCV-4,CCV1,1, | 9 | 1000 | Unknown | | 03/20/2019 15:54 | Finished | CCV @10ppb, IWST-190221A |
| 50 | CCB-4,CCB,1, | 10 | 1000 | Unknown | | 03/20/2019 16:03 | Finished | CCB R190211C |
| 51 | N034688-014A,SAMF | 11 | 1000 | Unknown | | 03/20/2019 16:13 | Finished | SAMP,10mL |
| 52 | N034688-014AMS,MS | 12 | 1000 | Unknown | | 03/20/2019 16:22 | Finished | MS (1ppb), IWST-190221B,10 |
| 53 | N034688-015A,SAMF | 13 | 1000 | Unknown | | 03/20/2019 16:32 | Finished | SAMP,10mL |
| 54 | N034688-015AMS,MS | 14 | 1000 | Unknown | | 03/20/2019 16:41 | Finished | MS (1ppb), IWST-190221B,10 |
| 55 | N034688-016A,SAMF | 15 | 1000 | Unknown | | 03/20/2019 16:51 | Finished | SAMP,10mL |
| 56 | N034688-016AMS,MS | 16 | 1000 | Unknown | | 03/20/2019 17:00 | Finished | MS (1ppb), IWST-190221B,10 |
| 57 | N034688-017A,SAMF | 17 | 1000 | Unknown | | 03/20/2019 17:09 | Finished | SAMP,10mL |
| 58 | N034688-017AMS,MS | 18 | 1000 | Unknown | | 03/20/2019 17:19 | Finished | MS (1ppb), IWST-190221B,10 |
| 59 | CCV-5,CCV,1, | 19 | 1000 | Unknown | | 03/20/2019 17:28 | Finished | CCV @5ppb, IWST-190221A |
| 60 | CCB-5,CCB,1, | 20 | 1000 | Unknown | | 03/20/2019 17:38 | Finished | CCB R190211C |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | BLANK | 21 | 1000 | Unknown | | 03/20/2019 17:47 | Finished | BLANK |
| 62 | BLANK | 22 | 1000 | Unknown | | 03/20/2019 17:57 | Finished | BLANK |
| 63 | SHUTDOWN | 23 | 1000 | Unknown | | 03/20/2019 18:06 | Finished | |
| 64 | Eluent: R190320A | 24 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 65 | PCR: R190320B | 25 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# SAMPLE PREPARATION LOG

# Hexavalent Chromium Preparation and Runlog

## Sample Preparation

Date Prepared: 3/20/19
Time Prepared: 1026H
Prepared By: MSA

Slope: 96.92
pH4: 4.02
7: 7.00
10: 10.02

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CLNN-181102A
NH4OH + NH4SO4 eluent: M903205A
NH4OH + NH4SO4 buffer: M902110

~~6N NaOH~~: [illegible]
[illegible]

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | N034688-001A | 9.32 | – | ~250mL | ~250mL | | 1/3 |
| 2) | 1A | 9.36 | – | | | | 2/3 |
| 3) | 1A | 9.34 | – | | | | 3/3 |
| 4) | 2A | 9.48 | – | | | | 1/3 |
| 5) | 2A | 9.48 | – | | | | 2/3 |
| 6) | 2A | 9.53 | – | | | | 3/3 |
| 7) | 3A | 9.51 | – | | | | 1/3 |
| 8) | 3A | 9.50 | – | | | | 2/3 |
| 9) | 3A | 9.49 | – | | | | 3/3 |
| 10) | 4A | 9.54 | – | | | | 1/3 |
| 11) | 4A | 9.49 | – | | | | 2/3 |
| 12) | 4A | 9.52 | – | | | | 3/3 |
| 13) | 5A | 9.55 | – | | | | 1/3 |
| 14) | 5A | 9.55 | – | | | | 2/3 |
| 15) | 5A | 9.52 | – | | | | 3/3 |
| | 6A | 9.55 | – | | | | 1/3 |

## Sample Preparation

Date Prepared: 3/20/19
Time Prepared: 1026HH
Prepared By: MSA

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CLNN-181102A
NH4OH + NH4SO4 eluent: M903205A
NH4OH + NH4SO4 buffer: M902110

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | N034688-006A | 9.50 | – | ~250mL | ~250mL | | 2/3 |
| 2) | 6A | 9.48 | – | | | | 3/3 |
| 3) | 7A | 9.43 | – | | | | 1/3 |
| 4) | 7A | 9.43 | – | | | | 2/3 |
| 5) | 7A | 9.42 | – | | | | 3/3 |
| 6) | 8A | 9.48 | – | | | | 1/3 |
| 7) | 8A | 9.46 | – | | | | 2/3 |
| 8) | 8A | 9.43 | – | | | | 3/3 |
| 9) | 9A | 9.42 | – | | | | 1/3 |
| 10) | 9A | 9.38 | – | | | | 2/3 |
| 11) | 9A | 9.43 | – | | | | 3/3 |
| 12) | 10A | 9.49 | – | | | | 1/3 |
| 13) | 10A | 9.49 | – | | | | 2/3 |
| 14) | 10A | 9.45 | – | | | | 3/3 |
| 15) | 11A | 9.51 | – | | | | 1/3 |
| | 11A | 9.54 | – | | | | 2/3 |

Logbook No. 16

rba 3/22/2019

# Hexavalent Chromium Preparation and Runlog

## Sample Preparation

Date Prepared: 3/20/19
Time Prepared: 1026 H
Prepared By: MDA

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CLNV-181102A
NH4OH + NH4SO4 eluent: M903205A
NH4OH + NH4SO4 buffer: M902111C

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | M34688-11A | 9.50 | - | ~40mL | ~50mL | | 1/3 |
| 2) | MA | 9.44 | - | | | | 1/3 |
| 3) | MA | 9.46 | - | | | | 2/3 |
| 4) | MA | 9.42 | - | | | | 3/3 |
| 5) | MA | 9.54 | - | | | | 1/3 |
| 6) | MA | 9.52 | - | | | | 2/3 |
| 7) | MA | 9.53 | - | | | | 3/3 |
| 8) | MA | 9.44 | - | | | | 1/3 |
| 9) | MA | 9.47 | - | | | | 2/3 |
| 10) | MA | 9.43 | - | | | | 3/3 |
| 11) | MA | 9.45 | - | | | | 1/3 |
| 12) | MA | 9.46 | - | | | | 2/3 |
| 13) | MA | 9.44 | - | | | | 3/3 |
| 14) | MA | 9.60 | - | | | | 1/1 |
| 15) | MA | 9.61 | - | | | | 1/1 |

## Sample Preparation

Date Prepared: 3/20/19
Time Prepared: 1026
Prepared By: MDA

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CLNV-181102A
NH4OH + NH4SO4 eluent: M903205A
NH4OH + NH4SO4 buffer: M902111C

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | M34689-1A | 9.36 | - | ~250mL | ~250mL | | |
| 2) | 2A | 9.34 | - | | | | |
| 3) | 3A | 9.33 | - | | | | |
| 4) | 4A | 9.35 | - | | | | |
| 5) | 5A | 9.31 | - | | | | |
| 6) | 6A | 9.41 | - | | | | |
| 7) | 7A | 9.51 | - | | | | |
| 8) | | | | | | | |
| 9) | | | | | | | |
| 10) | | | | | | | |
| 11) | | | | | | | |
| 12) | | | | | | | |
| 13) | | | | | | | |
| 14) | | | | | | | |
| 15) | | | | | | | |

Logbook No. 16

jba 3/22/2019

# INITIAL CALIBRATION DATA SUMMARY

**(EPA 218.6) - INITIAL CALIBRATION**

Instrument ID: IC-07
Date Calibrated: 3/13/2019

Initial Calibration:

| Hexavalent Chromium | STD1 | STD2 | STD3 | STD4 | STD5 | STD6 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0.2 | 1 | 5 | 10 | 15 | 20 | $R^2$ |
| Area,mAU*min | 0.0471 | 0.2238 | 1.1057 | 2.1988 | 3.2845 | 4.4091 | 1.0000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock | Working |
|---|---|---|
| Standard Concentration: | 1,000,000 PPB | 1,000 PPB |
| Standard ID: | ISST-170814H | IWST-190221A |

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132680** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132680** | TestNo: **EPA 218.6** | | Analysis Date: **3/13/2019** | SeqNo: **3325619** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.154 | 0.20 | 5.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132680** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132680** | TestNo: **EPA 218.6** | | Analysis Date: **3/13/2019** | SeqNo: **3325620** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.235 | 0.20 | 0.2000 | 0 | 117 | 80 | 120 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132680** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132680** | TestNo: **EPA 218.6** | | Analysis Date: **3/20/2019** | SeqNo: **3325622** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.215 | 0.20 | 5.000 | 0 | 104 | 95 | 105 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132680** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132680** | TestNo: **EPA 218.6** | | Analysis Date: **3/20/2019** | SeqNo: **3325623** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.203 | 0.20 | 0.2000 | 0 | 102 | 80 | 120 | | | | |

| Sample ID **CCV-2** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132680** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132680** | TestNo: **EPA 218.6** | | Analysis Date: **3/20/2019** | SeqNo: **3325635** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.066 | 0.20 | 10.00 | 0 | 101 | 95 | 105 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132680** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132680** | TestNo: **EPA 218.6** | | Analysis Date: **3/20/2019** | SeqNo: **3325647** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.066 | 0.20 | 5.000 | 0 | 101 | 95 | 105 | | | | |

| Sample ID **CCV-4** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132680** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132680** | TestNo: **EPA 218.6** | | Analysis Date: **3/20/2019** | SeqNo: **3325659** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.211 | 0.20 | 10.00 | 0 | 102 | 95 | 105 | | | | |

| Sample ID **CCV-5** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132680** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132680** | TestNo: **EPA 218.6** | | Analysis Date: **3/20/2019** | SeqNo: **3325665** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.100 | 0.20 | 5.000 | 0 | 102 | 95 | 105 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132680** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132680** | TestNo: **EPA 218.6** | | Analysis Date: **3/13/2019** | SeqNo: **3325621** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132680** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132680** | TestNo: **EPA 218.6** | | Analysis Date: **3/20/2019** | SeqNo: **3325624** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132680** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132680** | TestNo: **EPA 218.6** | | Analysis Date: **3/20/2019** | SeqNo: **3325636** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132680** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132680** | TestNo: **EPA 218.6** | | Analysis Date: **3/20/2019** | SeqNo: **3325648** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132680** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132680** | TestNo: **EPA 218.6** | | Analysis Date: **3/20/2019** | SeqNo: **3325660** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCB-5** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132680** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132680** | TestNo: **EPA 218.6** | | Analysis Date: **3/20/2019** | SeqNo: **3325666** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# RETENTION TIME SUMMARY

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 3/20/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.206 | |
| CCV-1 | 4.206 | |
| CCV-2 | 4.206 | |
| CCV-3 | 4.215 | |
| CCV-4 | 4.215 | |
| CCV-5 | 4.206 | |

| | |
|---|---|
| **Average** | 4.210 |
| **Actual RT Window** | 4.130 - 4.290 |
| **Applied RT Window** | 4.010 - 4.410 |

| | | |
|---|---|---|
| MB-R132680 | N.A. | N.A. |
| LCS-R132680 | 4.215 | PASS |
| N034688-001A | N.A. | N.A. |
| N034688-001AMS | 4.198 | PASS |
| N034688-002A | N.A. | N.A. |
| N034688-002AMS | 4.198 | PASS |
| N034688-003A | N.A. | N.A. |
| N034688-003AMS | 4.198 | PASS |
| N034688-004A | N.A. | N.A. |
| N034688-004AMS | 4.198 | PASS |
| N034688-005A | N.A. | N.A. |
| N034688-005AMS | 4.206 | PASS |
| N034688-006A | N.A. | N.A. |
| N034688-006AMS | 4.198 | PASS |
| N034688-007A | N.A. | N.A. |
| N034688-007AMS | 4.198 | PASS |
| N034688-008A | N.A. | N.A. |
| N034688-008AMS | 4.198 | PASS |
| N034688-009A | N.A. | N.A. |
| N034688-009AMS | 4.206 | PASS |
| N034688-001AMSD | 4.206 | PASS |
| N034688-009ADUP | N.A. | N.A. |

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 3/20/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.206 | |
| CCV-1 | 4.206 | |
| CCV-2 | 4.206 | |
| CCV-3 | 4.215 | |
| CCV-4 | 4.215 | |
| CCV-5 | 4.206 | |
| **Average** | 4.210 | |
| **Actual RT Window** | 4.130 - 4.290 | |
| **Applied RT Window** | 4.010 - 4.410 | |
| N034688-010A | N.A. | N.A. |
| N034688-010AMS | 4.215 | PASS |
| N034688-011A | N.A. | N.A. |
| N034688-011AMS | 4.190 | PASS |
| N034688-012A | N.A. | N.A. |
| N034688-012AMS | 4.206 | PASS |
| N034688-013A | N.A. | N.A. |
| N034688-013AMS | 4.206 | PASS |
| N034688-014A | N.A. | N.A. |
| N034688-014AMS | 4.198 | PASS |
| N034688-015A | N.A. | N.A. |
| N034688-015AMS | 4.206 | PASS |
| N034688-016A | N.A. | N.A. |
| N034688-016AMS | 4.215 | PASS |
| N034688-017A | N.A. | N.A. |
| N034688-017AMS | 4.215 | PASS |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

| Datafile | 170505 | 170508 | 170509 | 170510 | 170511 | 170512 | 170515 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte** | **#1** | **#2** | **#3** | **#4** | **#5** | **#6** | **#7** | **Spike Conc., mg/L** | **SD** | **$t_{(n-1)}$ value** | **MDL** | **PQL** | **Remarks** |
| Hexavalent Chromium | 0.1949 | 0.2135 | 0.1840 | 0.1828 | 0.2011 | 0.1936 | 0.1911 | 0.20 | 0.0105 | 3.143 | **0.0331** | **0.20** | OK,meets criteria |

Students' **t** Values at 99% CL

| # | $t_{(n-1)}$ |
|---|---|
| 10 | 2.821 |
| 9 | 2.896 |
| 8 | 2.998 |
| 7 | 3.143 |

## LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

| Compound | MDL | LOD Spike Conc., µg/L | LOD actual Conc., µg/L |
|---|---|---|---|
| Hexavalent Chromium | 0.0331 | 0.100 | 0.116 |

| Compound | PQL | PQL Spike Conc., µg/L | PQL actual Conc., µg/L | % Recovery |
|---|---|---|---|---|
| Hexavalent Chromium | 0.200 | 0.200 | 0.201 | **100** |

# RAW DATA

# INITIAL CALIBRATION

**INJECTION LOG: 190313A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:00 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:11 AM | Not Reported |
| 3 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 03/13/19 9:21 AM | Reported |
| 4 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:30 AM | Reported |
| 5 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:41 AM | Not Reported |
| 6 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:53 AM | Reported |
| 7 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:02 AM | Reported |
| 8 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:12 AM | Reported |
| 9 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:21 AM | Reported |
| 10 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:31 AM | Reported |
| 11 | ICV | ICV | 1 | Hexavalent Chromium | 03/13/19 10:49 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 03/13/19 11:00 AM | Reported |
| 13 | ICB | ICB | 1 | Hexavalent Chromium | 03/13/19 11:10 AM | Reported |
| 14 | MB-R132461 | MBLK | 1 | Hexavalent Chromium | 03/13/19 11:19 AM | Reported |
| 15 | LCS-R132461 | LCS | 1 | Hexavalent Chromium | 03/13/19 11:29 AM | Reported |
| 16 | N034570-001A | SAMP | 1 | Hexavalent Chromium | 03/13/19 11:38 AM | Not Reported |
| 17 | N034572-001A | SAMP | 1 | Hexavalent Chromium | 03/13/19 11:48 AM | Not Reported |
| 18 | N034573-002A | SAMP | 1 | Hexavalent Chromium | 03/13/19 11:57 AM | Not Reported |
| 19 | N034570-001AMS | MS | 5 | Hexavalent Chromium | 03/13/19 12:07 PM | Reported |
| 20 | N034572-001AMS | MS | 5 | Hexavalent Chromium | 03/13/19 12:16 PM | Not Reported |
| 21 | N034572-001AMS | MS | 10 | Hexavalent Chromium | 03/13/19 12:33 PM | Reported |
| 22 | N034570-001A | SAMP | 5 | Hexavalent Chromium | 03/13/19 12:45 PM | Reported |
| 23 | N034572-001A | SAMP | 10 | Hexavalent Chromium | 03/13/19 12:54 PM | Reported |
| 24 | CCV-1 | CCV1 | 1 | Hexavalent Chromium | 03/13/19 1:04 PM | Reported |
| 25 | CCB-1 | CCB | 1 | Hexavalent Chromium | 03/13/19 1:13 PM | Reported |
| 26 | N034570-001AMSD | MSD | 5 | Hexavalent Chromium | 03/13/19 1:23 PM | Reported |
| 27 | N034570-001ADUP | DUP | 5 | Hexavalent Chromium | 03/13/19 1:32 PM | Reported |
| 28 | N034570-001AMS | MS | 1 | Hexavalent Chromium | 03/13/19 1:42 PM | Not Reported |
| 29 | N034572-001A | SAMP | 5 | Hexavalent Chromium | 03/13/19 1:51 PM | Not Reported |
| 30 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 2:00 PM | Not Reported |
| 31 | N034573-002A | SAMP | 1 | Hexavalent Chromium | 03/13/19 2:10 PM | Reported |
| 32 | N034573-002AMS | MS | 1 | Hexavalent Chromium | 03/13/19 2:19 PM | Reported |
| 33 | CCV-2 | CCV | 1 | Hexavalent Chromium | 03/13/19 2:29 PM | Reported |
| 34 | CCB-2 | CCB | 1 | Hexavalent Chromium | 03/13/19 2:53 PM | Reported |
| 35 | N034558-001A | SAMP | 5000 | Hexavalent Chromium | 03/13/19 3:14 PM | Reported |
| 36 | N034558-001AREP | DUP | 5000 | Hexavalent Chromium | 03/13/19 3:24 PM | Reported |
| 37 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 3:34 PM | Not Reported |
| 38 | CCV-3 | CCV1 | 1 | Hexavalent Chromium | 03/13/19 3:43 PM | Reported |
| 39 | CCB-3 | CCB | 1 | Hexavalent Chromium | 03/13/19 3:53 PM | Reported |
| 40 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 4:02 PM | Not Reported |
| 41 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 4:12 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190313A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **14/Mar/19 08:23:03** |
| *No. of Injections:* | **44** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 03/13/2019 09:00 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 03/13/2019 09:11 | Finished | BLANK |
| 3 | iBLANK | 3 | 1000 | Unknown | | 03/13/2019 09:21 | Finished | INSTRUMENT BLANK |
| 4 | STD1-0.2 ppb | 4 | 1000 | Calibration Standard | 01 | 03/13/2019 09:30 | Finished | 0.2 ppb, IWST-190221A |
| 5 | STD2-1.0 ppb | 5 | 1000 | Unknown | | 03/13/2019 09:41 | Finished | 1.0 ppb, IWST-190221A |
| 6 | STD3-5.0 ppb | 6 | 1000 | Calibration Standard | 03 | 03/13/2019 09:53 | Finished | 5.0 ppb, IWST-1190221A |
| 7 | STD4-10.0 ppb | 7 | 1000 | Calibration Standard | 04 | 03/13/2019 10:02 | Finished | 10 ppb, IWST-190221A |
| 8 | STD5-15.0 ppb | 8 | 1000 | Calibration Standard | 05 | 03/13/2019 10:12 | Finished | 15 ppb, IWST-190221A |
| 9 | STD6-20.0 ppb | 9 | 1000 | Calibration Standard | 06 | 03/13/2019 10:21 | Finished | 20 ppb, IWST-190221A |
| 10 | STD2-1.0 ppb | 10 | 1000 | Calibration Standard | 02 | 03/13/2019 10:31 | Finished | 1.0 ppb, IWST-190221A |
| 11 | ICV,ICV,1, | 12 | 1000 | Unknown | | 03/13/2019 10:49 | Finished | ICV @5ppb, IWST-190221B |
| 12 | PQL@0.2ppb,CCV2,1 | 13 | 1000 | Unknown | | 03/13/2019 11:00 | Finished | PQL @ 0.2ppb |
| 13 | ICB,ICB,1, | 14 | 1000 | Unknown | | 03/13/2019 11:10 | Finished | ICB R190211C |
| 14 | MB-H2O,MBLK,1, | 15 | 1000 | Unknown | | 03/13/2019 11:19 | Finished | MB R190211C |
| 15 | LCS-H2O,LCS,1, | 16 | 1000 | Unknown | | 03/13/2019 11:29 | Finished | LCS @5ppb, IWST-190221B |
| 16 | N034570-001A,SAMP | 17 | 1000 | Unknown | | 03/13/2019 11:38 | Finished | SAMP,10mL |
| 17 | N034572-001A,SAMP | 18 | 1000 | Unknown | | 03/13/2019 11:48 | Finished | SAMP,10mL |
| 18 | N034573-002A,SAMP | 19 | 1000 | Unknown | | 03/13/2019 11:57 | Finished | SAMP,10mL |
| 19 | N034570-001AMS,MS | 20 | 1000 | Unknown | | 03/13/2019 12:07 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 20 | N034572-001AMS,MS | 21 | 1000 | Unknown | | 03/13/2019 12:16 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 21 | N034572-001AMS,MS | 23 | 1000 | Unknown | | 03/13/2019 12:33 | Finished | MS (1ppb), IWST-190221B,1>1 |
| 22 | N034570-001A,SAMP | 24 | 1000 | Unknown | | 03/13/2019 12:45 | Finished | SAMP,2>10mL |
| 23 | N034572-001A,SAMP | 25 | 1000 | Unknown | | 03/13/2019 12:54 | Finished | SAMP,1>10mL |
| 24 | CCV-1,CCV1,1, | 26 | 1000 | Unknown | | 03/13/2019 13:04 | Finished | CCV @10ppb, IWST-190221A |
| 25 | CCB-1,CCB,1, | 27 | 1000 | Unknown | | 03/13/2019 13:13 | Finished | CCB R190211C |
| 26 | N034570-001AMSD,M | 28 | 1000 | Unknown | | 03/13/2019 13:23 | Finished | MSD (1ppb), IWST-190221B,2> |
| 27 | N034570-001ADUP,D | 29 | 1000 | Unknown | | 03/13/2019 13:32 | Finished | SAMP,10mL |
| 28 | N034570-001AMS,MS | 30 | 1000 | Unknown | | 03/13/2019 13:42 | Finished | MS (1ppb), IWST-190221B,10 |
| 29 | N034572-001A,SAMP | 31 | 1000 | Unknown | | 03/13/2019 13:51 | Finished | SAMP,2>10mL |
| 30 | BLANK | 32 | 1000 | Unknown | | 03/13/2019 14:00 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034573-002A,SAMP | 33 | 1000 | Unknown | | 03/13/2019 14:10 | Finished | SAMP,10mL |
| 32 | N034573-002AMS,MS | 34 | 1000 | Unknown | | 03/13/2019 14:19 | Finished | MS (1ppb), IWST-190221B,10 |
| 33 | CCV-2,CCV,1, | 35 | 1000 | Unknown | | 03/13/2019 14:29 | Finished | CCV @5ppb, IWST-190221A |
| 34 | CCB-2,CCB,1, | 37 | 1000 | Unknown | | 03/13/2019 14:53 | Finished | CCB R190211C |
| 35 | N034558-001A,SAMP | 1 | 1000 | Unknown | | 03/13/2019 15:14 | Finished | SAMP,0.002>10mL |
| 36 | N034558-001AREP,D | 2 | 1000 | Unknown | | 03/13/2019 15:24 | Finished | REP,0.002>10mL |
| 37 | BLANK | 3 | 1000 | Unknown | | 03/13/2019 15:34 | Finished | BLANK |
| 38 | CCV-3,CCV1,1, | 4 | 1000 | Unknown | | 03/13/2019 15:43 | Finished | CCV @10ppb, IWST-190221A |
| 39 | CCB-3,CCB,1, | 5 | 1000 | Unknown | | 03/13/2019 15:53 | Finished | CCB R190211C |
| 40 | BLANK | 6 | 1000 | Unknown | | 03/13/2019 16:02 | Finished | BLANK |
| 41 | BLANK | 7 | 1000 | Unknown | | 03/13/2019 16:12 | Finished | BLANK |
| 42 | SHUTDOWN | 8 | 1000 | Unknown | | 03/13/2019 16:21 | Finished | |
| 43 | Eluent: R190312D | 9 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 44 | PCR: R190312E | 10 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

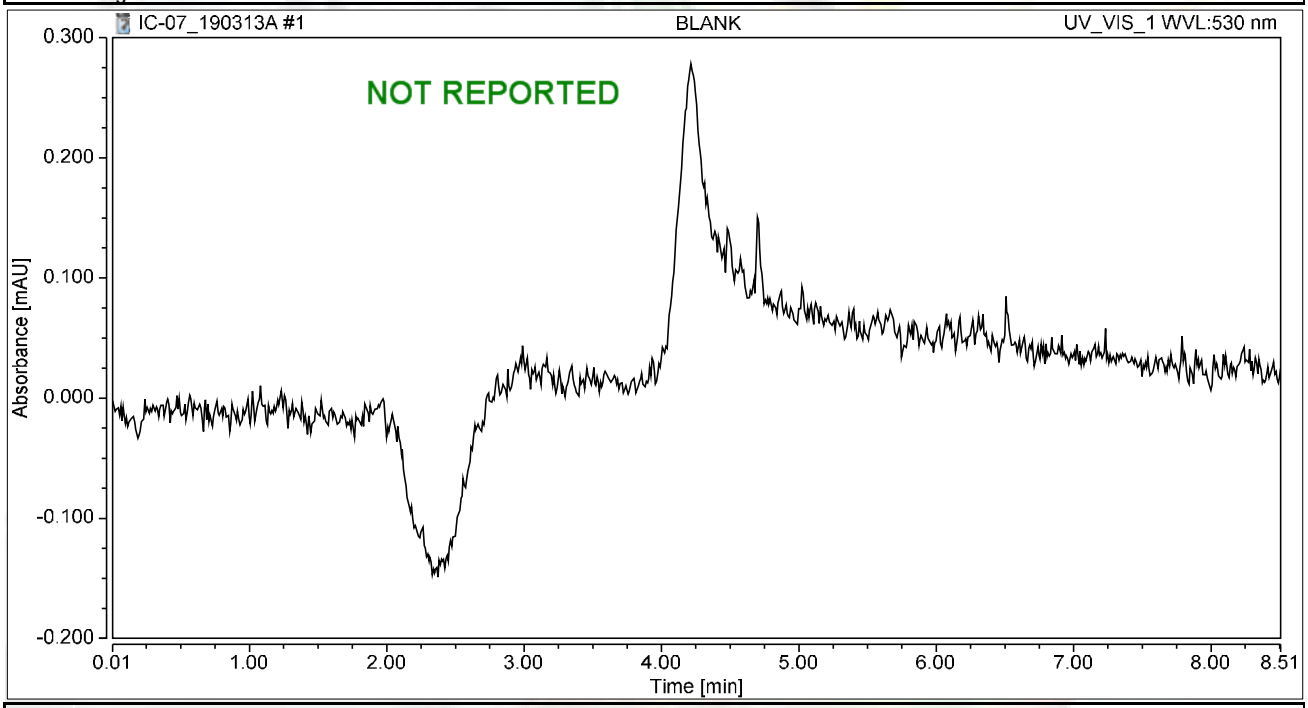
rba 3/17/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

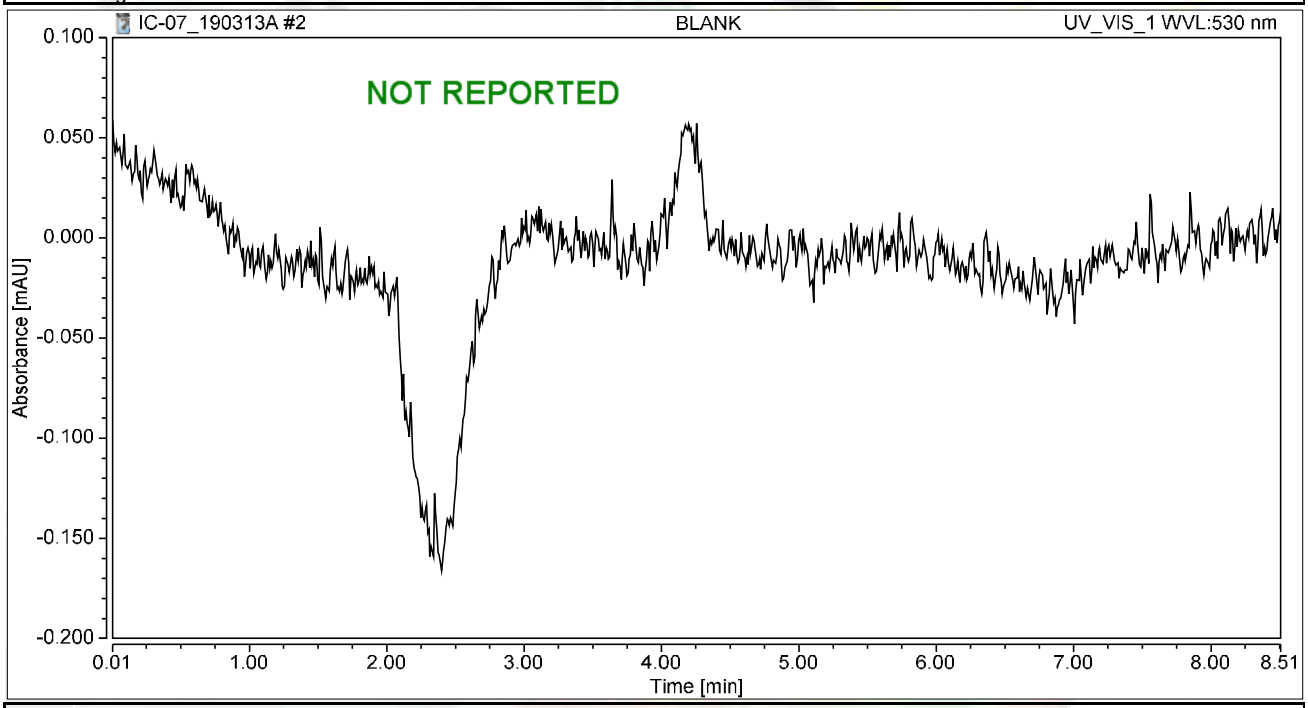
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

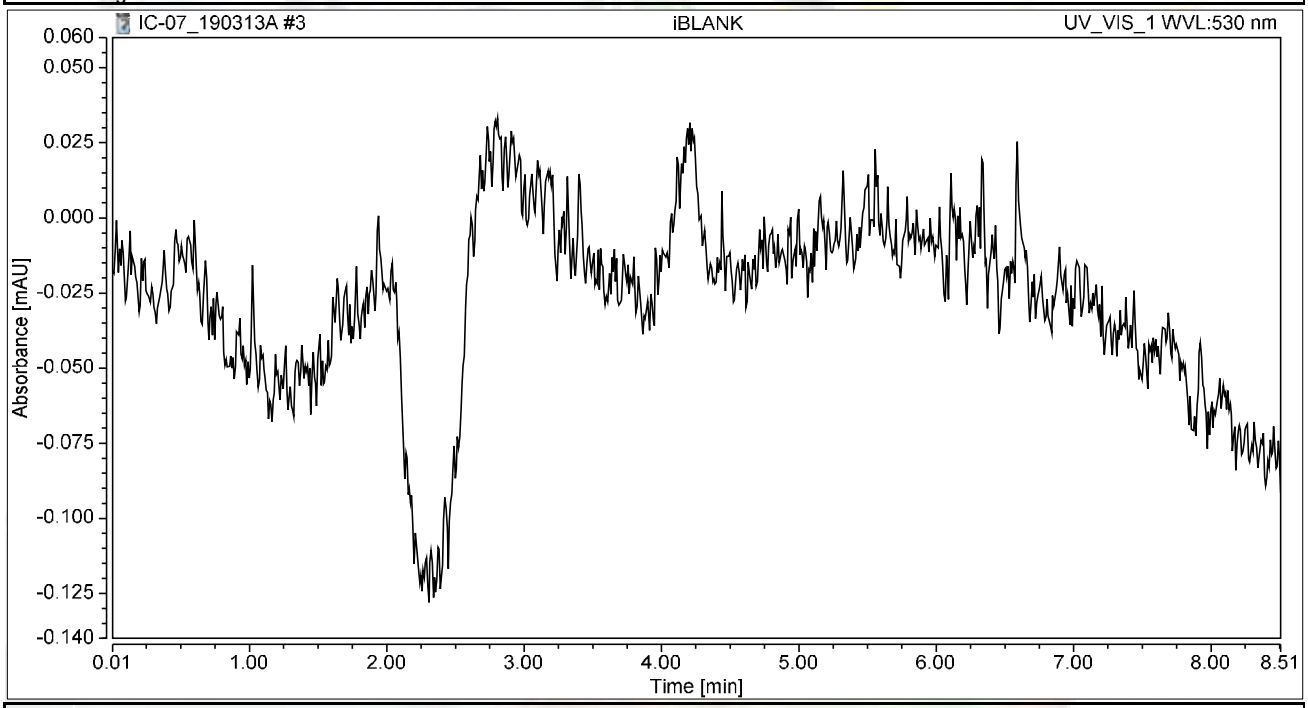
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **iBLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

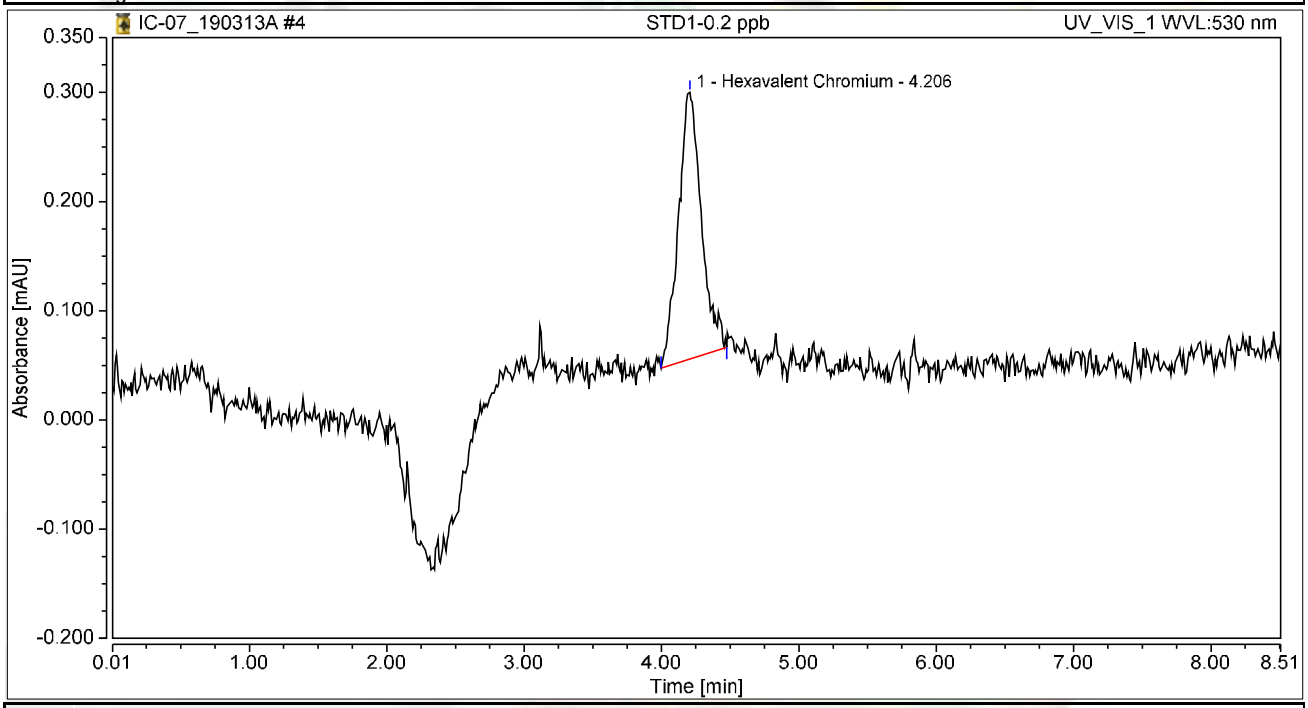
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD1-0.2 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **01** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

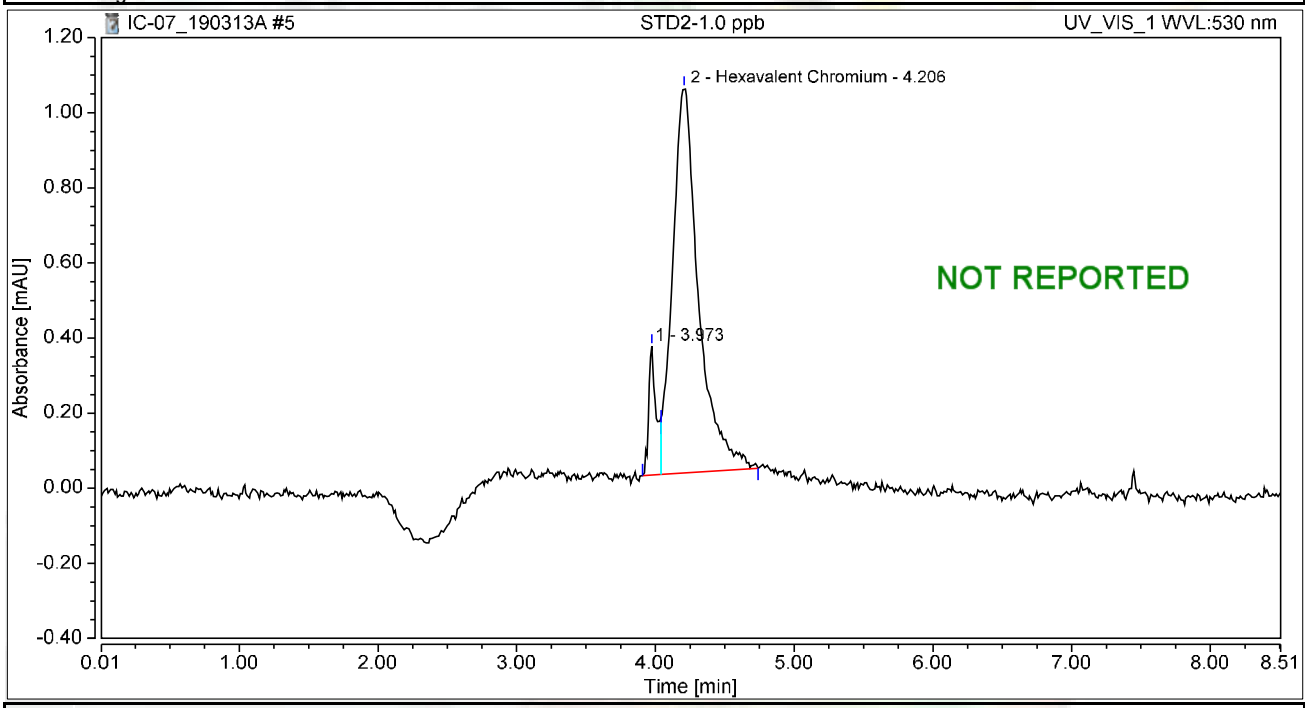
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.047 | 0.244 | 100.00 | 100.00 | 0.2139 |
| **Total:** | | | **0.047** | **0.244** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:41** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

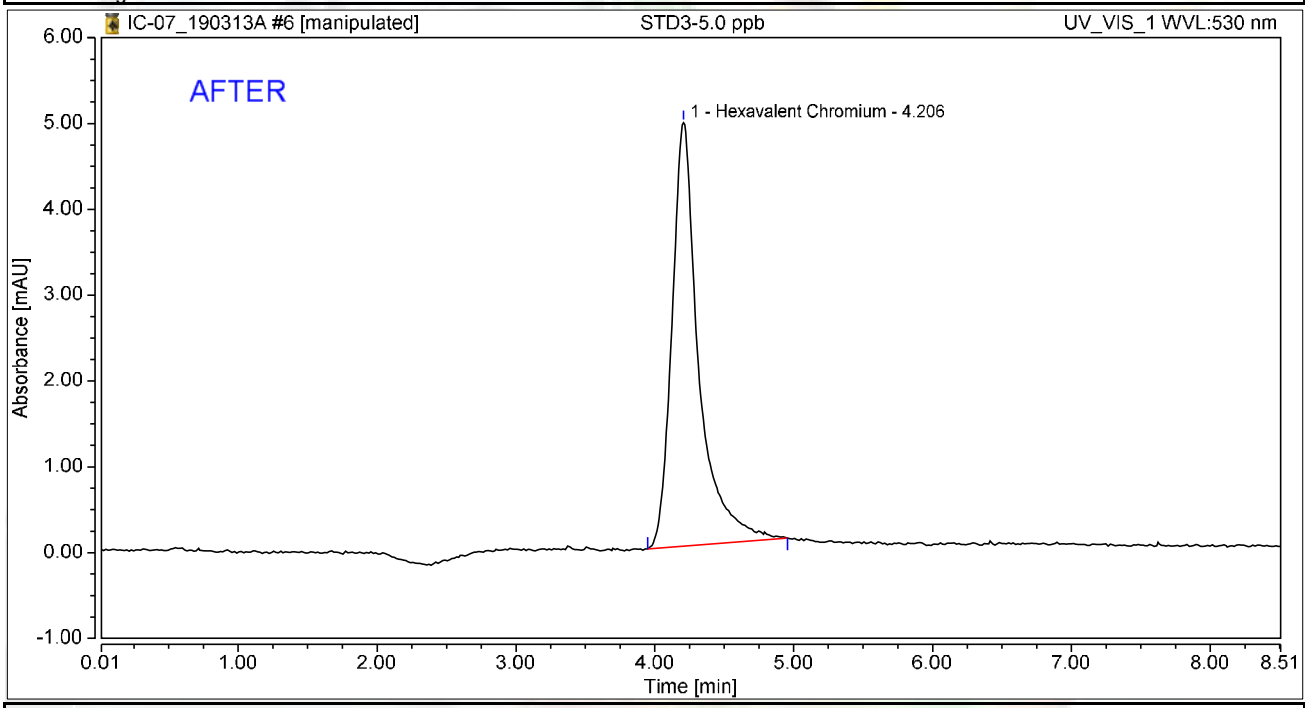
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | | 3.973 | 0.021 | 0.344 | 8.72 | 25.14 | n.a. |
| 2 | Hexavalent Chromium | 4.206 | 0.223 | 1.025 | 91.28 | 74.86 | 1.0122 |
| **Total:** | | | **0.244** | **1.369** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD3-5.0 ppb** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **03** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.106 | 4.936 | 100.00 | 100.00 | 5.0269 |
| **Total:** | | | **1.106** | **4.936** | **100.00** | **100.00** | |

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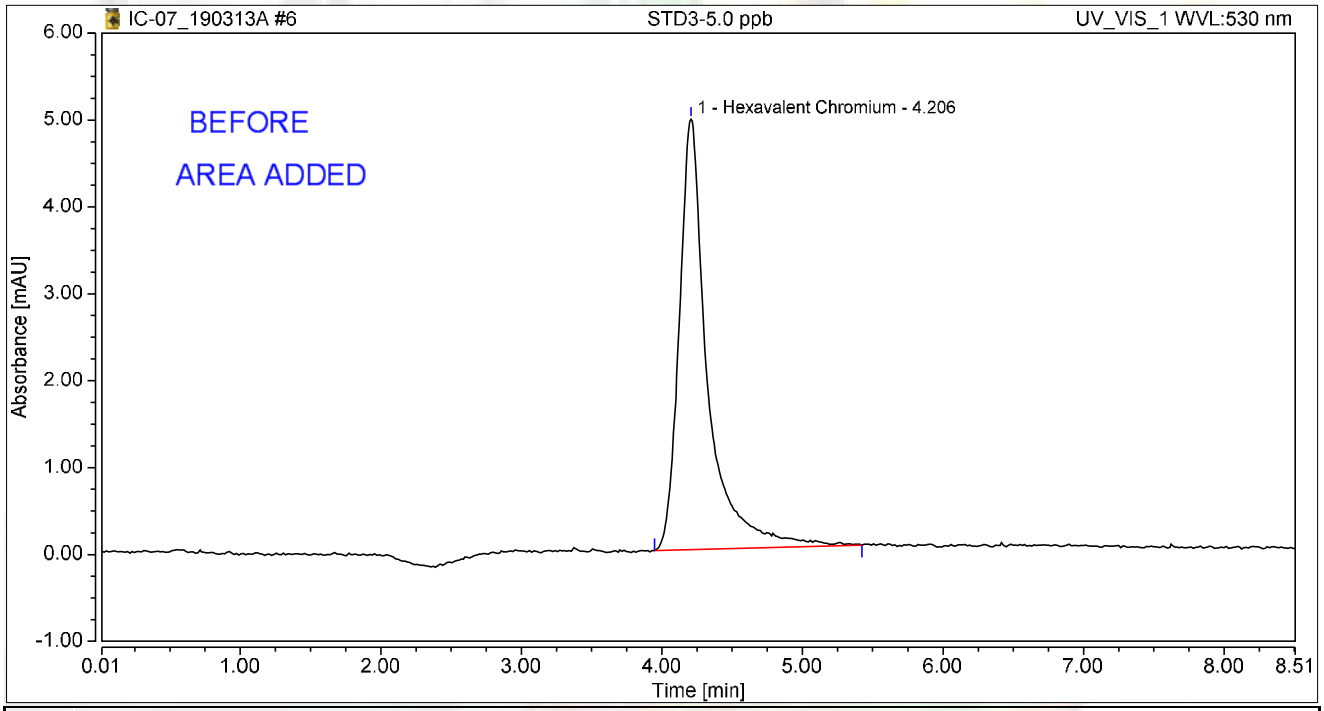
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD3-5.0 ppb** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **03** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.165 | 4.957 | 100.00 | 100.00 | 4.7988 |
| **Total:** | | | **1.165** | **4.957** | **100.00** | **100.00** | |

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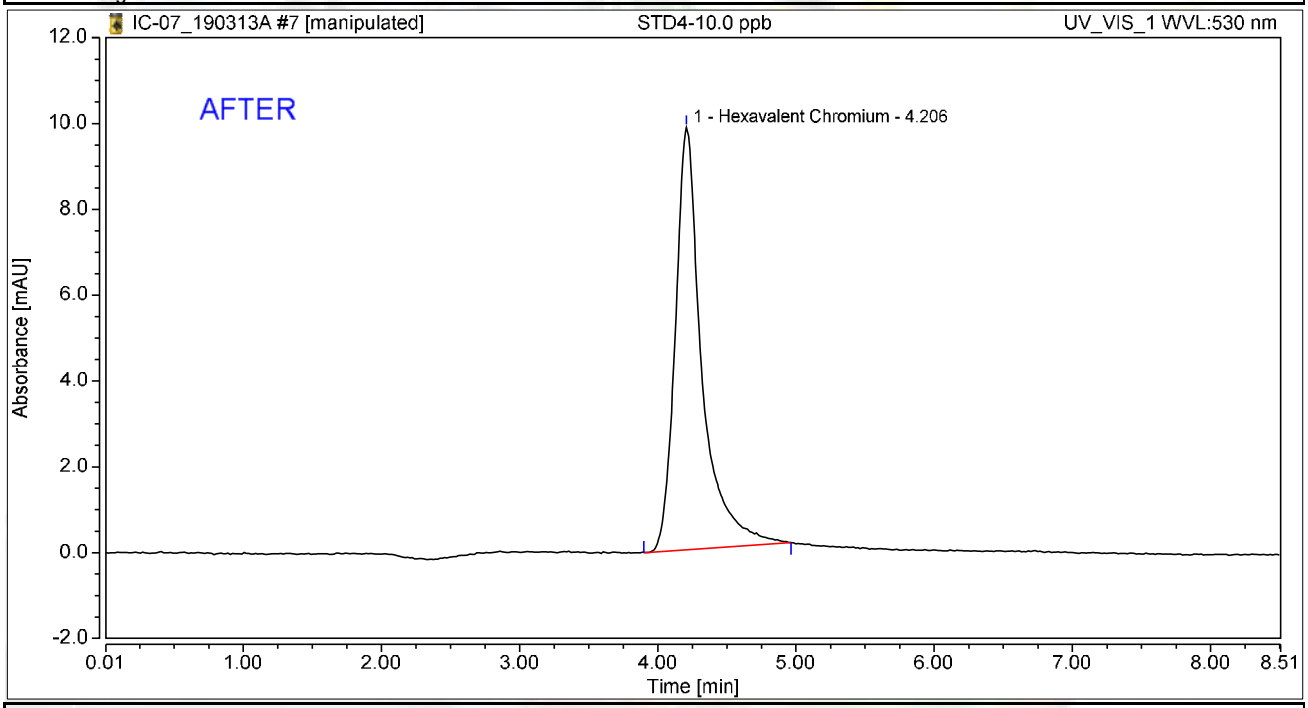
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD4-10.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **04** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 2.199 | 9.844 | 100.00 | 100.00 | 9.9965 |
| **Total:** | | | **2.199** | **9.844** | **100.00** | **100.00** | |

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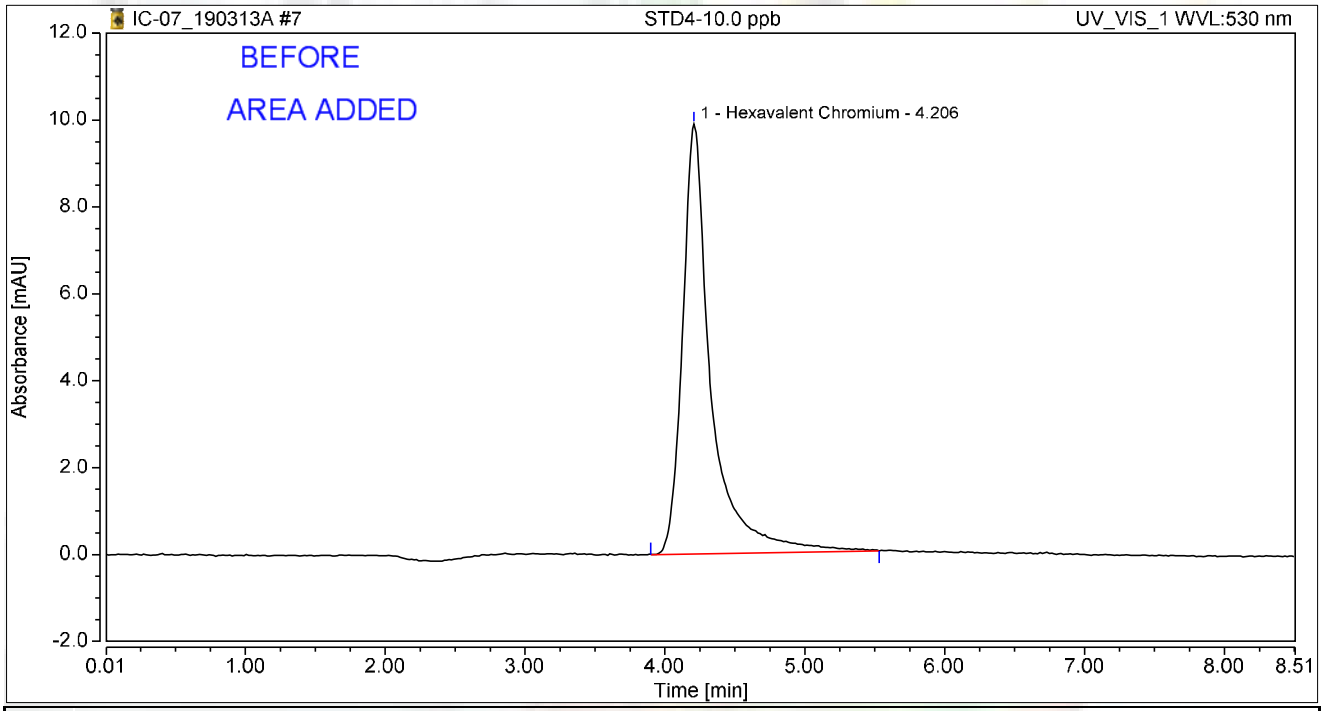
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD4-10.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **04** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 2.344 | 9.896 | 100.00 | 100.00 | 9.6561 |
| **Total:** | | | **2.344** | **9.896** | **100.00** | **100.00** | |

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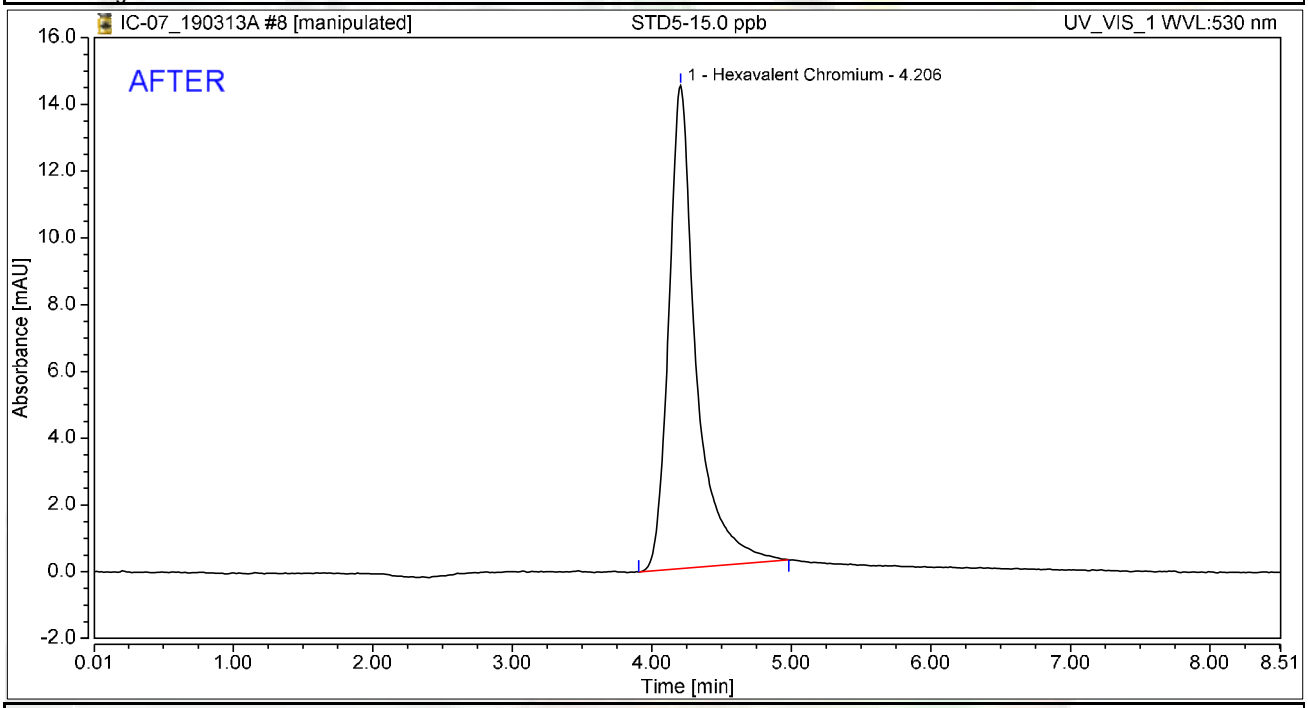
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 3.284 | 14.466 | 100.00 | 100.00 | 14.9322 |
| **Total:** | | | **3.284** | **14.466** | **100.00** | **100.00** | |

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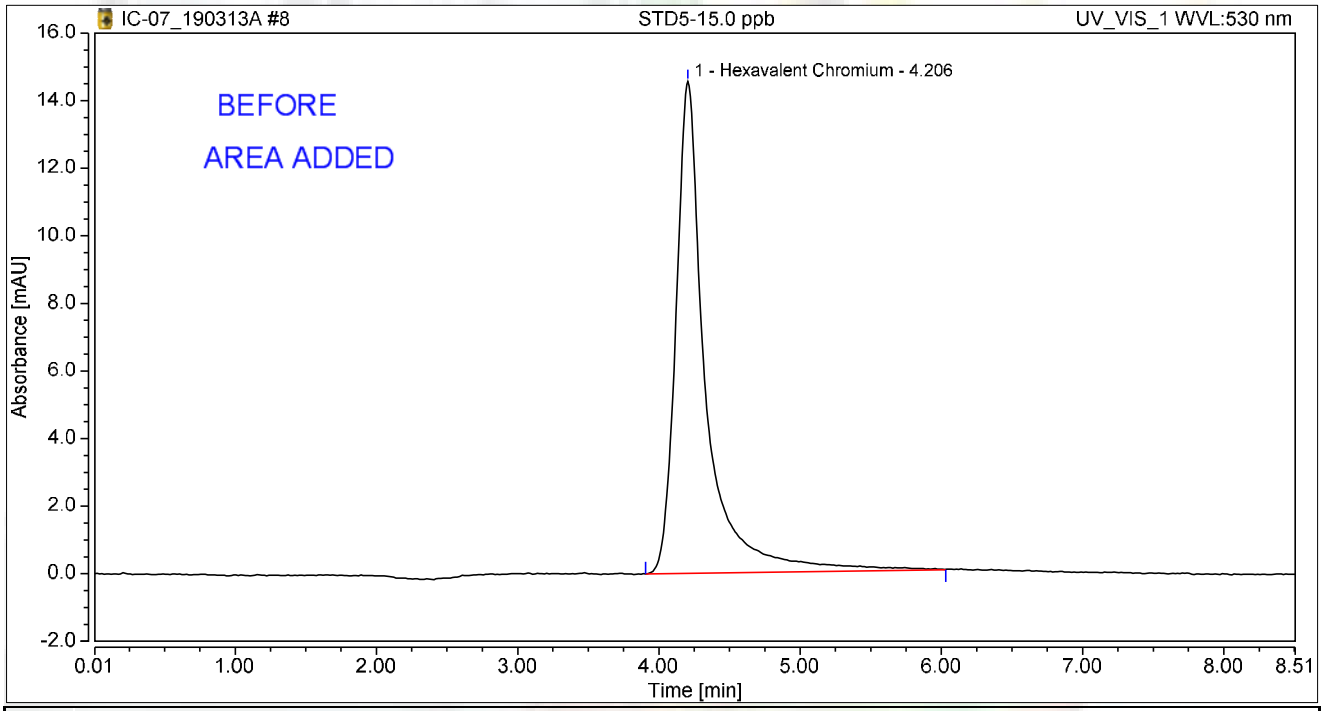
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 3.580 | 14.551 | 100.00 | 100.00 | 14.7476 |
| **Total:** | | | **3.580** | **14.551** | **100.00** | **100.00** | |

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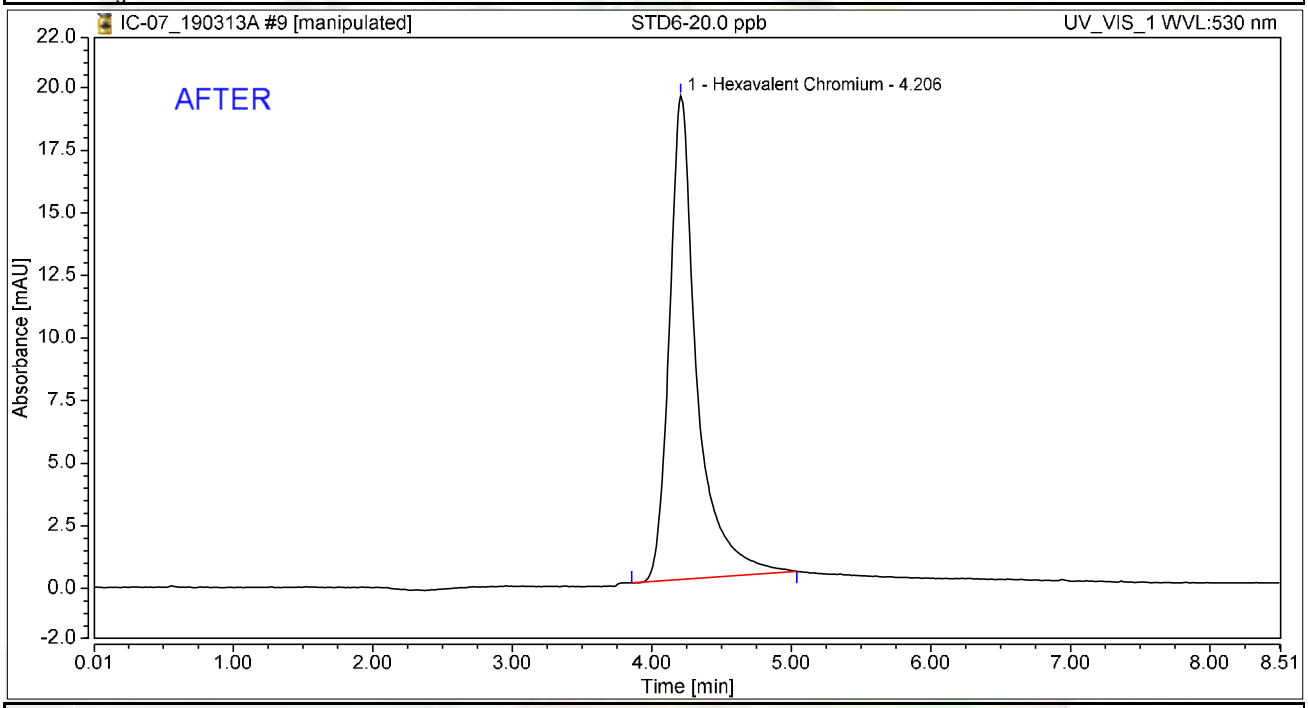
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD6-20.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **06** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 4.409 | 19.328 | 100.00 | 100.00 | 20.0449 |
| **Total:** | | | **4.409** | **19.328** | **100.00** | **100.00** | |

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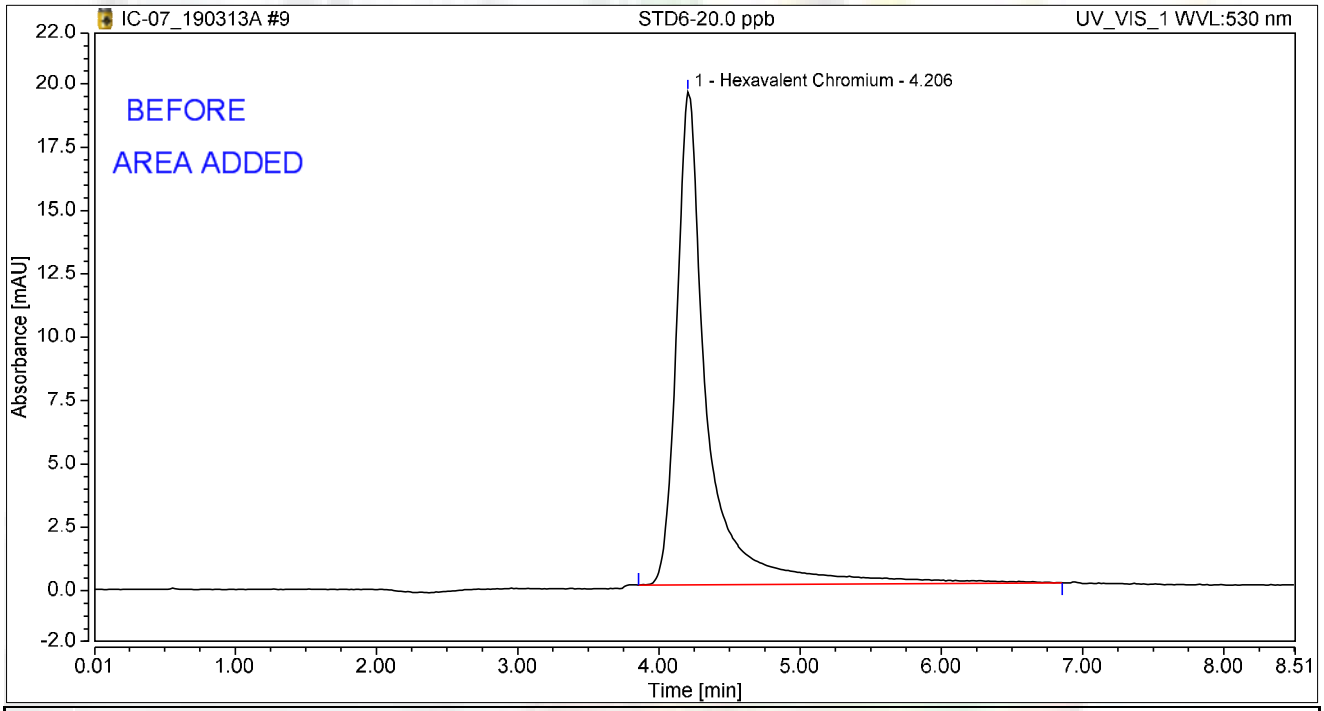
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD6-20.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **06** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 4.956 | 19.454 | 100.00 | 100.00 | 20.4140 |
| **Total:** | | | **4.956** | **19.454** | **100.00** | **100.00** | |

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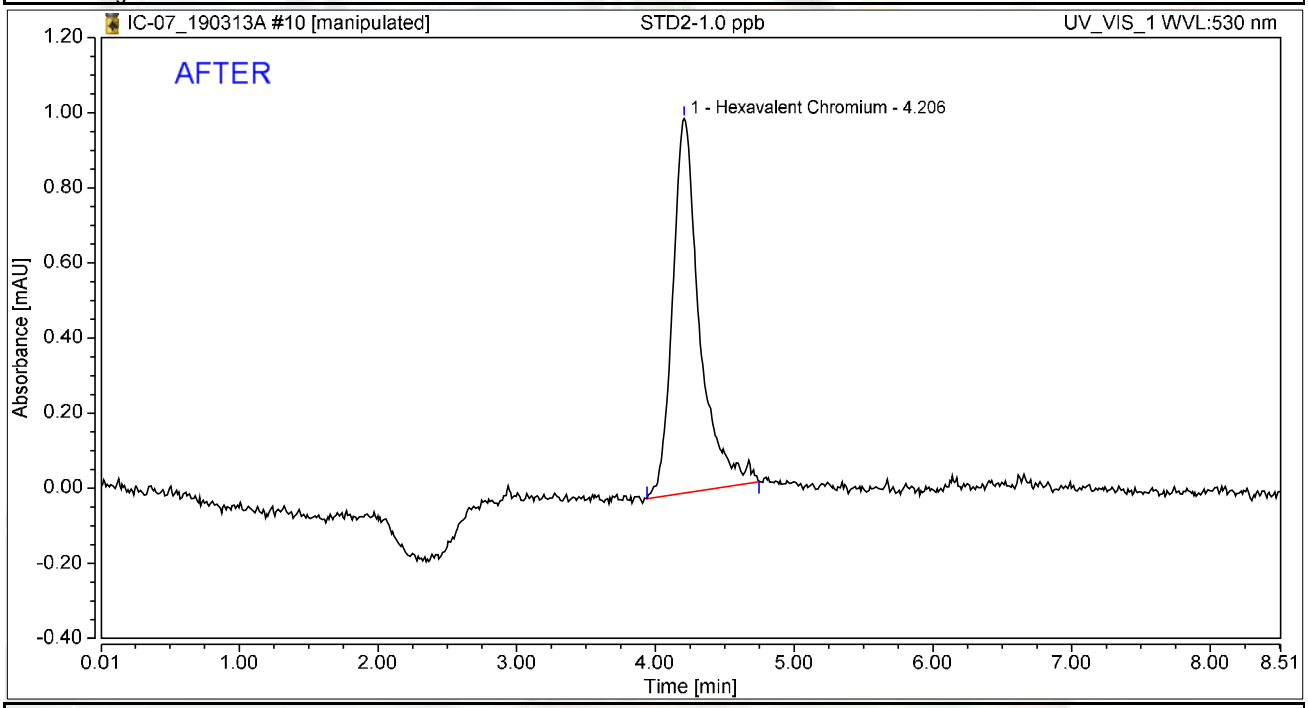
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.224 | 0.997 | 100.00 | 100.00 | 1.0173 |
| **Total:** | | | **0.224** | **0.997** | **100.00** | **100.00** | |

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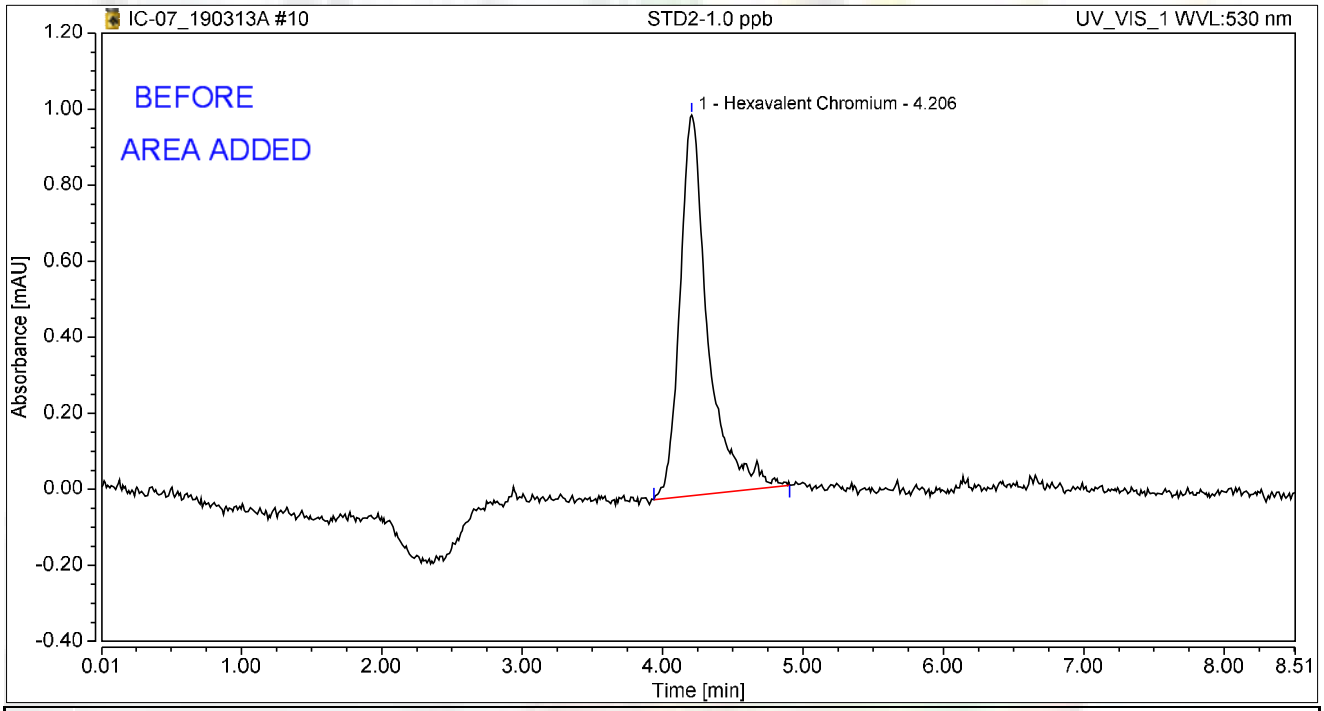
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.231 | 1.002 | 100.00 | 100.00 | 0.9515 |
| **Total:** | | | **0.231** | **1.002** | **100.00** | **100.00** | |

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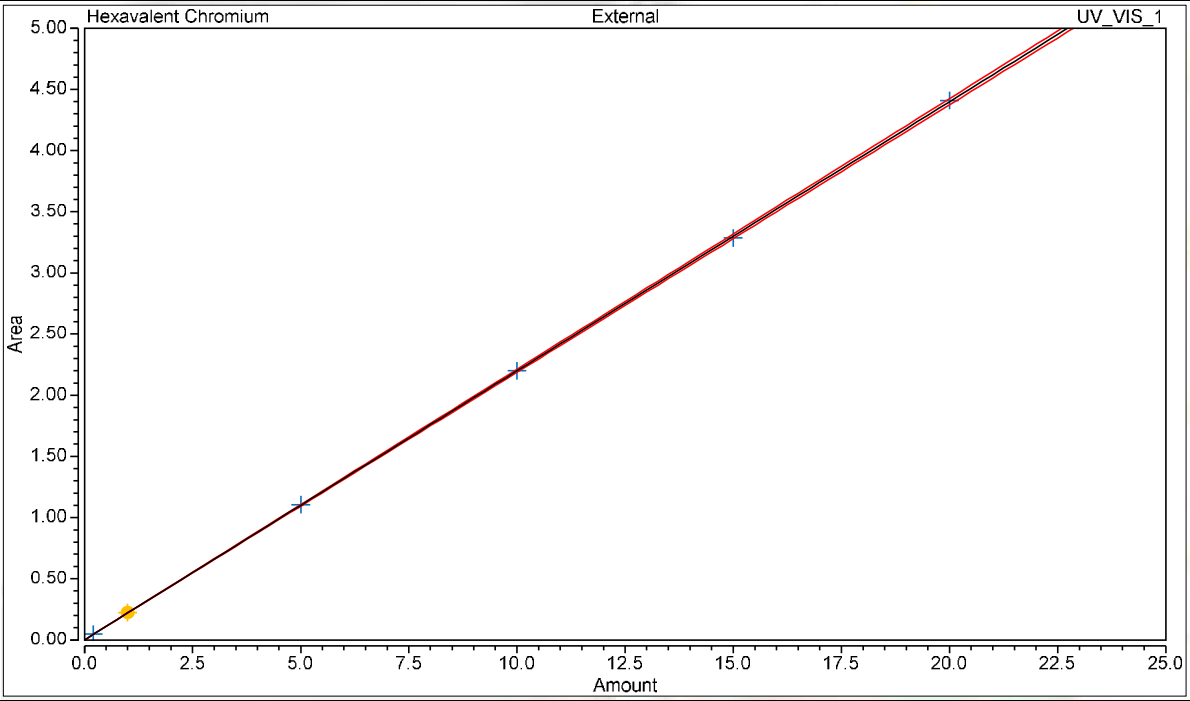
# Initial Calibration Summary

| Calibration Details | Hexavalent Chromium | | |
|---|---|---|---|
| *Calibration Type* | Lin | *Offset (C0)* | 0.0000 |
| *Evaluation Type* | Area | *Slope (C1)* | 0.2200 |
| *Number of Calibration Points* | 6 | *Curve (C2)* | 0.0000 |
| *Number of disabled Calibration Points* | 0 | *R-Square* | 0.99997 |

Calibration Plot — Hexavalent Chromium




Calibration Results — Hexavalent Chromium

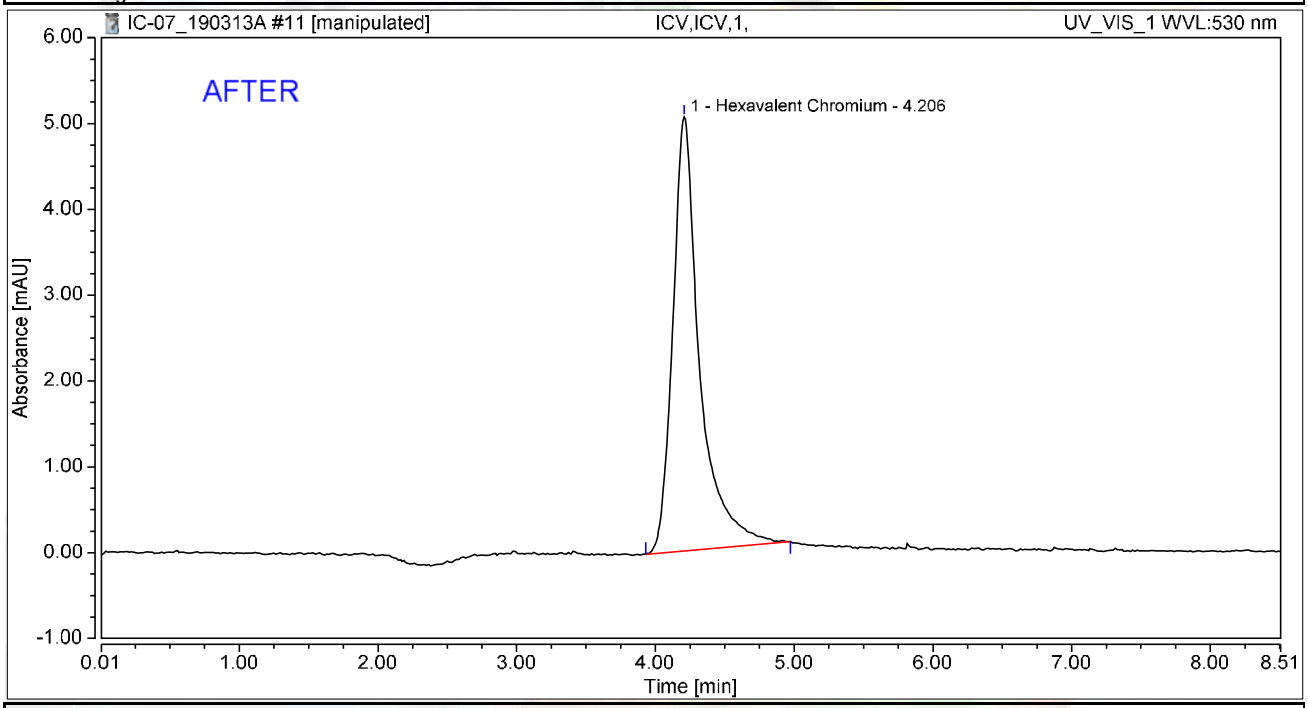
| No. | Injection Name | Calibration Level | X Value | Y Value | Area mAU*min | Height mAU |
|---|---|---|---|---|---|---|
| 4 | STD1-0.2 ppb | 01 | 0.2000 | 0.0471 | 0.047 | 0.244 |
| 6 | STD3-5.0 ppb | 03 | 5.0000 | 1.1057 | 1.106 | 4.936 |
| 7 | STD4-10.0 ppb | 04 | 10.0000 | 2.1988 | 2.199 | 9.844 |
| 8 | STD5-15.0 ppb | 05 | 15.0000 | 3.2845 | 3.284 | 14.466 |
| 9 | STD6-20.0 ppb | 06 | 20.0000 | 4.4091 | 4.409 | 19.328 |
| 10 | STD2-1.0 ppb | 02 | 1.0000 | 0.2238 | 0.224 | 0.997 |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICV,ICV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.134 | 5.058 | 100.00 | 100.00 | 5.1539 |
| **Total:** | | | **1.134** | **5.058** | **100.00** | **100.00** | |

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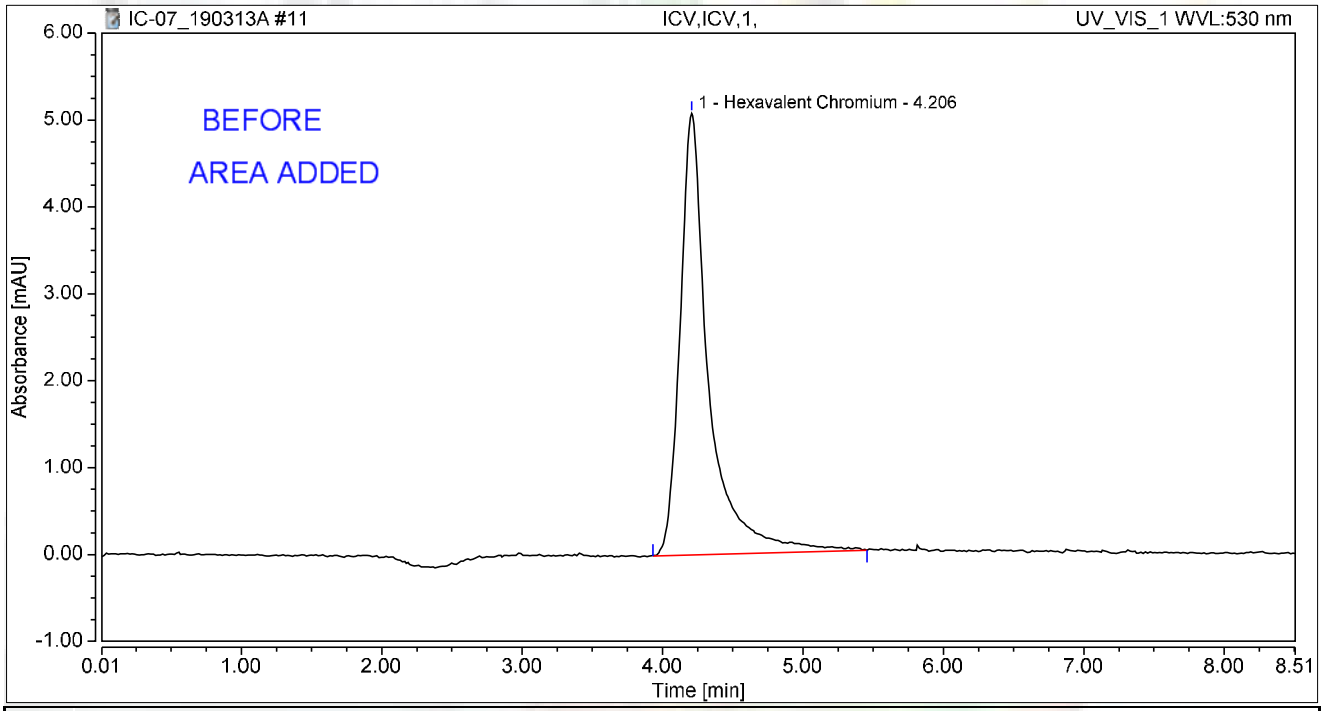
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICV,ICV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.210 | 5.084 | 100.00 | 100.00 | 4.9834 |
| **Total:** | | | **1.210** | **5.084** | **100.00** | **100.00** | |

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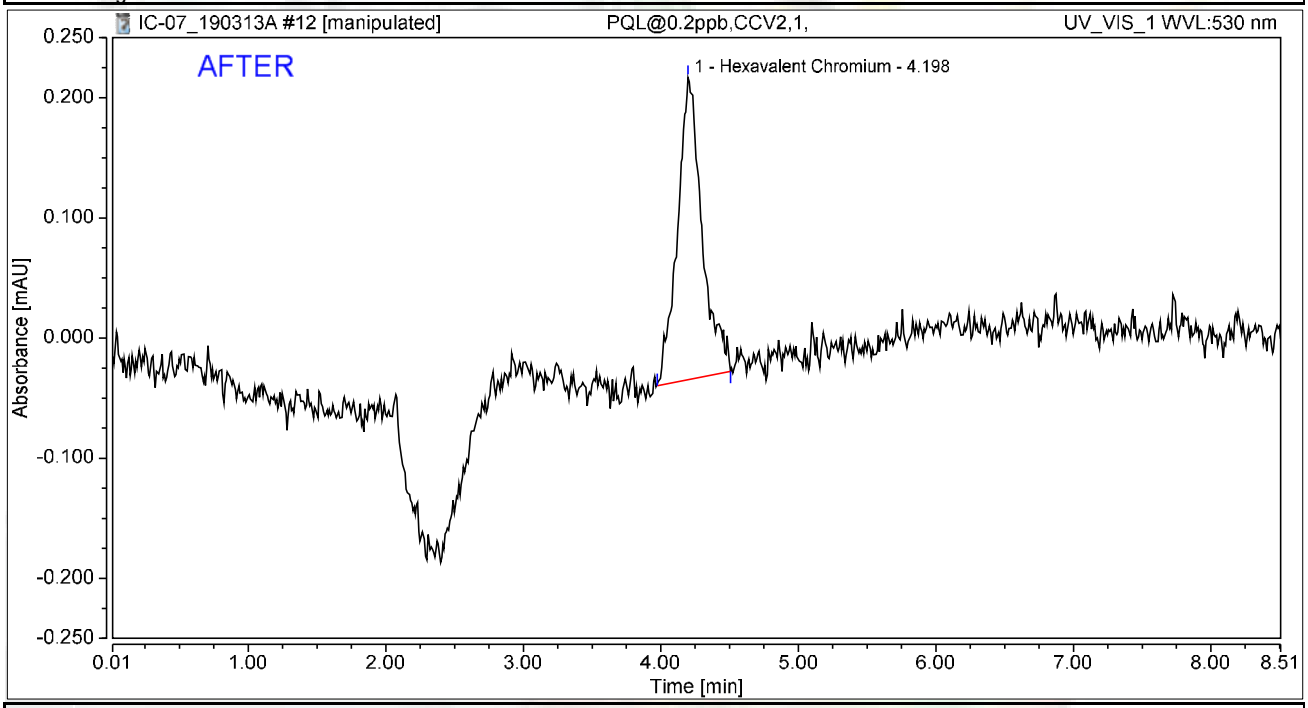
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 11:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.052 | 0.251 | 100.00 | 100.00 | 0.2346 |
| **Total:** | | | **0.052** | **0.251** | **100.00** | **100.00** | |

rba 3/17/2019

Reviewed by:
Nancy 3/26/2019

My first report/Integration

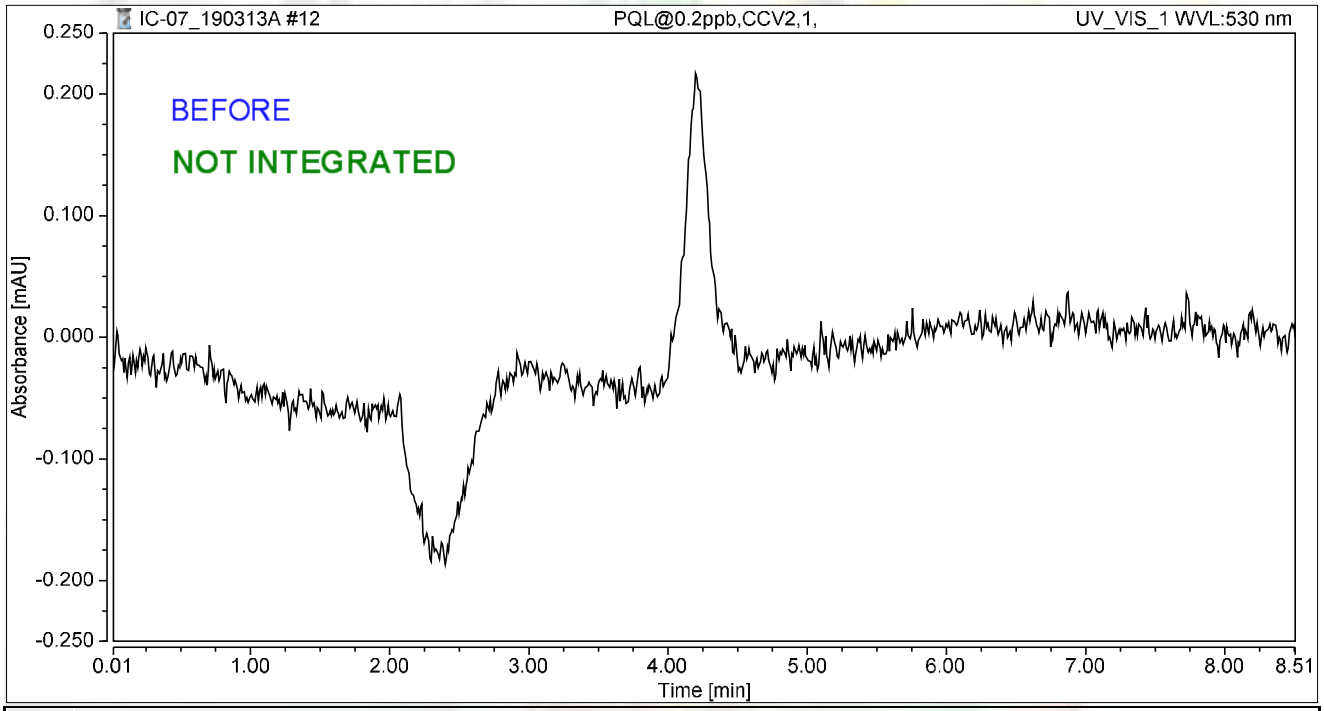
Chromeleon (c) Dionex
Version 7.1.1.1127

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 11:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

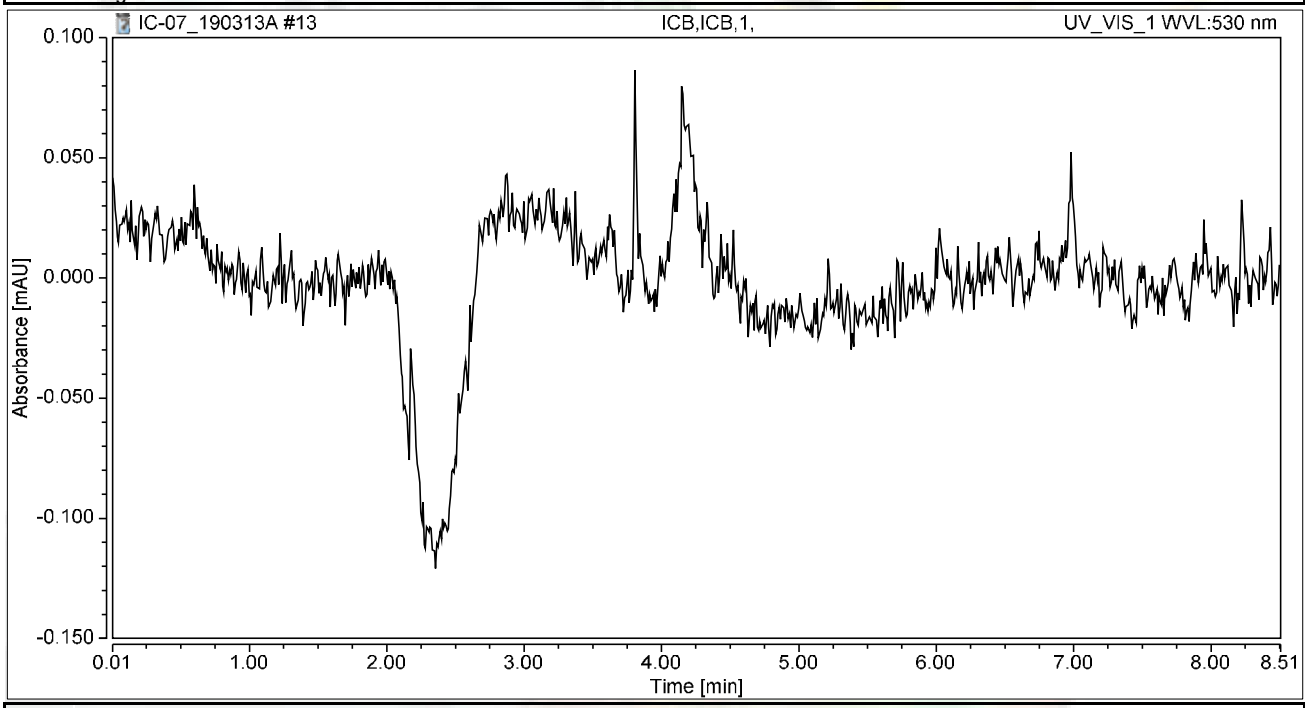
rba 3/17/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICB,ICB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 11:10** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# RAW DATA

**INJECTION LOG: 190320A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:00 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:11 AM | Not Reported |
| 3 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 03/13/19 9:21 AM | Reported |
| 4 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:30 AM | Reported |
| 5 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:41 AM | Not Reported |
| 6 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:53 AM | Reported |
| 7 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:02 AM | Reported |
| 8 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:12 AM | Reported |
| 9 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:21 AM | Reported |
| 10 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:31 AM | Reported |
| 11 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/20/19 9:41 AM | Not Reported |
| 12 | CCV-1 | CCV | 1 | Hexavalent Chromium | 03/20/19 9:52 AM | Reported |
| 13 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 03/20/19 10:02 AM | Reported |
| 14 | CCB-1 | CCB | 1 | Hexavalent Chromium | 03/20/19 10:11 AM | Reported |
| 15 | MB-R132680 | MBLK | 1 | Hexavalent Chromium | 03/20/19 10:21 AM | Reported |
| 16 | LCS-R132680 | LCS | 1 | Hexavalent Chromium | 03/20/19 10:30 AM | Reported |
| 17 | N034688-001A | SAMP | 1 | Hexavalent Chromium | 03/20/19 10:39 AM | Reported |
| 18 | N034688-001AMS | MS | 1 | Hexavalent Chromium | 03/20/19 10:49 AM | Reported |
| 19 | N034688-002A | SAMP | 1 | Hexavalent Chromium | 03/20/19 10:58 AM | Reported |
| 20 | N034688-002AMS | MS | 1 | Hexavalent Chromium | 03/20/19 11:08 AM | Reported |
| 21 | N034688-003A | SAMP | 1 | Hexavalent Chromium | 03/20/19 11:17 AM | Reported |
| 22 | N034688-003AMS | MS | 1 | Hexavalent Chromium | 03/20/19 11:27 AM | Reported |
| 23 | N034688-004A | SAMP | 1 | Hexavalent Chromium | 03/20/19 11:36 AM | Reported |
| 24 | N034688-004AMS | MS | 1 | Hexavalent Chromium | 03/20/19 11:46 AM | Reported |
| 25 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 03/20/19 11:55 AM | Reported |
| 26 | CCB-2 | CCB | 1 | Hexavalent Chromium | 03/20/19 12:05 PM | Reported |
| 27 | N034688-005A | SAMP | 1 | Hexavalent Chromium | 03/20/19 12:14 PM | Reported |
| 28 | N034688-005AMS | MS | 1 | Hexavalent Chromium | 03/20/19 12:24 PM | Reported |
| 29 | N034688-006A | SAMP | 1 | Hexavalent Chromium | 03/20/19 12:33 PM | Reported |
| 30 | N034688-006AMS | MS | 1 | Hexavalent Chromium | 03/20/19 12:42 PM | Reported |
| 31 | N034688-007A | SAMP | 1 | Hexavalent Chromium | 03/20/19 12:52 PM | Reported |
| 32 | N034688-007AMS | MS | 1 | Hexavalent Chromium | 03/20/19 1:01 PM | Reported |
| 33 | N034688-008A | SAMP | 1 | Hexavalent Chromium | 03/20/19 1:11 PM | Reported |
| 34 | N034688-008AMS | MS | 1 | Hexavalent Chromium | 03/20/19 1:20 PM | Reported |
| 35 | N034688-009A | SAMP | 1 | Hexavalent Chromium | 03/20/19 1:30 PM | Reported |
| 36 | N034688-009AMS | MS | 1 | Hexavalent Chromium | 03/20/19 1:39 PM | Reported |
| 37 | CCV-3 | CCV | 1 | Hexavalent Chromium | 03/20/19 1:49 PM | Reported |
| 38 | CCB-3 | CCB | 1 | Hexavalent Chromium | 03/20/19 1:58 PM | Reported |
| 39 | N034688-001AMSD | MSD | 1 | Hexavalent Chromium | 03/20/19 2:08 PM | Reported |
| 40 | N034688-009ADUP | DUP | 1 | Hexavalent Chromium | 03/20/19 2:17 PM | Reported |
| 41 | N034688-010A | SAMP | 1 | Hexavalent Chromium | 03/20/19 2:37 PM | Reported |
| 42 | N034688-010AMS | MS | 1 | Hexavalent Chromium | 03/20/19 2:48 PM | Reported |

**INJECTION LOG: 190320A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034688-011A | SAMP | 1 | Hexavalent Chromium | 03/20/19 2:57 PM | Reported |
| 44 | N034688-011AMS | MS | 1 | Hexavalent Chromium | 03/20/19 3:06 PM | Reported |
| 45 | N034688-012A | SAMP | 1 | Hexavalent Chromium | 03/20/19 3:16 PM | Reported |
| 46 | N034688-012AMS | MS | 1 | Hexavalent Chromium | 03/20/19 3:25 PM | Reported |
| 47 | N034688-013A | SAMP | 1 | Hexavalent Chromium | 03/20/19 3:35 PM | Reported |
| 48 | N034688-013AMS | MS | 1 | Hexavalent Chromium | 03/20/19 3:44 PM | Reported |
| 49 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 03/20/19 3:54 PM | Reported |
| 50 | CCB-4 | CCB | 1 | Hexavalent Chromium | 03/20/19 4:03 PM | Reported |
| 51 | N034688-014A | SAMP | 1 | Hexavalent Chromium | 03/20/19 4:13 PM | Reported |
| 52 | N034688-014AMS | MS | 1 | Hexavalent Chromium | 03/20/19 4:22 PM | Reported |
| 53 | N034688-015A | SAMP | 1 | Hexavalent Chromium | 03/20/19 4:32 PM | Reported |
| 54 | N034688-015AMS | MS | 1 | Hexavalent Chromium | 03/20/19 4:41 PM | Reported |
| 55 | N034688-016A | SAMP | 1 | Hexavalent Chromium | 03/20/19 4:51 PM | Not Reported |
| 56 | N034688-016AMS | MS | 1 | Hexavalent Chromium | 03/20/19 5:00 PM | Not Reported |
| 57 | N034688-017A | SAMP | 1 | Hexavalent Chromium | 03/20/19 5:09 PM | Not Reported |
| 58 | N034688-017AMS | MS | 1 | Hexavalent Chromium | 03/20/19 5:19 PM | Not Reported |
| 59 | CCV-5 | CCV | 1 | Hexavalent Chromium | 03/20/19 5:28 PM | Reported |
| 60 | CCB-5 | CCB | 1 | Hexavalent Chromium | 03/20/19 5:38 PM | Reported |
| 61 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/20/19 5:47 PM | Not Reported |
| 62 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/20/19 5:57 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190320A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **20/Mar/19 18:27:36** |
| *No. of Injections:* | **65** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 03/13/2019 09:00 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 03/13/2019 09:11 | Finished | BLANK |
| 3 | iBLANK | 3 | 1000 | Unknown | | 03/13/2019 09:21 | Finished | INSTRUMENT BLANK |
| 4 | STD1-0.2 ppb | 4 | 1000 | Calibration Standard | 01 | 03/13/2019 09:30 | Finished | 0.2 ppb, IWST-190221A |
| 5 | STD2-1.0 ppb | 5 | 1000 | Unknown | | 03/13/2019 09:41 | Finished | 1.0 ppb, IWST-190221A |
| 6 | STD3-5.0 ppb | 6 | 1000 | Calibration Standard | 03 | 03/13/2019 09:53 | Finished | 5.0 ppb, IWST-1190221A |
| 7 | STD4-10.0 ppb | 7 | 1000 | Calibration Standard | 04 | 03/13/2019 10:02 | Finished | 10 ppb, IWST-190221A |
| 8 | STD5-15.0 ppb | 8 | 1000 | Calibration Standard | 05 | 03/13/2019 10:12 | Finished | 15 ppb, IWST-190221A |
| 9 | STD6-20.0 ppb | 9 | 1000 | Calibration Standard | 06 | 03/13/2019 10:21 | Finished | 20 ppb, IWST-190221A |
| 10 | STD2-1.0 ppb | 10 | 1000 | Calibration Standard | 02 | 03/13/2019 10:31 | Finished | 1.0 ppb, IWST-190221A |
| 11 | BLANK | 1 | 1000 | Unknown | | 03/20/2019 09:41 | Finished | BLANK |
| 12 | CCV-1,CCV,1, | 2 | 1000 | Unknown | | 03/20/2019 09:52 | Finished | ICV @5ppb, IWST-190221B |
| 13 | PQL@0.2ppb,CCV2,1 | 3 | 1000 | Unknown | | 03/20/2019 10:02 | Finished | PQL @ 0.2ppb |
| 14 | CCB-1,CCB,1, | 4 | 1000 | Unknown | | 03/20/2019 10:11 | Finished | ICB R190211C |
| 15 | MB-H2O,MBLK,1, | 5 | 1000 | Unknown | | 03/20/2019 10:21 | Finished | MB R190211C |
| 16 | LCS-H2O,LCS,1, | 6 | 1000 | Unknown | | 03/20/2019 10:30 | Finished | LCS @5ppb, IWST-190221B |
| 17 | N034688-001A,SAMF | 7 | 1000 | Unknown | | 03/20/2019 10:39 | Finished | SAMP,10mL |
| 18 | N034688-001AMS,MS | 8 | 1000 | Unknown | | 03/20/2019 10:49 | Finished | MS (1ppb), IWST-190221B,10 |
| 19 | N034688-002A,SAMF | 9 | 1000 | Unknown | | 03/20/2019 10:58 | Finished | SAMP,10mL |
| 20 | N034688-002AMS,MS | 10 | 1000 | Unknown | | 03/20/2019 11:08 | Finished | MS (1ppb), IWST-190221B,10 |
| 21 | N034688-003A,SAMF | 11 | 1000 | Unknown | | 03/20/2019 11:17 | Finished | SAMP,10mL |
| 22 | N034688-003AMS,MS | 12 | 1000 | Unknown | | 03/20/2019 11:27 | Finished | MS (1ppb), IWST-190221B,10 |
| 23 | N034688-004A,SAMF | 13 | 1000 | Unknown | | 03/20/2019 11:36 | Finished | SAMP,10mL |
| 24 | N034688-004AMS,MS | 14 | 1000 | Unknown | | 03/20/2019 11:46 | Finished | MS (1ppb), IWST-190221B,10 |
| 25 | CCV-2,CCV1,1, | 15 | 1000 | Unknown | | 03/20/2019 11:55 | Finished | CCV @10ppb, IWST-190221A |
| 26 | CCB-2,CCB,1, | 16 | 1000 | Unknown | | 03/20/2019 12:05 | Finished | CCB R190211C |
| 27 | N034688-005A,SAMF | 17 | 1000 | Unknown | | 03/20/2019 12:14 | Finished | SAMP,10mL |
| 28 | N034688-005AMS,MS | 18 | 1000 | Unknown | | 03/20/2019 12:24 | Finished | MS (1ppb), IWST-190221B,10 |
| 29 | N034688-006A,SAMF | 19 | 1000 | Unknown | | 03/20/2019 12:33 | Finished | SAMP,10mL |
| 30 | N034688-006AMS,MS | 20 | 1000 | Unknown | | 03/20/2019 12:42 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034688-007A,SAMF | 21 | 1000 | Unknown | | 03/20/2019 12:52 | Finished | SAMP,10mL |
| 32 | N034688-007AMS,MS | 22 | 1000 | Unknown | | 03/20/2019 13:01 | Finished | MS (1ppb), IWST-190221B,10 |
| 33 | N034688-008A,SAMF | 23 | 1000 | Unknown | | 03/20/2019 13:11 | Finished | SAMP,10mL |
| 34 | N034688-008AMS,MS | 24 | 1000 | Unknown | | 03/20/2019 13:20 | Finished | MS (1ppb), IWST-190221B,10 |
| 35 | N034688-009A,SAMF | 25 | 1000 | Unknown | | 03/20/2019 13:30 | Finished | SAMP,10mL |
| 36 | N034688-009AMS,MS | 26 | 1000 | Unknown | | 03/20/2019 13:39 | Finished | MS (1ppb), IWST-190221B,10 |
| 37 | CCV-3,CCV,1, | 27 | 1000 | Unknown | | 03/20/2019 13:49 | Finished | CCV @5ppb, IWST-190221A |
| 38 | CCB-3,CCB,1, | 28 | 1000 | Unknown | | 03/20/2019 13:58 | Finished | CCB R190211C |
| 39 | N034688-001AMSD,M | 29 | 1000 | Unknown | | 03/20/2019 14:08 | Finished | MSD (1ppb), IWST-190221B,1 |
| 40 | N034688-009ADUP,D | 30 | 1000 | Unknown | | 03/20/2019 14:17 | Finished | DUP,10mL |
| 41 | N034688-010A,SAMF | 1 | 1000 | Unknown | | 03/20/2019 14:37 | Finished | SAMP,10mL |
| 42 | N034688-010AMS,MS | 2 | 1000 | Unknown | | 03/20/2019 14:48 | Finished | MS (1ppb), IWST-190221B,10 |
| 43 | N034688-011A,SAMF | 3 | 1000 | Unknown | | 03/20/2019 14:57 | Finished | SAMP,10mL |
| 44 | N034688-011AMS,MS | 4 | 1000 | Unknown | | 03/20/2019 15:06 | Finished | MS (1ppb), IWST-190221B,10 |
| 45 | N034688-012A,SAMF | 5 | 1000 | Unknown | | 03/20/2019 15:16 | Finished | SAMP,10mL |
| 46 | N034688-012AMS,MS | 6 | 1000 | Unknown | | 03/20/2019 15:25 | Finished | MS (1ppb), IWST-190221B,10 |
| 47 | N034688-013A,SAMF | 7 | 1000 | Unknown | | 03/20/2019 15:35 | Finished | SAMP,10mL |
| 48 | N034688-013AMS,MS | 8 | 1000 | Unknown | | 03/20/2019 15:44 | Finished | MS (1ppb), IWST-190221B,10 |
| 49 | CCV-4,CCV1,1, | 9 | 1000 | Unknown | | 03/20/2019 15:54 | Finished | CCV @10ppb, IWST-190221A |
| 50 | CCB-4,CCB,1, | 10 | 1000 | Unknown | | 03/20/2019 16:03 | Finished | CCB R190211C |
| 51 | N034688-014A,SAMF | 11 | 1000 | Unknown | | 03/20/2019 16:13 | Finished | SAMP,10mL |
| 52 | N034688-014AMS,MS | 12 | 1000 | Unknown | | 03/20/2019 16:22 | Finished | MS (1ppb), IWST-190221B,10 |
| 53 | N034688-015A,SAMF | 13 | 1000 | Unknown | | 03/20/2019 16:32 | Finished | SAMP,10mL |
| 54 | N034688-015AMS,MS | 14 | 1000 | Unknown | | 03/20/2019 16:41 | Finished | MS (1ppb), IWST-190221B,10 |
| 55 | N034688-016A,SAMF | 15 | 1000 | Unknown | | 03/20/2019 16:51 | Finished | SAMP,10mL |
| 56 | N034688-016AMS,MS | 16 | 1000 | Unknown | | 03/20/2019 17:00 | Finished | MS (1ppb), IWST-190221B,10 |
| 57 | N034688-017A,SAMF | 17 | 1000 | Unknown | | 03/20/2019 17:09 | Finished | SAMP,10mL |
| 58 | N034688-017AMS,MS | 18 | 1000 | Unknown | | 03/20/2019 17:19 | Finished | MS (1ppb), IWST-190221B,10 |
| 59 | CCV-5,CCV,1, | 19 | 1000 | Unknown | | 03/20/2019 17:28 | Finished | CCV @5ppb, IWST-190221A |
| 60 | CCB-5,CCB,1, | 20 | 1000 | Unknown | | 03/20/2019 17:38 | Finished | CCB R190211C |

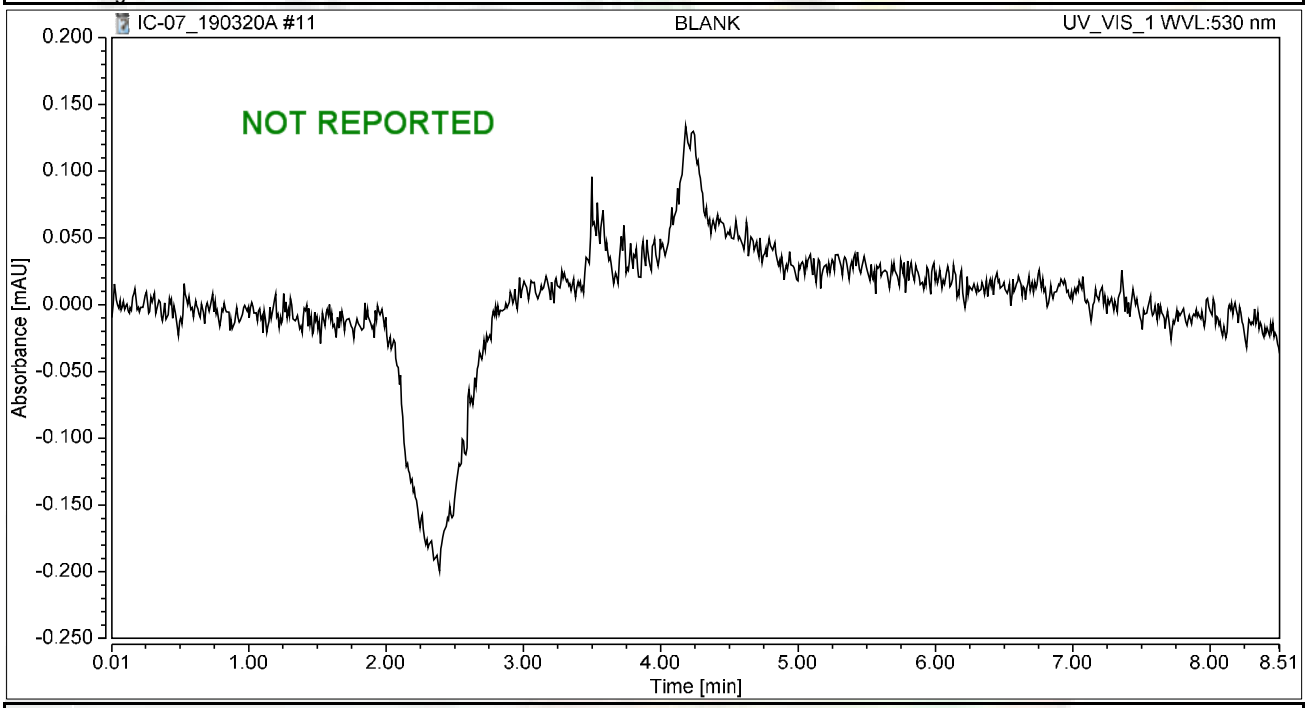
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | BLANK | 21 | 1000 | Unknown | | 03/20/2019 17:47 | Finished | BLANK |
| 62 | BLANK | 22 | 1000 | Unknown | | 03/20/2019 17:57 | Finished | BLANK |
| 63 | SHUTDOWN | 23 | 1000 | Unknown | | 03/20/2019 18:06 | Finished | |
| 64 | Eluent: R190320A | 24 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 65 | PCR: R190320B | 25 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 09:41** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

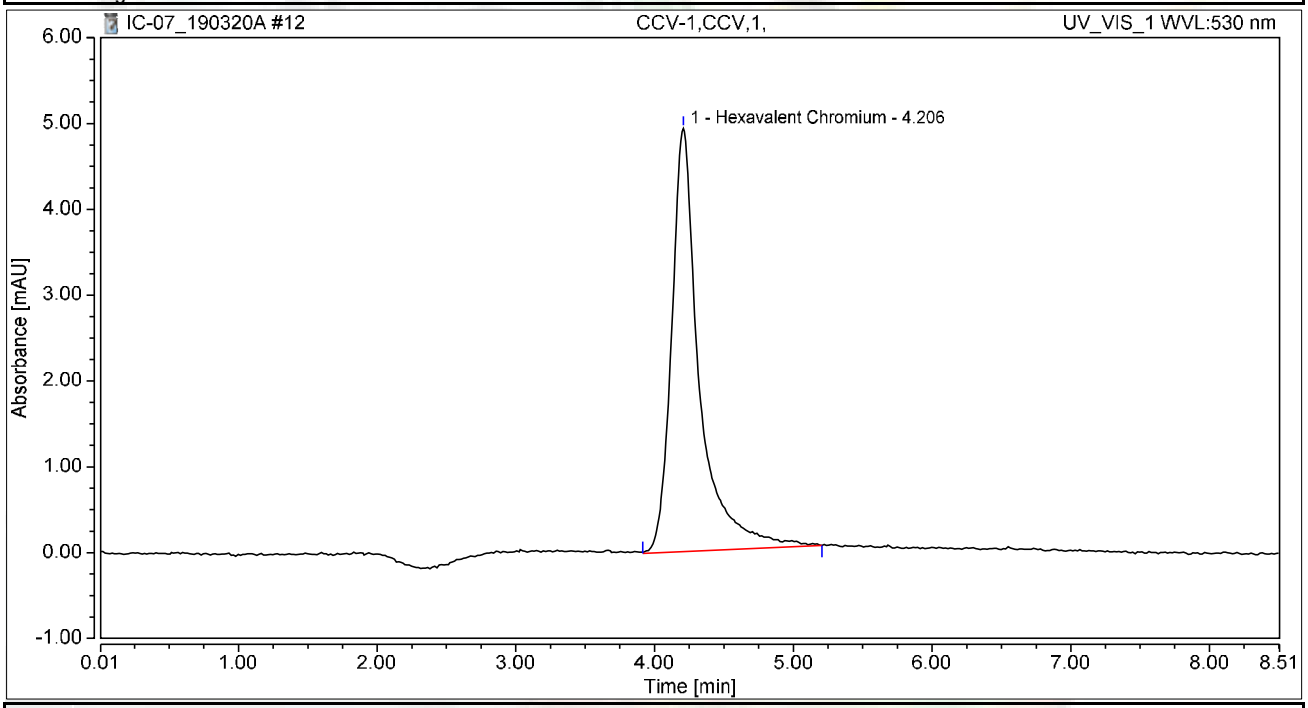
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-1,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 09:52** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

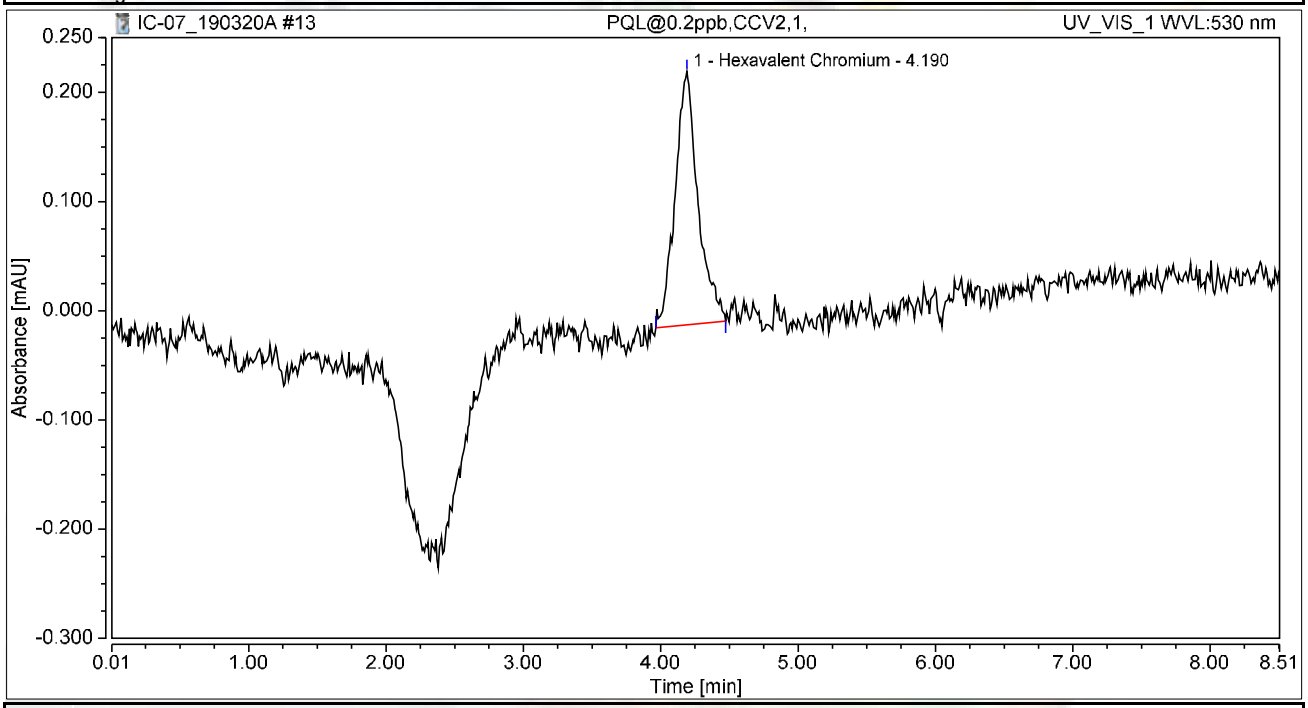
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.147 | 4.930 | 100.00 | 100.00 | 5.2152 |
| **Total:** | | | **1.147** | **4.930** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 10:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

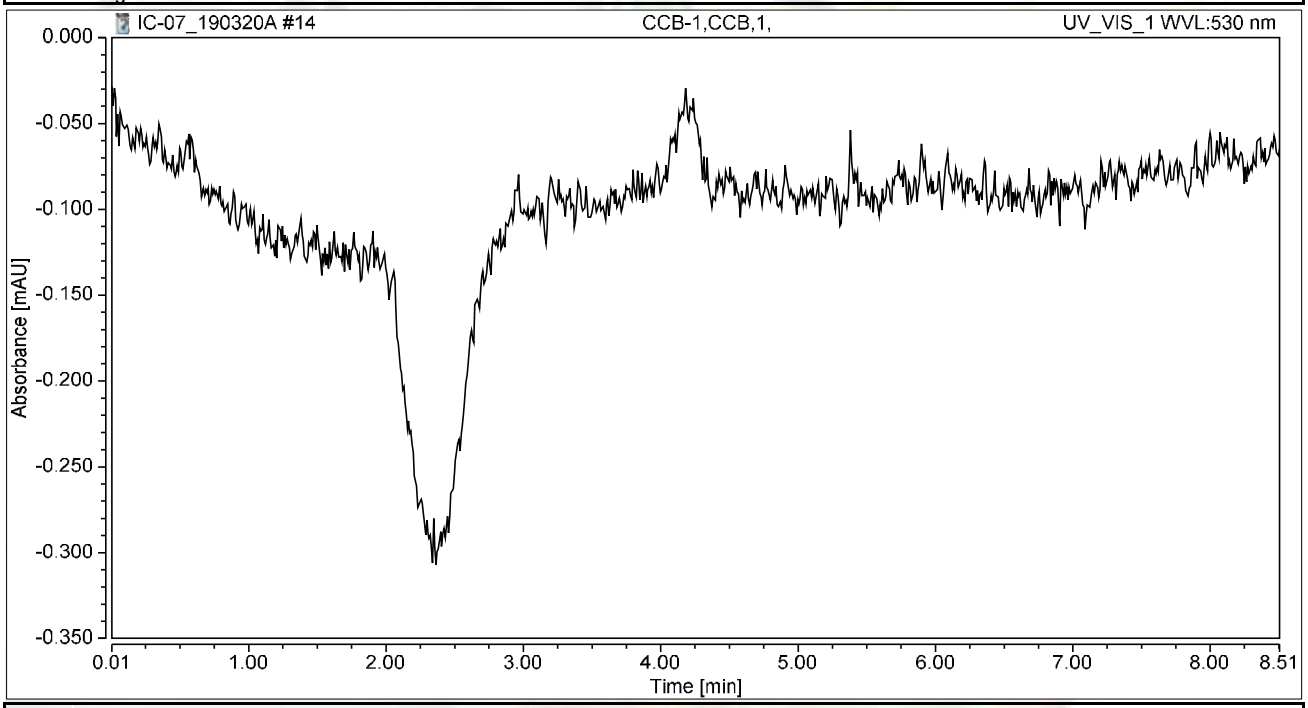
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.190 | 0.045 | 0.232 | 100.00 | 100.00 | 0.2034 |
| **Total:** | | | **0.045** | **0.232** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-1,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 10:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

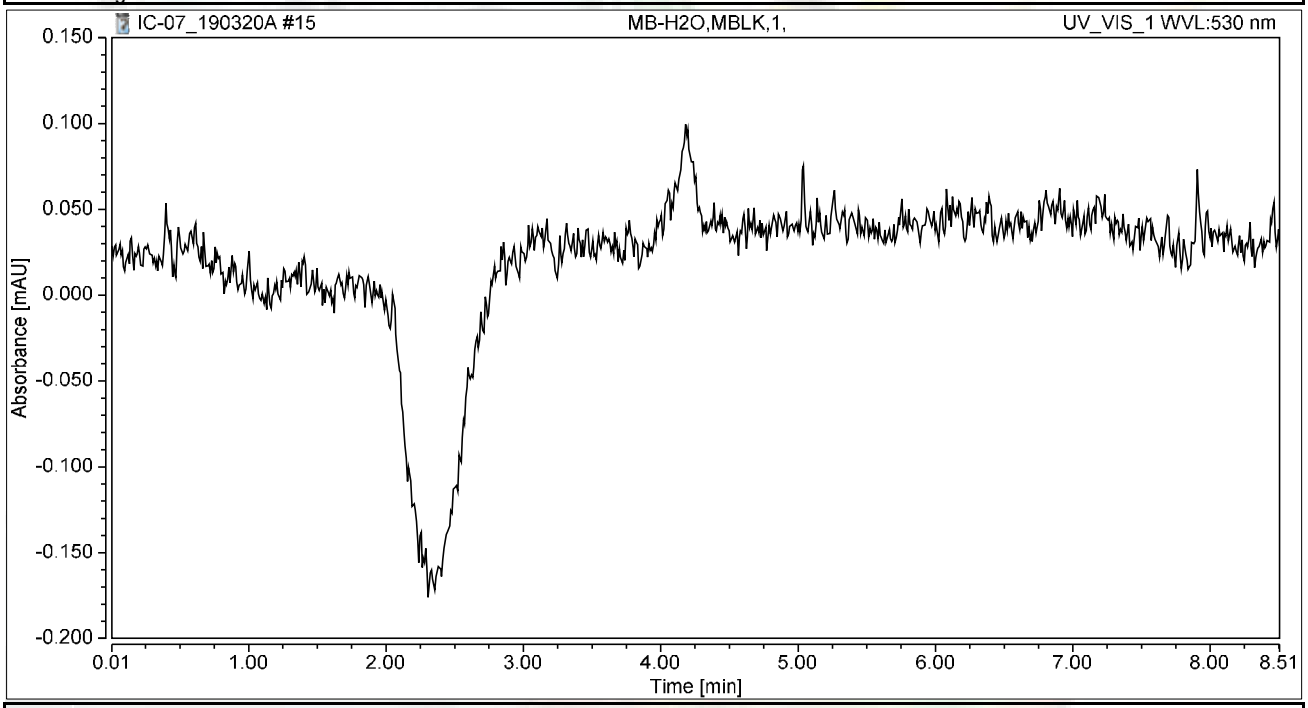
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **MB-H2O,MBLK,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 10:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

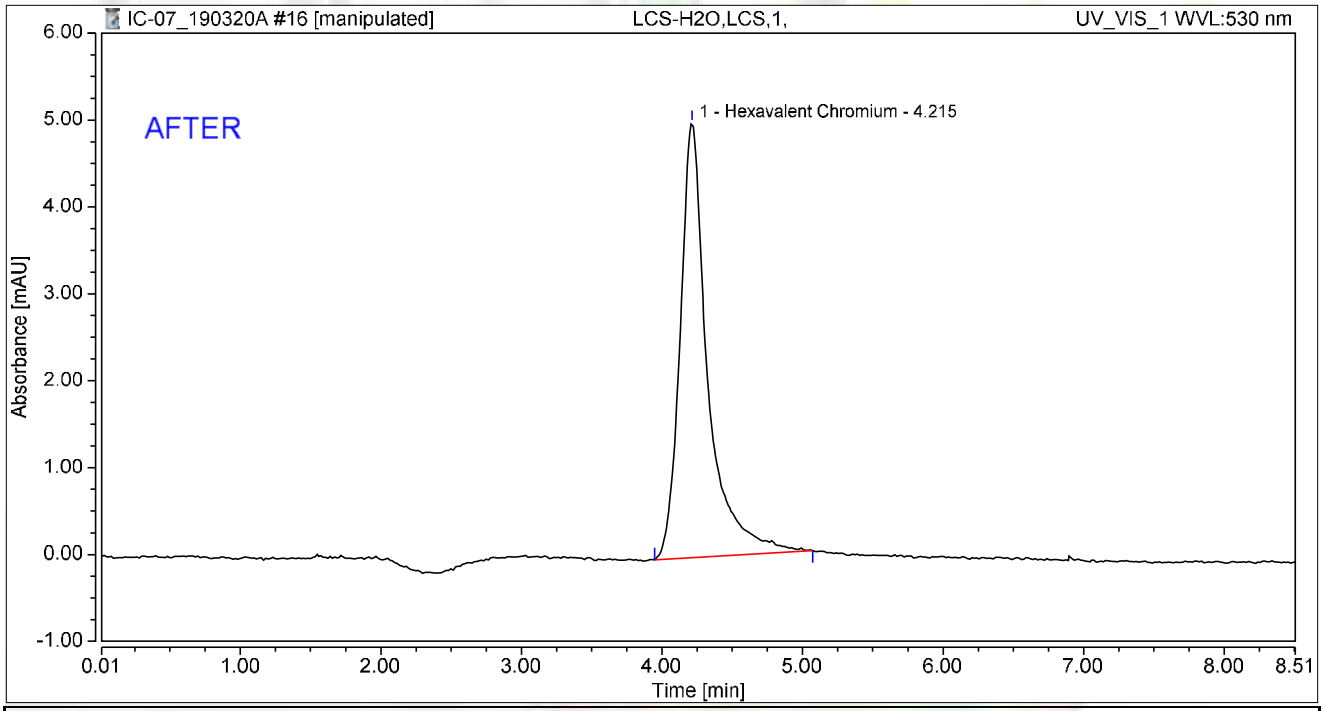
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **LCS-H2O,LCS,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 10:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 1.141 | 5.006 | 100.00 | 100.00 | 5.1862 |
| **Total:** | | | **1.141** | **5.006** | **100.00** | **100.00** | |

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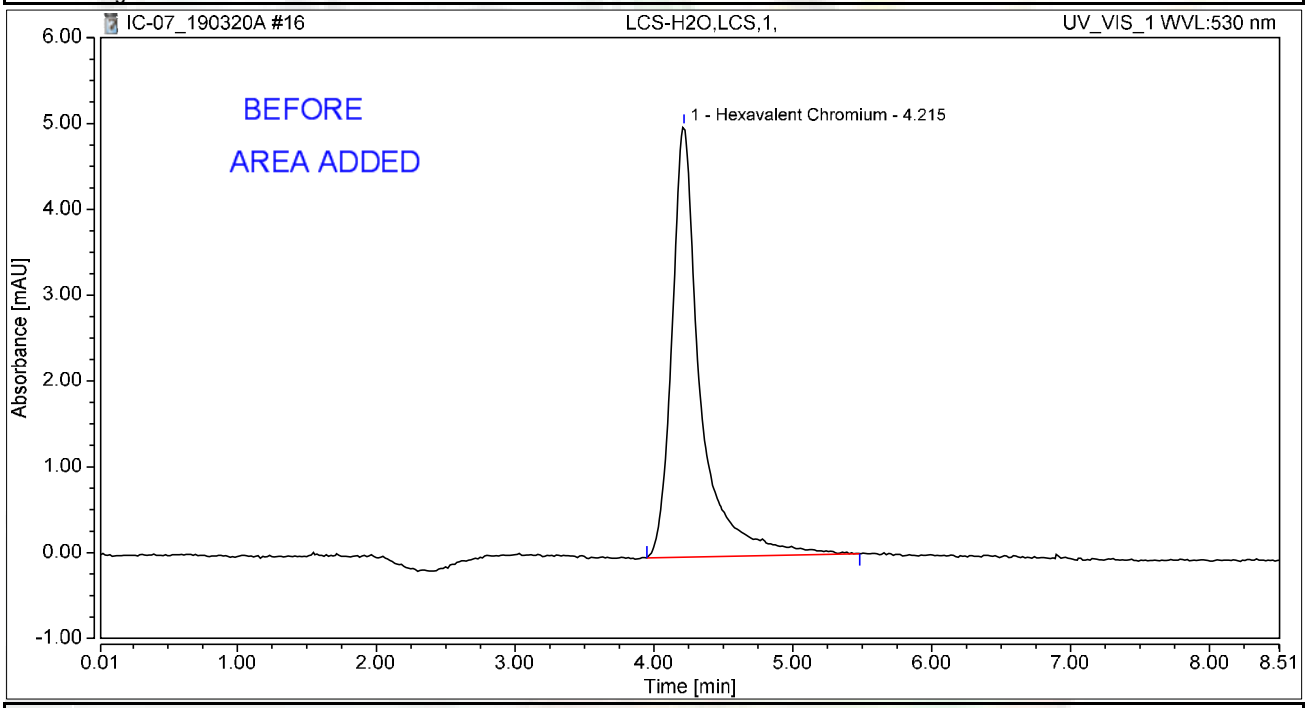
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **LCS-H2O,LCS,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 10:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 1.192 | 5.022 | 100.00 | 100.00 | 5.4205 |
| **Total:** | | | **1.192** | **5.022** | **100.00** | **100.00** | |

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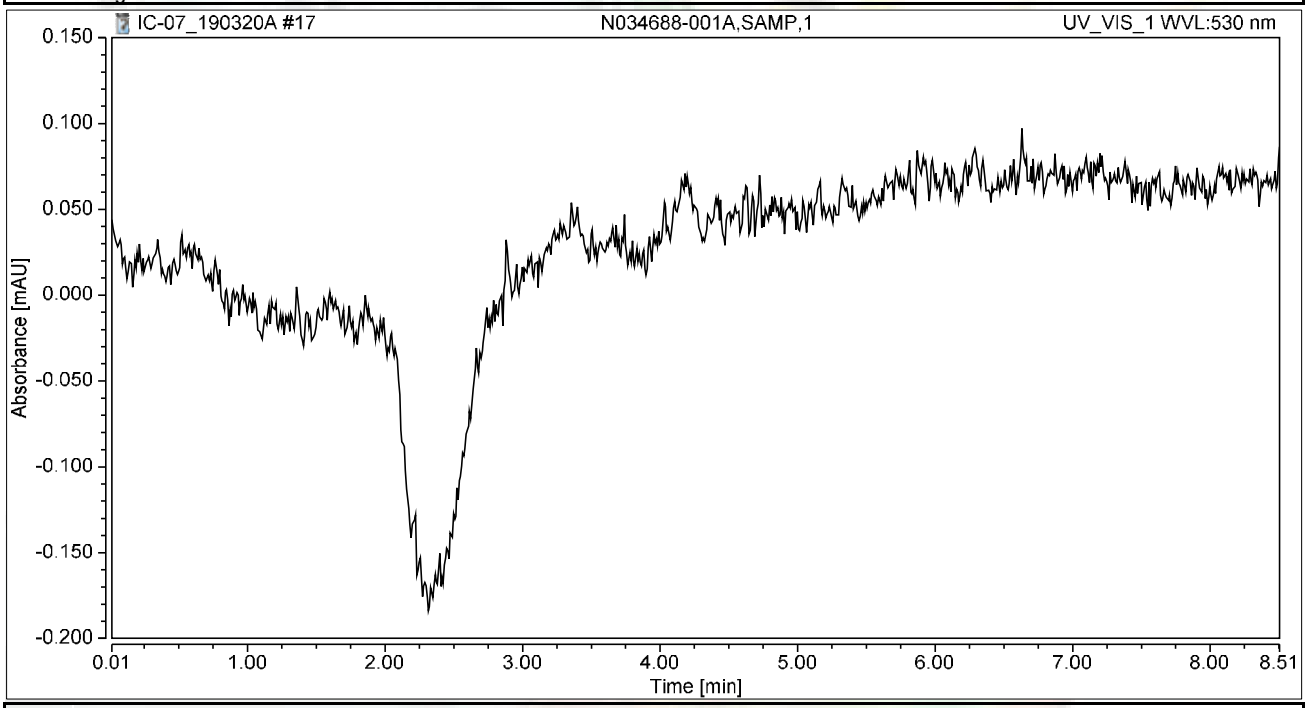
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-001A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 10:39** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

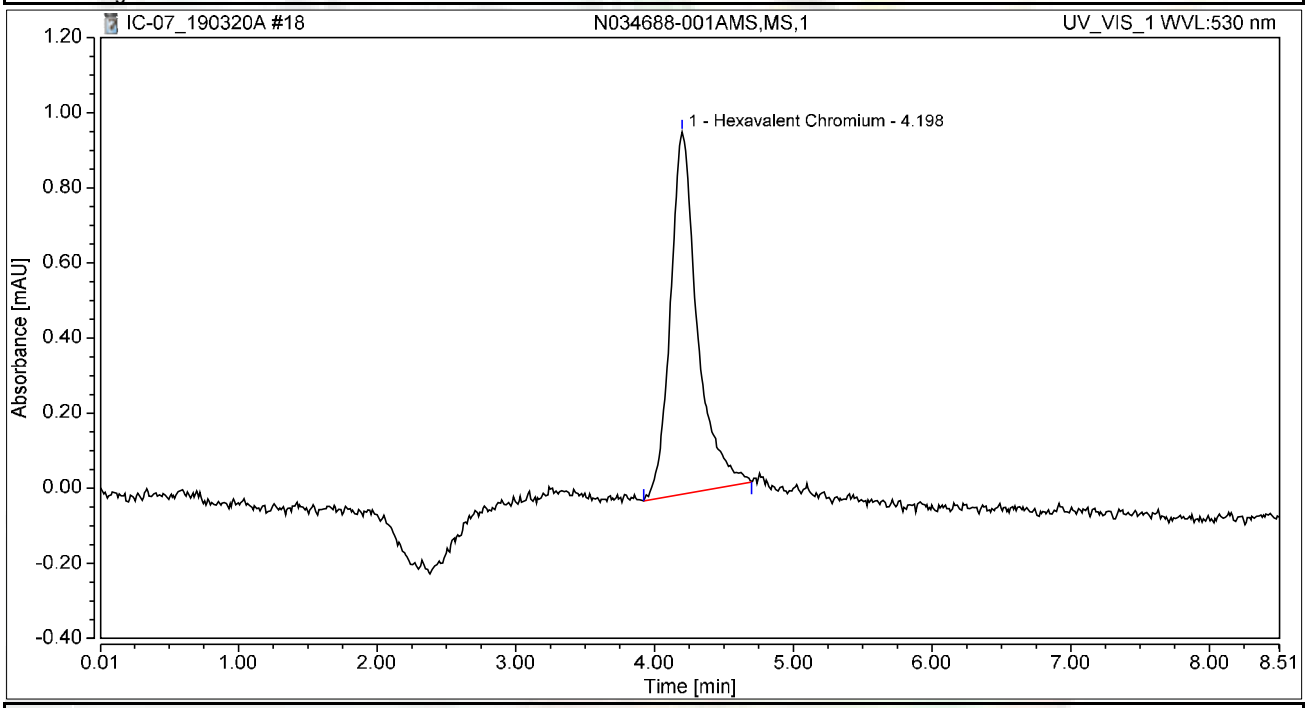
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 10:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

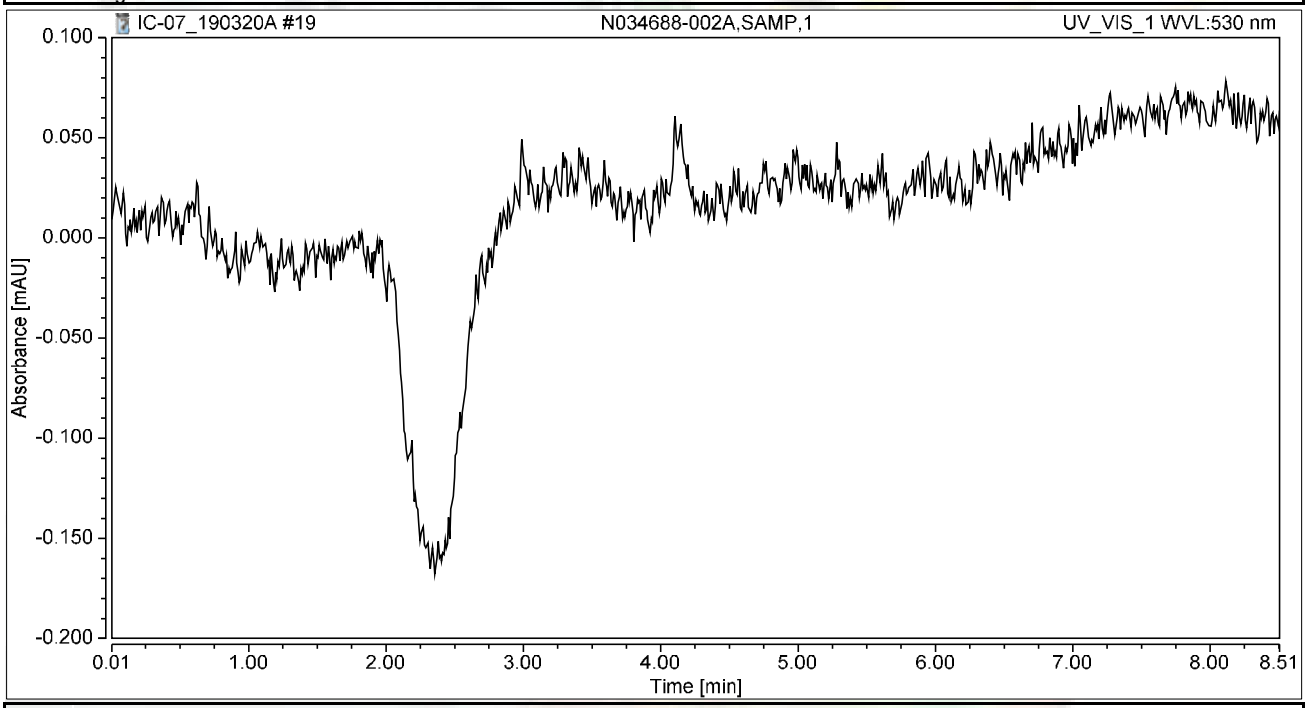
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.217 | 0.965 | 100.00 | 100.00 | 0.9883 |
| **Total:** | | | **0.217** | **0.965** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 10:58** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

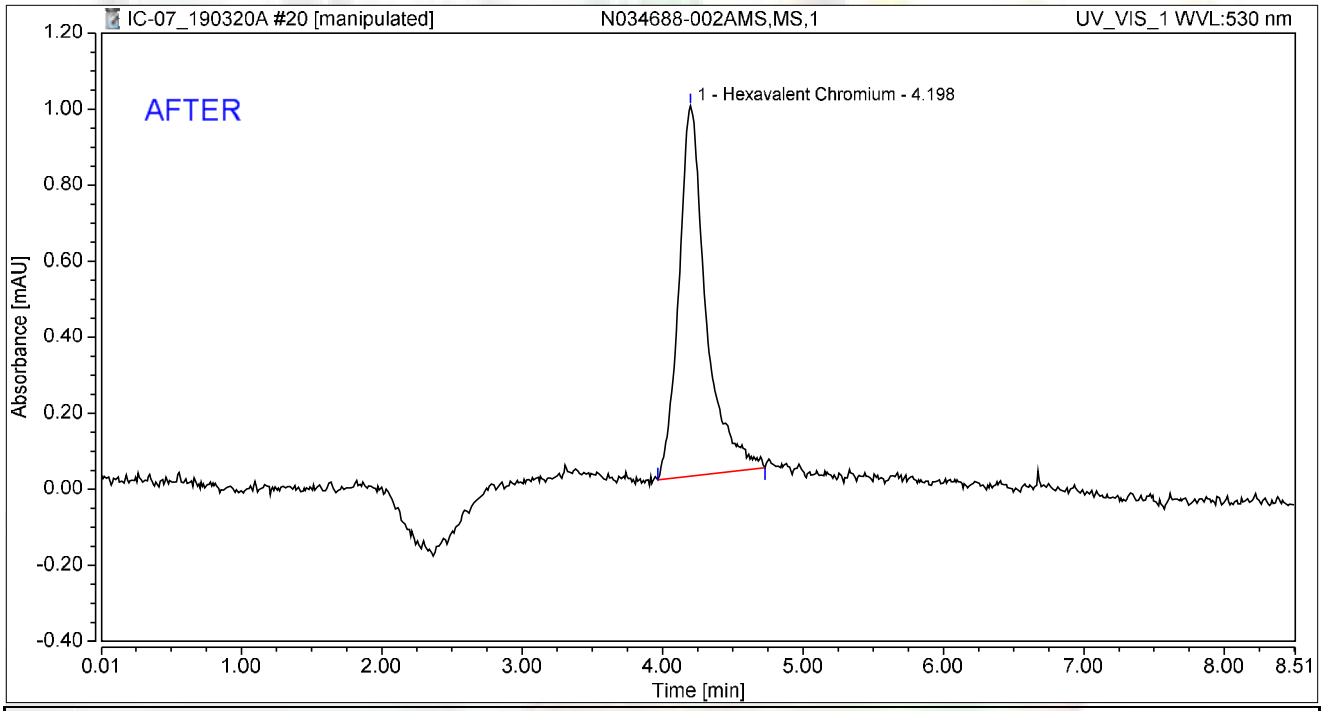
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-002AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 11:08** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.219 | 0.974 | 100.00 | 100.00 | 0.9949 |
| **Total:** | | | **0.219** | **0.974** | **100.00** | **100.00** | |

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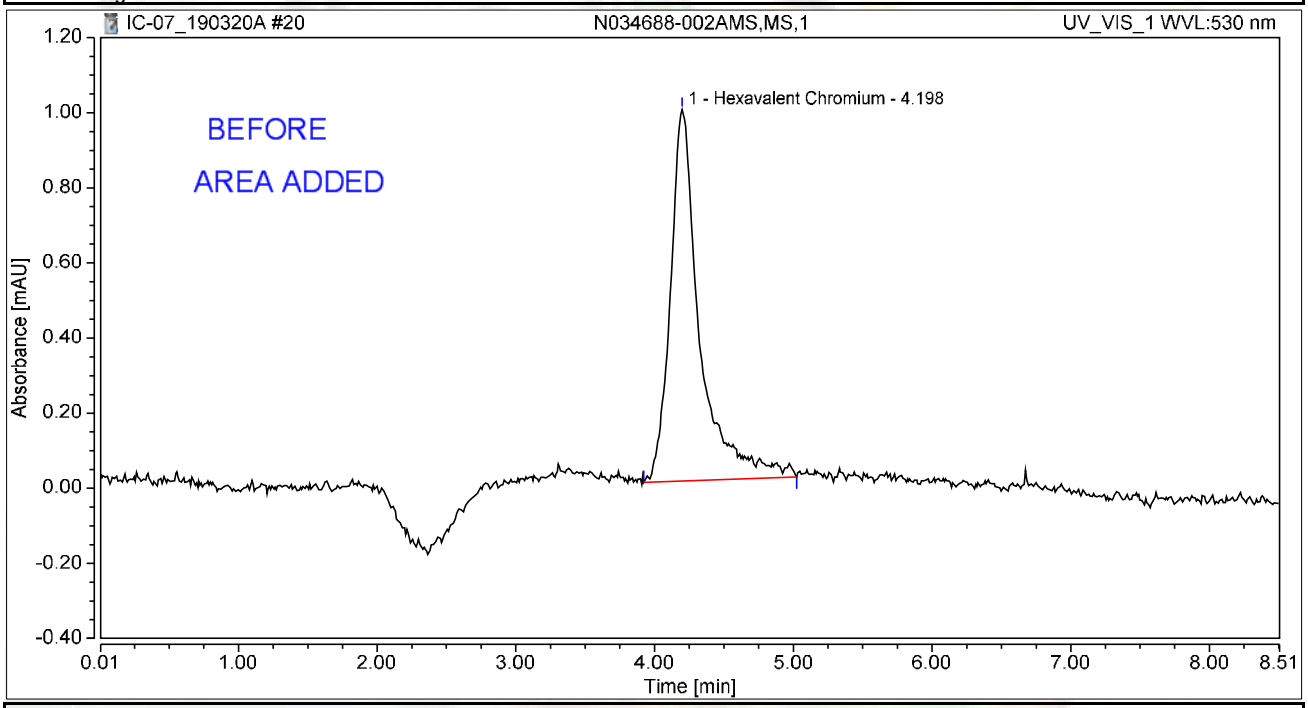
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-002AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 11:08** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.243 | 0.989 | 100.00 | 100.00 | 1.1051 |
| **Total:** | | | **0.243** | **0.989** | **100.00** | **100.00** | |

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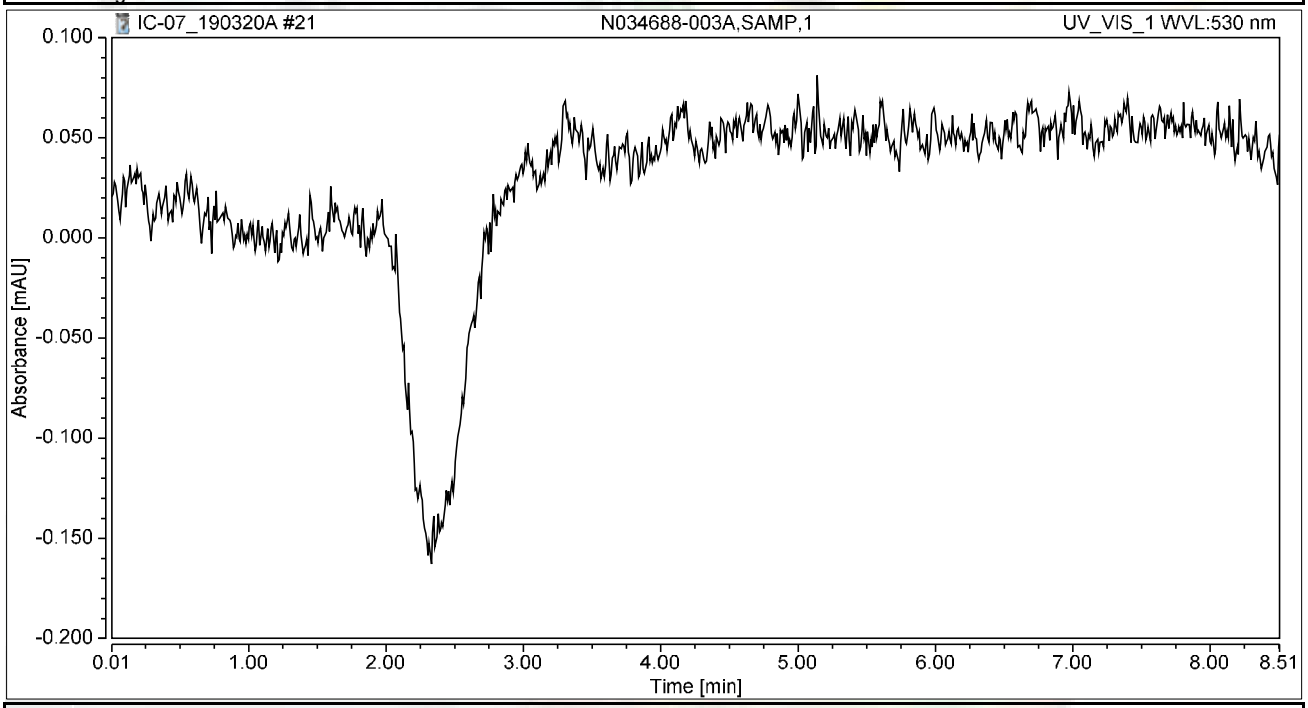
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-003A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 11:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

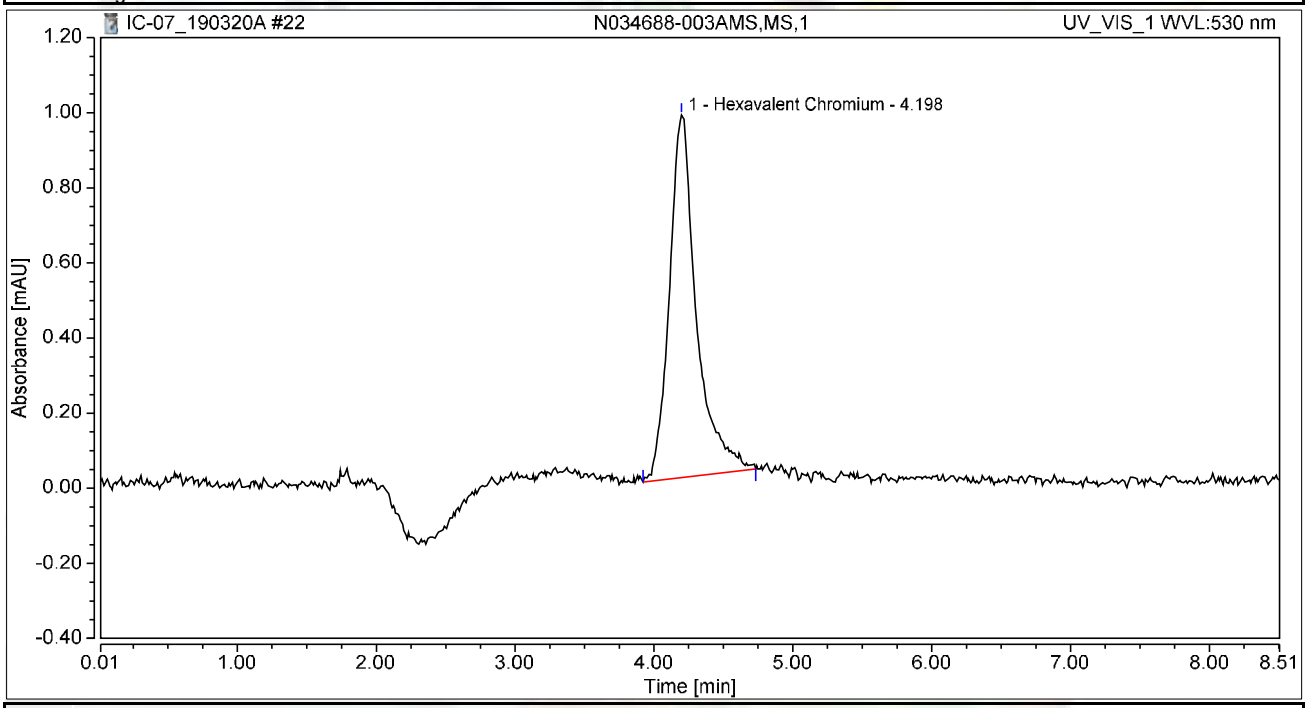
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-003AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 11:27** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

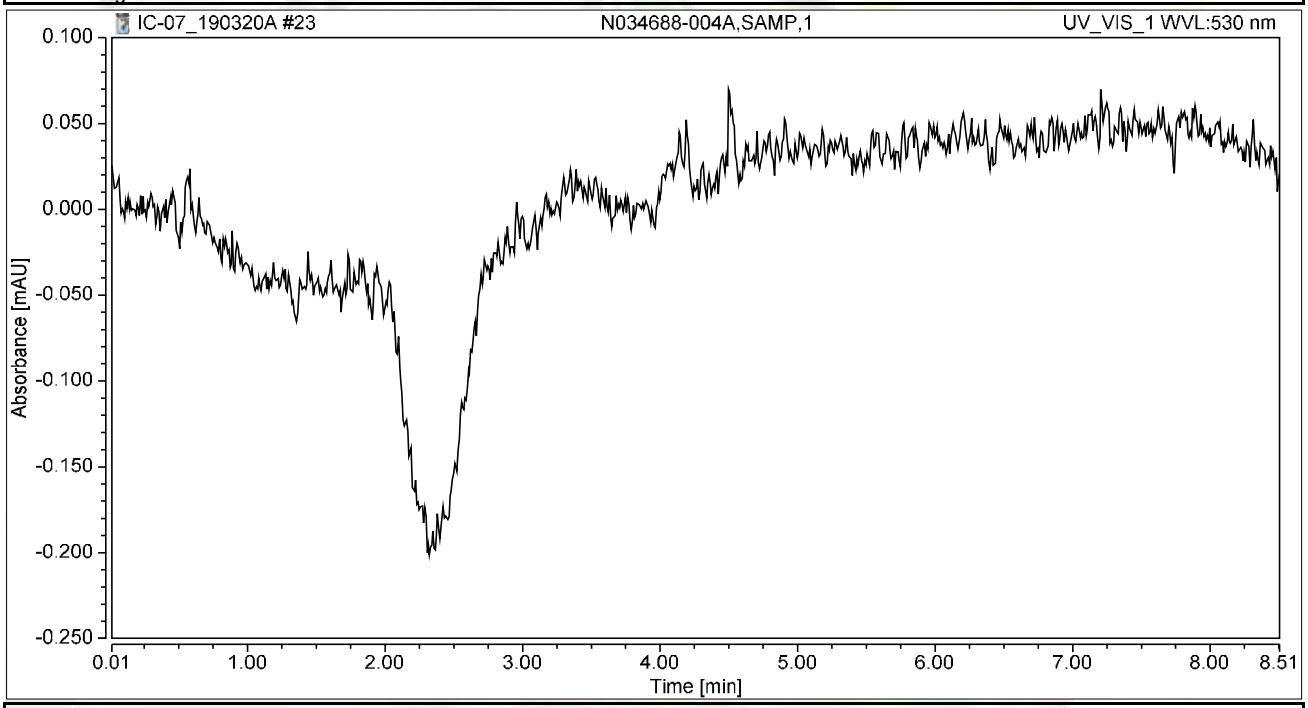
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.218 | 0.965 | 100.00 | 100.00 | 0.9913 |
| **Total:** | | | **0.218** | **0.965** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-004A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 11:36** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

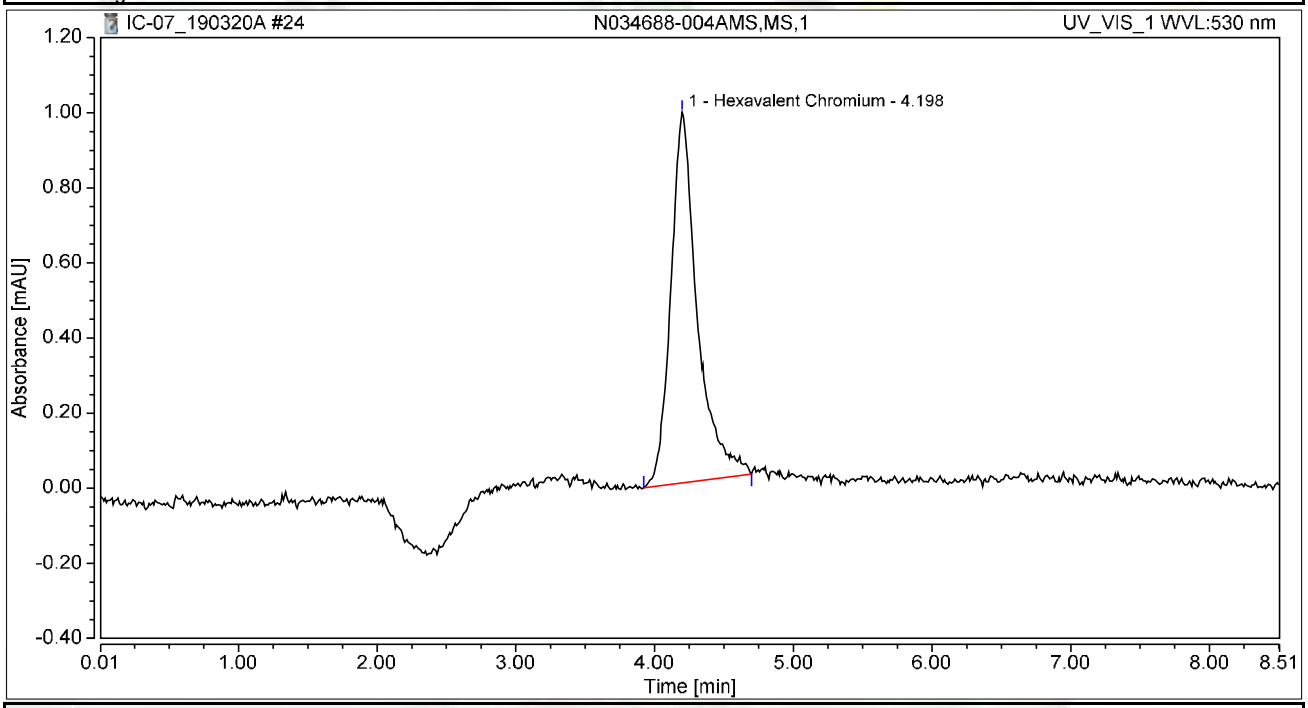
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-004AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 11:46** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

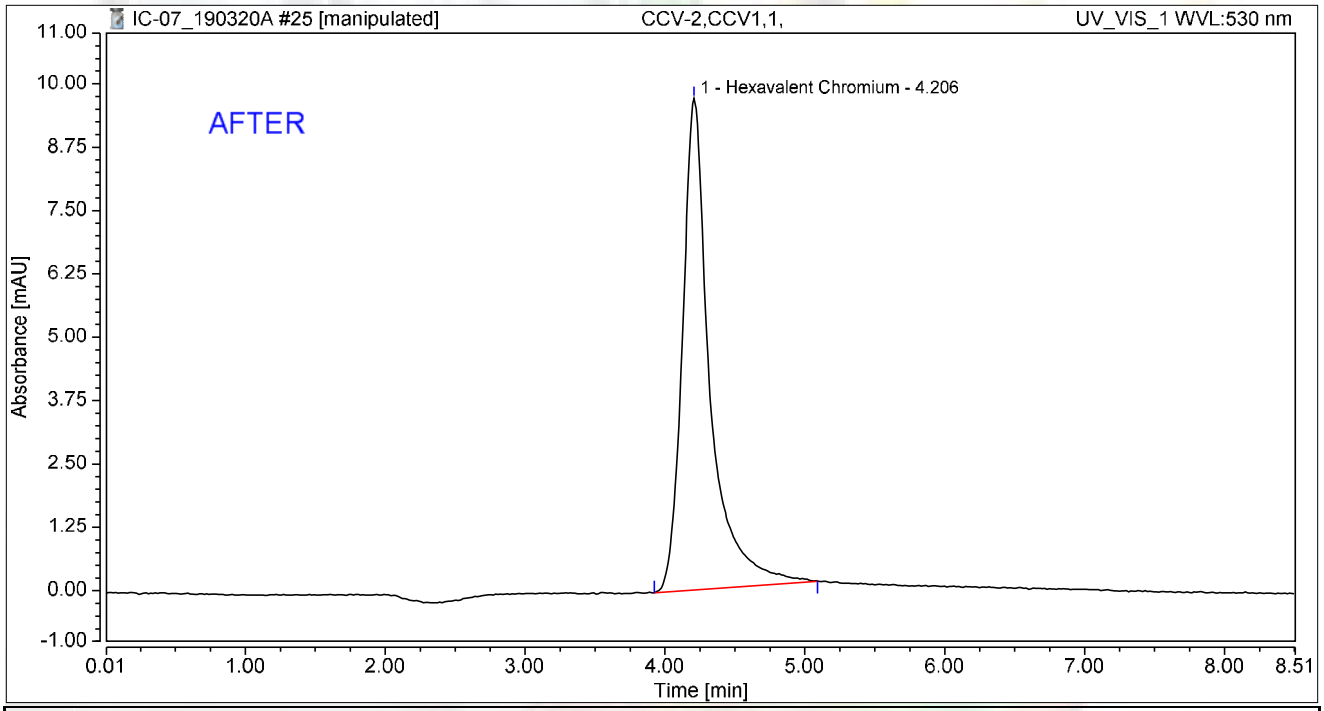
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.219 | 0.988 | 100.00 | 100.00 | 0.9942 |
| **Total:** | | | **0.219** | **0.988** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-2,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 11:55** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 2.214 | 9.696 | 100.00 | 100.00 | 10.0663 |
| **Total:** | | | **2.214** | **9.696** | **100.00** | **100.00** | |

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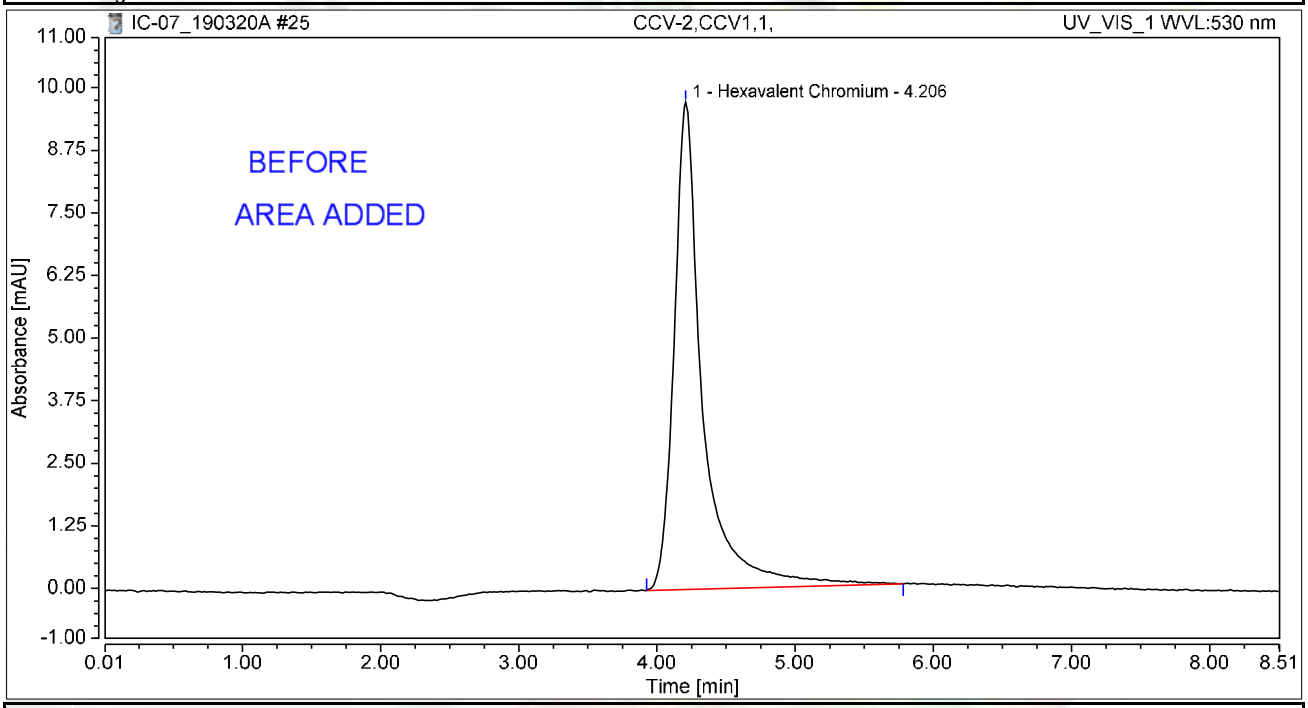
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-2,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 11:55** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 2.349 | 9.732 | 100.00 | 100.00 | 10.6775 |
| **Total:** | | | **2.349** | **9.732** | **100.00** | **100.00** | |

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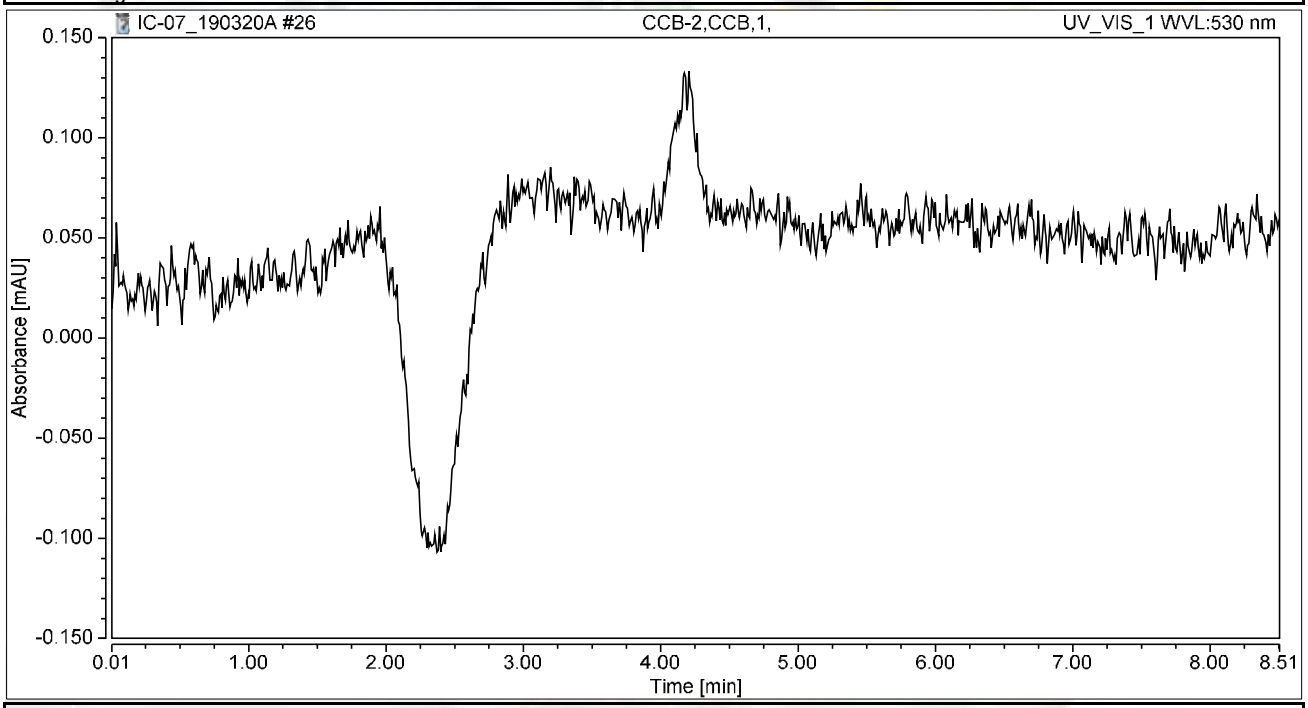
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-2,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 12:05** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

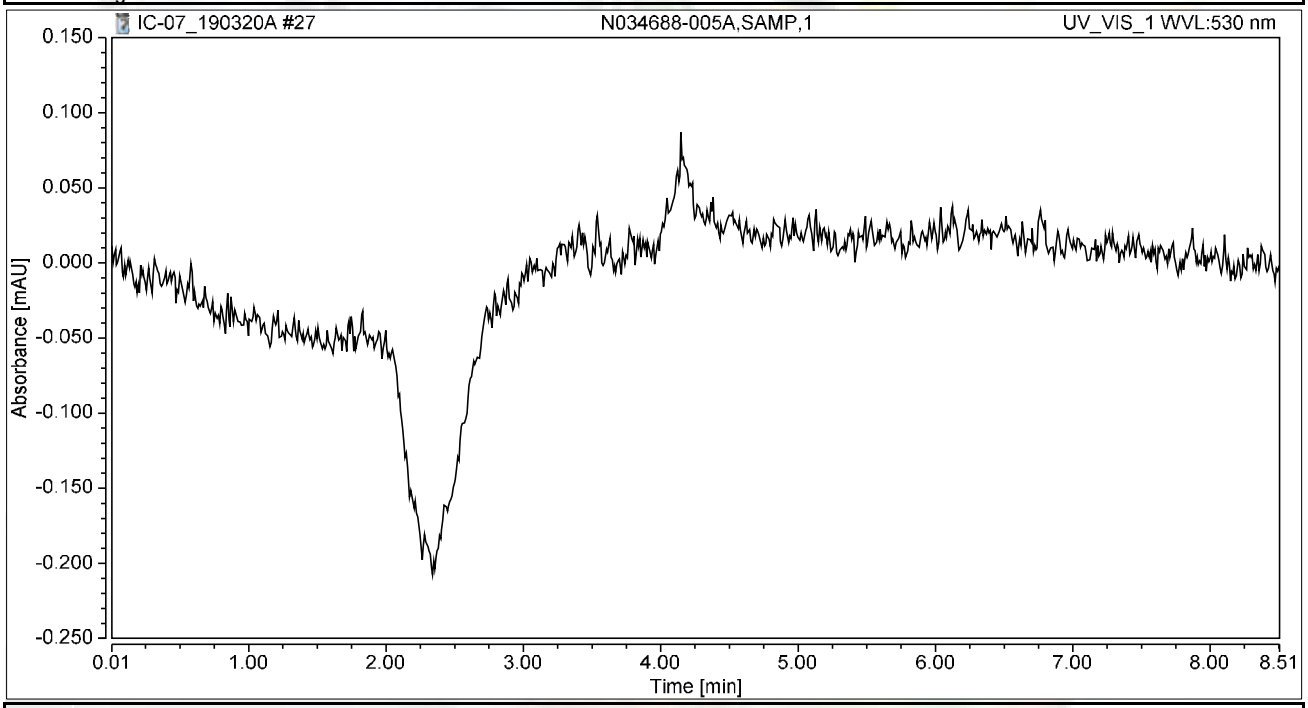
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-005A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 12:14** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

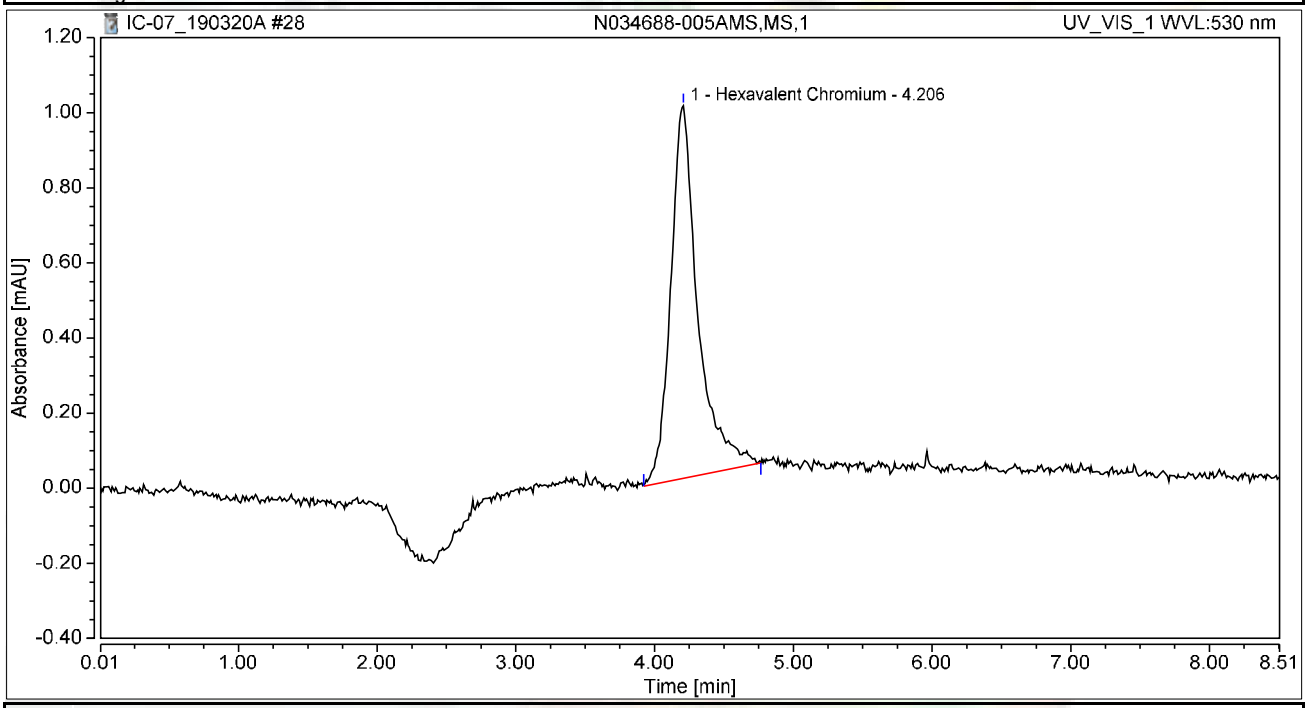
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-005AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 12:24** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

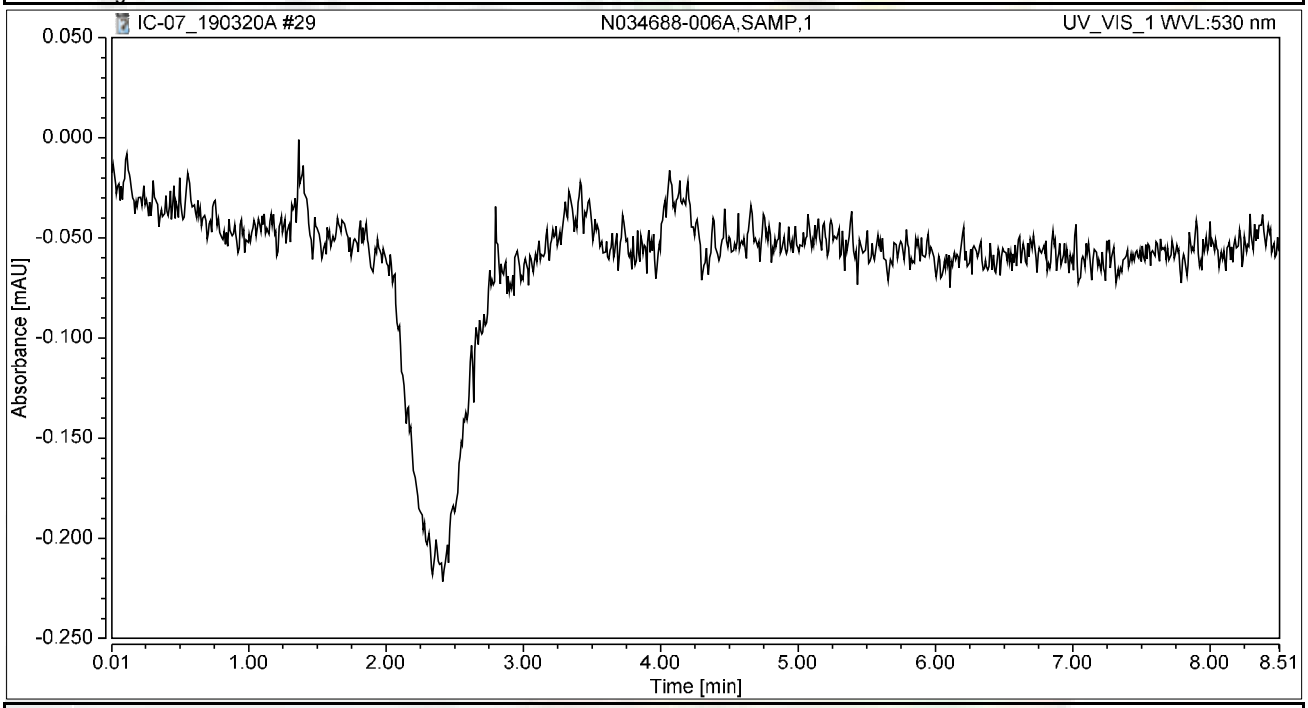
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.225 | 0.992 | 100.00 | 100.00 | 1.0213 |
| **Total:** | | | **0.225** | **0.992** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-006A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 12:33** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

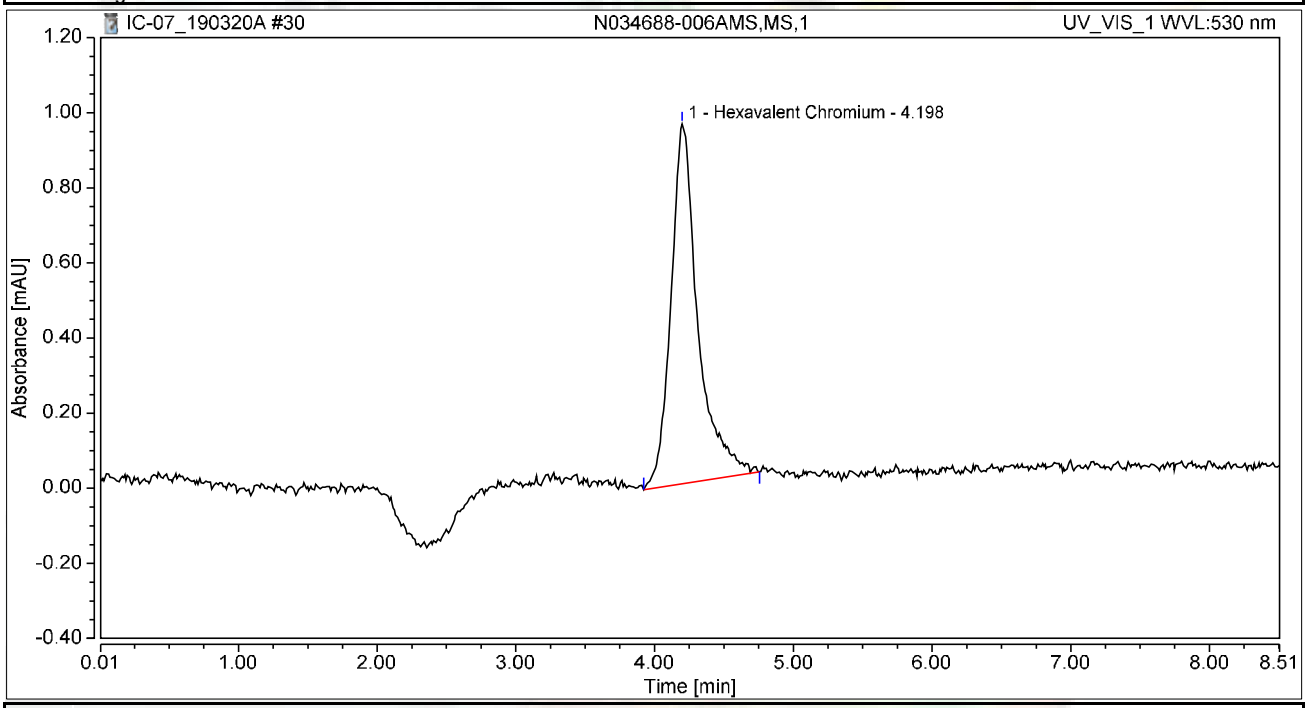
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-006AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **20** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 12:42** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

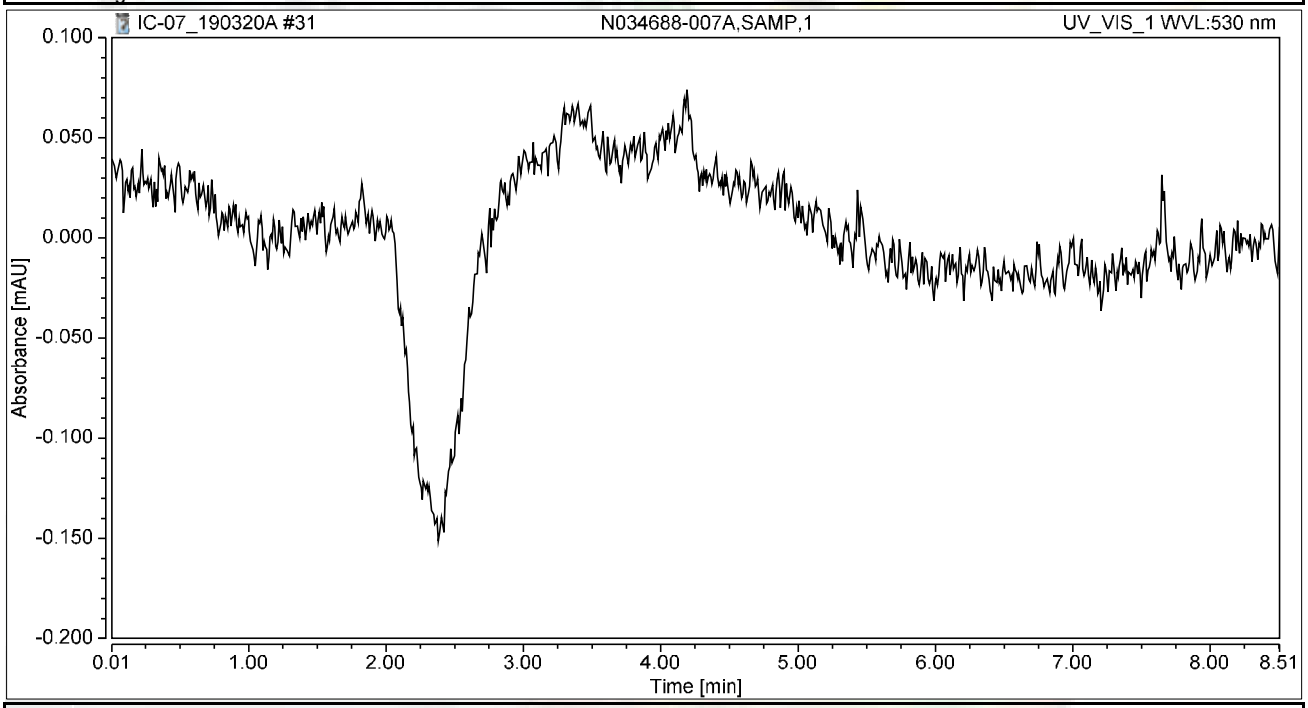
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.216 | 0.959 | 100.00 | 100.00 | 0.9807 |
| **Total:** | | | **0.216** | **0.959** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-007A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 12:52** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

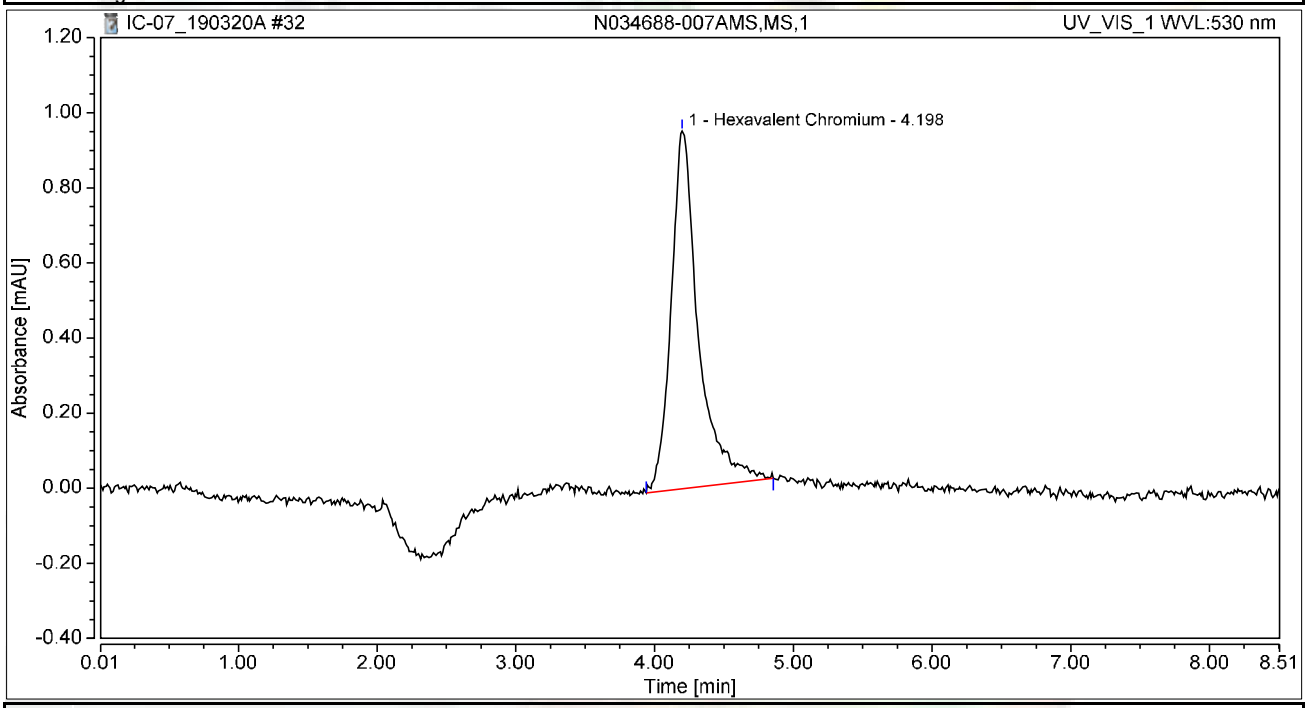
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-007AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 13:01** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

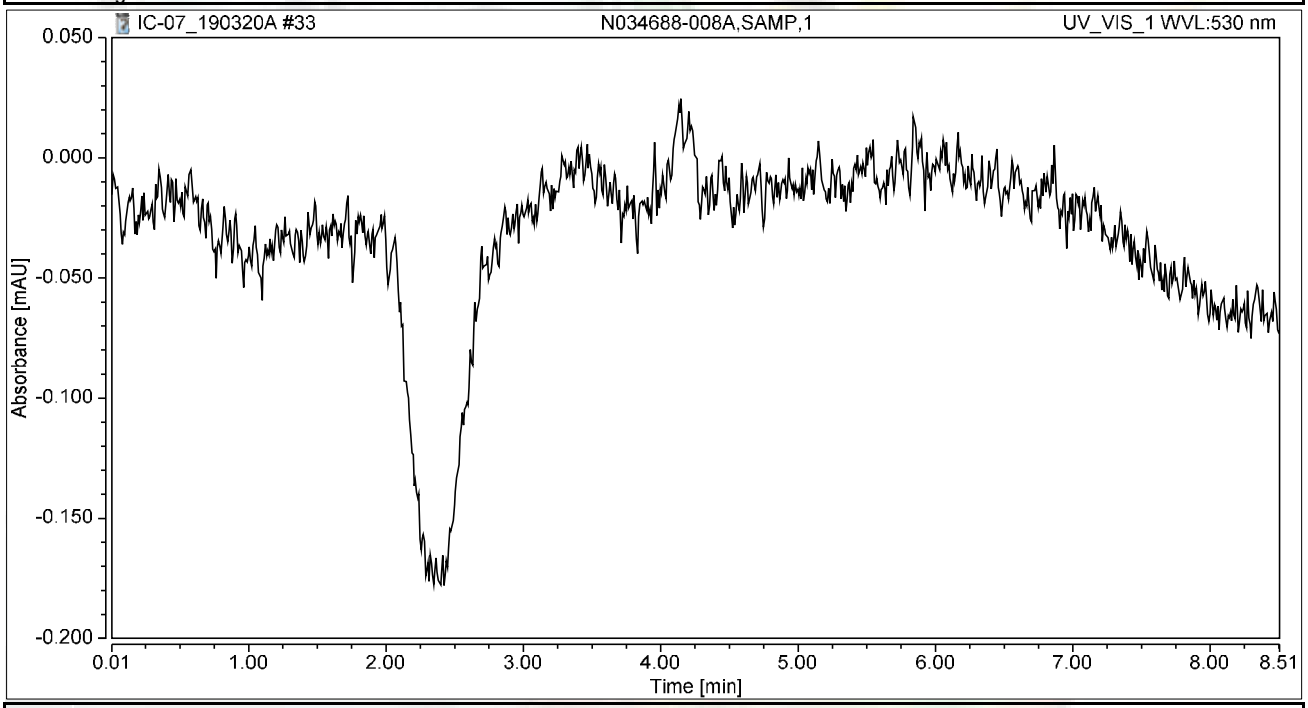
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.217 | 0.953 | 100.00 | 100.00 | 0.9879 |
| **Total:** | | | **0.217** | **0.953** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-008A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **23** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 13:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

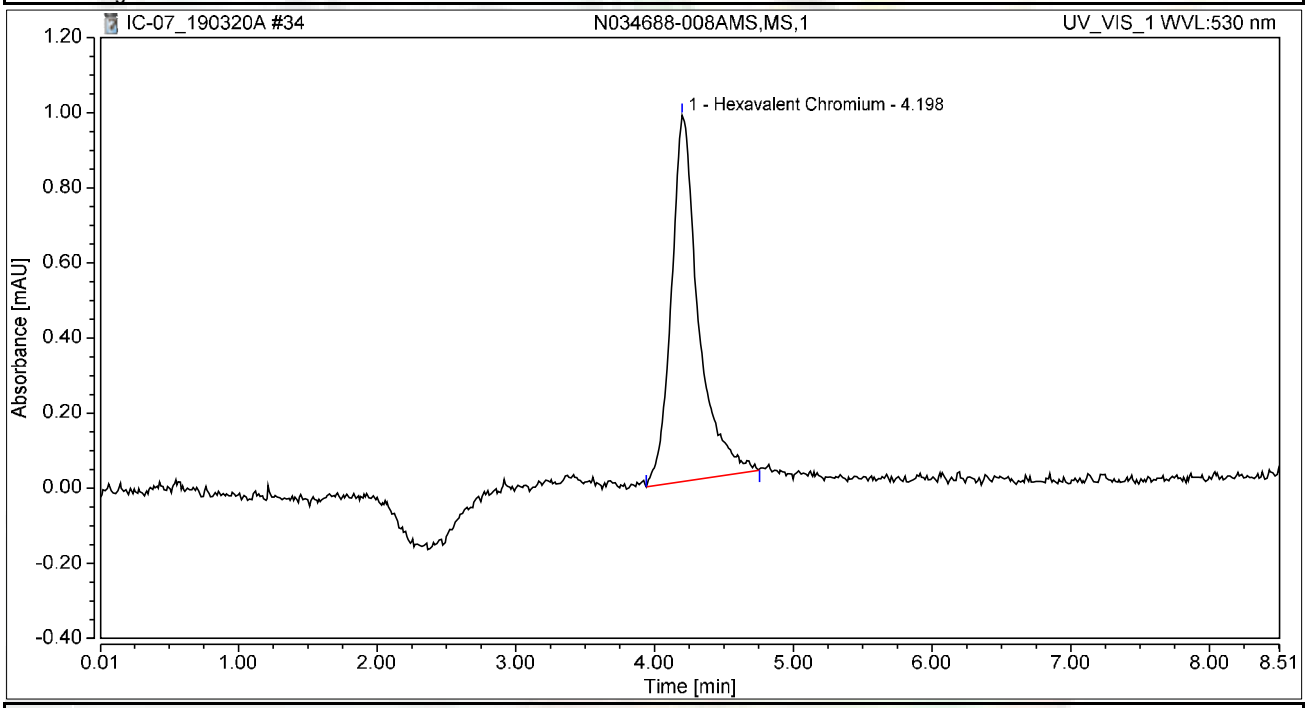
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-008AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **24** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 13:20** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

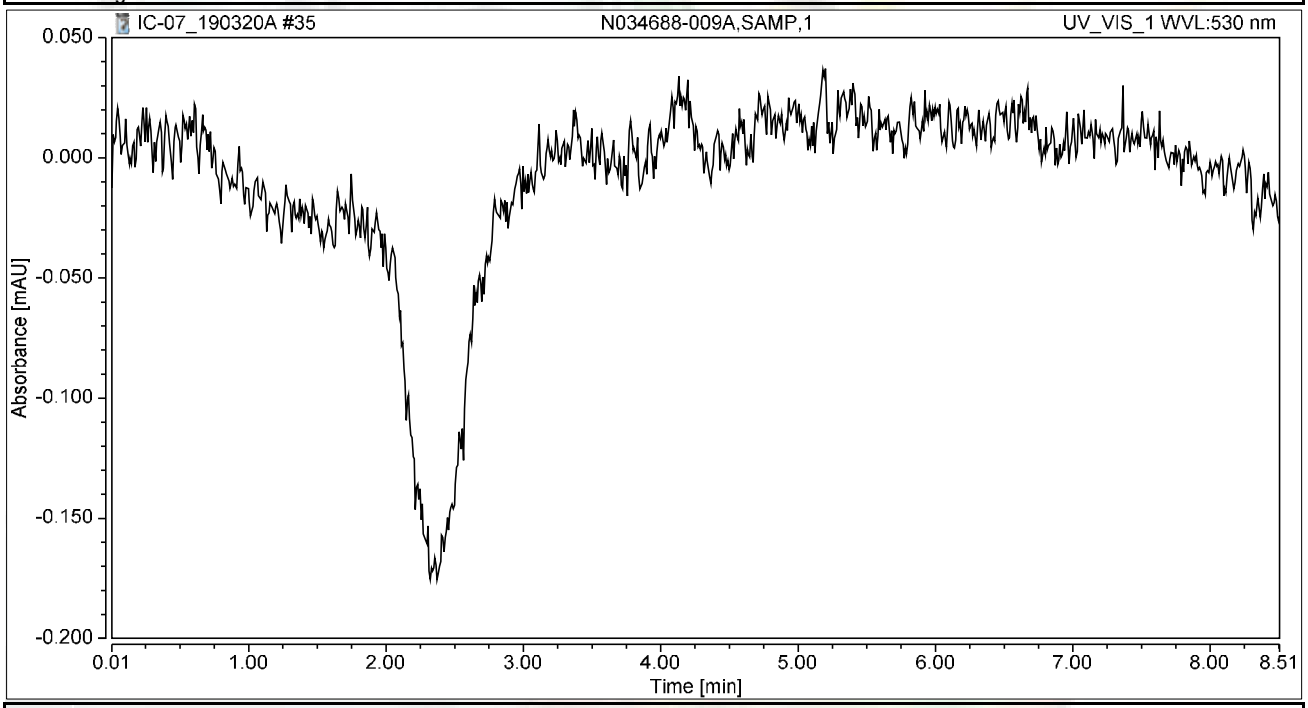
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.221 | 0.975 | 100.00 | 100.00 | 1.0043 |
| **Total:** | | | **0.221** | **0.975** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-009A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 13:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

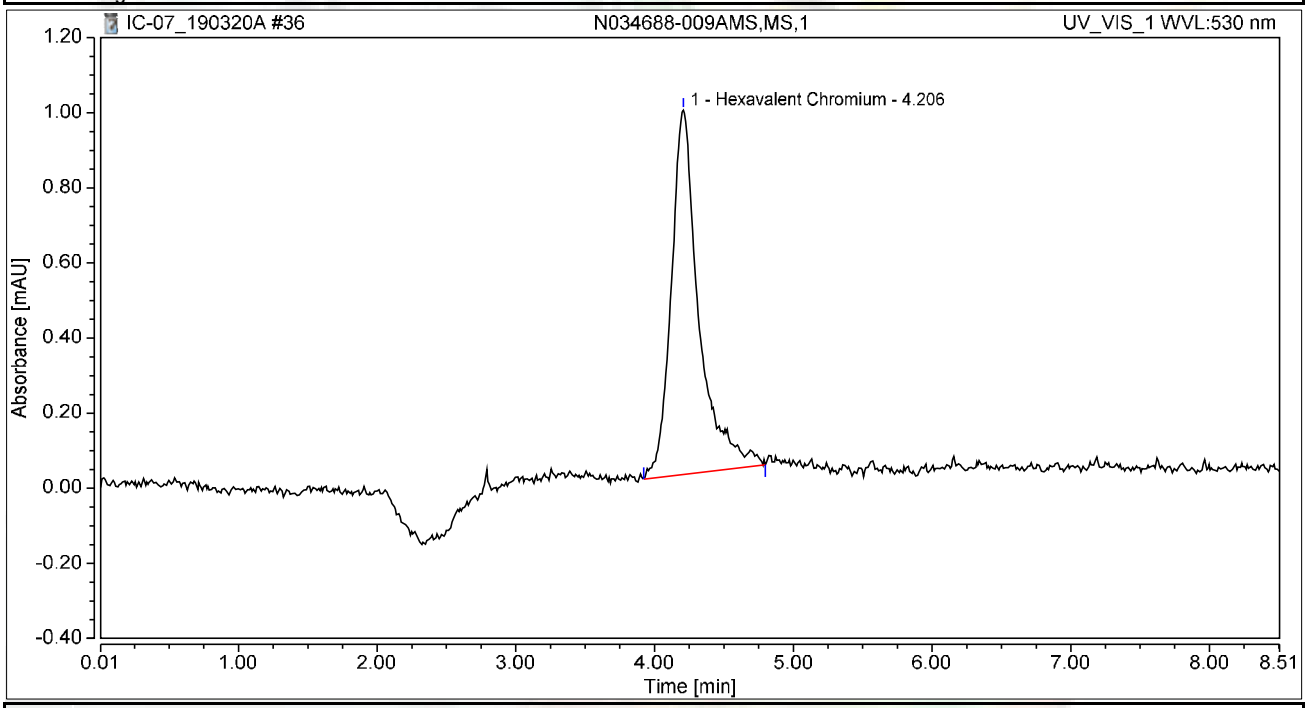
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-009AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **26** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 13:39** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

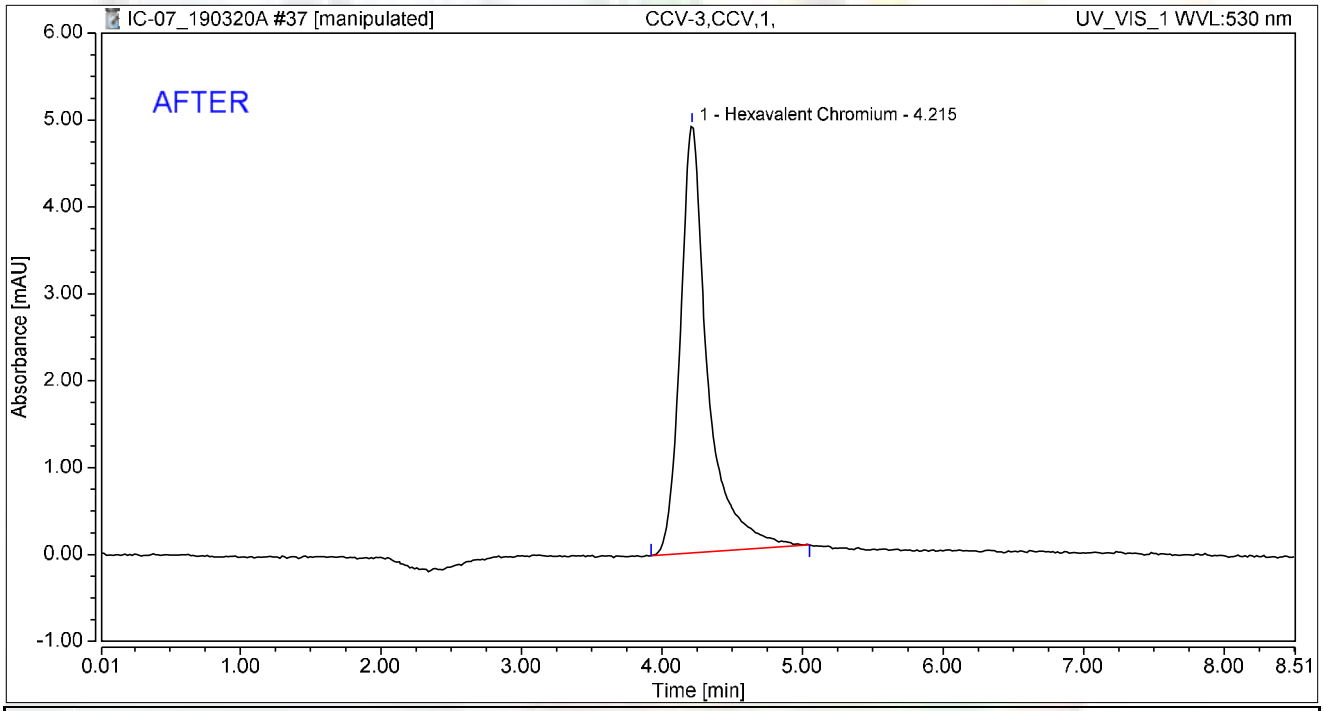
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.225 | 0.970 | 100.00 | 100.00 | 1.0208 |
| **Total:** | | | **0.225** | **0.970** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-3,CCV,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 13:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 1.114 | 4.922 | 100.00 | 100.00 | 5.0657 |
| **Total:** | | | **1.114** | **4.922** | **100.00** | **100.00** | |

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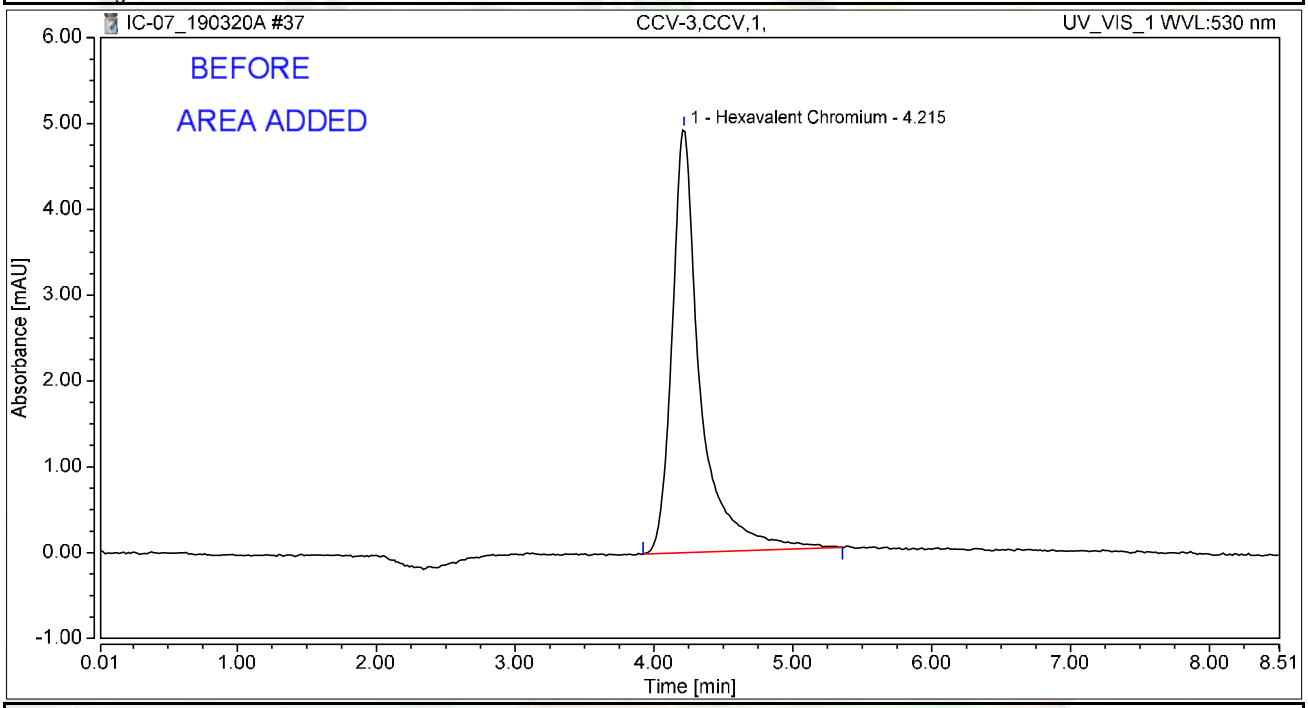
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-3,CCV,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 13:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 1.161 | 4.940 | 100.00 | 100.00 | 5.2795 |
| **Total:** | | | **1.161** | **4.940** | **100.00** | **100.00** | |

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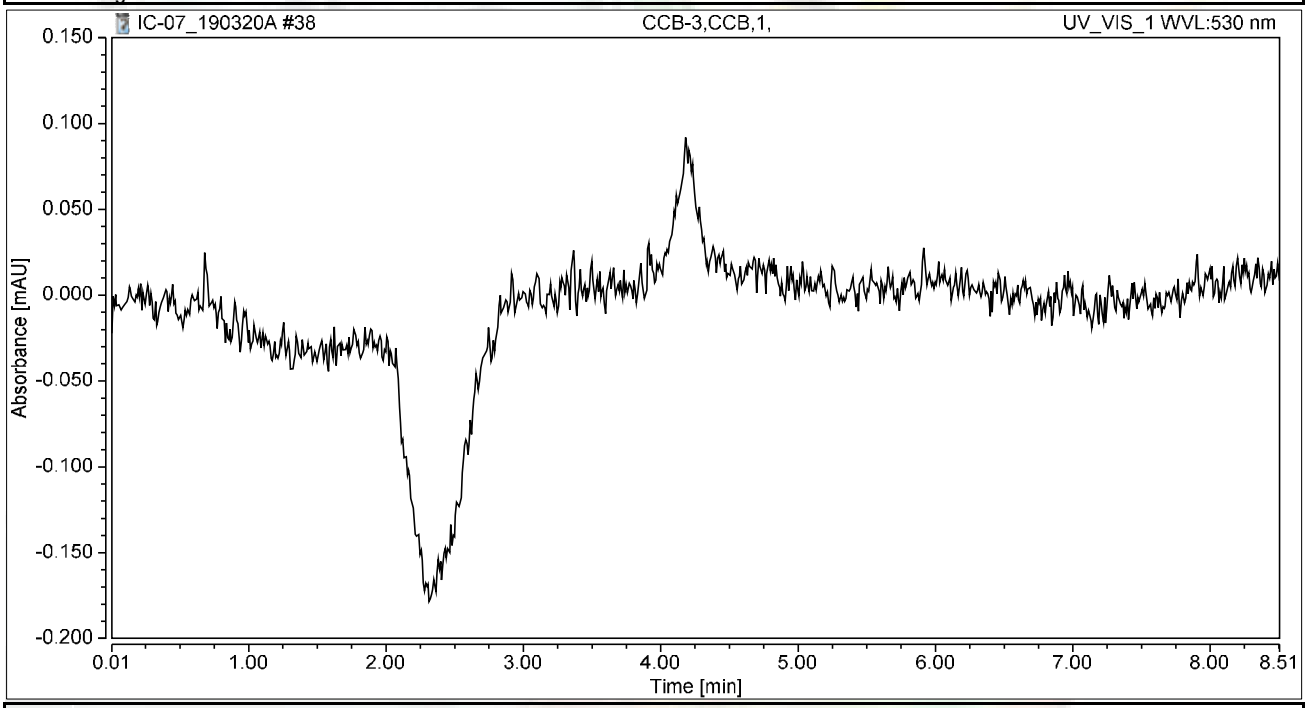
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-3,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **28** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 13:58** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

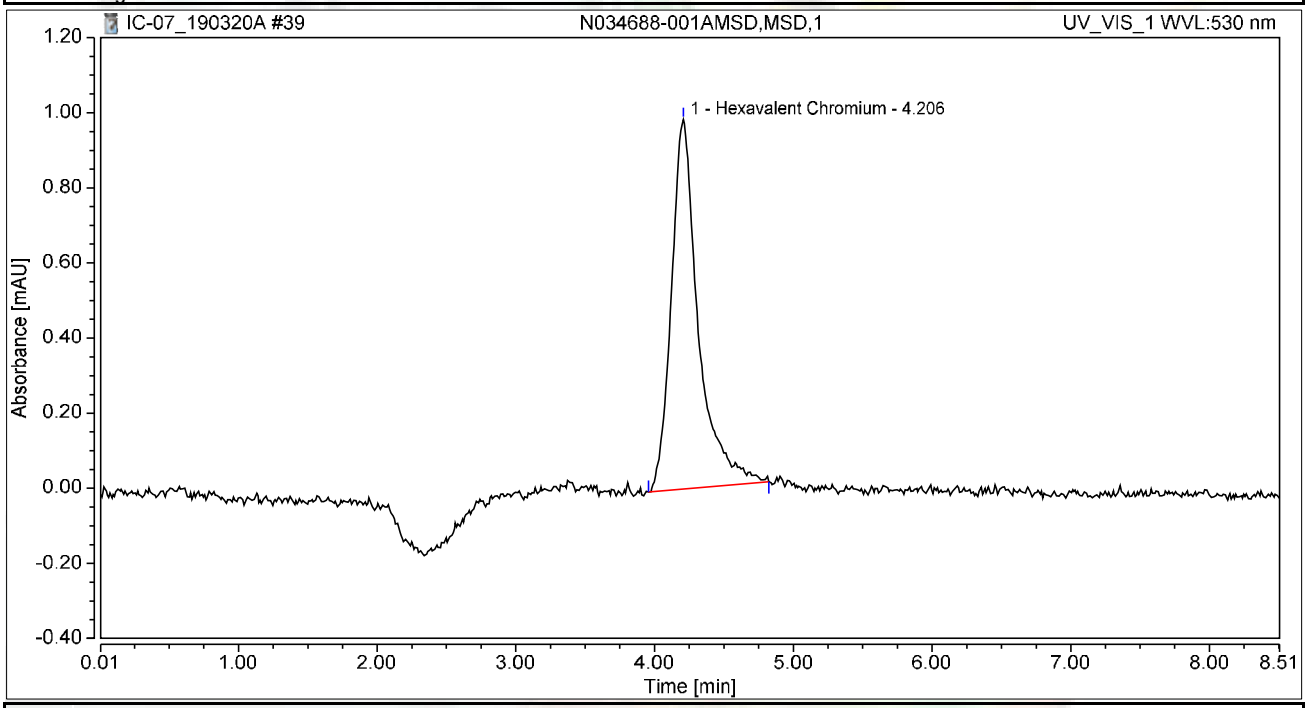
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-001AMSD,MSD,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **29** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 14:08** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

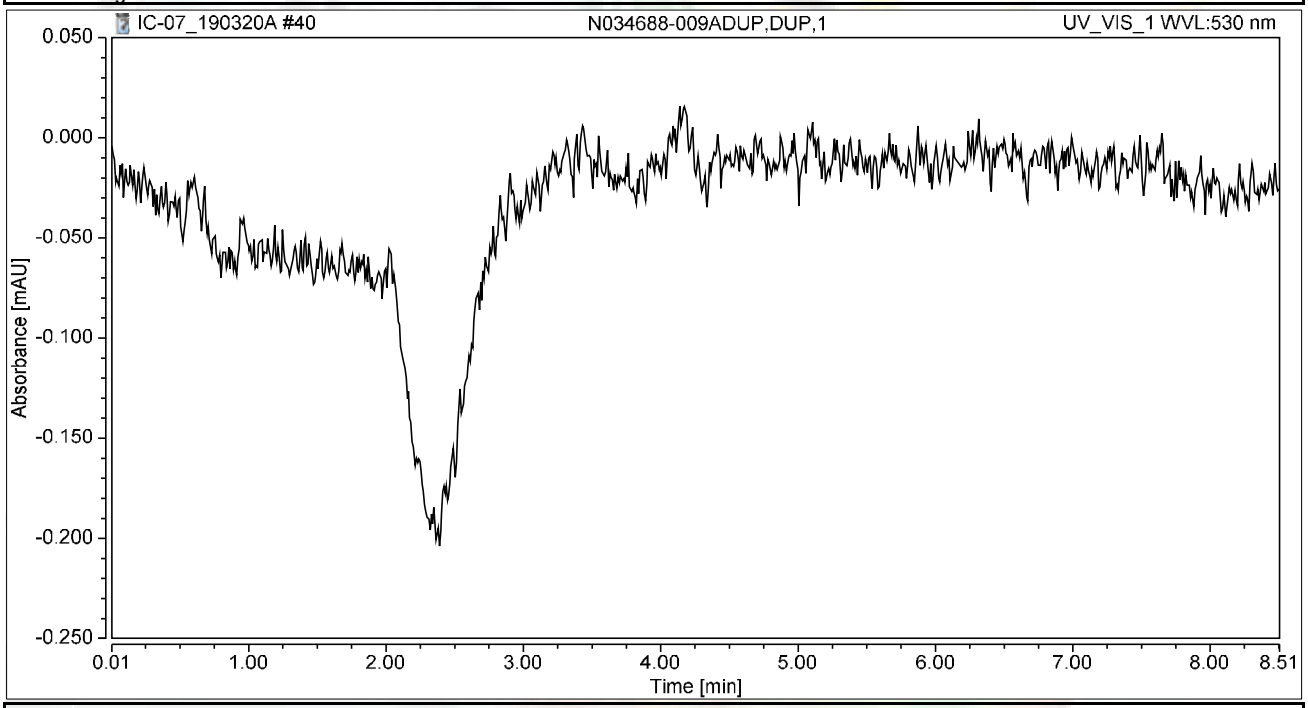
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.222 | 0.984 | 100.00 | 100.00 | 1.0082 |
| **Total:** | | | **0.222** | **0.984** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-009ADUP,DUP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **30** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 14:17** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

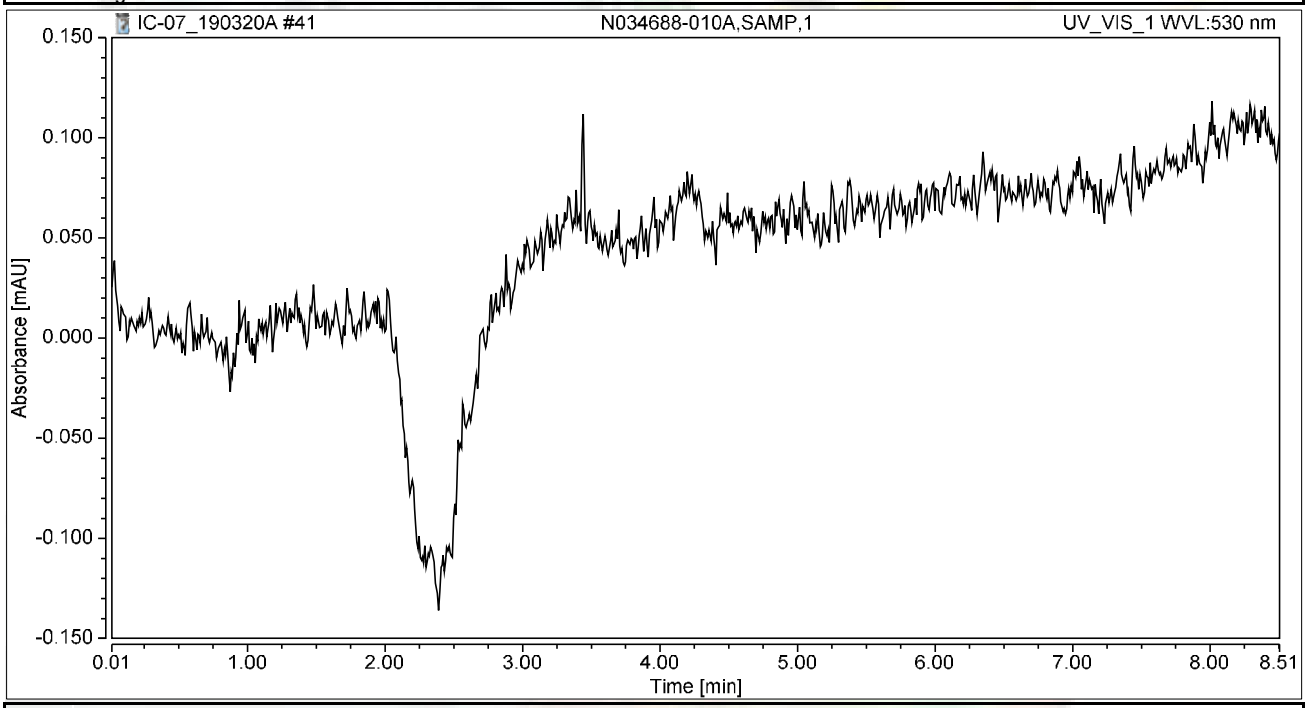
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-010A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 14:37** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

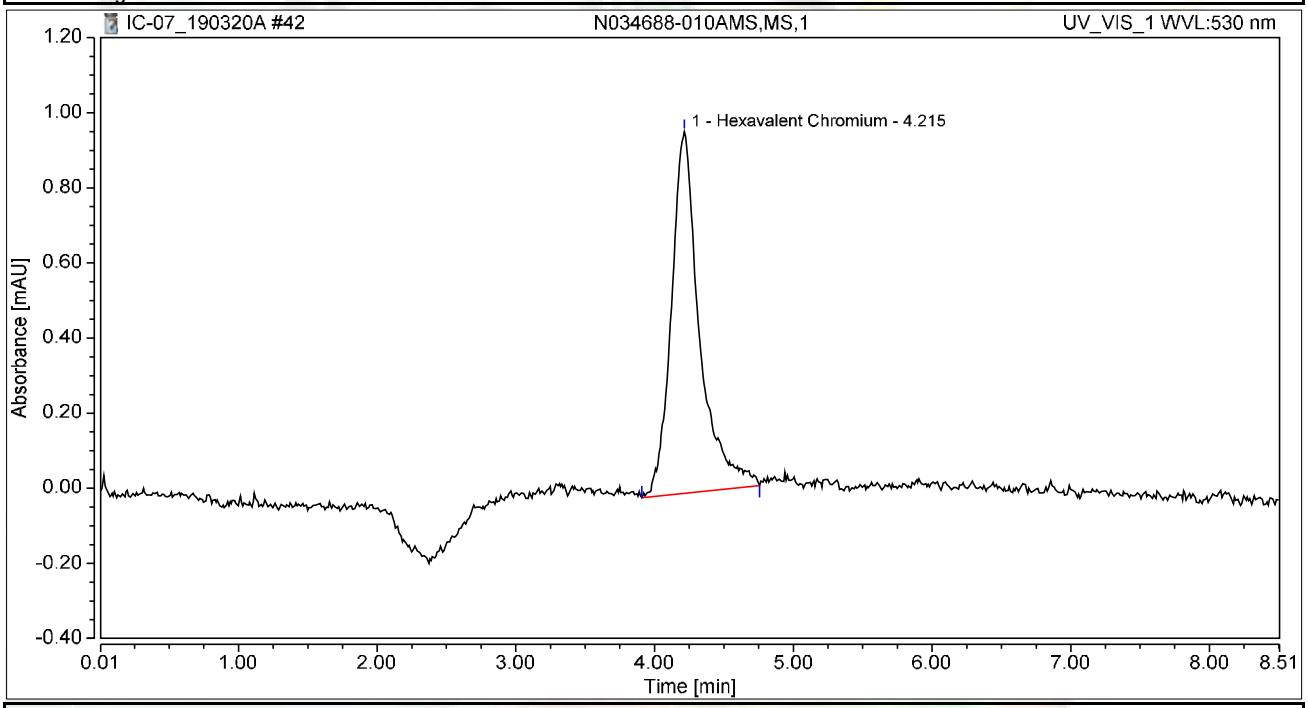
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-010AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 14:48** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

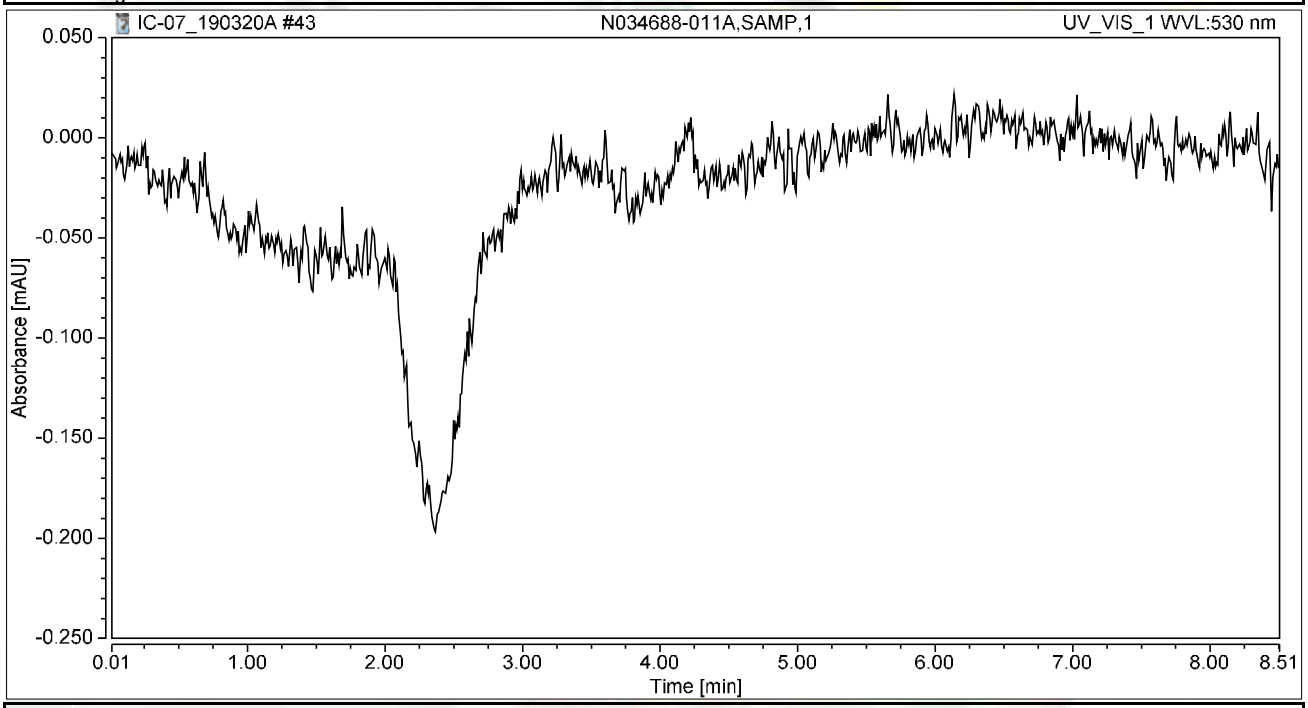
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 0.227 | 0.963 | 100.00 | 100.00 | 1.0304 |
| **Total:** | | | **0.227** | **0.963** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-011A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 14:57** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

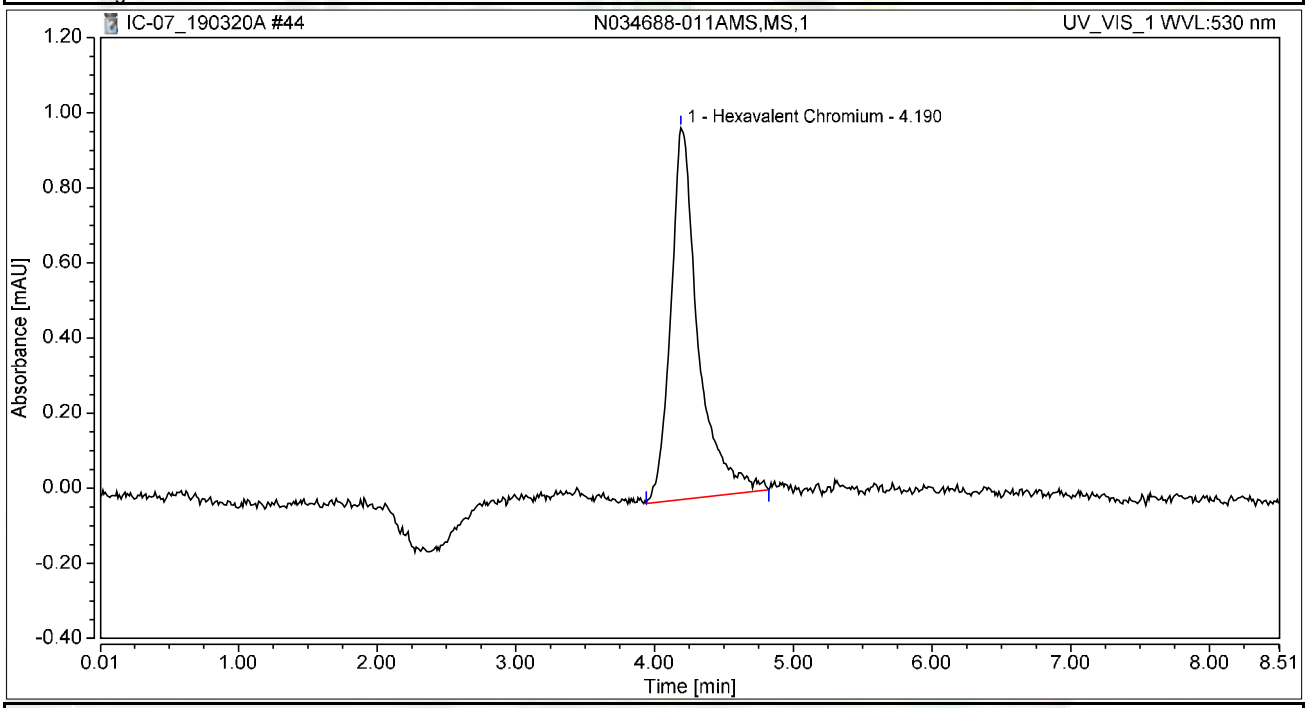
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-011AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 15:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

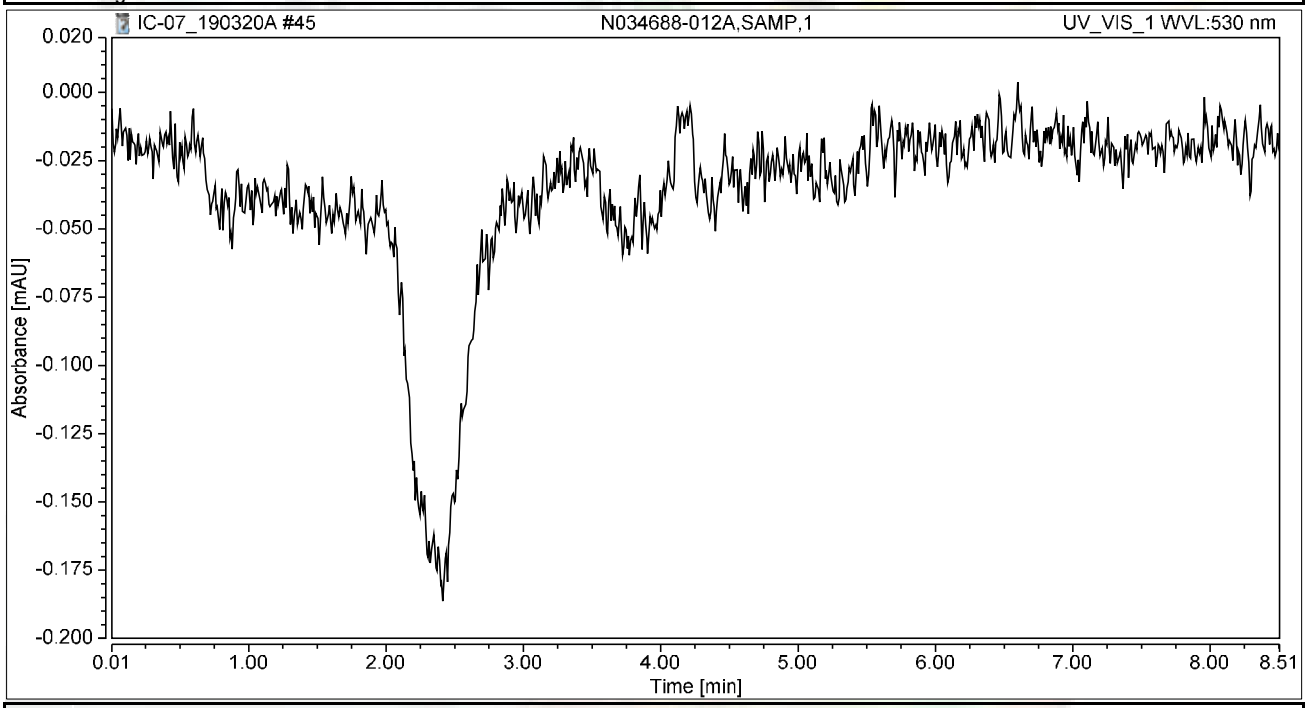
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.190 | 0.226 | 0.990 | 100.00 | 100.00 | 1.0279 |
| **Total:** | | | **0.226** | **0.990** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-012A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 15:16** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

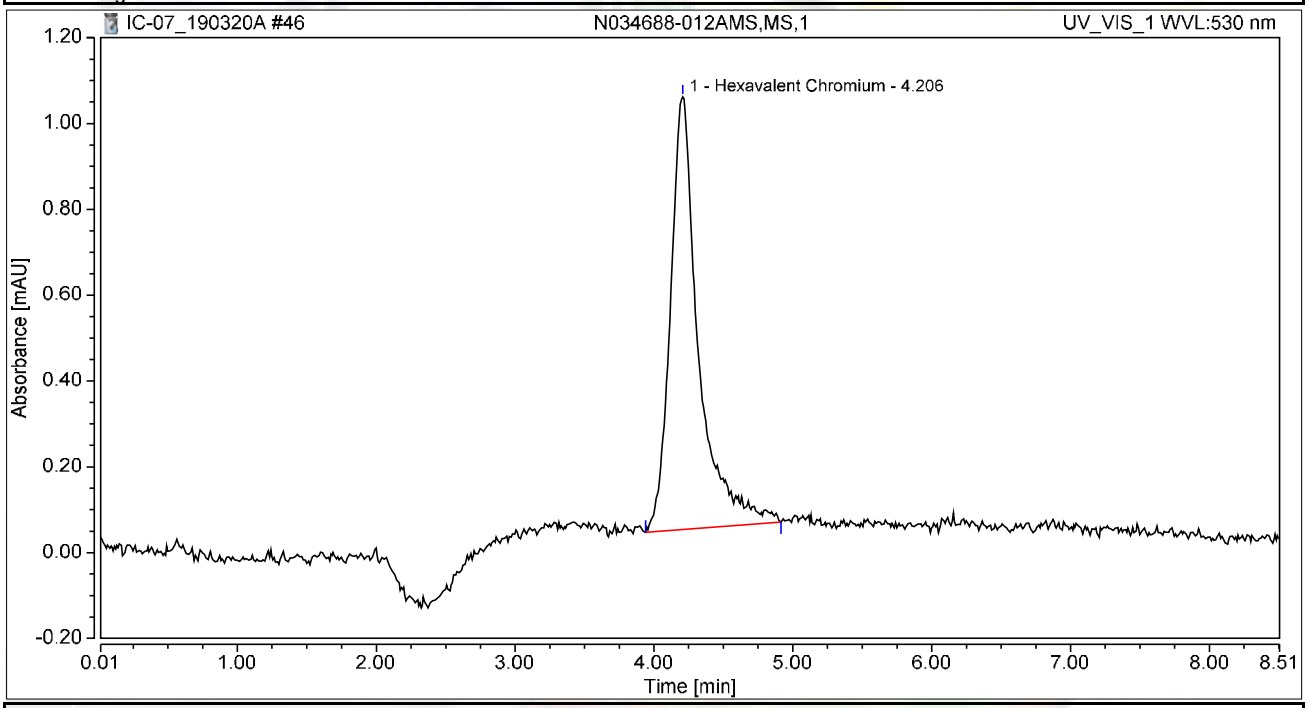
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-012AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 15:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

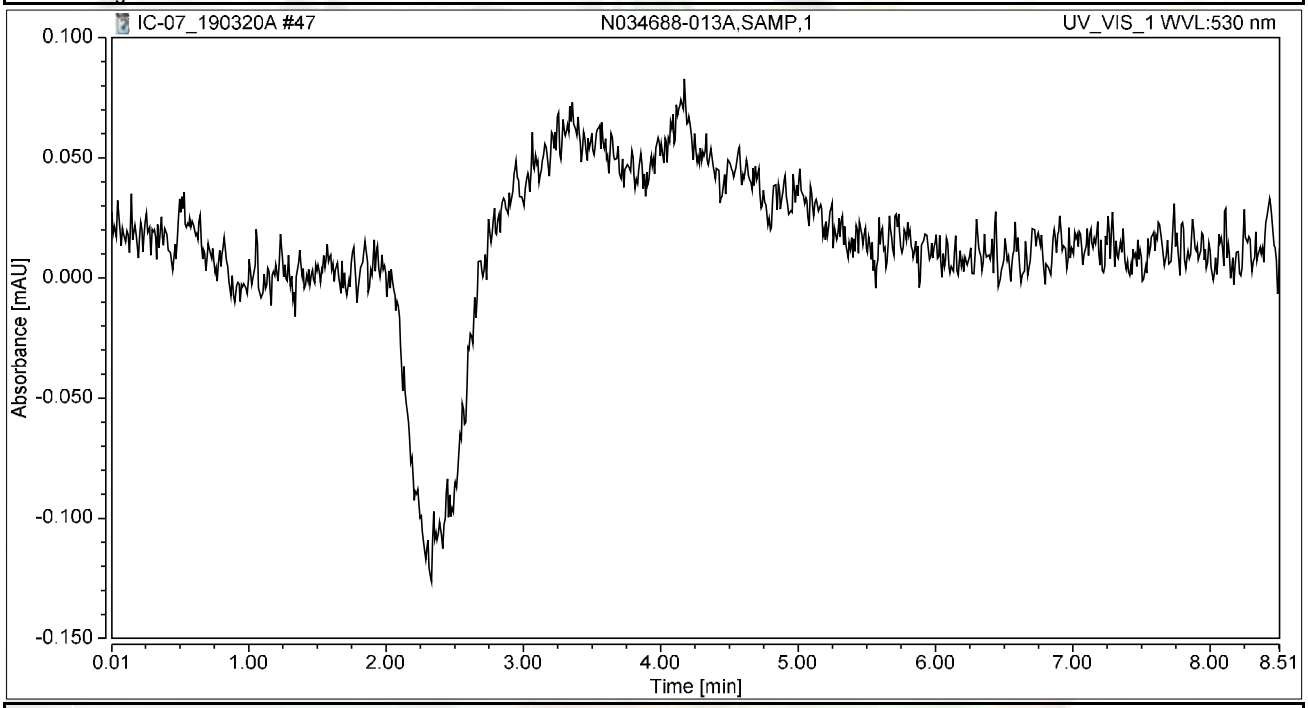
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.237 | 1.008 | 100.00 | 100.00 | 1.0794 |
| **Total:** | | | **0.237** | **1.008** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-013A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 15:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

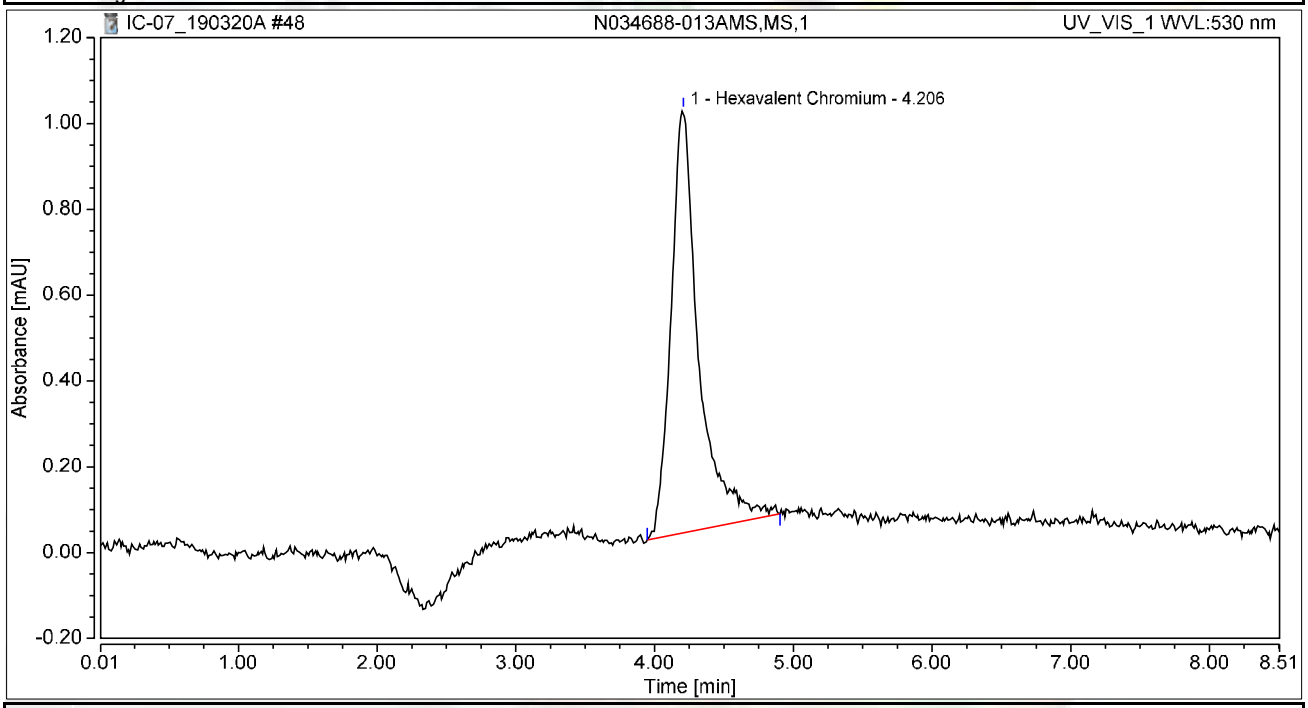
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-013AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 15:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

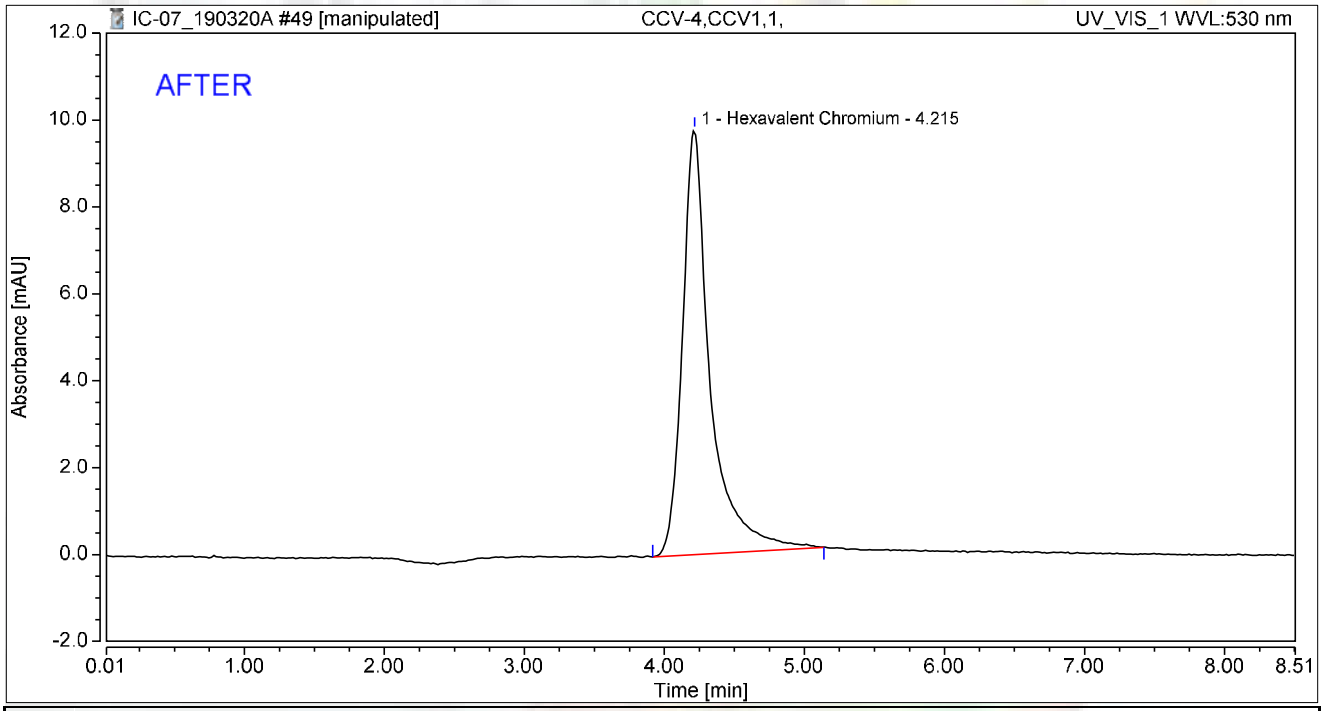
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.228 | 0.986 | 100.00 | 100.00 | 1.0383 |
| **Total:** | | | **0.228** | **0.986** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-4,CCV1,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 15:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 2.246 | 9.783 | 100.00 | 100.00 | 10.2111 |
| **Total:** | | | **2.246** | **9.783** | **100.00** | **100.00** | |

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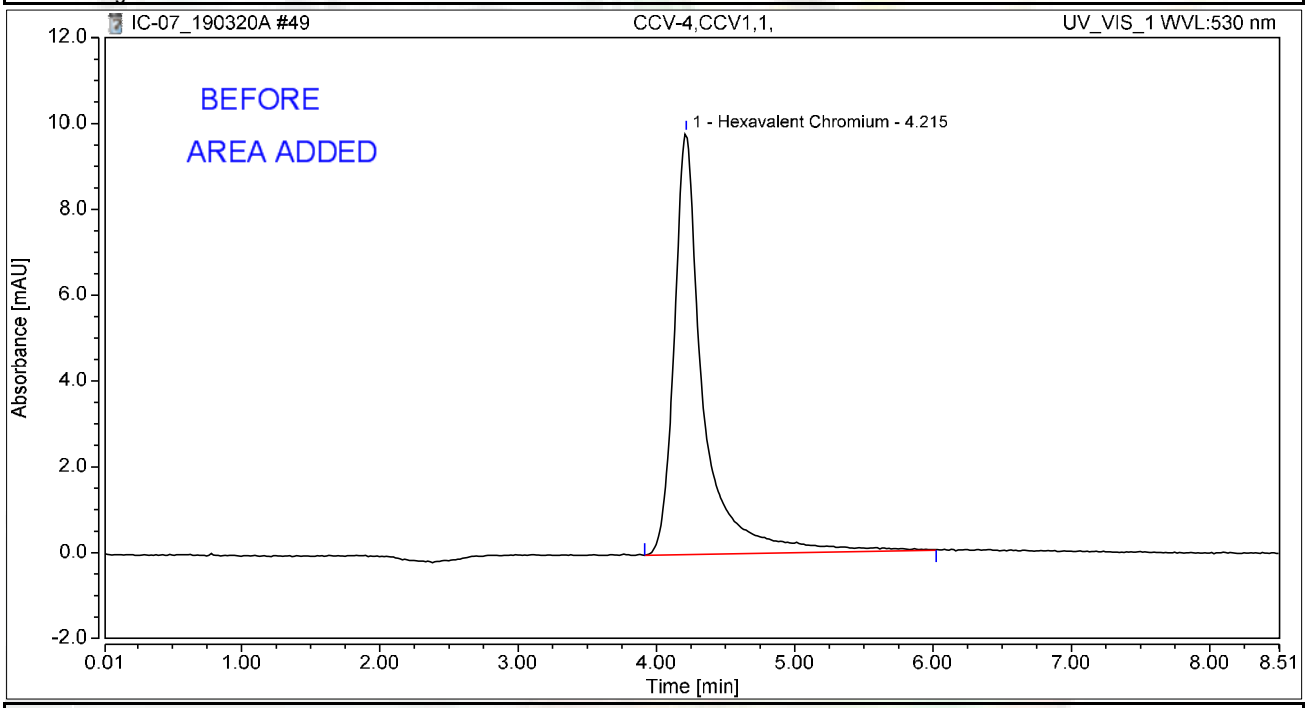
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-4,CCV1,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 15:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 2.406 | 9.821 | 100.00 | 100.00 | 10.9396 |
| **Total:** | | | **2.406** | **9.821** | **100.00** | **100.00** | |

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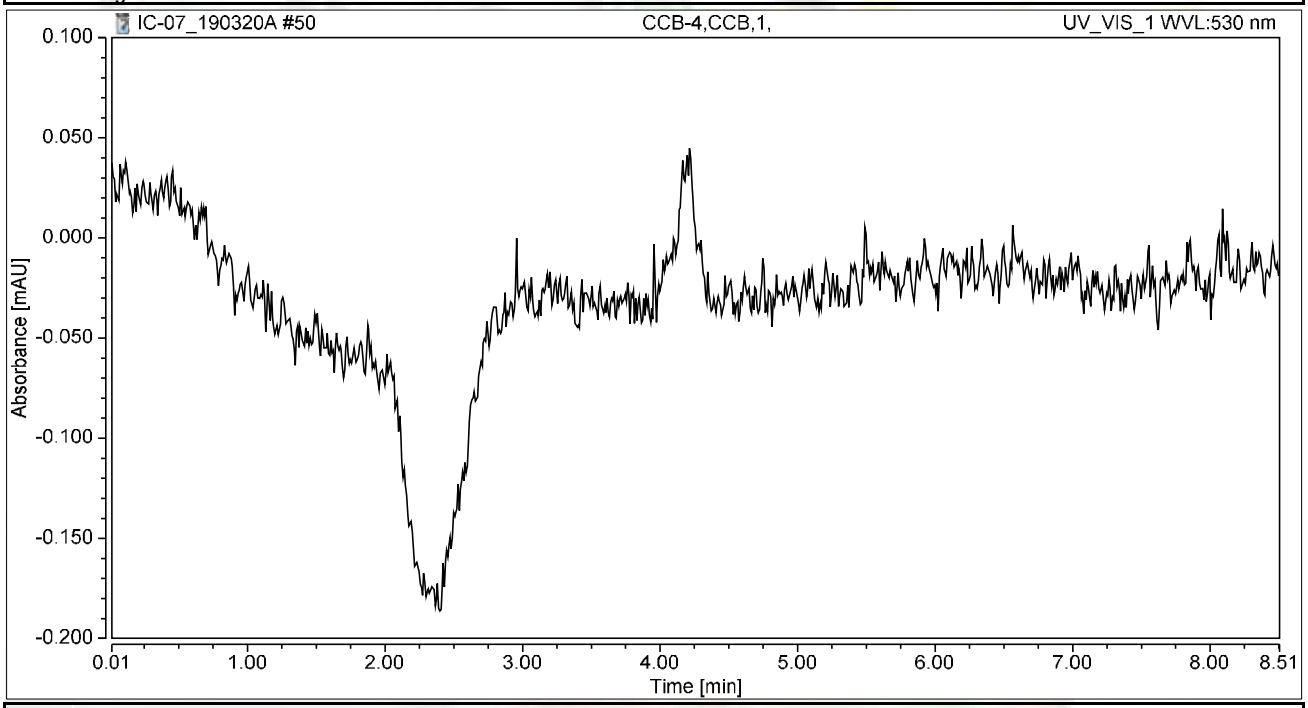
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-4,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 16:03** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

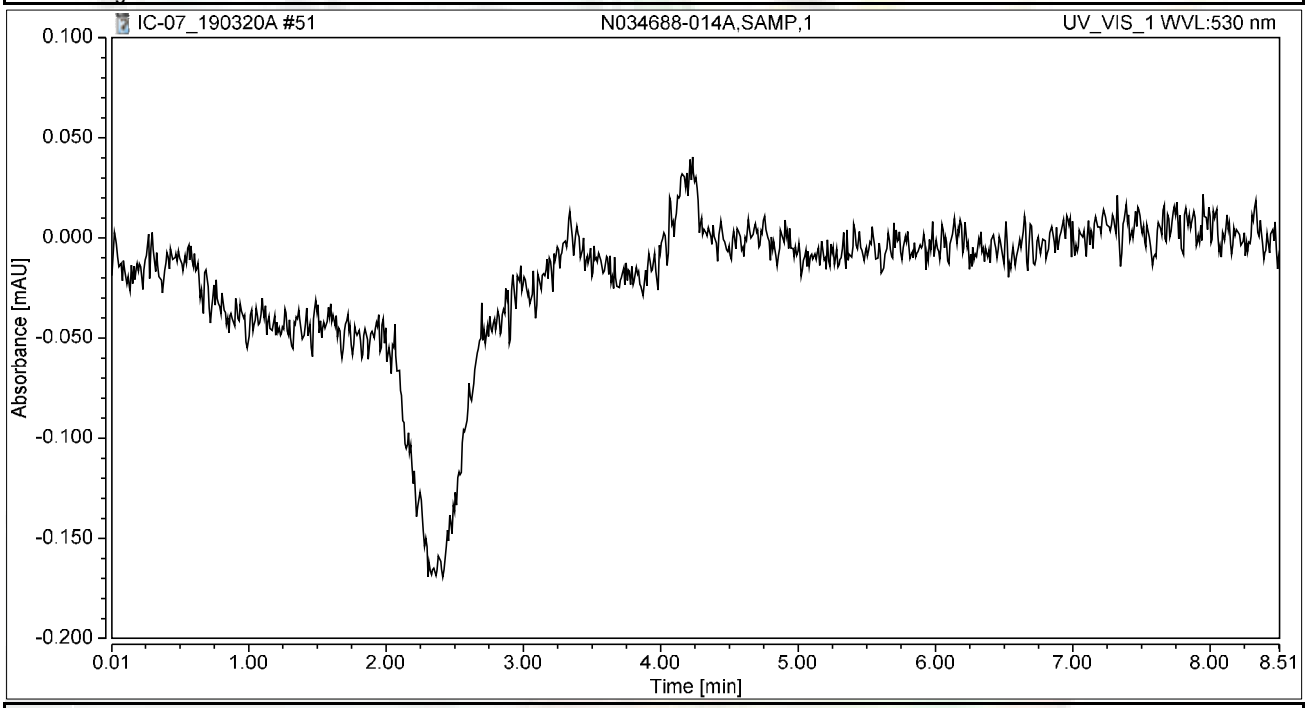
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-014A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 16:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

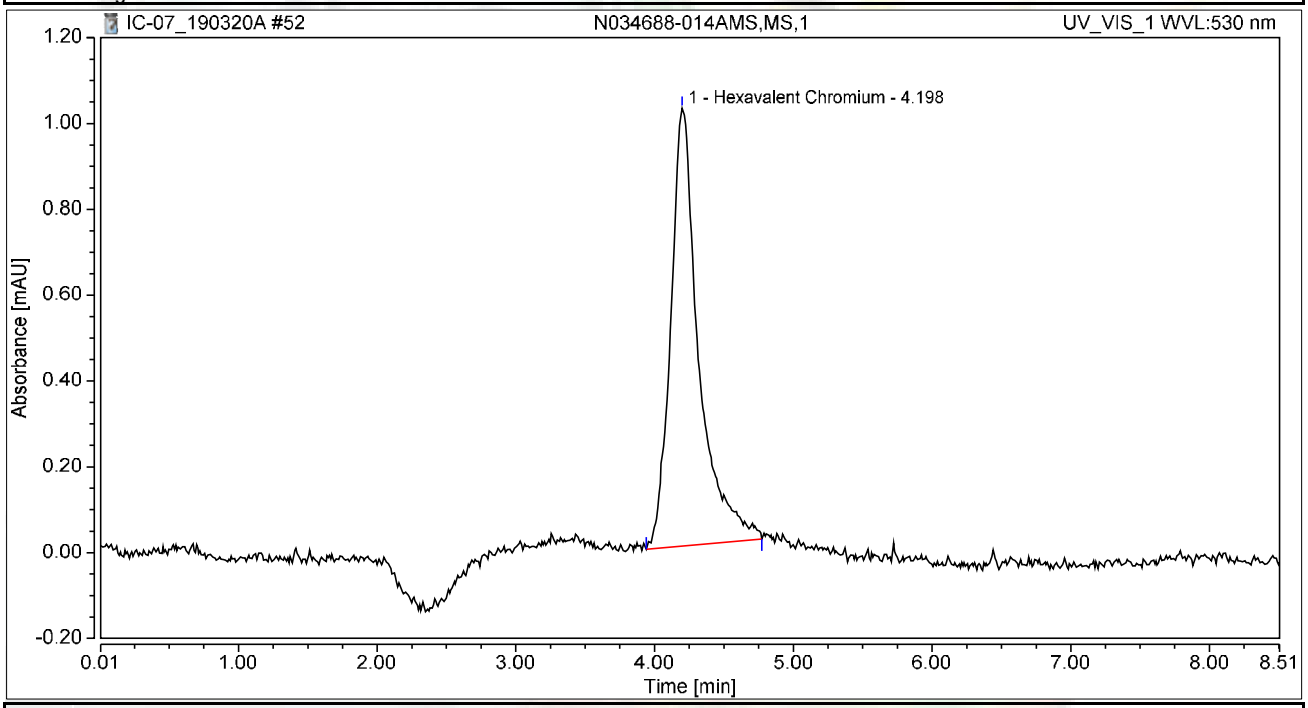
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-014AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 16:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

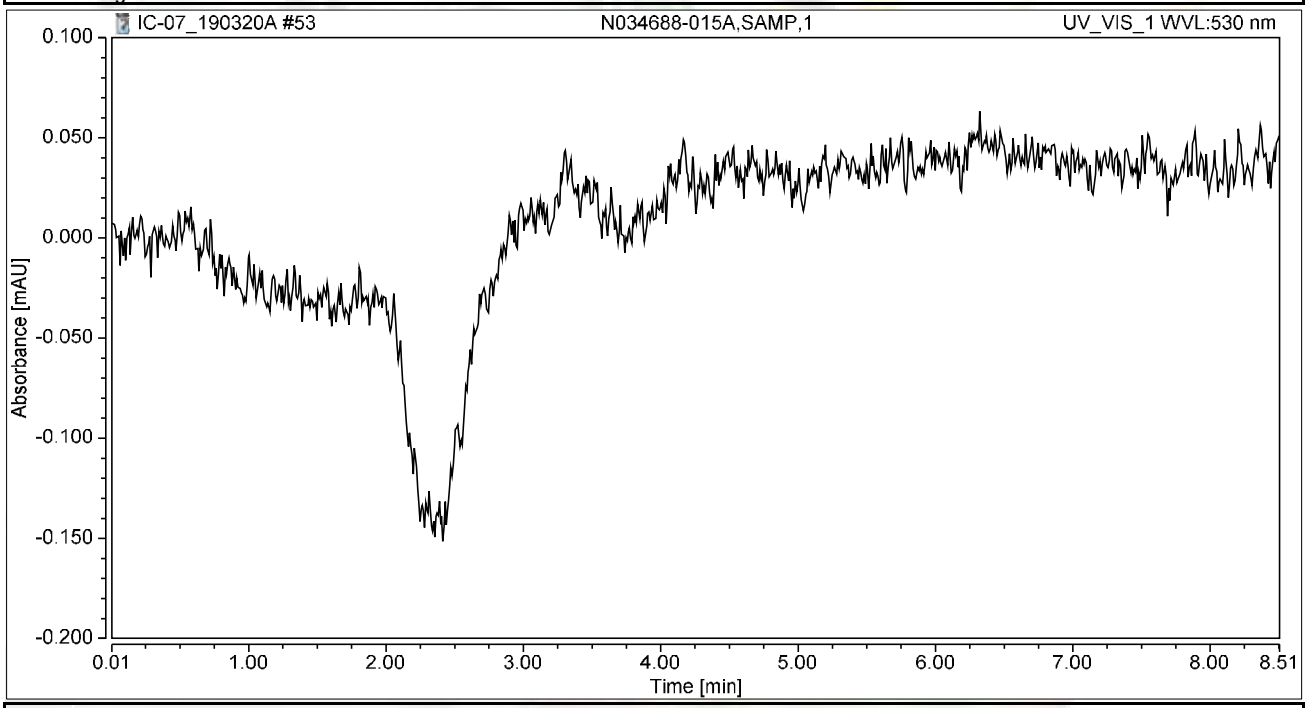
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.239 | 1.020 | 100.00 | 100.00 | 1.0855 |
| **Total:** | | | **0.239** | **1.020** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-015A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 16:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

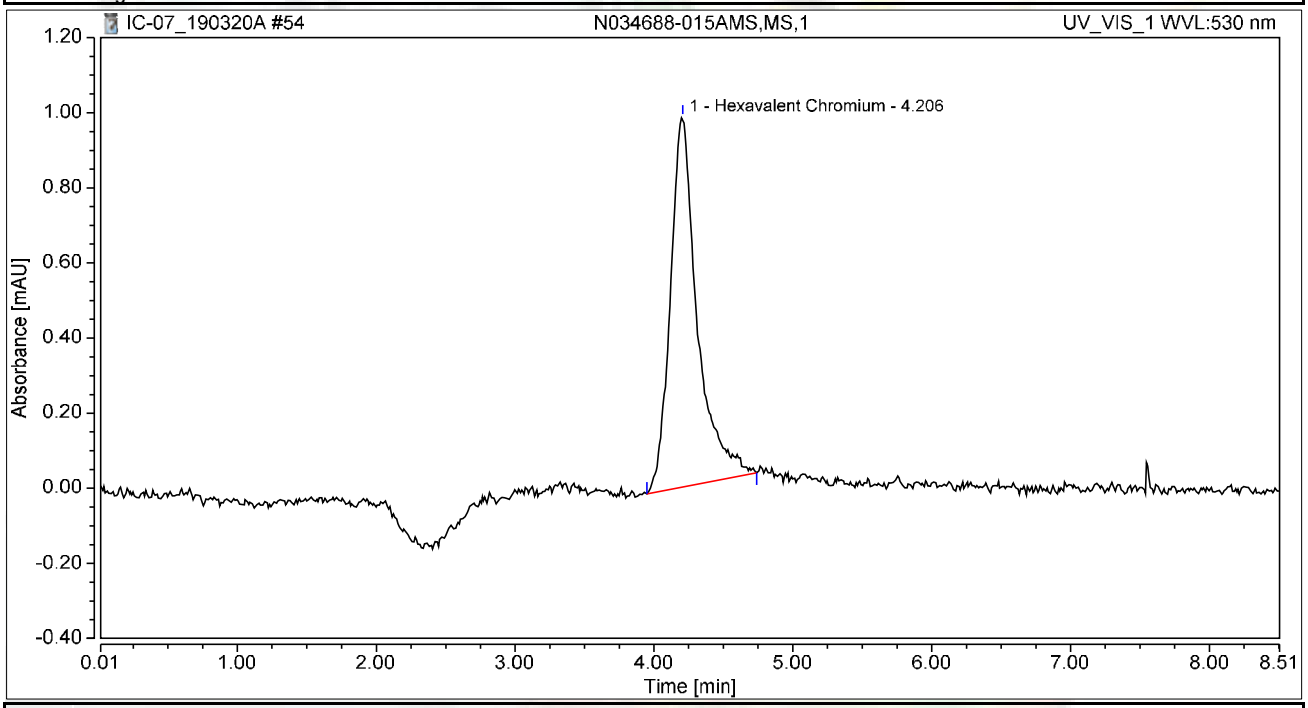
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-015AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 16:41** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

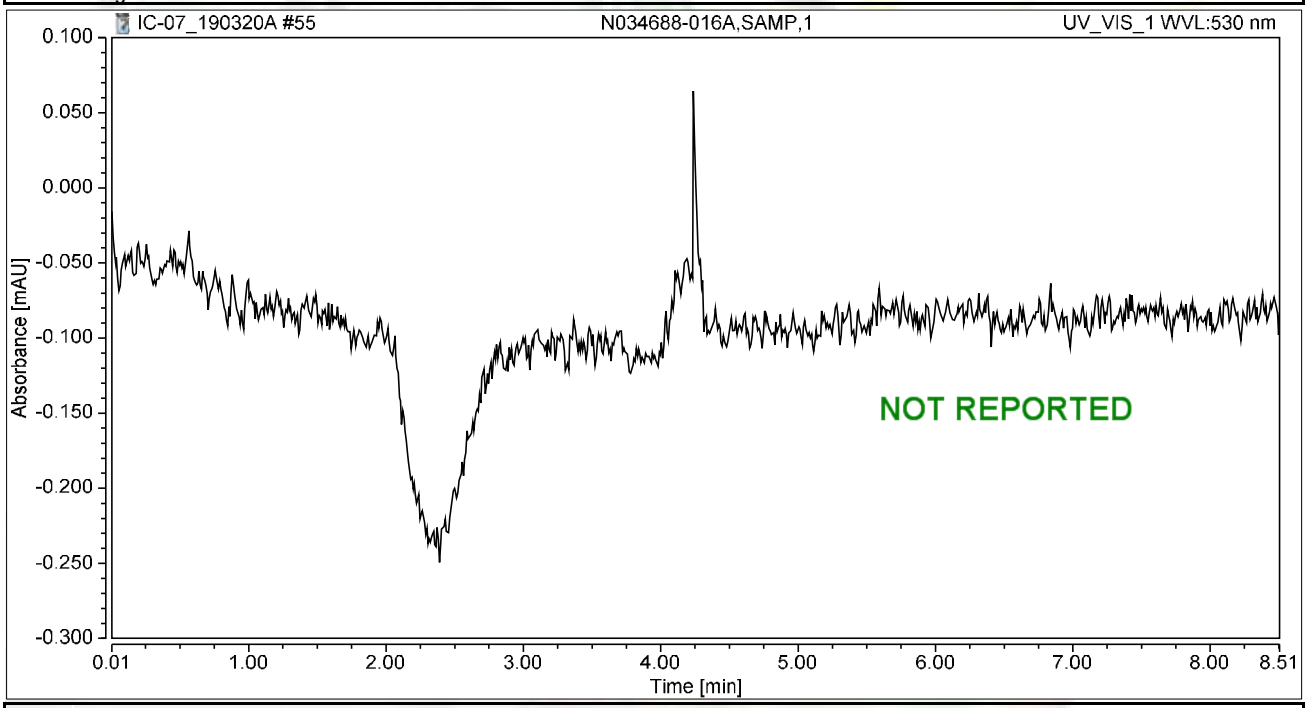
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.222 | 0.985 | 100.00 | 100.00 | 1.0098 |
| **Total:** | | | **0.222** | **0.985** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-016A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 16:51** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

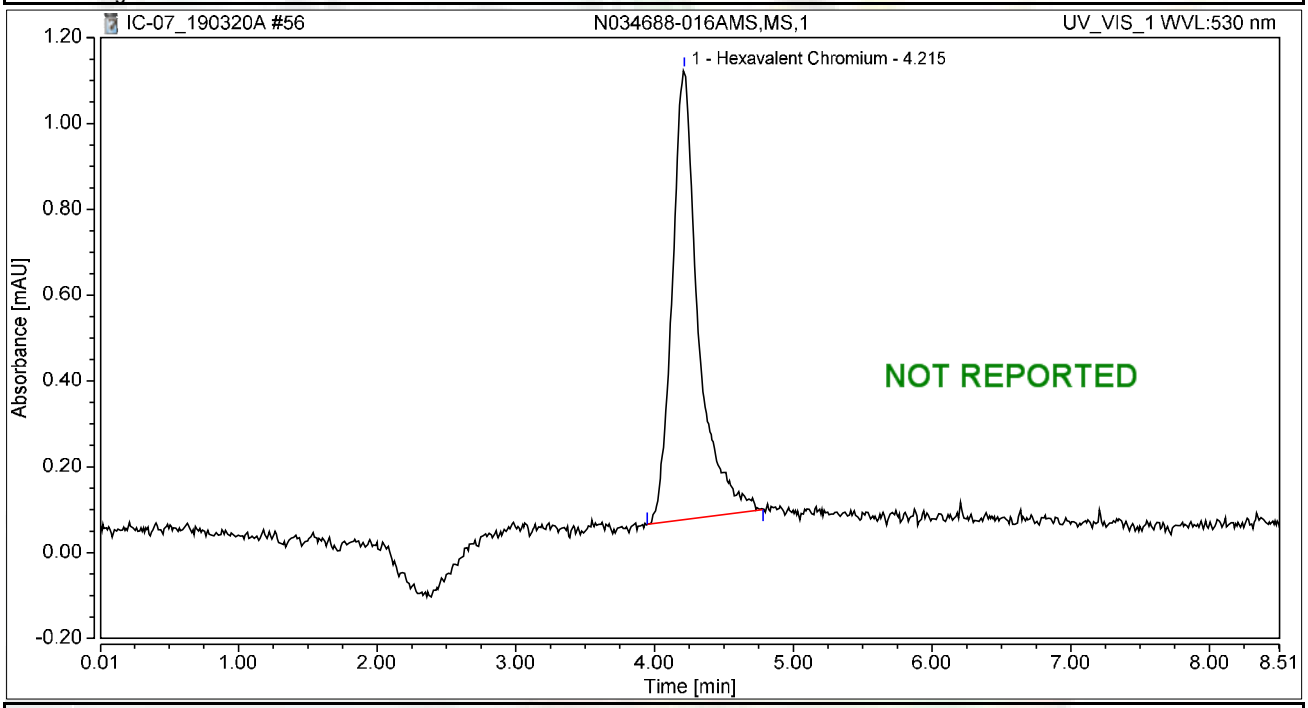
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-016AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 17:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

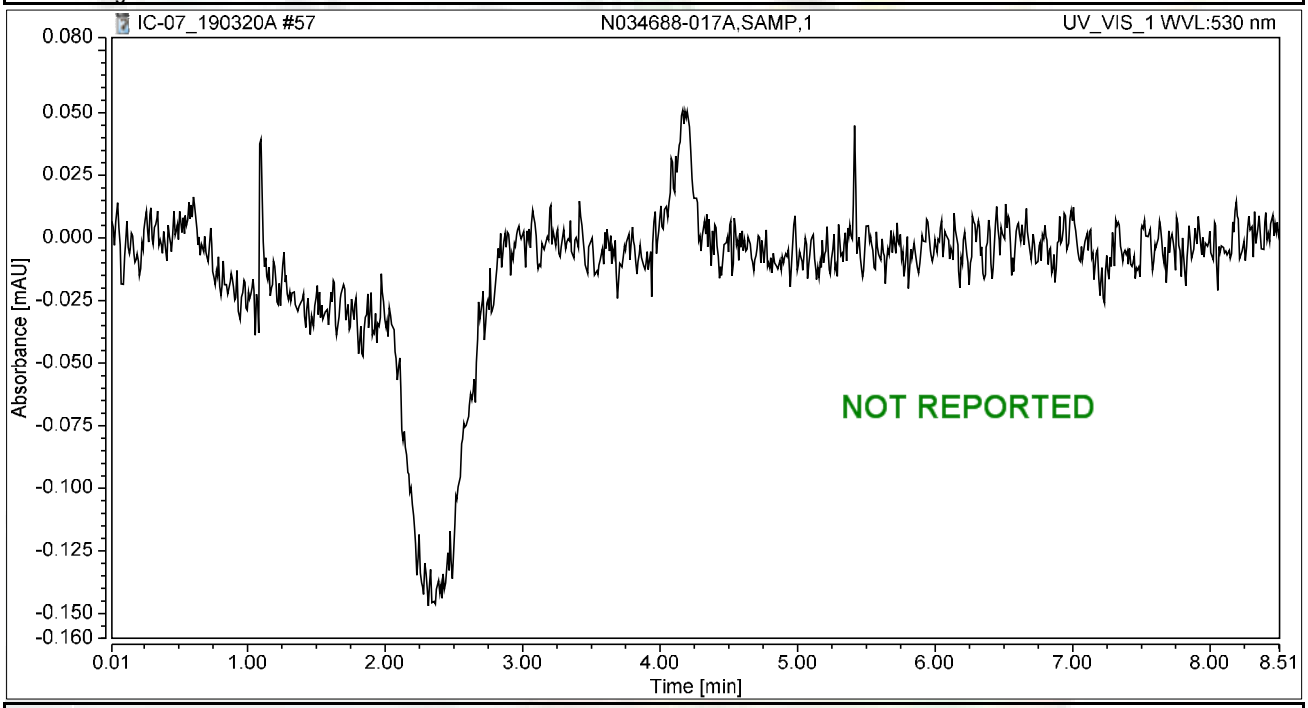
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 0.228 | 1.049 | 100.00 | 100.00 | 1.0354 |
| **Total:** | | | **0.228** | **1.049** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-017A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 17:09** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

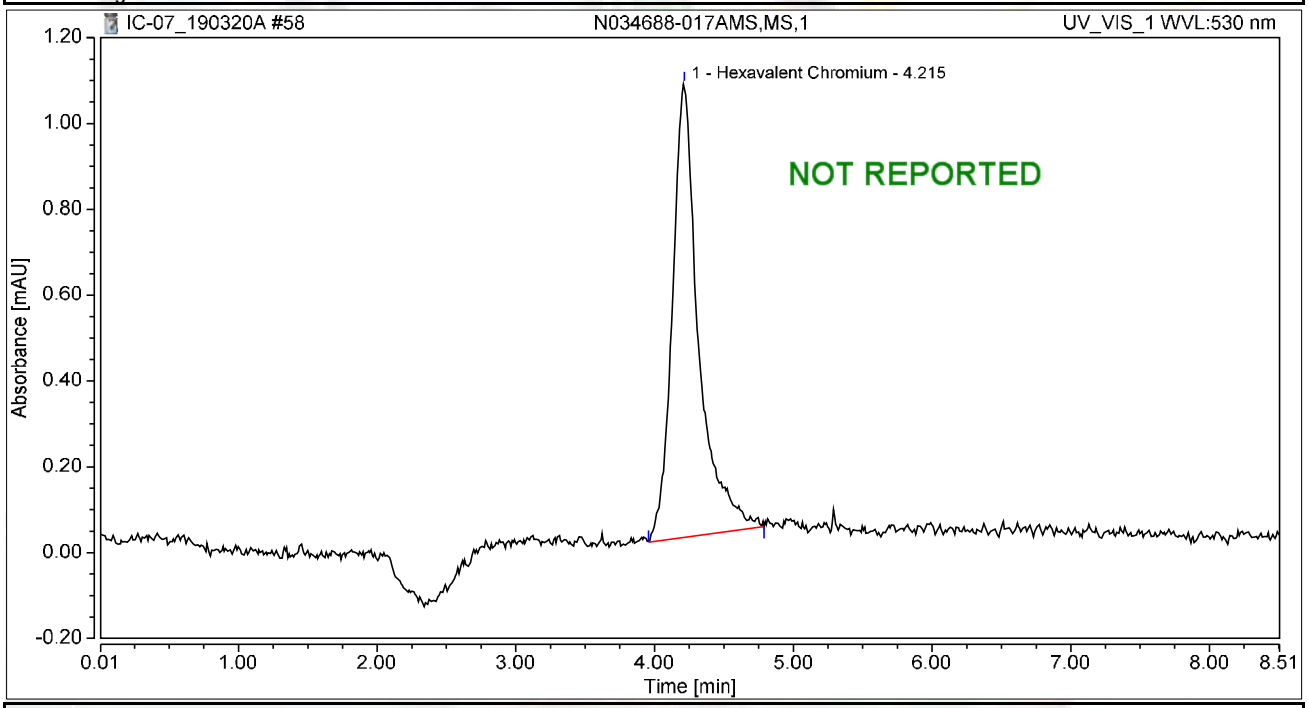
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034688-017AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 17:19** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

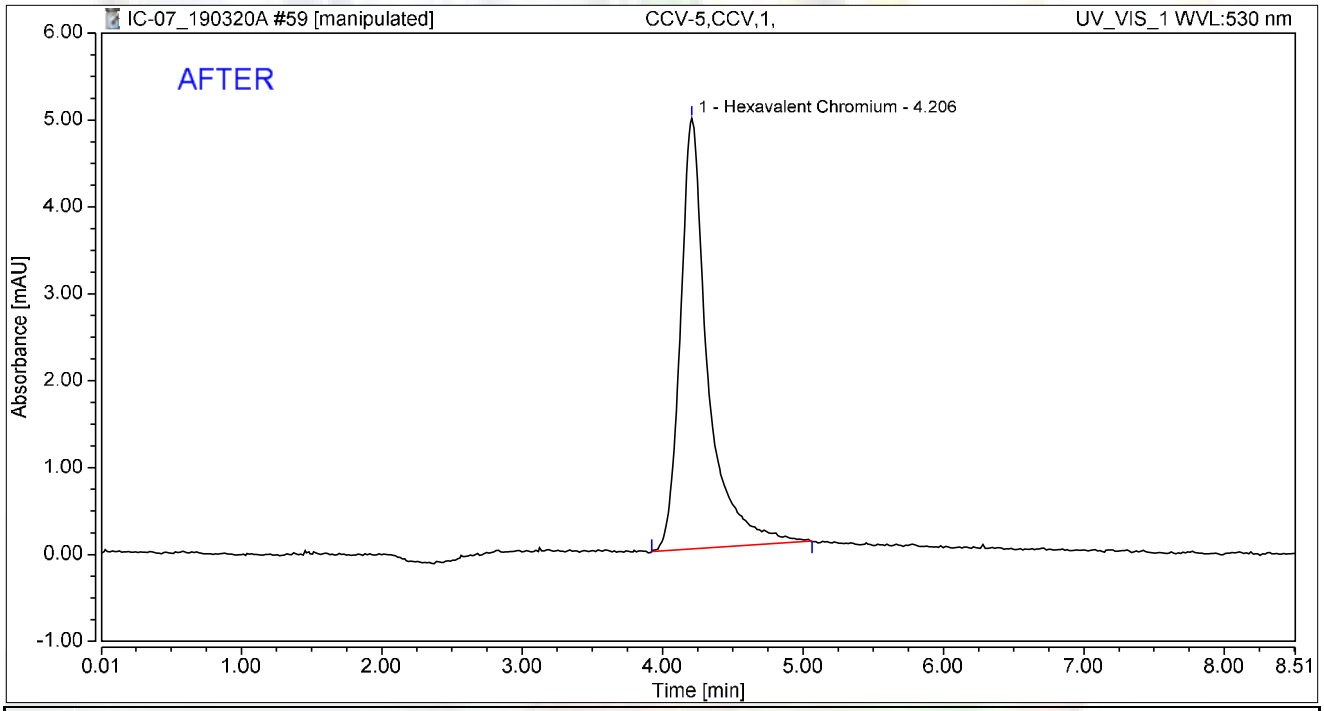
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 0.232 | 1.057 | 100.00 | 100.00 | 1.0550 |
| **Total:** | | | **0.232** | **1.057** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-5,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 17:28** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.122 | 4.958 | 100.00 | 100.00 | 5.0995 |
| **Total:** | | | **1.122** | **4.958** | **100.00** | **100.00** | |

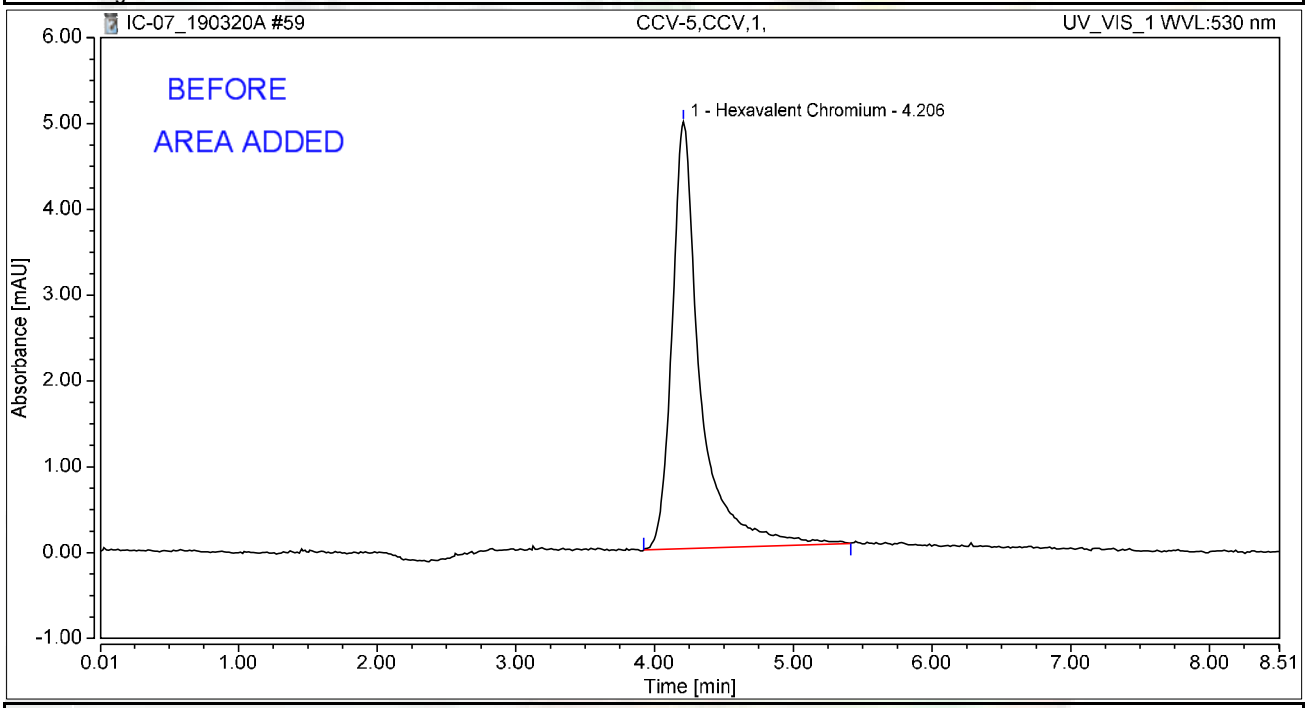
rba 3/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-5,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 17:28** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.171 | 4.974 | 100.00 | 100.00 | 5.3252 |
| **Total:** | | | **1.171** | **4.974** | **100.00** | **100.00** | |

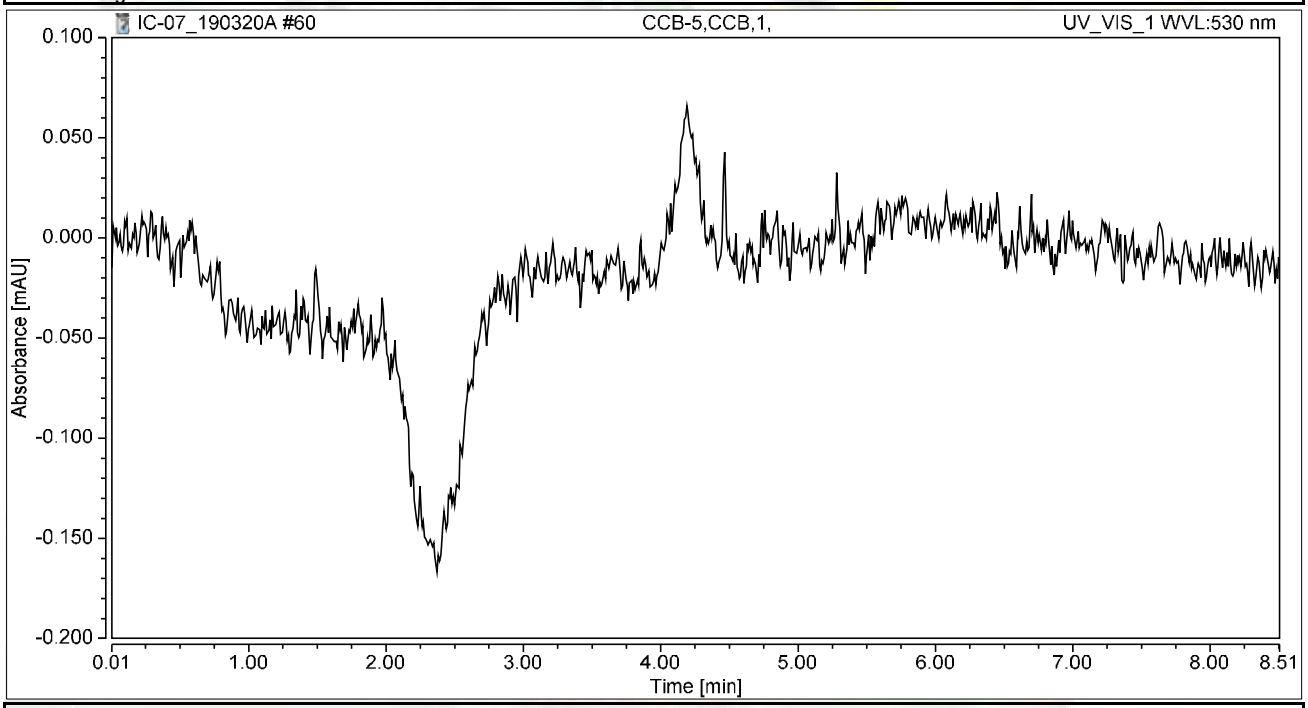
rba 3/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-5,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **20** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 17:38** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

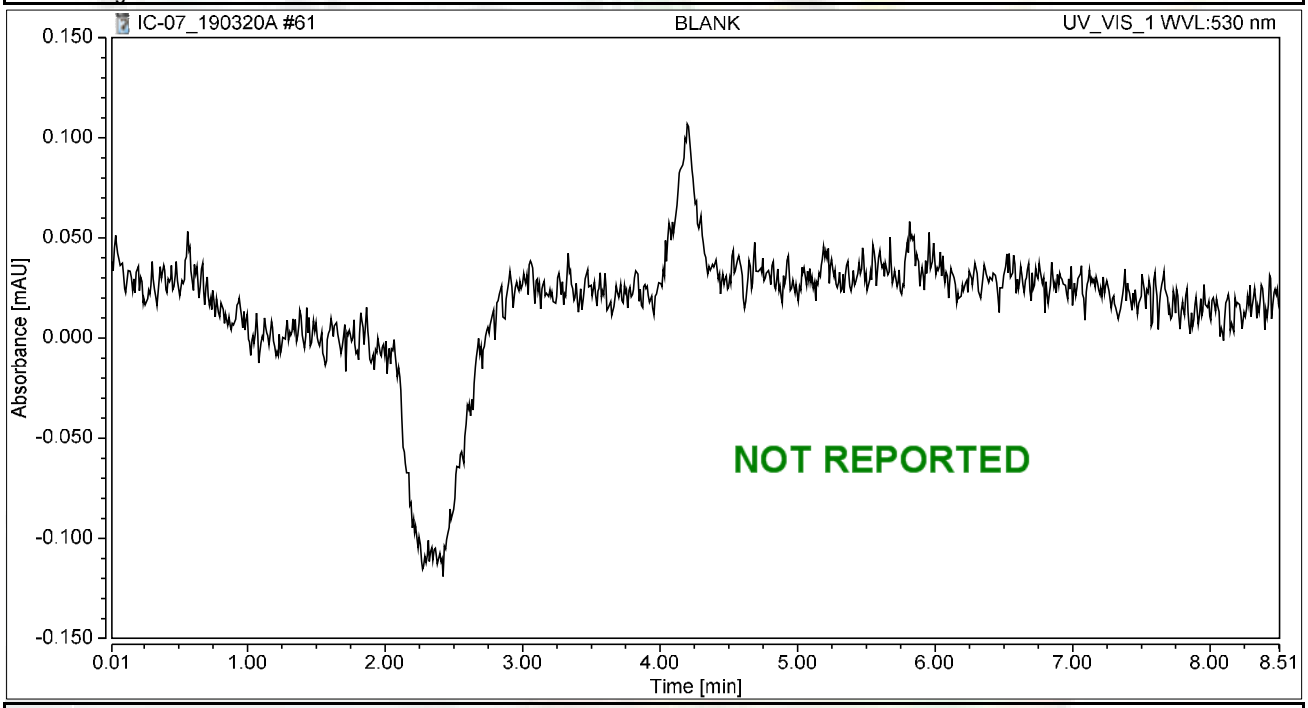
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 17:47** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

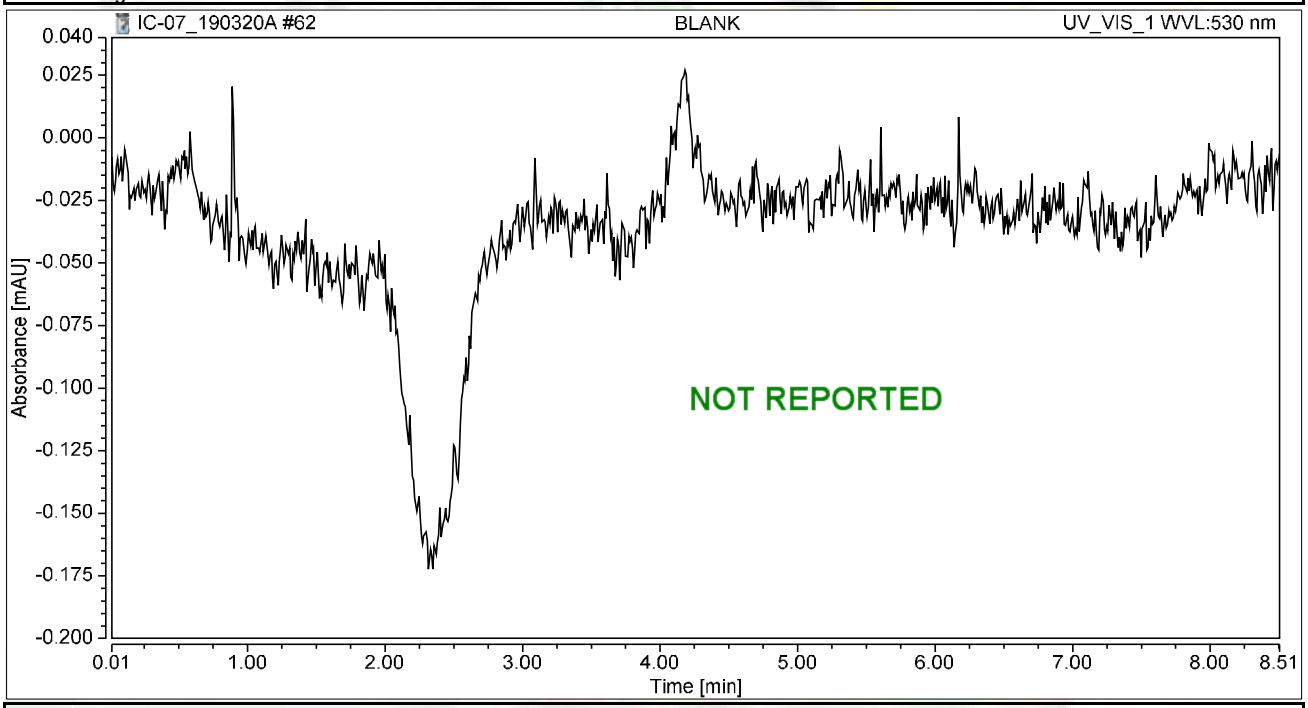
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **20/Mar/19 17:57** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# SM 4500-NO3F

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R132808 **Analyst:** QBM

**ASSET #:** N034688 **Date Analyzed:** 3/27/2019

**Method:** 4500_N03

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | X | | | X | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 3. ICV within ± 15% of expected value. | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | X | | | X | | |
| 5. CCV within ± 15% of expected value. | X | | | X | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | X | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< PQL) | X | | | X | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | X | | | X | | |
| 9. Are all samples analyzed within hold time. | X | | | X | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 11. LCS compounds within control limits. | X | | | X | | |
| 12. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | X |
| 14. Runlog complete and included in package. | X | | | X | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | X |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | X |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | X | | |
| 18. Are analytical results correct? | X | | | X | | |
| 19. Is the QC summary report present and complete? | X | | | X | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer QBM Date: 4/3/19

2nd Level Reviewer 4/3/2019 Date:

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 4500N03F
**TEST NAME:** Nitrate/Nitrite-N by Automated Cadmium Reduction
**MATRIX:** Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

**Nitrate/Nitrite-N, mg/L= A * DF**

where:

A = mg/L, instrument calculated concentration
DF = dilution factor BGLE

For: **N034688-001E**

The concentration in mg/L is calculated as follows:

| | | | | |
|---|---|---|---|---|
| **Nitrate/Nitrite-N** | = | 0.4192 | * | 1 |
| | = | 0.4192 | mg/L | |

Reporting result in two significant figures,

**Nitrate/Nitrite-N = 0.42 mg/L**

# INITIAL CALIBRATION DATA SUMMARY

## EPA 353.2 NO3 as N (NO3CD) - Endpoint

### General setup

| | |
|---|---|
| **Measuring unit** | **ppm** |
| **Number of decimals** | 4 |
| **Stabilization time (sec)** | 26 |
| **Measurement time (sec)** | 3 |
| **Sample volume (µl)** | 450 |
| **Filter** | 546 |
| **Reagent prime** | No |
| **CD Reduction** | Yes |

### Limits and dilution

| | |
|---|---|
| **Low level** | **-0.2** |
| **High level** | 4 |
| **Max linearity** | 4 |
| **Blank min** | 0 |
| **Blank max** | 0.049 |
| **Postdilution factor %** | 10 |
| **Factor Calculations** | No |

### Washes

| | |
|---|---|
| **Number of final washes** | 6 |
| **Wash every** | R1, R2 |

### O.D.Corrections

| | |
|---|---|
| **Carry Over** | **No** |
| **Carry Over value** | 0.0000 |
| **Blank** | No |
| **Gain** | No |

### Reagents

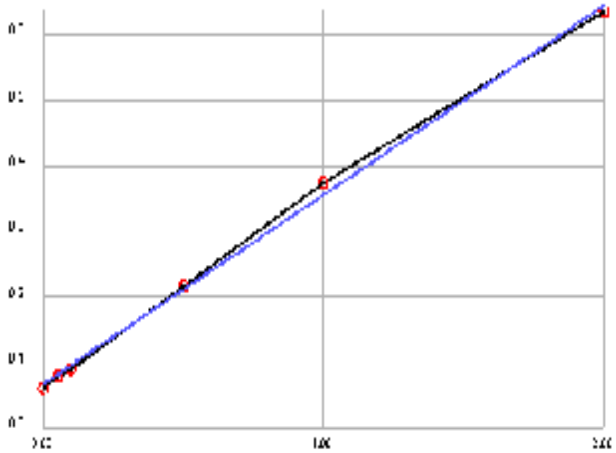
| N. | Volume (µl) | Incubation time (sec) |
|---|---|---|
| **1** | 200 | 102 |
| **2** | 300 | 663 |
| **3** | 0 | 0 |

### QC

| N. | Value | Tolerance |
|---|---|---|
| **1** | 1 | 0.1 |

## Calibration

| | |
|---|---|
| **Curve type** | Linear (Calibrants) |
| **Curve forced to zero** | No |
| **Blank inclusion** | No |



| | |
|---|---|
| **Formula** | y = 0.2896x + 0.0663 |
| **Correlation** | .998998 |

| Calibrant | Energy | Set | Conc |
|---|---|---|---|
| **1** | 0.0604 | 0.0000 | -0.0203 |
| **2** | 0.0787 | 0.0500 | 0.0429 |
| **3** | 0.0904 | 0.1000 | 0.0833 |
| **4** | 0.2156 | 0.5000 | 0.5156 |
| **5** | 0.3741 | 1.0000 | 1.0628 |
| **6** | 0.6356 | 2.0000 | 1.9657 |

**Notes:**

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132808** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132808** | TestNo: **SM4500-NO3** | | Analysis Date: **3/27/2019** | SeqNo: **3331135** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.472 | 0.050 | 0.5000 | 0 | 94.5 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132808** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132808** | TestNo: **SM4500-NO3** | | Analysis Date: **3/27/2019** | SeqNo: **3331146** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.474 | 0.050 | 0.5000 | 0 | 94.8 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132808** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132808** | TestNo: **SM4500-NO3** | | Analysis Date: **3/27/2019** | SeqNo: **3331157** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.466 | 0.050 | 0.5000 | 0 | 93.2 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132808** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132808** | TestNo: **SM4500-NO3** | | Analysis Date: **3/27/2019** | SeqNo: **3331136** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132808** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132808** | TestNo: **SM4500-NO3** | | Analysis Date: **3/27/2019** | SeqNo: **3331147** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132808** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132808** | TestNo: **SM4500-NO3** | | Analysis Date: **3/27/2019** | SeqNo: **3331158** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

**Advanced Technology Laboratories, Inc.**

**3151 W. Post Rd.**
**Las Vegas, NV. 89118**
**702-307-2659**
**702-307-2691**
**www.atl-labs.com**

**Time start: 03-27-2019 13:28**
**Time end: 03-27-2019 15:48**

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 1 | <BLANK> | 15:17:00 | -0.0206 | | 0.0603 |
| 2 | <BLANK> | 15:17:55 | -0.0168 | | 0.0614 |
| 3 | <BLANK> | 15:18:55 | -0.0141 | | 0.0622 |
| 4 | <CAL1> | 15:19:50 | -0.0203 | [0] | 0.0604 |
| 5 | <CAL2> | 15:20:52 | 0.0429 | [0.05] | 0.0787 |
| 6 | <CAL3> | 15:21:45 | 0.0833 | [0.1] | 0.0904 |
| 7 | <CAL4> | 15:22:41 | 0.5156 | [0.5] | 0.2156 |
| 8 | <CAL5> | 15:23:42 | 1.0628 | [1] | 0.3741 |
| 9 | <CAL6> | 15:24:38 | 1.9657 | [2] | 0.6356 |
| 10 | ,BLANK,BLANK,1, NOT REPORTED | 15:25:38 | 0.0522 | | 0.0814 |
| 11 | ,ICV,ICV,1, | 15:26:33 | 0.4724 | | 0.2031 |
| 12 | ,ICB,ICB,1, | 15:27:29 | 0.0008 | | 0.0665 |
| 13 | ,MB-H2O,MBLK,1, | 15:28:30 | -0.0172 | | 0.0613 |
| 14 | ,LCS-H2O,LCS,1, | 15:29:24 | 0.5090 | | 0.2137 |
| 15 | ,N034688-001E,SAMP,1, | 15:30:20 | 0.4192 | | 0.1877 |
| 16 | ,N034688-002E,SAMP,1, | 15:31:21 | 0.3982 | | 0.1816 |
| 17 | ,N034688-003E,SAMP,1, | 15:32:16 | 0.4072 | | 0.1842 |
| 18 | ,N034688-003EDUP,DUP,1, | 15:32:59 | 0.4072 | | 0.1842 |
| 19 | ,N034688-004E,SAMP,1, | 15:33:49 | 0.3951 | | 0.1807 |
| 20 | ,N034688-004EMS,MS,1, | 15:34:37 | 0.8930 | | 0.3249 |
| 21 | ,N034688-004EMSD,MSD,1, | 15:35:20 | 0.9275 | | 0.3349 |
| 22 | ,BLANK, NOT REPORTED | 15:36:02 | 0.0135 | | 0.0702 |
| 23 | ,CCV-1,CCV,1, | 15:36:51 | 0.4738 | | 0.2035 |
| 24 | ,CCB-1,CCB,1, | 15:37:33 | 0.0015 | | 0.0667 |
| 25 | ,N034688-005E,SAMP,1, | 15:38:17 | 0.3685 | | 0.1730 |
| 26 | ,N034688-006E,SAMP,1, | 15:39:06 | 0.4058 | | 0.1838 |

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 27 | ,N034688-007E,SAMP,1, | 15:39:48 | 0.4013 | | 0.1825 |
| 28 | ,N034688-008E,SAMP,1, | 15:40:32 | 0.3650 | | 0.1720 |
| 29 | ,N034688-009E,SAMP,1, | 15:41:20 | 0.4075 | | 0.1843 |
| 30 | ,N034688-010E,SAMP,1, | 15:42:03 | 0.3809 | | 0.1766 |
| 31 | ,N034688-011E,SAMP,1, | 15:42:45 | 0.3854 | | 0.1779 |
| 32 | ,N034688-012E,SAMP,1, | 15:43:35 | 0.3826 | | 0.1771 |
| 33 | ,N034688-013E,SAMP,1, | 15:44:17 | 0.3585 | | 0.1701 |
| 34 | ,BLANK, NOT REPORTED | 15:45:00 | -0.0075 | | 0.0641 |
| 35 | ,CCV-2,CCV,1, | 15:45:49 | 0.4659 | | 0.2012 |
| 36 | ,CCB-2,CCB,1, | 15:46:31 | -0.0265 | | 0.0586 |

**Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog**

## Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 3/27/2019
Time Analyzed: 1:28 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190322D
Color reagent: R190322E
2% Copper Sulfate: R190322C
Ammonium Hydroxide: CINV-190124A

| Sample ID. | Sample Wt./Vol. | Sample pH | Std Code | Spike Amt Added (mL) | Spike Conc.(PPM) | Final Volume (mL) | Dilution (F/I) | Reading & Calculations (mg/L) | Comments |
|---|---|---|---|---|---|---|---|---|---|
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| | | | | | | | | | |
| N034688-001E | | 8.45 | | | | | | | |
| N034688-002E | | 7.89 | | | | | | | |
| N034688-003E | | 7.54 | | | | | | | |
| N034688-004E | | 7.57 | | | | | | | |
| N034688-005E | | 7.62 | | | | | | | |
| N034688-006E | | 7.75 | | | | | | | |
| N034688-007E | | 6.93 | | | | | | | |
| N034688-008E | | 8.19 | | | | | | | |
| N034688-009E | | 8.16 | | | | | | | |
| N034688-010E | | 7.69 | | | | | | | |
| N034688-011E | | 8.10 | | | | | | | |
| N034688-012E | | 7.34 | | | | | | | |
| N034688-013E | | 8.10 | | | | | | | |
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Advanced Technology Laboratories, Inc.
Book # 1

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

| Analyte | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Ave | SD | $t_{(n-1)}$ value | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.0573 | 0.0562 | 0.0500 | 0.0730 | 0.0698 | 0.0637 | 0.0564 | 0.0609 | 0.0082 | 3.143 | 0.0259 | 0.05 |
| **Method Blank** | | | | | | | | | | | | |
| Nitrate/Nitrite as N | 0.0160 | 0.0067 | 0.0064 | 0.0204 | 0.0173 | 0.0036 | 0.0083 | 0.0112 | 0.0065 | 3.143 | 0.0317 | 0.05 |

**MDL:** **0.0317** **mg/L**

# EPA 6010B
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 73016
**ASSET #:** N034688
**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 3/28/2019

**Method:**

[X] EPA 6010B / 200.7 Dissolved
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | x | ~~X~~ | | x | ~~X~~ |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

% Rec of Fe in N034688-001B MS/MSD failed, high bias. However, LCS passed criteria.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | X | | |
| 2. Matrix / units correct | X | | |
| 3. Does batch meet QC requirements? | X | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | X | | |
| 5. Is first level review correct and complete? | X | | |

1st Level Reviewer CEI Date: 4/10/2019

2nd Level Reviewer 4/10/2019 Date: ____

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 73016
**ASSET #:** N034688
**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 4/8/2019

**Method:**

[X] EPA 6010B / 200.7 Dissolved
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | X | X | | X |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | X | | X | X | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | X | X | | X |
| 24. LCS compounds within control limits. | X | | X | X | | X |
| 25. MS/MSD, RPD's are within control limits | X | | X | X | | X |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

Fe rerun Sample 11 only.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | X | | |
| 2. Matrix / units correct | X | | |
| 3. Does batch meet QC requirements? | X | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | X | | |
| 5. Is first level review correct and complete? | X | | |

1st Level Reviewer CEI Date: 4/10/2019

2nd Level Reviewer 4/10/2019 Date: _____

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA 6010B
**TEST NAME:** Heavy Metals by ICP
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N034688-007B** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.02523 * 1 *(25/25) * 1000

Iron , ug/L = 25.23

Reporting results in two significant figures,

**Iron , ug/L = 25**

NS 4/10/2019

# % RSD SUMMARY

**RSD SUMMARY: 190328D**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Fe | 0 | 134.51 | 15 | <PQL |
| Standard1 | ICAL | 1 | Fe | 0.02 | 14.88 | 15 | PASS |
| Standard2 | ICAL | 1 | Fe | 0.05 | 1.2 | 15 | PASS |
| Standard3 | ICAL | 1 | Fe | 2 | 0.27 | 15 | PASS |
| Standard4 | ICAL | 1 | Fe | 5 | 0.09 | 15 | PASS |
| Standard5 | ICAL | 1 | Fe | 7.5 | 0.32 | 15 | PASS |
| Standard6 | ICAL | 1 | Fe | 10 | 0.17 | 15 | PASS |
| Standard7 | ICAL | 1 | Fe | 20 | 0.27 | 15 | PASS |
| ICV | ICV | 1 | Fe | 10.22 | 0.25 | 15 | PASS |
| ICB | ICB | 1 | Fe | -0.0042 | 38.79 | 15 | <PQL |
| LLICV1 | CCV1 | 1 | Fe | 0.016 | 7.91 | 20 | PASS |
| ICSA1 | ICSA | 1 | Fe | 182.34 | 0.16 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Fe | 176.88 | 0.092 | 15 | PASS |
| MB-73016 | MBLK | 1 | Fe | 0.00006 | 1666.87 | 15 | <PQL |
| LCS-73016 | LCS | 1 | Fe | 0.1 | 2.14 | 15 | PASS |
| N034688-001B | SAMP | 1 | Fe | 0.017 | 6.13 | 15 | PASS |
| N034688-001B | SAMP | 5 | Fe | -0.0034 | 47.44 | 15 | <PQL |
| N034688-001B-PS | PS | 1 | Fe | 0.1 | 0.7 | 15 | PASS |
| N034688-001B-MS | MS | 1 | Fe | 0.13 | 0.18 | 15 | PASS |
| N034688-001B-MSD | MSD | 1 | Fe | 0.13 | 0.67 | 15 | PASS |
| N034688-002B | SAMP | 1 | Fe | 0.022 | 2.36 | 15 | PASS |
| N034688-003B | SAMP | 1 | Fe | 0.0099 | 9.39 | 15 | PASS |
| N034688-004B | SAMP | 1 | Fe | -0.00027 | 161.88 | 15 | <PQL |
| CCV1 | CCV | 1 | Fe | 10.22 | 0.32 | 15 | PASS |
| CCB1 | CCB | 1 | Fe | -0.0064 | 23.2 | 15 | <PQL |
| N034688-005B | SAMP | 1 | Fe | 0.0084 | 8.58 | 15 | PASS |
| N034688-006B | SAMP | 1 | Fe | 0.0094 | 1.78 | 15 | PASS |
| N034688-007B | SAMP | 1 | Fe | 0.025 | 2.3 | 15 | PASS |
| N034688-008B | SAMP | 1 | Fe | -0.00053 | 173.11 | 15 | <PQL |
| N034688-009B | SAMP | 1 | Fe | -0.0035 | 39.3 | 15 | <PQL |
| N034688-010B | SAMP | 1 | Fe | 0.004 | 7.61 | 15 | PASS |
| N034688-011B | SAMP | 1 | Fe | 0.022 | 7.86 | 15 | PASS |
| N034688-012B | SAMP | 1 | Fe | 0.0012 | 89.86 | 15 | <PQL |
| N034688-013B | SAMP | 1 | Fe | -0.0017 | 31.097 | 15 | <PQL |
| CCV2 | CCV | 1 | Fe | 10.21 | 0.4 | 15 | PASS |
| CCB2 | CCB | 1 | Fe | -0.0041 | 27.65 | 15 | <PQL |
| CCV3 | CCV | 1 | Fe | 10.22 | 0.33 | 15 | PASS |
| CCB3 | CCB | 1 | Fe | -0.0034 | 42.68 | 15 | <PQL |
| CCV4 | CCV | 1 | Fe | 10.25 | 0.42 | 15 | PASS |
| CCB4 | CCB | 1 | Fe | -0.0019 | 21.32 | 15 | <PQL |
| ICSA2 | ICSA | 1 | Fe | 182.14 | 0.033 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Fe | 177.69 | 0.098 | 15 | PASS |

**RSD SUMMARY: 190328D**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CCV5 | CCV | 1 | Fe | 10.23 | 0.34 | 15 | PASS |
| CCB5 | CCB | 1 | Fe | -0.0022 | 83.34 | 15 | <PQL |
| CCV6 | CCV | 1 | Fe | 10.21 | 0.42 | 15 | PASS |
| CCB6 | CCB | 1 | Fe | -0.0043 | 21.58 | 15 | <PQL |
| CCV7 | CCV | 1 | Fe | 10.19 | 0.31 | 15 | PASS |
| CCB7 | CCB | 1 | Fe | -0.0037 | 22.058 | 15 | <PQL |
| CCV8 | CCV | 1 | Fe | 10.22 | 0.47 | 15 | PASS |
| CCB8 | CCB | 1 | Fe | -0.0045 | 9.06 | 15 | PASS |
| ICSA3 | ICSA | 1 | Fe | 182.29 | 0.13 | 15 | PASS |
| ICSAB3 | ICSAB | 1 | Fe | 177.81 | 0.12 | 15 | PASS |

**RSD SUMMARY: 190408A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Fe | 0 | 45.31 | 15 | <PQL |
| Standard1 | ICAL | 1 | Fe | 0.02 | 10.39 | 15 | PASS |
| Standard2 | ICAL | 1 | Fe | 0.05 | 6.69 | 15 | PASS |
| Standard3 | ICAL | 1 | Fe | 2 | 0.5 | 15 | PASS |
| Standard4 | ICAL | 1 | Fe | 5 | 0.2 | 15 | PASS |
| Standard5 | ICAL | 1 | Fe | 7.5 | 0.15 | 15 | PASS |
| Standard6 | ICAL | 1 | Fe | 10 | 0.17 | 15 | PASS |
| Standard7 | ICAL | 1 | Fe | 20 | 0.13 | 15 | PASS |
| ICV | ICV | 1 | Fe | 10.055 | 0.1 | 15 | PASS |
| ICB | ICB | 1 | Fe | -0.0038 | 22.16 | 15 | <PQL |
| LLICV1 | CCV1 | 1 | Fe | 0.019 | 5.063 | 20 | PASS |
| ICSA1 | ICSA | 1 | Fe | 175.96 | 0.29 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Fe | 172.56 | 0.29 | 15 | PASS |
| N034688-011B | SAMP | 1 | Fe | 0.044 | 16.49 | 15 | NR! |
| N034688-011B | SAMP | 1 | Fe | 0.021 | 19.26 | 15 | NR! |
| N034688-011C | SAMP | 1 | Fe | 0.0059 | 7.26 | 15 | PASS |
| N034688-011B | SAMP | 1 | Fe | -0.0029 | 10.12 | 15 | PASS |
| CCV1 | CCV | 1 | Fe | 10.18 | 0.072 | 15 | PASS |
| CCB1 | CCB | 1 | Fe | -0.0037 | 19.16 | 15 | <PQL |
| CCV2 | CCV | 1 | Fe | 10.1 | 0.097 | 15 | PASS |
| CCB2 | CCB | 1 | Fe | -0.0043 | 18.54 | 15 | <PQL |
| CCV3 | CCV | 1 | Fe | 10.096 | 0.14 | 15 | PASS |
| CCB3 | CCB | 1 | Fe | -0.0045 | 7.16 | 15 | PASS |
| ICSA2 | ICSA | 1 | Fe | 173.39 | 0.051 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Fe | 169.9 | 0.12 | 15 | PASS |

NR

# ANALYSIS RUN LOG

**INJECTION LOG: 190328D**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-181001A,0.5<50mL |
| Standard2 | MWST-181001E |
| Standard3 | MWST-181001J,5<50mL |
| Standard4 | MWST-181001J,12.5<50mL |
| Standard5 | MWST-181001J,15<40mL |
| Standard6 | MWST-181001J,25<50mL |
| Standard7 | MWST-181001J |
| ICV | MWST-181001O |
| CCV | MWST-181001J,25<50mL |
| ICSA/ICSAB | MWST-181001R/MWST-180730A |
| Int. Std. (Y) | MSST-180926A/B |
| PS Spike | MWST-180930D/E/F |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CalBlk | IBLK | 1 | 03/28/2019 | 04:48:43 PM |
| 2 | Standard1 | ICAL | 1 | 03/28/2019 | 04:52:32 PM |
| 3 | Standard2 | ICAL | 1 | 03/28/2019 | 04:56:17 PM |
| 4 | Standard3 | ICAL | 1 | 03/28/2019 | 05:00:34 PM |
| 5 | Standard4 | ICAL | 1 | 03/28/2019 | 05:04:52 PM |
| 6 | Standard5 | ICAL | 1 | 03/28/2019 | 05:09:10 PM |
| 7 | Standard6 | ICAL | 1 | 03/28/2019 | 05:13:30 PM |
| 8 | Standard7 | ICAL | 1 | 03/28/2019 | 05:17:49 PM |
| 250 | ICV | ICV | 1 | 03/28/2019 | 05:23:12 PM |
| 1 | ICB | ICB | 1 | 03/28/2019 | 05:28:33 PM |
| 2 | LLICV1 | CCV1 | 1 | 03/28/2019 | 05:32:18 PM |
| 9 | ICSA1 | ICSA | 1 | 03/28/2019 | 05:36:04 PM |
| 10 | ICSAB1 | ICSAB | 1 | 03/28/2019 | 05:41:29 PM |
| 71 | MB-73016 | MBLK | 1 | 03/28/2019 | 05:46:54 PM |
| 72 | LCS-73016 | LCS | 1 | 03/28/2019 | 05:50:40 PM |
| 73 | N034688-001B | SAMP | 1 | 03/28/2019 | 05:54:56 PM |
| 74 | N034688-001B | SAMP | 5 | 03/28/2019 | 05:58:42 PM |
| 75 | N034688-001B-PS | PS | 1 | 03/28/2019 | 06:02:58 PM |
| 76 | N034688-001B-MS | MS | 1 | 03/28/2019 | 06:07:14 PM |
| 77 | N034688-001B-MSD | MSD | 1 | 03/28/2019 | 06:11:31 PM |
| 78 | N034688-002B | SAMP | 1 | 03/28/2019 | 06:15:48 PM |
| 79 | N034688-003B | SAMP | 1 | 03/28/2019 | 06:19:37 PM |
| 80 | N034688-004B | SAMP | 1 | 03/28/2019 | 06:23:25 PM |
| 7 | CCV1 | CCV | 1 | 03/28/2019 | 06:27:12 PM |
| 1 | CCB1 | CCB | 1 | 03/28/2019 | 06:32:32 PM |
| 81 | N034688-005B | SAMP | 1 | 03/28/2019 | 06:36:18 PM |
| 82 | N034688-006B | SAMP | 1 | 03/28/2019 | 06:40:06 PM |
| 83 | N034688-007B | SAMP | 1 | 03/28/2019 | 06:43:54 PM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 84 | N034688-008B | SAMP | 1 | 03/28/2019 | 06:47:41 PM |
| 85 | N034688-009B | SAMP | 1 | 03/28/2019 | 06:51:28 PM |
| 86 | N034688-010B | SAMP | 1 | 03/28/2019 | 06:55:15 PM |
| 87 | N034688-011B | SAMP | 1 | 03/28/2019 | 06:59:03 PM |
| 88 | N034688-012B | SAMP | 1 | 03/28/2019 | 07:02:50 PM |
| 89 | N034688-013B | SAMP | 1 | 03/28/2019 | 07:06:37 PM |
| 90 | MB-73018 | MBLK | 1 | 03/28/2019 | 07:10:24 PM |
| 7 | CCV2 | CCV | 1 | 03/28/2019 | 07:14:12 PM |
| 1 | CCB2 | CCB | 1 | 03/28/2019 | 07:19:33 PM |
| 91 | LCS-73018 | LCS | 1 | 03/28/2019 | 07:23:17 PM |
| 92 | N034708-001B | SAMP | 1 | 03/28/2019 | 07:27:35 PM |
| 93 | N034708-001B | SAMP | 5 | 03/28/2019 | 07:31:51 PM |
| 94 | N034708-001B-PS | PS | 1 | 03/28/2019 | 07:36:10 PM |
| 95 | N034708-001B-MS | MS | 1 | 03/28/2019 | 07:40:29 PM |
| 96 | N034708-001B-MSD | MSD | 1 | 03/28/2019 | 07:44:46 PM |
| 97 | N034708-002B | SAMP | 1 | 03/28/2019 | 07:49:04 PM |
| 98 | N034708-003B | SAMP | 1 | 03/28/2019 | 07:52:51 PM |
| 99 | N034708-004B | SAMP | 1 | 03/28/2019 | 07:56:38 PM |
| 100 | N034708-005B | SAMP | 1 | 03/28/2019 | 08:00:25 PM |
| 7 | CCV3 | CCV | 1 | 03/28/2019 | 08:04:41 PM |
| 1 | CCB3 | CCB | 1 | 03/28/2019 | 08:10:02 PM |
| 101 | N034708-006B | SAMP | 1 | 03/28/2019 | 08:13:46 PM |
| 102 | N034708-007B | SAMP | 1 | 03/28/2019 | 08:17:32 PM |
| 103 | N034708-008B | SAMP | 1 | 03/28/2019 | 08:21:19 PM |
| 104 | N034708-009B | SAMP | 1 | 03/28/2019 | 08:25:06 PM |
| 105 | N034708-010B | SAMP | 1 | 03/28/2019 | 08:28:54 PM |
| 106 | N034708-011B | SAMP | 1 | 03/28/2019 | 08:32:42 PM |
| 107 | N034708-012B | SAMP | 1 | 03/28/2019 | 08:36:31 PM |
| 108 | N034708-013B | SAMP | 1 | 03/28/2019 | 08:40:18 PM |
| 109 | MB-73002 | MBLK | 1 | 03/28/2019 | 08:44:05 PM |
| 110 | LCS-73002 | LCS | 1 | 03/28/2019 | 08:47:51 PM |
| 7 | CCV4 | CCV | 1 | 03/28/2019 | 08:52:09 PM |
| 1 | CCB4 | CCB | 1 | 03/28/2019 | 08:57:29 PM |
| 9 | ICSA2 | ICSA | 1 | 03/28/2019 | 09:01:16 PM |
| 10 | ICSAB2 | ICSAB | 1 | 03/28/2019 | 09:06:41 PM |
| 111 | N034688-001C | SAMP | 1 | 03/28/2019 | 09:12:06 PM |
| 112 | N034688-001C | SAMP | 5 | 03/28/2019 | 09:15:53 PM |
| 113 | N034688-001C-PS | PS | 1 | 03/28/2019 | 09:20:10 PM |
| 114 | N034688-001C-MS | MS | 1 | 03/28/2019 | 09:24:28 PM |
| 115 | N034688-001C-MSD | MSD | 1 | 03/28/2019 | 09:28:45 PM |
| 116 | N034688-002C | SAMP | 1 | 03/28/2019 | 09:33:03 PM |
| 117 | N034688-003C | SAMP | 1 | 03/28/2019 | 09:36:51 PM |
| 118 | N034688-004C | SAMP | 1 | 03/28/2019 | 09:40:39 PM |
| 119 | N034688-005C | SAMP | 1 | 03/28/2019 | 09:44:27 PM |
| 120 | N034688-006C | SAMP | 1 | 03/28/2019 | 09:48:15 PM |
| 7 | CCV5 | CCV | 1 | 03/28/2019 | 09:52:31 PM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CCB5 | CCB | 1 | 03/28/2019 | 09:57:52 PM |
| 121 | N034688-007C | SAMP | 1 | 03/28/2019 | 10:01:37 PM |
| 122 | N034688-008C | SAMP | 1 | 03/28/2019 | 10:05:24 PM |
| 123 | N034688-009C | SAMP | 1 | 03/28/2019 | 10:09:11 PM |
| 124 | N034688-010C | SAMP | 1 | 03/28/2019 | 10:12:58 PM |
| 125 | N034688-011C | SAMP | 1 | 03/28/2019 | 10:16:46 PM |
| 126 | N034688-012C | SAMP | 1 | 03/28/2019 | 10:20:33 PM |
| 127 | N034688-013C | SAMP | 1 | 03/28/2019 | 10:24:21 PM |
| 128 | MB-73024 | MBLK | 1 | 03/28/2019 | 10:28:08 PM |
| 129 | LCS1-73024 | LCS | 1 | 03/28/2019 | 10:31:55 PM |
| 130 | N034708-001C | SAMP | 1 | 03/28/2019 | 10:36:13 PM |
| 7 | CCV6 | CCV | 1 | 03/28/2019 | 10:40:01 PM |
| 1 | CCB6 | CCB | 1 | 03/28/2019 | 10:45:22 PM |
| 131 | N034708-001C | SAMP | 5 | 03/28/2019 | 10:49:08 PM |
| 132 | N034708-001C-PS | PS | 1 | 03/28/2019 | 10:53:25 PM |
| 133 | N034708-001C-MS1 | MS | 1 | 03/28/2019 | 10:57:43 PM |
| 134 | N034708-001C-MSD1 | MSD | 1 | 03/28/2019 | 11:02:01 PM |
| 135 | N034708-002C | SAMP | 1 | 03/28/2019 | 11:06:19 PM |
| 136 | N034708-003C | SAMP | 1 | 03/28/2019 | 11:10:07 PM |
| 137 | N034708-004C | SAMP | 1 | 03/28/2019 | 11:13:55 PM |
| 138 | N034708-005C | SAMP | 1 | 03/28/2019 | 11:17:43 PM |
| 139 | N034708-006C | SAMP | 1 | 03/28/2019 | 11:21:30 PM |
| 140 | N034708-007C | SAMP | 1 | 03/28/2019 | 11:25:17 PM |
| 7 | CCV7 | CCV | 1 | 03/28/2019 | 11:29:05 PM |
| 1 | CCB7 | CCB | 1 | 03/28/2019 | 11:34:24 PM |
| 141 | N034708-008C | SAMP | 1 | 03/28/2019 | 11:38:10 PM |
| 142 | N034708-009C | SAMP | 1 | 03/28/2019 | 11:41:58 PM |
| 143 | N034708-010C | SAMP | 1 | 03/28/2019 | 11:45:46 PM |
| 144 | N034708-011C | SAMP | 1 | 03/28/2019 | 11:49:35 PM |
| 145 | N034708-012C | SAMP | 1 | 03/28/2019 | 11:53:23 PM |
| 146 | N034708-013C | SAMP | 1 | 03/28/2019 | 11:57:12 PM |
| 7 | CCV8 | CCV | 1 | 03/29/2019 | 12:01:01 AM |
| 1 | CCB8 | CCB | 1 | 03/29/2019 | 12:06:21 AM |
| 9 | ICSA3 | ICSA | 1 | 03/29/2019 | 12:10:06 AM |
| 10 | ICSAB3 | ICSAB | 1 | 03/29/2019 | 12:15:32 AM |
| 111 | N034688-001C | SAMP | 1 | 03/29/2019 | 07:51:10 AM |
| 111 | N034688-001C | SAMP | 1 | 03/29/2019 | 08:00:21 AM |
| 7 | CCV9 | CCV | 1 | 03/29/2019 | 08:04:37 AM |
| 1 | CCB9 | CCB | 1 | 03/29/2019 | 08:08:55 AM |
| 9 | ICSA4 | ICSA | 1 | 03/29/2019 | 08:12:41 AM |
| 10 | ICSAB4 | ICSAB | 1 | 03/29/2019 | 08:18:06 AM |

**INJECTION LOG: 190408A**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-181001A,0.5<50mL |
| Standard2 | MWST-181001E |
| Standard3 | MWST-181001J,5<50mL |
| Standard4 | MWST-181001J,12.5<50mL |
| Standard5 | MWST-181001J,15<40mL |
| Standard6 | MWST-181001J,25<50mL |
| Standard7 | MWST-181001J |
| ICV | MWST-181001O |
| CCV | MWST-181001J,25<50mL |
| ICSA/ICSAB | MWST-181001R/MWST-180730A |
| Int. Std. (Y) | MSST-180926A/B |
| PS Spike | MWST-180930D/E/F |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CalBlk | IBLK | 1 | 04/08/2019 | 08:49:33 AM |
| 2 | Standard1 | ICAL | 1 | 04/08/2019 | 08:53:21 AM |
| 3 | Standard2 | ICAL | 1 | 04/08/2019 | 08:57:36 AM |
| 4 | Standard3 | ICAL | 1 | 04/08/2019 | 09:01:53 AM |
| 5 | Standard4 | ICAL | 1 | 04/08/2019 | 09:06:09 AM |
| 6 | Standard5 | ICAL | 1 | 04/08/2019 | 09:10:28 AM |
| 7 | Standard6 | ICAL | 1 | 04/08/2019 | 09:14:20 AM |
| 8 | Standard7 | ICAL | 1 | 04/08/2019 | 09:18:14 AM |
| 250 | ICV | ICV | 1 | 04/08/2019 | 09:21:58 AM |
| 1 | ICB | ICB | 1 | 04/08/2019 | 09:26:52 AM |
| 2 | LLICV1 | CCV1 | 1 | 04/08/2019 | 09:34:11 AM |
| 9 | ICSA1 | ICSA | 1 | 04/08/2019 | 09:38:28 AM |
| 10 | ICSAB1 | ICSAB | 1 | 04/08/2019 | 09:43:59 AM |
| 129 | N034688-011B | SAMP | 1 | 04/08/2019 | 09:49:02 AM |
| 129 | N034688-011B | SAMP | 1 | 04/08/2019 | 09:53:21 AM |
| 130 | N034688-011C | SAMP | 1 | 04/08/2019 | 09:58:00 AM |
| 129 | N034688-011B | SAMP | 1 | 04/08/2019 | 10:11:01 AM |
| 191 | MB-73255 | MBLK | 1 | 04/08/2019 | 10:17:14 AM |
| 192 | LCS-73255 | LCS | 1 | 04/08/2019 | 10:21:04 AM |
| 193 | N034894-001B | SAMP | 1 | 04/08/2019 | 10:25:24 AM |
| 194 | N034894-001B | SAMP | 5 | 04/08/2019 | 10:29:44 AM |
| 195 | N034894-001B-PS | PS | 1 | 04/08/2019 | 10:34:03 AM |
| 196 | N034894-001B-MS | MS | 1 | 04/08/2019 | 10:38:23 AM |
| 7 | CCV1 | CCV | 1 | 04/08/2019 | 10:42:42 AM |
| 1 | CCB1 | CCB | 1 | 04/08/2019 | 10:47:34 AM |
| 197 | N034894-001B-MSD | MSD | 1 | 04/08/2019 | 10:51:18 AM |
| 198 | N034923-001B | SAMP | 1 | 04/08/2019 | 10:55:39 AM |
| 199 | N034923-002B | SAMP | 1 | 04/08/2019 | 11:01:00 AM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 200 | N034923-003B | SAMP | 1 | 04/08/2019 | 11:05:20 AM |
| 201 | N034924-001B | SAMP | 1 | 04/08/2019 | 11:09:40 AM |
| 202 | N034924-002B | SAMP | 1 | 04/08/2019 | 11:15:00 AM |
| 203 | N034924-003B | SAMP | 1 | 04/08/2019 | 11:20:19 AM |
| 204 | N034924-004B | SAMP | 1 | 04/08/2019 | 11:25:41 AM |
| 205 | N034924-005B | SAMP | 1 | 04/08/2019 | 11:31:02 AM |
| 206 | N034924-006B | SAMP | 1 | 04/08/2019 | 11:35:22 AM |
| 7 | CCV2 | CCV | 1 | 04/08/2019 | 11:39:41 AM |
| 1 | CCB2 | CCB | 1 | 04/08/2019 | 11:44:34 AM |
| 207 | N034924-007B | SAMP | 1 | 04/08/2019 | 11:48:19 AM |
| 208 | N034963-003B | SAMP | 1 | 04/08/2019 | 11:52:37 AM |
| 209 | N034963-004B | SAMP | 1 | 04/08/2019 | 11:57:58 AM |
| 210 | N034963-005B | SAMP | 1 | 04/08/2019 | 12:03:18 PM |
| 7 | CCV3 | CCV | 1 | 04/08/2019 | 12:08:39 PM |
| 1 | CCB3 | CCB | 1 | 04/08/2019 | 12:13:33 PM |
| 9 | ICSA2 | ICSA | 1 | 04/08/2019 | 12:17:17 PM |
| 10 | ICSAB2 | ICSAB | 1 | 04/08/2019 | 12:22:50 PM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/21/2019 7:59:36**
Prep End Date: **3/21/2019 2:00:00**
Prep Batch **73016** Prep Code: **3010_W_DISS**

Reviewed/ Date: NS 4/10/2019
Initials/ Date: for
Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **Db-2-2** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-73016 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-73016 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-001B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-001B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-003B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-004B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-005B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-006B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-007B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-008B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-009B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-010B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10760 | HYDROCHLORIC ACID |
| 10767 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/21/2019 7:59:36**
Prep End Date: **3/21/2019 2:00:00**
Prep Batch **73016** Prep Code: **3010_W_DISS**

Reviewed/ Date: NS 4/10/2019
Initials/ Date: for
Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **Db-2-2** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-011B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-012B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-013B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10760 | HYDROCHLORIC ACID |
| 10767 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190328D**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Iron** | | | | | | | | |
| CalBlk | 03/28/2019 | 04:48:43 PM | Fe | 273.953 | 67 | 0.00 | mg/L | |
| Standard1 | 03/28/2019 | 04:52:32 PM | Fe | 273.953 | 178 | 0.0200 | mg/L | |
| Standard2 | 03/28/2019 | 04:56:17 PM | Fe | 273.953 | 748 | 0.050 | mg/L | |
| Standard3 | 03/28/2019 | 05:00:34 PM | Fe | 273.953 | 23999 | 2.000 | mg/L | |
| Standard4 | 03/28/2019 | 05:04:52 PM | Fe | 273.953 | 60687 | 5.000 | mg/L | |
| Standard5 | 03/28/2019 | 05:09:10 PM | Fe | 273.953 | 91560 | 7.500 | mg/L | |
| Standard6 | 03/28/2019 | 05:13:30 PM | Fe | 273.953 | 122457 | 10.000 | mg/L | |
| Standard7 | 03/28/2019 | 05:17:49 PM | Fe | 273.953 | 239398 | 20.000 | mg/L | 1.0000 |

Calibration Acceptance Criteria: > 0.995 Correlation

**INITIAL CALIBRATION SUMMARY: 190408A**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Iron** | | | | | | | | |
| CalBlk | 04/08/2019 | 08:49:33 AM | Fe | 273.953 | 134 | 0.00 | mg/L | |
| Standard1 | 04/08/2019 | 08:53:21 AM | Fe | 273.953 | 347 | 0.0200 | mg/L | |
| Standard2 | 04/08/2019 | 08:57:36 AM | Fe | 273.953 | 1661 | 0.050 | mg/L | |
| Standard3 | 04/08/2019 | 09:01:53 AM | Fe | 273.953 | 51906 | 2.000 | mg/L | |
| Standard4 | 04/08/2019 | 09:06:09 AM | Fe | 273.953 | 130972 | 5.000 | mg/L | |
| Standard5 | 04/08/2019 | 09:10:28 AM | Fe | 273.953 | 191939 | 7.500 | mg/L | |
| Standard6 | 04/08/2019 | 09:14:20 AM | Fe | 273.953 | 256791 | 10.000 | mg/L | |
| Standard7 | 04/08/2019 | 09:18:14 AM | Fe | 273.953 | 504256 | 20.000 | mg/L | 0.9999 |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3332982** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10218.118 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **LLICV1** | SampType: **CCV1** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3332984** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 16.058 | 20 | 20.00 | 0 | 80.3 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3332997** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10218.485 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333009** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10214.077 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333021** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10218.513 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333033** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10253.845 | 20 | 10000 | 0 | 103 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133043** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R133043** | TestNo: **EPA 6010B** | | Analysis Date: **4/8/2019** | SeqNo: **3343673** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10054.600 | 20 | 10000 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **LLICV1** | SampType: **CCV1** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133043** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R133043** | TestNo: **EPA 6010B** | | Analysis Date: **4/8/2019** | SeqNo: **3343675** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 19.162 | 20 | 20.00 | 0 | 95.8 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133043** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133043** | TestNo: **EPA 6010B** | | Analysis Date: **4/8/2019** | SeqNo: **3343688** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10183.693 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133043** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133043** | TestNo: **EPA 6010B** | | Analysis Date: **4/8/2019** | SeqNo: **3343700** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10101.019 | 20 | 10000 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133043** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133043** | TestNo: **EPA 6010B** | | Analysis Date: **4/8/2019** | SeqNo: **3343706** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10096.296 | 20 | 10000 | 0 | 101 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3332983** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -4.241535 | 20 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3332998** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -6.431062 | 20 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333010** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -4.113192 | 20 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333022** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -3.355278 | 20 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333034** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -1.866957 | 20 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133043** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R133043** | TestNo: **EPA 6010B** | | Analysis Date: **4/8/2019** | SeqNo: **3343674** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -3.772159 | 20 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133043** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133043** | TestNo: **EPA 6010B** | | Analysis Date: **4/8/2019** | SeqNo: **3343689** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -3.720582 | 20 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133043** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133043** | TestNo: **EPA 6010B** | | Analysis Date: **4/8/2019** | SeqNo: **3343701** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -4.317903 | 20 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133043** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133043** | TestNo: **EPA 6010B** | | Analysis Date: **4/8/2019** | SeqNo: **3343707** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -4.483172 | 20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **132850**
Client ID: **ICSA** Batch ID: **R132850** TestNo: **EPA 6010B** Analysis Date: **3/28/2019** SeqNo: **3332985**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 499861.155 | 50 | 500000 | 0 | 100 | 80 | 120 | | | | |
| Calcium | 537314.796 | 500 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Iron | 182336.330 | 20 | 200000 | 0 | 91.2 | 80 | 120 | | | | |
| Magnesium | 477379.536 | 100 | 500000 | 0 | 95.5 | 80 | 120 | | | | |

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **132850**
Client ID: **ICSAB** Batch ID: **R132850** TestNo: **EPA 6010B** Analysis Date: **3/28/2019** SeqNo: **3332986**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 524340.042 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |
| Calcium | 557363.709 | 500 | 500000 | 0 | 111 | 80 | 120 | | | | |
| Iron | 176883.529 | 20 | 200000 | 0 | 88.4 | 80 | 120 | | | | |
| Magnesium | 501186.003 | 100 | 500000 | 0 | 100 | 80 | 120 | | | | |

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **132850**
Client ID: **ICSA** Batch ID: **R132850** TestNo: **EPA 6010B** Analysis Date: **3/28/2019** SeqNo: **3333035**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 502294.210 | 50 | 500000 | 0 | 100 | 80 | 120 | | | | |
| Calcium | 534739.635 | 500 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Iron | 182142.031 | 20 | 200000 | 0 | 91.1 | 80 | 120 | | | | |
| Magnesium | 481034.499 | 100 | 500000 | 0 | 96.2 | 80 | 120 | | | | |

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **132850**
Client ID: **ICSAB** Batch ID: **R132850** TestNo: **EPA 6010B** Analysis Date: **3/28/2019** SeqNo: **3333036**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 522600.266 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333036** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 556134.625 | 500 | 500000 | 0 | 111 | 80 | 120 | | | | |
| Iron | 177690.961 | 20 | 200000 | 0 | 88.8 | 80 | 120 | | | | |
| Magnesium | 502305.372 | 100 | 500000 | 0 | 100 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133043** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R133043** | TestNo: **EPA 6010B** | | Analysis Date: **4/8/2019** | SeqNo: **3343676** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 513556.947 | 50 | 500000 | 0 | 103 | 80 | 120 | | | | |
| Calcium | 506607.857 | 500 | 500000 | 0 | 101 | 80 | 120 | | | | |
| Iron | 175955.605 | 20 | 200000 | 0 | 88.0 | 80 | 120 | | | | |
| Magnesium | 474181.466 | 100 | 500000 | 0 | 94.8 | 80 | 120 | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133043** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R133043** | TestNo: **EPA 6010B** | | Analysis Date: **4/8/2019** | SeqNo: **3343677** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 533452.916 | 50 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Calcium | 525697.066 | 500 | 500000 | 0 | 105 | 80 | 120 | | | | |
| Iron | 172560.635 | 20 | 200000 | 0 | 86.3 | 80 | 120 | | | | |
| Magnesium | 487453.471 | 100 | 500000 | 0 | 97.5 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133043** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R133043** | TestNo: **EPA 6010B** | | Analysis Date: **4/8/2019** | SeqNo: **3343708** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 502866.037 | 50 | 500000 | 0 | 101 | 80 | 120 | | | | |
| Calcium | 505994.000 | 500 | 500000 | 0 | 101 | 80 | 120 | | | | |
| Iron | 173386.721 | 20 | 200000 | 0 | 86.7 | 80 | 120 | | | | |
| Magnesium | 431565.288 | 100 | 500000 | 0 | 86.3 | 80 | 120 | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133043** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R133043** | TestNo: **EPA 6010B** | | Analysis Date: **4/8/2019** | SeqNo: **3343709** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 538026.204 | 50 | 500000 | 0 | 108 | 80 | 120 | | | | |
| Calcium | 521829.048 | 500 | 500000 | 0 | 104 | 80 | 120 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133043** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R133043** | TestNo: **EPA 6010B** | | Analysis Date: **4/8/2019** | SeqNo: **3343709** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 169901.408 | 20 | 200000 | 0 | 85.0 | 80 | 120 | | | | |
| Magnesium | 441733.405 | 100 | 500000 | 0 | 88.3 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190328D**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 1.0018 | 100.18 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1 | 99.9 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 1.05 | 105 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 1.039 | 103.93 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 1.03 | 103 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 1 | 99.69 | 65-125 | PASS |
| Standard7 | ICAL | 1 | 0.97 | 97.48 | 65-125 | PASS |
| ICV | ICV | 1 | 0.99 | 99.33 | 65-125 | PASS |
| ICB | ICB | 1 | 1 | 99.92 | 65-125 | PASS |
| LLICV1 | CCV1 | 1 | 1 | 99.98 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 0.96 | 96.32 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 0.91 | 90.86 | 65-125 | PASS |
| MB-73016 | MBLK | 1 | 1 | 99.83 | 65-125 | PASS |
| LCS-73016 | LCS | 1 | 0.93 | 93.17 | 65-125 | PASS |
| N034688-001B | SAMP | 1 | 1.019 | 101.94 | 65-125 | PASS |
| N034688-001B | SAMP | 5 | 1.0017 | 100.17 | 65-125 | PASS |
| N034688-001B-PS | PS | 1 | 1.018 | 101.75 | 65-125 | PASS |
| N034688-001B-MS | MS | 1 | 1.0097 | 100.97 | 65-125 | PASS |
| N034688-001B-MSD | MSD | 1 | 1.011 | 101.08 | 65-125 | PASS |
| N034688-002B | SAMP | 1 | 1.033 | 103.31 | 65-125 | PASS |
| N034688-003B | SAMP | 1 | 1.011 | 101.11 | 65-125 | PASS |
| N034688-004B | SAMP | 1 | 1.032 | 103.16 | 65-125 | PASS |
| CCV1 | CCV | 1 | 1 | 99.93 | 65-125 | PASS |
| CCB1 | CCB | 1 | 1.0042 | 100.42 | 65-125 | PASS |
| N034688-005B | SAMP | 1 | 1.024 | 102.41 | 65-125 | PASS |
| N034688-006B | SAMP | 1 | 1.03 | 102.99 | 65-125 | PASS |
| N034688-007B | SAMP | 1 | 1.023 | 102.33 | 65-125 | PASS |
| N034688-008B | SAMP | 1 | 1.0089 | 100.89 | 65-125 | PASS |
| N034688-009B | SAMP | 1 | 1.014 | 101.37 | 65-125 | PASS |
| N034688-010B | SAMP | 1 | 1.0062 | 100.62 | 65-125 | PASS |
| N034688-011B | SAMP | 1 | 1.039 | 103.89 | 65-125 | PASS |
| N034688-012B | SAMP | 1 | 1.019 | 101.93 | 65-125 | PASS |
| N034688-013B | SAMP | 1 | 1.026 | 102.64 | 65-125 | PASS |
| CCV2 | CCV | 1 | 1 | 99.62 | 65-125 | PASS |
| CCB2 | CCB | 1 | 1.0006 | 100.06 | 65-125 | PASS |
| CCV3 | CCV | 1 | 1 | 99.99 | 65-125 | PASS |
| CCB3 | CCB | 1 | 1.006 | 100.6 | 65-125 | PASS |
| CCV4 | CCV | 1 | 0.99 | 99.39 | 65-125 | PASS |
| CCB4 | CCB | 1 | 1.0018 | 100.18 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 0.94 | 93.57 | 65-125 | PASS |

**INTERNAL STANDARD: 190328D**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| ICSAB2 | ICSAB | 1 | 0.89 | 89 | 65-125 | PASS |
| CCV5 | CCV | 1 | 1 | 99.87 | 65-125 | PASS |
| CCB5 | CCB | 1 | 1.0051 | 100.51 | 65-125 | PASS |
| CCV6 | CCV | 1 | 0.99 | 99.44 | 65-125 | PASS |
| CCB6 | CCB | 1 | 1.003 | 100.3 | 65-125 | PASS |
| CCV7 | CCV | 1 | 1.0002 | 100.02 | 65-125 | PASS |
| CCB7 | CCB | 1 | 1.0065 | 100.65 | 65-125 | PASS |
| CCV8 | CCV | 1 | 1 | 99.55 | 65-125 | PASS |
| CCB8 | CCB | 1 | 1.004 | 100.4 | 65-125 | PASS |
| ICSA3 | ICSA | 1 | 0.94 | 93.53 | 65-125 | PASS |
| ICSAB3 | ICSAB | 1 | 0.89 | 89.11 | 65-125 | PASS |

**INTERNAL STANDARD: 190408A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 0.99 | 99.48 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1.0002 | 100.02 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 1.059 | 105.88 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 1.044 | 104.44 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 1.04 | 104.04 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 1.03 | 103.03 | 65-125 | PASS |
| Standard7 | ICAL | 1 | 1.016 | 101.63 | 65-125 | PASS |
| ICV | ICV | 1 | 1.02 | 102.01 | 65-125 | PASS |
| ICB | ICB | 1 | 1.0001 | 100.01 | 65-125 | PASS |
| LLICV1 | CCV1 | 1 | 1 | 99.55 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 0.99 | 98.8 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 1.0018 | 100.18 | 65-125 | PASS |
| N034688-011B | SAMP | 1 | 0.99 | 99.13 | 65-125 | PASS |
| N034688-011B | SAMP | 1 | 0.99 | 98.9 | 65-125 | PASS |
| N034688-011C | SAMP | 1 | 1.023 | 102.29 | 65-125 | PASS |
| N034688-011B | SAMP | 1 | 0.99 | 99.49 | 65-125 | PASS |
| CCV1 | CCV | 1 | 1.054 | 105.42 | 65-125 | PASS |
| CCB1 | CCB | 1 | 1.021 | 102.09 | 65-125 | PASS |
| CCV2 | CCV | 1 | 1.073 | 107.34 | 65-125 | PASS |
| CCB2 | CCB | 1 | 1.042 | 104.18 | 65-125 | PASS |
| CCV3 | CCV | 1 | 1.074 | 107.38 | 65-125 | PASS |
| CCB3 | CCB | 1 | 1.041 | 104.14 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 1.022 | 102.21 | 65-125 | PASS |
| ICSAB2 | ICSAB | 1 | 1.035 | 103.51 | 65-125 | PASS |

NR

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034688
Test Method: EPA 6010B
Analysis Date: 3/28/2019

Matrix: Groundwater
Batch No.: 73016

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

| Sample ID | Analyte | Symbol | Units | Calc Val | Oqual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|---|
| N034688-001B DT 5x | Iron | Fe | ug/L | 0 | NA | 0 | | 10 |

Note: NA - Not Applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | **N034688-001B-PS** | SampType: **PS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | | | RunNo: **132850** | | | | |
| Client ID: | **ZZZZZZ** | Batch ID: **73016** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: | **3/28/2019** | | SeqNo: **3332991** | | | | |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 104.589 | 20 | 100.0 | 0 | 105 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

**Acceptance Criteria:** MDL < spike < 10XMDL

| Analyte | Wavelength | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Spike Conc., mg/L | SD | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ag | 328.069 | 0.0033 | 0.0031 | 0.0033 | 0.0033 | 0.0031 | 0.0030 | 0.0047 | 0.003 | 0.00061604 | **0.001936** | 0.003 |
| Al | 237.312 | 0.0664 | 0.0603 | 0.0656 | 0.0650 | 0.0658 | 0.0660 | 0.0946 | 0.050 | 0.01254823 | **0.039439** | 0.050 |
| As | 188.983 | 0.0131 | 0.0089 | 0.0120 | 0.0089 | 0.0060 | 0.0102 | 0.0080 | 0.010 | 0.00223806 | **0.007034** | 0.010 |
| B | 249.679 | 0.1491 | 0.1267 | 0.1281 | 0.1467 | 0.1261 | 0.1195 | 0.1015 | 0.100 | 0.01801843 | **0.056632** | 0.100 |
| Ba | 233.529 | 0.0033 | 0.0031 | 0.0033 | 0.0031 | 0.0032 | 0.0030 | 0.0024 | 0.003 | 0.00033070 | **0.001039** | 0.003 |
| Be | 313.104 | 0.0012 | 0.0011 | 0.0012 | 0.0012 | 0.0011 | 0.0011 | 0.0011 | 0.001 | 0.00006873 | **0.000216** | 0.001 |
| Ca | 227.546 | 0.2381 | 0.2231 | 0.2559 | 0.2299 | 0.2194 | 0.2473 | 0.2691 | 0.200 | 0.02202408 | **0.069222** | 0.200 |
| Cd | 214.437 | 0.0031 | 0.0029 | 0.0031 | 0.0032 | 0.0031 | 0.0031 | 0.0025 | 0.003 | 0.00027049 | **0.000850** | 0.003 |
| Co | 228.614 | 0.0030 | 0.0028 | 0.0030 | 0.0031 | 0.0031 | 0.0031 | 0.0027 | 0.003 | 0.00014491 | **0.000455** | 0.003 |
| Cr | 267.719 | 0.0009 | 0.0008 | 0.0009 | 0.0012 | 0.0012 | 0.0013 | 0.0009 | 0.001 | 0.00017120 | **0.000538** | 0.001 |
| Fe | 273.953 | 0.0255 | 0.0226 | 0.0242 | 0.0255 | 0.0252 | 0.0248 | 0.0387 | 0.020 | 0.00552308 | **0.017359** | 0.020 |
| Mg | 279.079 | 0.1124 | 0.1052 | 0.1129 | 0.1315 | 0.1305 | 0.1314 | 0.1435 | 0.100 | 0.01532024 | **0.048152** | 0.100 |
| Mn | 257.607 | 0.0119 | 0.0111 | 0.0120 | 0.0122 | 0.0121 | 0.0122 | 0.0099 | 0.010 | 0.00098403 | **0.003093** | 0.010 |
| Mo | 202.03 | 0.0079 | 0.0068 | 0.0067 | 0.0065 | 0.0065 | 0.0062 | 0.0057 | 0.005 | 0.00083918 | **0.002638** | 0.005 |
| Ni | 231.604 | 0.0061 | 0.0056 | 0.0062 | 0.0060 | 0.0060 | 0.0062 | 0.0045 | 0.005 | 0.00062690 | **0.001970** | 0.005 |
| Pb | 220.351 | 0.0124 | 0.0117 | 0.0127 | 0.0115 | 0.0120 | 0.0118 | 0.0090 | 0.010 | 0.00126325 | **0.003970** | 0.010 |
| Sb | 206.836 | 0.0102 | 0.0095 | 0.0104 | 0.0112 | 0.0117 | 0.0111 | 0.0080 | 0.010 | 0.00117407 | **0.003690** | 0.010 |
| Se | 196.025 | 0.0102 | 0.0087 | 0.0114 | 0.0136 | 0.0144 | 0.0136 | 0.0075 | 0.010 | 0.00251341 | **0.007900** | 0.010 |
| Sn | 189.927 | 0.0095 | 0.0084 | 0.0090 | 0.0124 | 0.0126 | 0.0129 | 0.0099 | 0.010 | 0.00175765 | **0.005524** | 0.010 |
| Ti | 334.943 | 0.0114 | 0.0106 | 0.0115 | 0.0115 | 0.0115 | 0.0115 | 0.0098 | 0.010 | 0.00074093 | **0.002329** | 0.010 |
| Tl | 190.794 | 0.0170 | 0.0150 | 0.0165 | 0.0171 | 0.0180 | 0.0168 | 0.0151 | 0.015 | 0.00116288 | **0.003655** | 0.015 |
| V | 292.404 | 0.0025 | 0.0024 | 0.0025 | 0.0032 | 0.0032 | 0.0032 | 0.0027 | 0.003 | 0.00038496 | **0.001210** | 0.003 |
| Zn | 206.201 | 0.0109 | 0.0100 | 0.0107 | 0.0125 | 0.0124 | 0.0124 | 0.0095 | 0.010 | 0.00123731 | **0.003889** | 0.010 |

## METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

| Analyte | ICP-02 MDL | MDL Blank | Higher MDL | LOD | PQL |
|---|---|---|---|---|---|
| Ag | 0.001936 | 0.002362 | 0.002362 | 0.002 | 0.003 |
| Al | 0.039439 | 0.039859 | 0.039859 | 0.04 | 0.5 |
| As | 0.007034 | 0.007672 | 0.007672 | 0.0075 | 0.01 |
| B | 0.056632 | 0.074419 | 0.074419 | 0.075 | 0.1 |
| Ba | 0.001039 | 0.000433 | 0.001039 | 0.001 | 0.003 |
| Be | 0.000216 | 0.000311 | 0.000311 | 0.0005 | 0.003 |
| Ca | 0.069222 | 0.084832 | 0.084832 | 0.1 | 0.5 |
| Cd | 0.000850 | 0.000592 | 0.000850 | 0.001 | 0.003 |
| Co | 0.000455 | 0.001902 | 0.001902 | 0.001 | 0.003 |
| Cr | 0.000538 | 0.000527 | 0.000538 | 0.001 | 0.003 |
| Fe | 0.017359 | 0.017751 | 0.017751 | 0.018 | 0.1 |
| Mg | 0.048152 | 0.043017 | 0.048152 | 0.05 | 0.1 |
| Mn | 0.003093 | 0.000782 | 0.003093 | 0.005 | 0.5 |
| Mo | 0.002638 | 0.002482 | 0.002638 | 0.0025 | 0.005 |
| Ni | 0.001970 | 0.000822 | 0.001970 | 0.0025 | 0.005 |
| Pb | 0.003970 | 0.002762 | 0.003970 | 0.005 | 0.005 |
| Sb | 0.003690 | 0.004504 | 0.004504 | 0.005 | 0.01 |
| Se | 0.007900 | 0.008549 | 0.008549 | 0.008 | 0.01 |
| Sn | 0.005524 | 0.003415 | 0.005524 | 0.0075 | 0.05 |
| Ti | 0.002329 | 0.001493 | 0.002329 | 0.005 | 0.05 |
| Tl | 0.003655 | 0.005987 | 0.005987 | 0.005 | 0.015 |
| V | 0.001210 | 0.000749 | 0.001210 | 0.002 | 0.003 |
| Zn | 0.003889 | 0.007683 | 0.007683 | 0.008 | 0.01 |

# EPA 6010B

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 73002
**ASSET #:** N034688
**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 3/28/2019

**Method:** Total

- [X] EPA 6010B / 200.7
- [ ] EPA 6020 / 200.8
- [ ] EPA 7470A / 7471A/245.1
- [ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | X | | |
| 2. Matrix / units correct | X | | |
| 3. Does batch meet QC requirements? | X | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | X | | |
| 5. Is first level review correct and complete? | X | | |

1st Level Reviewer CEI Date: 4/17/2019

2nd Level Reviewer 4/17/2019 Date: —

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA 6010B
**TEST NAME:** Heavy Metals by ICP
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N034688-007C** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.04473 * 1 *(25/25) * 1000

Iron , ug/L = 44.73

Reporting results in two significant figures,

**Iron , ug/L = 45**

NS 4/17/2019

# % RSD SUMMARY

**RSD SUMMARY: 190328D**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Fe | 0 | 134.51 | 15 | <PQL |
| Standard1 | ICAL | 1 | Fe | 0.02 | 14.88 | 15 | PASS |
| Standard2 | ICAL | 1 | Fe | 0.05 | 1.2 | 15 | PASS |
| Standard3 | ICAL | 1 | Fe | 2 | 0.27 | 15 | PASS |
| Standard4 | ICAL | 1 | Fe | 5 | 0.09 | 15 | PASS |
| Standard5 | ICAL | 1 | Fe | 7.5 | 0.32 | 15 | PASS |
| Standard6 | ICAL | 1 | Fe | 10 | 0.17 | 15 | PASS |
| Standard7 | ICAL | 1 | Fe | 20 | 0.27 | 15 | PASS |
| ICV | ICV | 1 | Fe | 10.22 | 0.25 | 15 | PASS |
| ICB | ICB | 1 | Fe | -0.0042 | 38.79 | 15 | <PQL |
| LLICV1 | CCV1 | 1 | Fe | 0.016 | 7.91 | 20 | PASS |
| ICSA1 | ICSA | 1 | Fe | 182.34 | 0.16 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Fe | 176.88 | 0.092 | 15 | PASS |
| CCV1 | CCV | 1 | Fe | 10.22 | 0.32 | 15 | PASS |
| CCB1 | CCB | 1 | Fe | -0.0064 | 23.2 | 15 | <PQL |
| CCV2 | CCV | 1 | Fe | 10.21 | 0.4 | 15 | PASS |
| CCB2 | CCB | 1 | Fe | -0.0041 | 27.65 | 15 | <PQL |
| CCV3 | CCV | 1 | Fe | 10.22 | 0.33 | 15 | PASS |
| CCB3 | CCB | 1 | Fe | -0.0034 | 42.68 | 15 | <PQL |
| MB-73002 | MBLK | 1 | Fe | -0.0099 | 6.56 | 15 | PASS |
| LCS-73002 | LCS | 1 | Fe | 0.096 | 1.25 | 15 | PASS |
| CCV4 | CCV | 1 | Fe | 10.25 | 0.42 | 15 | PASS |
| CCB4 | CCB | 1 | Fe | -0.0019 | 21.32 | 15 | <PQL |
| ICSA2 | ICSA | 1 | Fe | 182.14 | 0.033 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Fe | 177.69 | 0.098 | 15 | PASS |
| N034688-001C | SAMP | 1 | Fe | 0.029 | 17.75 | 15 | NR! |
| N034688-001C | SAMP | 5 | Fe | 0.00089 | 344.83 | 15 | <PQL |
| N034688-001C-PS | PS | 1 | Fe | 0.12 | 0.96 | 15 | PASS |
| N034688-001C-MS | MS | 1 | Fe | 0.12 | 0.47 | 15 | PASS |
| N034688-001C-MSD | MSD | 1 | Fe | 0.12 | 0.48 | 15 | PASS |
| N034688-002C | SAMP | 1 | Fe | 0.082 | 1.47 | 15 | PASS |
| N034688-003C | SAMP | 1 | Fe | 0.011 | 3.55 | 15 | PASS |
| N034688-004C | SAMP | 1 | Fe | 0.011 | 3.29 | 15 | PASS |
| N034688-005C | SAMP | 1 | Fe | 0.02 | 2.55 | 15 | PASS |
| N034688-006C | SAMP | 1 | Fe | 0.02 | 3.26 | 15 | PASS |
| CCV5 | CCV | 1 | Fe | 10.23 | 0.34 | 15 | PASS |
| CCB5 | CCB | 1 | Fe | -0.0022 | 83.34 | 15 | <PQL |
| N034688-007C | SAMP | 1 | Fe | 0.045 | 1.055 | 15 | PASS |
| N034688-008C | SAMP | 1 | Fe | 0.025 | 4.28 | 15 | PASS |
| N034688-009C | SAMP | 1 | Fe | 0.031 | 1.65 | 15 | PASS |
| N034688-010C | SAMP | 1 | Fe | 0.023 | 4.32 | 15 | PASS |
| N034688-011C | SAMP | 1 | Fe | 0.0091 | 7.98 | 15 | PASS |

**RSD SUMMARY: 190328D**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| N034688-012C | SAMP | 1 | Fe | 0.019 | 6.93 | 15 | PASS |
| N034688-013C | SAMP | 1 | Fe | 0.017 | 1.22 | 15 | PASS |
| CCV6 | CCV | 1 | Fe | 10.21 | 0.42 | 15 | PASS |
| CCB6 | CCB | 1 | Fe | -0.0043 | 21.58 | 15 | <PQL |
| CCV7 | CCV | 1 | Fe | 10.19 | 0.31 | 15 | PASS |
| CCB7 | CCB | 1 | Fe | -0.0037 | 22.058 | 15 | <PQL |
| CCV8 | CCV | 1 | Fe | 10.22 | 0.47 | 15 | PASS |
| CCB8 | CCB | 1 | Fe | -0.0045 | 9.06 | 15 | PASS |
| ICSA3 | ICSA | 1 | Fe | 182.29 | 0.13 | 15 | PASS |
| ICSAB3 | ICSAB | 1 | Fe | 177.81 | 0.12 | 15 | PASS |
| N034688-001C | SAMP | 1 | Fe | 0.049 | 2.69 | 15 | PASS |
| N034688-001C | SAMP | 1 | Fe | 0.02 | 5.45 | 15 | PASS |
| CCV9 | CCV | 1 | Fe | 9.96 | 0.37 | 15 | PASS |
| CCB9 | CCB | 1 | Fe | -0.0043 | 3.32 | 15 | PASS |
| ICSA4 | ICSA | 1 | Fe | 184.72 | 0.077 | 15 | PASS |
| ICSAB4 | ICSAB | 1 | Fe | 179.78 | 0.074 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190328D**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-181001A,0.5<50mL |
| Standard2 | MWST-181001E |
| Standard3 | MWST-181001J,5<50mL |
| Standard4 | MWST-181001J,12.5<50mL |
| Standard5 | MWST-181001J,15<40mL |
| Standard6 | MWST-181001J,25<50mL |
| Standard7 | MWST-181001J |
| ICV | MWST-181001O |
| CCV | MWST-181001J,25<50mL |
| ICSA/ICSAB | MWST-181001R/MWST-180730A |
| Int. Std. (Y) | MSST-180926A/B |
| PS Spike | MWST-180930D/E/F |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CalBlk | IBLK | 1 | 03/28/2019 | 04:48:43 PM |
| 2 | Standard1 | ICAL | 1 | 03/28/2019 | 04:52:32 PM |
| 3 | Standard2 | ICAL | 1 | 03/28/2019 | 04:56:17 PM |
| 4 | Standard3 | ICAL | 1 | 03/28/2019 | 05:00:34 PM |
| 5 | Standard4 | ICAL | 1 | 03/28/2019 | 05:04:52 PM |
| 6 | Standard5 | ICAL | 1 | 03/28/2019 | 05:09:10 PM |
| 7 | Standard6 | ICAL | 1 | 03/28/2019 | 05:13:30 PM |
| 8 | Standard7 | ICAL | 1 | 03/28/2019 | 05:17:49 PM |
| 250 | ICV | ICV | 1 | 03/28/2019 | 05:23:12 PM |
| 1 | ICB | ICB | 1 | 03/28/2019 | 05:28:33 PM |
| 2 | LLICV1 | CCV1 | 1 | 03/28/2019 | 05:32:18 PM |
| 9 | ICSA1 | ICSA | 1 | 03/28/2019 | 05:36:04 PM |
| 10 | ICSAB1 | ICSAB | 1 | 03/28/2019 | 05:41:29 PM |
| 71 | MB-73016 | MBLK | 1 | 03/28/2019 | 05:46:54 PM |
| 72 | LCS-73016 | LCS | 1 | 03/28/2019 | 05:50:40 PM |
| 73 | N034688-001B | SAMP | 1 | 03/28/2019 | 05:54:56 PM |
| 74 | N034688-001B | SAMP | 5 | 03/28/2019 | 05:58:42 PM |
| 75 | N034688-001B-PS | PS | 1 | 03/28/2019 | 06:02:58 PM |
| 76 | N034688-001B-MS | MS | 1 | 03/28/2019 | 06:07:14 PM |
| 77 | N034688-001B-MSD | MSD | 1 | 03/28/2019 | 06:11:31 PM |
| 78 | N034688-002B | SAMP | 1 | 03/28/2019 | 06:15:48 PM |
| 79 | N034688-003B | SAMP | 1 | 03/28/2019 | 06:19:37 PM |
| 80 | N034688-004B | SAMP | 1 | 03/28/2019 | 06:23:25 PM |
| 7 | CCV1 | CCV | 1 | 03/28/2019 | 06:27:12 PM |
| 1 | CCB1 | CCB | 1 | 03/28/2019 | 06:32:32 PM |
| 81 | N034688-005B | SAMP | 1 | 03/28/2019 | 06:36:18 PM |
| 82 | N034688-006B | SAMP | 1 | 03/28/2019 | 06:40:06 PM |
| 83 | N034688-007B | SAMP | 1 | 03/28/2019 | 06:43:54 PM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 84 | N034688-008B | SAMP | 1 | 03/28/2019 | 06:47:41 PM |
| 85 | N034688-009B | SAMP | 1 | 03/28/2019 | 06:51:28 PM |
| 86 | N034688-010B | SAMP | 1 | 03/28/2019 | 06:55:15 PM |
| 87 | N034688-011B | SAMP | 1 | 03/28/2019 | 06:59:03 PM |
| 88 | N034688-012B | SAMP | 1 | 03/28/2019 | 07:02:50 PM |
| 89 | N034688-013B | SAMP | 1 | 03/28/2019 | 07:06:37 PM |
| 90 | MB-73018 | MBLK | 1 | 03/28/2019 | 07:10:24 PM |
| 7 | CCV2 | CCV | 1 | 03/28/2019 | 07:14:12 PM |
| 1 | CCB2 | CCB | 1 | 03/28/2019 | 07:19:33 PM |
| 91 | LCS-73018 | LCS | 1 | 03/28/2019 | 07:23:17 PM |
| 92 | N034708-001B | SAMP | 1 | 03/28/2019 | 07:27:35 PM |
| 93 | N034708-001B | SAMP | 5 | 03/28/2019 | 07:31:51 PM |
| 94 | N034708-001B-PS | PS | 1 | 03/28/2019 | 07:36:10 PM |
| 95 | N034708-001B-MS | MS | 1 | 03/28/2019 | 07:40:29 PM |
| 96 | N034708-001B-MSD | MSD | 1 | 03/28/2019 | 07:44:46 PM |
| 97 | N034708-002B | SAMP | 1 | 03/28/2019 | 07:49:04 PM |
| 98 | N034708-003B | SAMP | 1 | 03/28/2019 | 07:52:51 PM |
| 99 | N034708-004B | SAMP | 1 | 03/28/2019 | 07:56:38 PM |
| 100 | N034708-005B | SAMP | 1 | 03/28/2019 | 08:00:25 PM |
| 7 | CCV3 | CCV | 1 | 03/28/2019 | 08:04:41 PM |
| 1 | CCB3 | CCB | 1 | 03/28/2019 | 08:10:02 PM |
| 101 | N034708-006B | SAMP | 1 | 03/28/2019 | 08:13:46 PM |
| 102 | N034708-007B | SAMP | 1 | 03/28/2019 | 08:17:32 PM |
| 103 | N034708-008B | SAMP | 1 | 03/28/2019 | 08:21:19 PM |
| 104 | N034708-009B | SAMP | 1 | 03/28/2019 | 08:25:06 PM |
| 105 | N034708-010B | SAMP | 1 | 03/28/2019 | 08:28:54 PM |
| 106 | N034708-011B | SAMP | 1 | 03/28/2019 | 08:32:42 PM |
| 107 | N034708-012B | SAMP | 1 | 03/28/2019 | 08:36:31 PM |
| 108 | N034708-013B | SAMP | 1 | 03/28/2019 | 08:40:18 PM |
| 109 | MB-73002 | MBLK | 1 | 03/28/2019 | 08:44:05 PM |
| 110 | LCS-73002 | LCS | 1 | 03/28/2019 | 08:47:51 PM |
| 7 | CCV4 | CCV | 1 | 03/28/2019 | 08:52:09 PM |
| 1 | CCB4 | CCB | 1 | 03/28/2019 | 08:57:29 PM |
| 9 | ICSA2 | ICSA | 1 | 03/28/2019 | 09:01:16 PM |
| 10 | ICSAB2 | ICSAB | 1 | 03/28/2019 | 09:06:41 PM |
| 111 | N034688-001C | SAMP | 1 | 03/28/2019 | 09:12:06 PM |
| 112 | N034688-001C | SAMP | 5 | 03/28/2019 | 09:15:53 PM |
| 113 | N034688-001C-PS | PS | 1 | 03/28/2019 | 09:20:10 PM |
| 114 | N034688-001C-MS | MS | 1 | 03/28/2019 | 09:24:28 PM |
| 115 | N034688-001C-MSD | MSD | 1 | 03/28/2019 | 09:28:45 PM |
| 116 | N034688-002C | SAMP | 1 | 03/28/2019 | 09:33:03 PM |
| 117 | N034688-003C | SAMP | 1 | 03/28/2019 | 09:36:51 PM |
| 118 | N034688-004C | SAMP | 1 | 03/28/2019 | 09:40:39 PM |
| 119 | N034688-005C | SAMP | 1 | 03/28/2019 | 09:44:27 PM |
| 120 | N034688-006C | SAMP | 1 | 03/28/2019 | 09:48:15 PM |
| 7 | CCV5 | CCV | 1 | 03/28/2019 | 09:52:31 PM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CCB5 | CCB | 1 | 03/28/2019 | 09:57:52 PM |
| 121 | N034688-007C | SAMP | 1 | 03/28/2019 | 10:01:37 PM |
| 122 | N034688-008C | SAMP | 1 | 03/28/2019 | 10:05:24 PM |
| 123 | N034688-009C | SAMP | 1 | 03/28/2019 | 10:09:11 PM |
| 124 | N034688-010C | SAMP | 1 | 03/28/2019 | 10:12:58 PM |
| 125 | N034688-011C | SAMP | 1 | 03/28/2019 | 10:16:46 PM |
| 126 | N034688-012C | SAMP | 1 | 03/28/2019 | 10:20:33 PM |
| 127 | N034688-013C | SAMP | 1 | 03/28/2019 | 10:24:21 PM |
| 128 | MB-73024 | MBLK | 1 | 03/28/2019 | 10:28:08 PM |
| 129 | LCS1-73024 | LCS | 1 | 03/28/2019 | 10:31:55 PM |
| 130 | N034708-001C | SAMP | 1 | 03/28/2019 | 10:36:13 PM |
| 7 | CCV6 | CCV | 1 | 03/28/2019 | 10:40:01 PM |
| 1 | CCB6 | CCB | 1 | 03/28/2019 | 10:45:22 PM |
| 131 | N034708-001C | SAMP | 5 | 03/28/2019 | 10:49:08 PM |
| 132 | N034708-001C-PS | PS | 1 | 03/28/2019 | 10:53:25 PM |
| 133 | N034708-001C-MS1 | MS | 1 | 03/28/2019 | 10:57:43 PM |
| 134 | N034708-001C-MSD1 | MSD | 1 | 03/28/2019 | 11:02:01 PM |
| 135 | N034708-002C | SAMP | 1 | 03/28/2019 | 11:06:19 PM |
| 136 | N034708-003C | SAMP | 1 | 03/28/2019 | 11:10:07 PM |
| 137 | N034708-004C | SAMP | 1 | 03/28/2019 | 11:13:55 PM |
| 138 | N034708-005C | SAMP | 1 | 03/28/2019 | 11:17:43 PM |
| 139 | N034708-006C | SAMP | 1 | 03/28/2019 | 11:21:30 PM |
| 140 | N034708-007C | SAMP | 1 | 03/28/2019 | 11:25:17 PM |
| 7 | CCV7 | CCV | 1 | 03/28/2019 | 11:29:05 PM |
| 1 | CCB7 | CCB | 1 | 03/28/2019 | 11:34:24 PM |
| 141 | N034708-008C | SAMP | 1 | 03/28/2019 | 11:38:10 PM |
| 142 | N034708-009C | SAMP | 1 | 03/28/2019 | 11:41:58 PM |
| 143 | N034708-010C | SAMP | 1 | 03/28/2019 | 11:45:46 PM |
| 144 | N034708-011C | SAMP | 1 | 03/28/2019 | 11:49:35 PM |
| 145 | N034708-012C | SAMP | 1 | 03/28/2019 | 11:53:23 PM |
| 146 | N034708-013C | SAMP | 1 | 03/28/2019 | 11:57:12 PM |
| 7 | CCV8 | CCV | 1 | 03/29/2019 | 12:01:01 AM |
| 1 | CCB8 | CCB | 1 | 03/29/2019 | 12:06:21 AM |
| 9 | ICSA3 | ICSA | 1 | 03/29/2019 | 12:10:06 AM |
| 10 | ICSAB3 | ICSAB | 1 | 03/29/2019 | 12:15:32 AM |
| 111 | N034688-001C | SAMP | 1 | 03/29/2019 | 07:51:10 AM |
| 111 | N034688-001C | SAMP | 1 | 03/29/2019 | 08:00:21 AM |
| 7 | CCV9 | CCV | 1 | 03/29/2019 | 08:04:37 AM |
| 1 | CCB9 | CCB | 1 | 03/29/2019 | 08:08:55 AM |
| 9 | ICSA4 | ICSA | 1 | 03/29/2019 | 08:12:41 AM |
| 10 | ICSAB4 | ICSAB | 1 | 03/29/2019 | 08:18:06 AM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/20/2019 12:00:00**
Prep End Date: **3/20/2019 4:00:00**
Prep Batch **73002** Prep Code: **3010_W**

Reviewed/ Date: NS 4/17/2019
Initials/ Date: for
Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **Db-2-3** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-73002 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-73002 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-001C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-001C-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-001C-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-002C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-003C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-004C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-005C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-006C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-007C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-008C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-009C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-010C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10760 | HYDROCHLORIC ACID |
| 10767 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/20/2019 12:00:00**
Prep End Date: **3/20/2019 4:00:00**
Prep Batch **73002** Prep Code: **3010_W**

Reviewed/ Date: NS 4/17/2019
Initials/ Date: for
Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **Db-2-3** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-011C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-012C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-013C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10760 | HYDROCHLORIC ACID |
| 10767 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190328D**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Iron** | | | | | | | | |
| CalBlk | 03/28/2019 | 04:48:43 PM | Fe | 273.953 | 67 | 0.00 | mg/L | |
| Standard1 | 03/28/2019 | 04:52:32 PM | Fe | 273.953 | 178 | 0.0200 | mg/L | |
| Standard2 | 03/28/2019 | 04:56:17 PM | Fe | 273.953 | 748 | 0.050 | mg/L | |
| Standard3 | 03/28/2019 | 05:00:34 PM | Fe | 273.953 | 23999 | 2.000 | mg/L | |
| Standard4 | 03/28/2019 | 05:04:52 PM | Fe | 273.953 | 60687 | 5.000 | mg/L | |
| Standard5 | 03/28/2019 | 05:09:10 PM | Fe | 273.953 | 91560 | 7.500 | mg/L | |
| Standard6 | 03/28/2019 | 05:13:30 PM | Fe | 273.953 | 122457 | 10.000 | mg/L | |
| Standard7 | 03/28/2019 | 05:17:49 PM | Fe | 273.953 | 239398 | 20.000 | mg/L | 1.0000 |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333138** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10218.118 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **LLICV1** | SampType: **CCV1** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333140** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 16.058 | 20 | 20.00 | 0 | 80.3 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333153** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10218.485 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333165** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10214.077 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333177** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10218.513 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333189** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10253.845 | 20 | 10000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333203** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10229.465 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333215** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10211.431 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333227** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10193.124 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV8** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/29/2019** | SeqNo: **3333235** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10223.051 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **CCV9** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/29/2019** | SeqNo: **3333986** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9956.014 | 20 | 10000 | 0 | 99.6 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333139** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -4.241535 | 20 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333154** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -6.431062 | 20 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333166** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -4.113192 | 20 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333178** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -3.355278 | 20 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333190** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -1.866957 | 20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333204** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -2.234725 | 20 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333216** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -4.265975 | 20 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333228** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -3.704445 | 20 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/29/2019** | SeqNo: **3333236** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -4.486754 | 20 | | | | | | | | | |

| Sample ID **CCB9** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/29/2019** | SeqNo: **3333987** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -4.337912 | 20 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132851**
Client ID: **ICSA** Batch ID: **R132851** TestNo: **EPA 6010B** Analysis Date: **3/28/2019** SeqNo: **3333141**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 499861.155 | 50 | 500000 | 0 | 100 | 80 | 120 | | | | |
| Calcium | 537314.796 | 500 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Iron | 182336.330 | 20 | 200000 | 0 | 91.2 | 80 | 120 | | | | |
| Magnesium | 477379.536 | 100 | 500000 | 0 | 95.5 | 80 | 120 | | | | |

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132851**
Client ID: **ICSAB** Batch ID: **R132851** TestNo: **EPA 6010B** Analysis Date: **3/28/2019** SeqNo: **3333142**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 524340.042 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |
| Calcium | 557363.709 | 500 | 500000 | 0 | 111 | 80 | 120 | | | | |
| Iron | 176883.529 | 20 | 200000 | 0 | 88.4 | 80 | 120 | | | | |
| Magnesium | 501186.003 | 100 | 500000 | 0 | 100 | 80 | 120 | | | | |

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132851**
Client ID: **ICSA** Batch ID: **R132851** TestNo: **EPA 6010B** Analysis Date: **3/28/2019** SeqNo: **3333191**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 502294.210 | 50 | 500000 | 0 | 100 | 80 | 120 | | | | |
| Calcium | 534739.635 | 500 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Iron | 182142.031 | 20 | 200000 | 0 | 91.1 | 80 | 120 | | | | |
| Magnesium | 481034.499 | 100 | 500000 | 0 | 96.2 | 80 | 120 | | | | |

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132851**
Client ID: **ICSAB** Batch ID: **R132851** TestNo: **EPA 6010B** Analysis Date: **3/28/2019** SeqNo: **3333192**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 522600.266 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132851**
Client ID: **ICSAB** Batch ID: **R132851** TestNo: **EPA 6010B** Analysis Date: **3/28/2019** SeqNo: **3333192**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 556134.625 | 500 | 500000 | 0 | 111 | 80 | 120 | | | | |
| Iron | 177690.961 | 20 | 200000 | 0 | 88.8 | 80 | 120 | | | | |
| Magnesium | 502305.372 | 100 | 500000 | 0 | 100 | 80 | 120 | | | | |

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132851**
Client ID: **ICSA** Batch ID: **R132851** TestNo: **EPA 6010B** Analysis Date: **3/29/2019** SeqNo: **3333237**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 500434.660 | 50 | 500000 | 0 | 100 | 80 | 120 | | | | |
| Calcium | 533101.231 | 500 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Iron | 182292.085 | 20 | 200000 | 0 | 91.1 | 80 | 120 | | | | |
| Magnesium | 485435.745 | 100 | 500000 | 0 | 97.1 | 80 | 120 | | | | |

Sample ID **ICSAB3** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132851**
Client ID: **ICSAB** Batch ID: **R132851** TestNo: **EPA 6010B** Analysis Date: **3/29/2019** SeqNo: **3333238**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 520864.268 | 50 | 500000 | 0 | 104 | 80 | 120 | | | | |
| Calcium | 549680.773 | 500 | 500000 | 0 | 110 | 80 | 120 | | | | |
| Iron | 177809.980 | 20 | 200000 | 0 | 88.9 | 80 | 120 | | | | |
| Magnesium | 506212.181 | 100 | 500000 | 0 | 101 | 80 | 120 | | | | |

Sample ID **ICSA4** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132851**
Client ID: **ICSA** Batch ID: **R132851** TestNo: **EPA 6010B** Analysis Date: **3/29/2019** SeqNo: **3333988**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 487689.516 | 50 | 500000 | 0 | 97.5 | 80 | 120 | | | | |
| Calcium | 514090.500 | 500 | 500000 | 0 | 103 | 80 | 120 | | | | |
| Iron | 184718.816 | 20 | 200000 | 0 | 92.4 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/29/2019** | SeqNo: **3333988** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Magnesium | 504274.160 | 100 | 500000 | 0 | 101 | 80 | 120 | | | | |

| Sample ID **ICSAB4** | SampType: **ICSAB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/29/2019** | SeqNo: **3333989** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 508147.429 | 50 | 500000 | 0 | 102 | 80 | 120 | | | | |
| Calcium | 534214.654 | 500 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Iron | 179776.010 | 20 | 200000 | 0 | 89.9 | 80 | 120 | | | | |
| Magnesium | 524670.921 | 100 | 500000 | 0 | 105 | 80 | 120 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190328D**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 1.0018 | 100.18 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1 | 99.9 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 1.05 | 105 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 1.039 | 103.93 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 1.03 | 103 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 1 | 99.69 | 65-125 | PASS |
| Standard7 | ICAL | 1 | 0.97 | 97.48 | 65-125 | PASS |
| ICV | ICV | 1 | 0.99 | 99.33 | 65-125 | PASS |
| ICB | ICB | 1 | 1 | 99.92 | 65-125 | PASS |
| LLICV1 | CCV1 | 1 | 1 | 99.98 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 0.96 | 96.32 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 0.91 | 90.86 | 65-125 | PASS |
| CCV1 | CCV | 1 | 1 | 99.93 | 65-125 | PASS |
| CCB1 | CCB | 1 | 1.0042 | 100.42 | 65-125 | PASS |
| CCV2 | CCV | 1 | 1 | 99.62 | 65-125 | PASS |
| CCB2 | CCB | 1 | 1.0006 | 100.06 | 65-125 | PASS |
| CCV3 | CCV | 1 | 1 | 99.99 | 65-125 | PASS |
| CCB3 | CCB | 1 | 1.006 | 100.6 | 65-125 | PASS |
| MB-73002 | MBLK | 1 | 1.01 | 101 | 65-125 | PASS |
| LCS-73002 | LCS | 1 | 0.93 | 93.41 | 65-125 | PASS |
| CCV4 | CCV | 1 | 0.99 | 99.39 | 65-125 | PASS |
| CCB4 | CCB | 1 | 1.0018 | 100.18 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 0.94 | 93.57 | 65-125 | PASS |
| ICSAB2 | ICSAB | 1 | 0.89 | 89 | 65-125 | PASS |
| N034688-001C | SAMP | 1 | 1.014 | 101.42 | 65-125 | PASS |
| N034688-001C | SAMP | 5 | 1 | 99.61 | 65-125 | PASS |
| N034688-001C-PS | PS | 1 | 1.0002 | 100.02 | 65-125 | PASS |
| N034688-001C-MS | MS | 1 | 1.0043 | 100.43 | 65-125 | PASS |
| N034688-001C-MSD | MSD | 1 | 1.0034 | 100.34 | 65-125 | PASS |
| N034688-002C | SAMP | 1 | 1.0029 | 100.29 | 65-125 | PASS |
| N034688-003C | SAMP | 1 | 1.026 | 102.56 | 65-125 | PASS |
| N034688-004C | SAMP | 1 | 1.043 | 104.27 | 65-125 | PASS |
| N034688-005C | SAMP | 1 | 1.0027 | 100.27 | 65-125 | PASS |
| N034688-006C | SAMP | 1 | 1.029 | 102.94 | 65-125 | PASS |
| CCV5 | CCV | 1 | 1 | 99.87 | 65-125 | PASS |
| CCB5 | CCB | 1 | 1.0051 | 100.51 | 65-125 | PASS |
| N034688-007C | SAMP | 1 | 1.011 | 101.09 | 65-125 | PASS |
| N034688-008C | SAMP | 1 | 1.0025 | 100.25 | 65-125 | PASS |
| N034688-009C | SAMP | 1 | 1.02 | 101.96 | 65-125 | PASS |
| N034688-010C | SAMP | 1 | 1.019 | 101.92 | 65-125 | PASS |

**INTERNAL STANDARD: 190328D**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| N034688-011C | SAMP | 1 | 1.019 | 101.89 | 65-125 | PASS |
| N034688-012C | SAMP | 1 | 1.022 | 102.21 | 65-125 | PASS |
| N034688-013C | SAMP | 1 | 1.0015 | 100.15 | 65-125 | PASS |
| CCV6 | CCV | 1 | 0.99 | 99.44 | 65-125 | PASS |
| CCB6 | CCB | 1 | 1.003 | 100.3 | 65-125 | PASS |
| CCV7 | CCV | 1 | 1.0002 | 100.02 | 65-125 | PASS |
| CCB7 | CCB | 1 | 1.0065 | 100.65 | 65-125 | PASS |
| CCV8 | CCV | 1 | 1 | 99.55 | 65-125 | PASS |
| CCB8 | CCB | 1 | 1.004 | 100.4 | 65-125 | PASS |
| ICSA3 | ICSA | 1 | 0.94 | 93.53 | 65-125 | PASS |
| ICSAB3 | ICSAB | 1 | 0.89 | 89.11 | 65-125 | PASS |
| N034688-001C | SAMP | 1 | 0.92 | 91.98 | 65-125 | PASS |
| N034688-001C | SAMP | 1 | 0.92 | 91.64 | 65-125 | PASS |
| CCV9 | CCV | 1 | 0.94 | 94.1 | 65-125 | PASS |
| CCB9 | CCB | 1 | 0.92 | 92.38 | 65-125 | PASS |
| ICSA4 | ICSA | 1 | 0.88 | 87.76 | 65-125 | PASS |
| ICSAB4 | ICSAB | 1 | 0.84 | 84.48 | 65-125 | PASS |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034688
Test Method: EPA 6010B
Analysis Date: 3/28/2019

Matrix: Groundwater
Batch No.: 73002

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

| Sample ID | Analyte | Symbol | Units | Calc Val | Oqual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|---|
| N034688-001C DT 5x | Iron | Fe | ug/L | 0 | NA | 19.63458 | 100.00% | 10 |

Note: NA - Not Applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID **N034688-001C-PS** | SampType: **PS** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | | | RunNo: **132851** | | | | |
| Client ID: **ZZZZZZ** | Batch ID: **73002** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/28/2019** | | | SeqNo: **3333195** | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Iron | 118.631 | 20 | 100.0 | 19.63 | 99.0 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

**Acceptance Criteria:** MDL < spike < 10XMDL

| Analyte | Wavelength | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Spike Conc., mg/L | SD | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ag | 328.069 | 0.0033 | 0.0031 | 0.0033 | 0.0033 | 0.0031 | 0.0030 | 0.0047 | 0.003 | 0.00061604 | **0.001936** | 0.003 |
| Al | 237.312 | 0.0664 | 0.0603 | 0.0656 | 0.0650 | 0.0658 | 0.0660 | 0.0946 | 0.050 | 0.01254823 | **0.039439** | 0.050 |
| As | 188.983 | 0.0131 | 0.0089 | 0.0120 | 0.0089 | 0.0060 | 0.0102 | 0.0080 | 0.010 | 0.00223806 | **0.007034** | 0.010 |
| B | 249.679 | 0.1491 | 0.1267 | 0.1281 | 0.1467 | 0.1261 | 0.1195 | 0.1015 | 0.100 | 0.01801843 | **0.056632** | 0.100 |
| Ba | 233.529 | 0.0033 | 0.0031 | 0.0033 | 0.0031 | 0.0032 | 0.0030 | 0.0024 | 0.003 | 0.00033070 | **0.001039** | 0.003 |
| Be | 313.104 | 0.0012 | 0.0011 | 0.0012 | 0.0012 | 0.0011 | 0.0011 | 0.0011 | 0.001 | 0.00006873 | **0.000216** | 0.001 |
| Ca | 227.546 | 0.2381 | 0.2231 | 0.2559 | 0.2299 | 0.2194 | 0.2473 | 0.2691 | 0.200 | 0.02202408 | **0.069222** | 0.200 |
| Cd | 214.437 | 0.0031 | 0.0029 | 0.0031 | 0.0032 | 0.0031 | 0.0031 | 0.0025 | 0.003 | 0.00027049 | **0.000850** | 0.003 |
| Co | 228.614 | 0.0030 | 0.0028 | 0.0030 | 0.0031 | 0.0031 | 0.0031 | 0.0027 | 0.003 | 0.00014491 | **0.000455** | 0.003 |
| Cr | 267.719 | 0.0009 | 0.0008 | 0.0009 | 0.0012 | 0.0012 | 0.0013 | 0.0009 | 0.001 | 0.00017120 | **0.000538** | 0.001 |
| Fe | 273.953 | 0.0255 | 0.0226 | 0.0242 | 0.0255 | 0.0252 | 0.0248 | 0.0387 | 0.020 | 0.00552308 | **0.017359** | 0.020 |
| Mg | 279.079 | 0.1124 | 0.1052 | 0.1129 | 0.1315 | 0.1305 | 0.1314 | 0.1435 | 0.100 | 0.01532024 | **0.048152** | 0.100 |
| Mn | 257.607 | 0.0119 | 0.0111 | 0.0120 | 0.0122 | 0.0121 | 0.0122 | 0.0099 | 0.010 | 0.00098403 | **0.003093** | 0.010 |
| Mo | 202.03 | 0.0079 | 0.0068 | 0.0067 | 0.0065 | 0.0065 | 0.0062 | 0.0057 | 0.005 | 0.00083918 | **0.002638** | 0.005 |
| Ni | 231.604 | 0.0061 | 0.0056 | 0.0062 | 0.0060 | 0.0060 | 0.0062 | 0.0045 | 0.005 | 0.00062690 | **0.001970** | 0.005 |
| Pb | 220.351 | 0.0124 | 0.0117 | 0.0127 | 0.0115 | 0.0120 | 0.0118 | 0.0090 | 0.010 | 0.00126325 | **0.003970** | 0.010 |
| Sb | 206.836 | 0.0102 | 0.0095 | 0.0104 | 0.0112 | 0.0117 | 0.0111 | 0.0080 | 0.010 | 0.00117407 | **0.003690** | 0.010 |
| Se | 196.025 | 0.0102 | 0.0087 | 0.0114 | 0.0136 | 0.0144 | 0.0136 | 0.0075 | 0.010 | 0.00251341 | **0.007900** | 0.010 |
| Sn | 189.927 | 0.0095 | 0.0084 | 0.0090 | 0.0124 | 0.0126 | 0.0129 | 0.0099 | 0.010 | 0.00175765 | **0.005524** | 0.010 |
| Ti | 334.943 | 0.0114 | 0.0106 | 0.0115 | 0.0115 | 0.0115 | 0.0115 | 0.0098 | 0.010 | 0.00074093 | **0.002329** | 0.010 |
| Tl | 190.794 | 0.0170 | 0.0150 | 0.0165 | 0.0171 | 0.0180 | 0.0168 | 0.0151 | 0.015 | 0.00116288 | **0.003655** | 0.015 |
| V | 292.404 | 0.0025 | 0.0024 | 0.0025 | 0.0032 | 0.0032 | 0.0032 | 0.0027 | 0.003 | 0.00038496 | **0.001210** | 0.003 |
| Zn | 206.201 | 0.0109 | 0.0100 | 0.0107 | 0.0125 | 0.0124 | 0.0124 | 0.0095 | 0.010 | 0.00123731 | **0.003889** | 0.010 |

## METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

| Analyte | ICP-02 MDL | MDL Blank | Higher MDL | LOD | PQL |
|---|---|---|---|---|---|
| Ag | 0.001936 | 0.002362 | 0.002362 | 0.002 | 0.003 |
| Al | 0.039439 | 0.039859 | 0.039859 | 0.04 | 0.5 |
| As | 0.007034 | 0.007672 | 0.007672 | 0.0075 | 0.01 |
| B | 0.056632 | 0.074419 | 0.074419 | 0.075 | 0.1 |
| Ba | 0.001039 | 0.000433 | 0.001039 | 0.001 | 0.003 |
| Be | 0.000216 | 0.000311 | 0.000311 | 0.0005 | 0.003 |
| Ca | 0.069222 | 0.084832 | 0.084832 | 0.1 | 0.5 |
| Cd | 0.000850 | 0.000592 | 0.000850 | 0.001 | 0.003 |
| Co | 0.000455 | 0.001902 | 0.001902 | 0.001 | 0.003 |
| Cr | 0.000538 | 0.000527 | 0.000538 | 0.001 | 0.003 |
| Fe | 0.017359 | 0.017751 | 0.017751 | 0.018 | 0.1 |
| Mg | 0.048152 | 0.043017 | 0.048152 | 0.05 | 0.1 |
| Mn | 0.003093 | 0.000782 | 0.003093 | 0.005 | 0.5 |
| Mo | 0.002638 | 0.002482 | 0.002638 | 0.0025 | 0.005 |
| Ni | 0.001970 | 0.000822 | 0.001970 | 0.0025 | 0.005 |
| Pb | 0.003970 | 0.002762 | 0.003970 | 0.005 | 0.005 |
| Sb | 0.003690 | 0.004504 | 0.004504 | 0.005 | 0.01 |
| Se | 0.007900 | 0.008549 | 0.008549 | 0.008 | 0.01 |
| Sn | 0.005524 | 0.003415 | 0.005524 | 0.0075 | 0.05 |
| Ti | 0.002329 | 0.001493 | 0.002329 | 0.005 | 0.05 |
| Tl | 0.003655 | 0.005987 | 0.005987 | 0.005 | 0.015 |
| V | 0.001210 | 0.000749 | 0.001210 | 0.002 | 0.003 |
| Zn | 0.003889 | 0.007683 | 0.007683 | 0.008 | 0.01 |

# EPA 6020
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 73030
**ASSET #:** N034688

**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 4/1/2019

**Method:**

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8 Diss
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | ~~X~~ | X | | ~~X~~ | X | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | X | | | X | | |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

% RSD of Se in N034688-002B/003B/005B/006B/009B/011B/012B/013B/014B/015B failed. For rerun.
% Rec of Mo in N034644-001A PS/MS/MSD failed, high bias. However, LCS passed criteria.
% Rec of Cr in N034644-001A PS/MS failed, high bias. However, LCS passed criteria.
% Rec of Cr in N034644-001A MSD failed, low bias. However, LCS passed criteria.
Dilution test for Ba failed. However, PS passed criteria.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: 4/9/2019

2nd Level Reviewer 4/9/2019 Date: →

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 73030
**ASSET #:** N034688
**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 4/4/2019

**Method:**

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8 Diss
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | X |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | X |
| 24. LCS compounds within control limits. | X | | | X | | X |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | X |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

Se rerun

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: 4/9/2019

2nd Level Reviewer 4/9/2019 Date: ~

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA 6020
**TEST NAME:** Heavy Metals by ICP-MS
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Barium concentration, in ug/L , in the original sample as follows:

Barium , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N034688-001B** , the concentration in ug/L is calculated as follows:

Barium , ug/L = 109.143 * 1 *( 125 / 25 )

Barium , ug/L = 109.143

Reporting results in two significant figures,

**Barium , ug/L = 110**

NS 4/9/2019

# % RSD SUMMARY

**PERCENT RSD SUMMARY: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 137 Ba [3] | | | | 52 Cr [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.1 | 24.89 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.52 | 2.36 | 15 | PASS | 0.48 | 12.8 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 5.18 | 2.31 | 15 | PASS | 5.18 | 0.99 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.26 | 2.36 | 15 | PASS | 10.25 | 3 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.84 | 1.95 | 15 | PASS | 20.5 | 1.61 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 39.93 | 1 | 15 | PASS | 40.87 | 0.87 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 99.83 | 0.97 | 15 | PASS | 100.12 | 1.58 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 197.18 | 0.81 | 15 | PASS | 199.7 | 0.78 | 15 | PASS |
| ICV | ICV | 1 | 9.92 | 2.27 | 15 | PASS | 10.37 | 2.82 | 15 | PASS |
| ICB | ICB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LLICV | CCV1 | 1 | 1.092 | 2.83 | 20 | PASS | 0.88 | 9.74 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 21.059 | 2.61 | 15 | PASS | 20.015 | 0.69 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.84 | 8.93 | 20 | PASS | 0.68 | 9.56 | 20 | PASS |
| LCS-73030 | LCS | 1 | 10.8 | 0.9 | 15 | PASS | 10.98 | 1.49 | 15 | PASS |
| CCV1 | CCV | 1 | 21.1 | 0.76 | 15 | PASS | 20.75 | 0.8 | 15 | PASS |
| CCB1 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.22 | 13.51 | 15 | PASS |
| MB-73030 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | 0.12 | 29.99 | 15 | <PQL |
| LCS-73030 | LCS | 1 | 10.37 | 1.87 | 15 | PASS | 10.33 | 1.24 | 15 | PASS |
| N034644-001A | SAMP | 5 | 1.99 | 3.46 | 15 | PASS | 957.75 | 0.75 | 15 | PASS |
| N034644-001A | SAMP | 1 | 33.92 | 0.61 | 15 | PASS | 4481.7 | 1.03 | 15 | PASS |
| N034644-001A-PS | PS | 1 | 42.72 | 1.6 | 15 | PASS | 4290.68 | 0.69 | 15 | PASS |
| N034644-001AMS | MS | 1 | 43.58 | 1.13 | 15 | PASS | 4315.37 | 0.99 | 15 | PASS |
| N034644-001AMSD | MSD | 1 | 43.77 | 1.043 | 15 | PASS | 4365.38 | 1.22 | 15 | PASS |
| N034644-003B | SAMP | 50 | 0.16 | 39.92 | 15 | <PQL | 99.51 | 1.16 | 15 | PASS |
| N034644-001A | SAMP | 1 | 37.61 | 2.49 | 15 | PASS | 4775.49 | 2.53 | 15 | PASS |
| N034644-001A | SAMP | 25 | 0.37 | 11.4 | 15 | PASS | 183.14 | 2.24 | 15 | PASS |
| CCV2 | CCV | 1 | 20.77 | 0.7 | 15 | PASS | 21.82 | 0.87 | 15 | PASS |
| CCB2 | CCB | 1 | 0.0026 | 264.21 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034646-001A | SAMP | 1 | 49.61 | 1.46 | 15 | PASS | 0.34 | 8.63 | 15 | PASS |
| N034644-001A-PS | PS | 5 | 4.047 | 2.89 | 15 | PASS | 914.83 | 1.31 | 15 | PASS |
| N034644-001AMS | MS | 5 | 4.043 | 4.4 | 15 | PASS | 917.9 | 2.13 | 15 | PASS |
| N034644-001AMSD | MSD | 5 | 4.35 | 2.3 | 15 | PASS | 915.078 | 0.52 | 15 | PASS |
| N034644-001A | SAMP | 50 | 0.18 | 14.57 | 15 | PASS | 89.013 | 0.94 | 15 | PASS |
| N034644-001A | SAMP | 250 | 0.037 | 40.26 | 15 | <PQL | 18.52 | 1.22 | 15 | PASS |
| N034644-001A-PS | PS | 50 | 0.53 | 14.17 | 15 | PASS | 89.91 | 1.45 | 15 | PASS |
| N034644-001AMS | MS | 50 | 0.46 | 7.88 | 15 | PASS | 90.92 | 0.66 | 15 | PASS |
| N034644-001AMSD | MSD | 50 | 0.43 | 11.74 | 15 | PASS | 88.86 | 1.57 | 15 | PASS |
| N034706-001A | SAMP | 1 | 164.29 | 1.0031 | 15 | PASS | 1201.23 | 3.22 | 15 | PASS |
| CCV3 | CCV | 1 | 21.13 | 0.67 | 15 | PASS | 20.98 | 1.54 | 15 | PASS |

**PERCENT RSD SUMMARY: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 137 Ba [3] | | | | 52 Cr [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| CCB3 | CCB | 1 | 0.006 | 167.57 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.16 | 35.66 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 22.33 | 1.01 | 15 | PASS | 19.56 | 1.013 | 15 | PASS |
| N034688-002B | SAMP | 1 | 109.39 | 0.86 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034688-001B | SAMP | 1 | 109.14 | 0.8 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034688-003B | SAMP | 1 | 113.81 | 0.4 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034688-004B | SAMP | 1 | 120.64 | 2.06 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034688-005B | SAMP | 1 | 111.43 | 0.13 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034688-006B | SAMP | 1 | 116.48 | 0.43 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034688-007B | SAMP | 1 | 114.54 | 0.89 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034688-008B | SAMP | 1 | 111.9 | 2.078 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034688-009B | SAMP | 1 | 113.96 | 1.8 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034688-010B | SAMP | 1 | 116.83 | 0.89 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV4 | CCV | 1 | 21.15 | 0.58 | 15 | PASS | 20.59 | 0.59 | 15 | PASS |
| CCB4 | CCB | 1 | 0.0057 | 196.9 | 15 | <PQL | 0.06 | 75.19 | 15 | <PQL |
| N034688-011B | SAMP | 1 | 114.57 | 1.43 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034688-012B | SAMP | 1 | 113.67 | 1.62 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034688-013B | SAMP | 1 | 114.26 | 0.73 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034688-014B | SAMP | 1 | 139.47 | 1.23 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034688-015B | SAMP | 1 | 124.19 | 2.11 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV5 | CCV | 1 | 20.85 | 1.12 | 15 | PASS | 20.37 | 0.54 | 15 | PASS |
| CCB5 | CCB | 1 | 0.011 | 70.14 | 15 | <PQL | 0.055 | 91.82 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 23.18 | 1.47 | 15 | PASS | 18.96 | 1.87 | 15 | PASS |
| CCV6 | CCV | 1 | 20.9 | 1.049 | 15 | PASS | 20.98 | 2.31 | 15 | PASS |
| CCB6 | CCB | 1 | 0.013 | 11.38 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV7 | CCV | 1 | 20.9 | 1.55 | 15 | PASS | 20.46 | 0.93 | 15 | PASS |
| CCB7 | CCB | 1 | 0.012 | 80.4 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA4 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 23.97 | 2.42 | 15 | PASS | 18.84 | 1.4 | 15 | PASS |
| CCV8 | CCV | 1 | 20.72 | 0.46 | 15 | PASS | 20.58 | 1.47 | 15 | PASS |
| CCB8 | CCB | 1 | 0.0063 | 148.32 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV9 | CCV | 1 | 20.62 | 3.24 | 15 | PASS | 20.033 | 0.8 | 15 | PASS |
| CCB9 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV10 | CCV | 1 | 21.3 | 4.31 | 15 | PASS | 20.26 | 1.42 | 15 | PASS |
| CCB10 | CCB | 1 | 0.01 | 108.82 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA5 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.57 | 13.87 | 15 | PASS |
| ICSAB5 | ICSAB | 1 | 23.2 | 5.99 | 15 | PASS | 19.2 | 0.43 | 15 | PASS |
| CCV11 | CCV | 1 | 20.17 | 0.6 | 15 | PASS | 20.28 | 1.3 | 15 | PASS |
| CCB11 | CCB | 1 | 0.017 | 17.39 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV12 | CCV | 1 | 20.26 | 1.011 | 15 | PASS | 20.075 | 0.69 | 15 | PASS |

**PERCENT RSD SUMMARY: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 137 Ba [3] | | | | 52 Cr [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| CCB12 | CCB | 1 | 0.0089 | 94.12 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV13 | CCV | 1 | 20.73 | 1.44 | 15 | PASS | 20.35 | 2.77 | 15 | PASS |
| CCB13 | CCB | 1 | 0.021 | 63.28 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV14 | CCV | 1 | 20.42 | 0.32 | 15 | PASS | 20.2 | 0.67 | 15 | PASS |
| CCB14 | CCB | 1 | 0.017 | 50.52 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV15 | CCV | 1 | 20.42 | 1.7 | 15 | PASS | 20.045 | 0.84 | 15 | PASS |
| CCB15 | CCB | 1 | 0.02 | 41.66 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV15 | CCV | 1 | 20.6 | 1.52 | 15 | PASS | 19.91 | 0.99 | 15 | PASS |
| CCB15 | CCB | 1 | 0.019 | 72.29 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV16 | CCV | 1 | 21.3 | 2.65 | 15 | PASS | 20.26 | 3.11 | 15 | PASS |
| CCV16 | CCV | 1 | 21.53 | 4.0036 | 15 | PASS | 20.3 | 0.64 | 15 | PASS |
| CCB16 | CCB | 1 | 0.024 | 52.75 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |

**PERCENT RSD SUMMARY: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 55 Mn [2] | | | | 75 As [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.095 | 27.17 | 15 | <PQL | 0.14 | 35.87 | 15 | NR! |
| Std2-0.5/5 ppb | ICAL | 1 | 0.55 | 3.6 | 15 | PASS | 0.54 | 4.57 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 5.38 | 1.33 | 15 | PASS | 5.32 | 2.44 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.28 | 0.59 | 15 | PASS | 10.29 | 0.61 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.51 | 1.4 | 15 | PASS | 19.89 | 1.074 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 41.11 | 1.22 | 15 | PASS | 40.6 | 1.25 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.34 | 1.29 | 15 | PASS | 101.36 | 2.72 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.53 | 0.49 | 15 | PASS | 199.19 | 0.73 | 15 | PASS |
| ICV | ICV | 1 | 106.82 | 2.17 | 15 | PASS | 10.33 | 3.43 | 15 | PASS |
| ICB | ICB | 1 | <0.000 | N/A | 15 | <PQL | 0.0097 | 223.039 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.55 | 6.9 | 20 | PASS | 0.15 | 13.56 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.036 | 110 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 18.27 | 2.099 | 15 | PASS | 19.75 | 2.64 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.44 | 5.41 | 20 | PASS | 0.11 | 15.62 | 20 | PASS |
| LCS-73030 | LCS | 1 | 104.6 | 0.88 | 15 | PASS | 10.39 | 3.56 | 15 | PASS |
| CCV1 | CCV | 1 | 20.48 | 1.74 | 15 | PASS | 20.81 | 1.2 | 15 | PASS |
| CCB1 | CCB | 1 | 0.0087 | 48.39 | 15 | <PQL | 0.031 | 50.55 | 15 | <PQL |
| MB-73030 | MBLK | 1 | 0.01 | 145.78 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LCS-73030 | LCS | 1 | 104.6 | 1.53 | 15 | PASS | 9.93 | 2.15 | 15 | PASS |
| N034644-001A | SAMP | 5 | 15.35 | 1.18 | 15 | PASS | 0.25 | 21.021 | 15 | NR! |
| N034644-001A | SAMP | 1 | 71.49 | 1.0043 | 15 | PASS | 1.15 | 1.88 | 15 | PASS |
| N034644-001A-PS | PS | 1 | 169.62 | 0.74 | 15 | PASS | 11.66 | 2.53 | 15 | PASS |
| N034644-001AMS | MS | 1 | 170.82 | 0.73 | 15 | PASS | 11.74 | 3.66 | 15 | PASS |
| N034644-001AMSD | MSD | 1 | 172.3 | 1.72 | 15 | PASS | 11.85 | 5.56 | 15 | PASS |
| N034644-003B | SAMP | 50 | 1.72 | 2.37 | 15 | PASS | 0.036 | 22.35 | 15 | <PQL |
| N034644-001A | SAMP | 1 | 76.46 | 2.24 | 15 | PASS | 1.27 | 12.7 | 15 | PASS |
| N034644-001A | SAMP | 25 | 3.27 | 0.91 | 15 | PASS | 0.052 | 120.46 | 15 | <PQL |
| CCV2 | CCV | 1 | 20.64 | 2.49 | 15 | PASS | 20.21 | 1.91 | 15 | PASS |
| CCB2 | CCB | 1 | 0.054 | 53.18 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034646-001A | SAMP | 1 | 528.51 | 0.51 | 15 | PASS | 0.34 | 28.45 | 15 | NR! |
| N034644-001A-PS | PS | 5 | 36.36 | 1.57 | 15 | PASS | 2.35 | 6.36 | 15 | PASS |
| N034644-001AMS | MS | 5 | 35.96 | 1.77 | 15 | PASS | 2.28 | 3.027 | 15 | PASS |
| N034644-001AMSD | MSD | 5 | 35.56 | 1.071 | 15 | PASS | 2.38 | 1.48 | 15 | PASS |
| N034644-001A | SAMP | 50 | 1.48 | 1.99 | 15 | PASS | 0.0036 | 336.72 | 15 | <PQL |
| N034644-001A | SAMP | 250 | 0.48 | 17.96 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034644-001A-PS | PS | 50 | 3.66 | 3.35 | 15 | PASS | 0.28 | 20.13 | 15 | NR! |
| N034644-001AMS | MS | 50 | 3.75 | 5.35 | 15 | PASS | 0.23 | 28.4 | 15 | NR! |
| N034644-001AMSD | MSD | 50 | 3.57 | 2.55 | 15 | PASS | 0.19 | 17.14 | 15 | NR! |
| N034706-001A | SAMP | 1 | 297.5 | 2.58 | 15 | PASS | 2.3 | 7.0039 | 15 | PASS |
| CCV3 | CCV | 1 | 20.29 | 1.5 | 15 | PASS | 20.07 | 1.039 | 15 | PASS |

**PERCENT RSD SUMMARY: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 55 Mn [2] | | | | 75 As [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| CCB3 | CCB | 1 | 0.083 | 54.5 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.04 | 42.9 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 19.23 | 1.28 | 15 | PASS | 21.056 | 3.64 | 15 | PASS |
| N034688-002B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.37 | 7.29 | 15 | PASS |
| N034688-001B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.18 | 7.33 | 15 | PASS |
| N034688-003B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.23 | 4.93 | 15 | PASS |
| N034688-004B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.25 | 6.043 | 15 | PASS |
| N034688-005B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.21 | 3.61 | 15 | PASS |
| N034688-006B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.37 | 1.93 | 15 | PASS |
| N034688-007B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.23 | 5.95 | 15 | PASS |
| N034688-008B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.22 | 5.76 | 15 | PASS |
| N034688-009B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.24 | 1.064 | 15 | PASS |
| N034688-010B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.28 | 4.21 | 15 | PASS |
| CCV4 | CCV | 1 | 20.77 | 0.54 | 15 | PASS | 20.39 | 3.24 | 15 | PASS |
| CCB4 | CCB | 1 | 0.069 | 14.67 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034688-011B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.34 | 6.26 | 15 | PASS |
| N034688-012B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.11 | 3.62 | 15 | PASS |
| N034688-013B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.22 | 4.87 | 15 | PASS |
| N034688-014B | SAMP | 1 | 19.3 | 2.77 | 15 | PASS | 1.64 | 3.94 | 15 | PASS |
| N034688-015B | SAMP | 1 | 6.62 | 2.5 | 15 | PASS | 1.55 | 3.064 | 15 | PASS |
| CCV5 | CCV | 1 | 20.97 | 1.48 | 15 | PASS | 20.22 | 1.22 | 15 | PASS |
| CCB5 | CCB | 1 | 0.044 | 31.22 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 19.6 | 3.4 | 15 | PASS | 20.43 | 1.45 | 15 | PASS |
| CCV6 | CCV | 1 | 21.44 | 0.41 | 15 | PASS | 20.69 | 1.36 | 15 | PASS |
| CCB6 | CCB | 1 | 0.14 | 13.57 | 15 | PASS | 0.068 | 38.74 | 15 | <PQL |
| CCV7 | CCV | 1 | 21.72 | 0.57 | 15 | PASS | 19.94 | 3.98 | 15 | PASS |
| CCB7 | CCB | 1 | 0.13 | 25.26 | 15 | <PQL | 0.071 | 71.18 | 15 | <PQL |
| ICSA4 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.0033 | 1029.11 | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 19.48 | 0.58 | 15 | PASS | 21.02 | 3.87 | 15 | PASS |
| CCV8 | CCV | 1 | 21.7 | 1.9 | 15 | PASS | 20.25 | 0.89 | 15 | PASS |
| CCB8 | CCB | 1 | 0.25 | 16.84 | 15 | <PQL | 0.016 | 74.57 | 15 | <PQL |
| CCV9 | CCV | 1 | 21.079 | 2.61 | 15 | PASS | 19.92 | 2.42 | 15 | PASS |
| CCB9 | CCB | 1 | 0.17 | 20.34 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV10 | CCV | 1 | 21.91 | 3.54 | 15 | PASS | 19.43 | 5.96 | 15 | PASS |
| CCB10 | CCB | 1 | 0.36 | 14.0093 | 15 | PASS | 0.022 | 80.84 | 15 | <PQL |
| ICSA5 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.014 | 217.38 | 15 | <PQL |
| ICSAB5 | ICSAB | 1 | 18.97 | 3.41 | 15 | PASS | 20.26 | 1.022 | 15 | PASS |
| CCV11 | CCV | 1 | 21.46 | 1.63 | 15 | PASS | 20.3 | 4.012 | 15 | PASS |
| CCB11 | CCB | 1 | 0.31 | 25.45 | 15 | <PQL | 0.025 | 176.41 | 15 | <PQL |
| CCV12 | CCV | 1 | 21.088 | 2.34 | 15 | PASS | 20.76 | 1.098 | 15 | PASS |

**PERCENT RSD SUMMARY: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 55 Mn [2] | | | | 75 As [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| CCB12 | CCB | 1 | 0.22 | 24.49 | 15 | <PQL | 0.041 | 80.0048 | 15 | <PQL |
| CCV13 | CCV | 1 | 21.58 | 1.19 | 15 | PASS | 20.06 | 1.018 | 15 | PASS |
| CCB13 | CCB | 1 | 0.28 | 18.4 | 15 | <PQL | 0.045 | 49.62 | 15 | <PQL |
| CCV14 | CCV | 1 | 21.85 | 2.72 | 15 | PASS | 19.47 | 2.73 | 15 | PASS |
| CCB14 | CCB | 1 | 0.24 | 26.067 | 15 | <PQL | 0.043 | 24.89 | 15 | <PQL |
| CCV15 | CCV | 1 | 22.47 | 1.55 | 15 | PASS | 19.61 | 3.77 | 15 | PASS |
| CCB15 | CCB | 1 | 0.29 | 10.63 | 15 | PASS | 0.031 | 91.32 | 15 | <PQL |
| CCV15 | CCV | 1 | 21.43 | 0.81 | 15 | PASS | 19.75 | 2.68 | 15 | PASS |
| CCB15 | CCB | 1 | 0.17 | 28.054 | 15 | <PQL | 0.00011 | 6847.38 | 15 | <PQL |
| CCV16 | CCV | 1 | 21.77 | 2.87 | 15 | PASS | 20.4 | 3.56 | 15 | PASS |
| CCV16 | CCV | 1 | 21.49 | 3.29 | 15 | PASS | 20.27 | 3.96 | 15 | PASS |
| CCB16 | CCB | 1 | 0.15 | 41.38 | 15 | <PQL | 0.08 | 7.35 | 15 | PASS |

**PERCENT RSD SUMMARY: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.054 | 149.72 | 15 | <PQL | 0.06 | 22.16 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.61 | 43.94 | 15 | NR! | 0.36 | 18.28 | 15 | <PQL |
| Std3-5/50 ppb | ICAL | 1 | 4.63 | 19.84 | 15 | NR! | 4.65 | 3.4 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.48 | 15.4 | 15 | NR! | 9.57 | 1.86 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.13 | 5.38 | 15 | PASS | 20.3 | 1.083 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 38.79 | 7.26 | 15 | PASS | 42.46 | 1.33 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.43 | 3.18 | 15 | PASS | 111.33 | 1.049 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 203.86 | 3.47 | 15 | PASS | 222.92 | 0.36 | 15 | PASS |
| ICV | ICV | 1 | 9.62 | 8.6 | 15 | PASS | 9.22 | 1.14 | 15 | PASS |
| ICB | ICB | 1 | <0.000 | 0 | 15 | PASS | 0.012 | 128.73 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.48 | 49.66 | 20 | <PQL | 0.47 | 6.61 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | 0 | 15 | PASS | 0.14 | 2.7 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | 17.88 | 12.95 | 15 | PASS | 20.73 | 1.98 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.4 | 70.64 | 20 | <PQL | 0.38 | 9.87 | 20 | PASS |
| LCS-73030 | LCS | 1 | 9.3 | 15.63 | 15 | NR! | 9.77 | 1.84 | 15 | PASS |
| CCV1 | CCV | 1 | 19.14 | 2.48 | 15 | PASS | 20.83 | 1.081 | 15 | PASS |
| CCB1 | CCB | 1 | 0.035 | 155.67 | 15 | <PQL | 0.048 | 28.92 | 15 | <PQL |
| MB-73030 | MBLK | 1 | <0.000 | 0 | 15 | PASS | 0.05 | 79.27 | 15 | <PQL |
| LCS-73030 | LCS | 1 | 10.79 | 7.39 | 15 | PASS | 9.59 | 2.41 | 15 | PASS |
| N034644-001A | SAMP | 5 | 2.53 | 9.91 | 15 | PASS | 4.58 | 2.22 | 15 | PASS |
| N034644-001A | SAMP | 1 | 11.76 | 13.17 | 15 | PASS | 24.014 | 3.21 | 15 | PASS |
| N034644-001A-PS | PS | 1 | 21.34 | 4.049 | 15 | PASS | 36.6 | 0.62 | 15 | PASS |
| N034644-001AMS | MS | 1 | 22.72 | 10.92 | 15 | PASS | 36.62 | 0.25 | 15 | PASS |
| N034644-001AMSD | MSD | 1 | 21.33 | 5.2 | 15 | PASS | 36.8 | 0.39 | 15 | PASS |
| N034644-003B | SAMP | 50 | 0.45 | 35.61 | 15 | <PQL | 1.046 | 10.82 | 15 | PASS |
| N034644-001A | SAMP | 1 | 12.11 | 16.28 | 15 | NR! | 24.87 | 1.51 | 15 | PASS |
| N034644-001A | SAMP | 25 | 0.45 | 15.77 | 15 | <PQL | 1.28 | 3.15 | 15 | PASS |
| CCV2 | CCV | 1 | 18.31 | 16.15 | 15 | NR! | 20.52 | 1.62 | 15 | PASS |
| CCB2 | CCB | 1 | 0.0052 | 1096.06 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034646-001A | SAMP | 1 | 2.75 | 19.75 | 15 | NR! | 22.052 | 1.16 | 15 | PASS |
| N034644-001A-PS | PS | 5 | 4.053 | 0.66 | 15 | PASS | 7.13 | 2.69 | 15 | PASS |
| N034644-001AMS | MS | 5 | 3.88 | 4.44 | 15 | PASS | 6.57 | 5.87 | 15 | PASS |
| N034644-001AMSD | MSD | 5 | 4.42 | 8.47 | 15 | PASS | 6.72 | 2.26 | 15 | PASS |
| N034644-001A | SAMP | 50 | 0.14 | 3.12 | 15 | PASS | 0.63 | 7.79 | 15 | PASS |
| N034644-001A | SAMP | 250 | 0.11 | 157.41 | 15 | <PQL | 0.19 | 15.85 | 15 | <PQL |
| N034644-001A-PS | PS | 50 | 0.26 | 15.98 | 15 | <PQL | 0.65 | 8.8 | 15 | PASS |
| N034644-001AMS | MS | 50 | 0.78 | 33.69 | 15 | NR! | 0.69 | 4.59 | 15 | PASS |
| N034644-001AMSD | MSD | 50 | 0.52 | 38 | 15 | NR! | 0.53 | 5.35 | 15 | PASS |
| N034706-001A | SAMP | 1 | 43.81 | 4.41 | 15 | PASS | 32.45 | 2.25 | 15 | PASS |
| CCV3 | CCV | 1 | 18.58 | 7.56 | 15 | PASS | 20.83 | 1.44 | 15 | PASS |

**PERCENT RSD SUMMARY: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| CCB3 | CCB | 1 | 0.007 | 857.8 | 15 | <PQL | 0.022 | 127.34 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.22 | 30.51 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 17.39 | 10.67 | 15 | PASS | 21.88 | 1.89 | 15 | PASS |
| N034688-002B | SAMP | 1 | 1.9 | 28.56 | 15 | NR! | 5.63 | 2.79 | 15 | PASS |
| N034688-001B | SAMP | 1 | 1.42 | 12.0078 | 15 | PASS | 5.2 | 7.46 | 15 | PASS |
| N034688-003B | SAMP | 1 | 1.73 | 23.087 | 15 | NR! | 5.23 | 2.47 | 15 | PASS |
| N034688-004B | SAMP | 1 | 2.35 | 10.57 | 15 | PASS | 5.62 | 2.79 | 15 | PASS |
| N034688-005B | SAMP | 1 | 1.56 | 45.51 | 15 | NR! | 5.25 | 3.84 | 15 | PASS |
| N034688-006B | SAMP | 1 | 1.57 | 25.57 | 15 | NR! | 5.37 | 0.83 | 15 | PASS |
| N034688-007B | SAMP | 1 | 1.45 | 3.042 | 15 | PASS | 5.079 | 2.44 | 15 | PASS |
| N034688-008B | SAMP | 1 | 1.81 | 14.051 | 15 | PASS | 4.75 | 3.74 | 15 | PASS |
| N034688-009B | SAMP | 1 | 1.48 | 18.25 | 15 | NR! | 4.92 | 2.44 | 15 | PASS |
| N034688-010B | SAMP | 1 | 1.33 | 4.72 | 15 | PASS | 5.17 | 3.51 | 15 | PASS |
| CCV4 | CCV | 1 | 18.7 | 10.76 | 15 | PASS | 20.19 | 0.5 | 15 | PASS |
| CCB4 | CCB | 1 | 0.0082 | 760.68 | 15 | <PQL | 0.017 | 79.011 | 15 | <PQL |
| N034688-011B | SAMP | 1 | 1.3 | 16.03 | 15 | NR! | 5.26 | 4.86 | 15 | PASS |
| N034688-012B | SAMP | 1 | 1.98 | 27.48 | 15 | NR! | 5.27 | 2.84 | 15 | PASS |
| N034688-013B | SAMP | 1 | 1.59 | 20.039 | 15 | NR! | 5.14 | 5.2 | 15 | PASS |
| N034688-014B | SAMP | 1 | 1.079 | 18.064 | 15 | NR! | 5.78 | 3.66 | 15 | PASS |
| N034688-015B | SAMP | 1 | 0.79 | 15.66 | 15 | NR! | 6.02 | 4.15 | 15 | PASS |
| CCV5 | CCV | 1 | 19.46 | 1.87 | 15 | PASS | 21.16 | 1.059 | 15 | PASS |
| CCB5 | CCB | 1 | 0.071 | 137.87 | 15 | <PQL | 0.0074 | 392.38 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | 0 | 15 | PASS | 0.048 | 119.75 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 16.77 | 11.3 | 15 | PASS | 22.085 | 0.55 | 15 | PASS |
| CCV6 | CCV | 1 | 18.29 | 9.17 | 15 | PASS | 21.68 | 0.26 | 15 | PASS |
| CCB6 | CCB | 1 | 0.035 | 156.14 | 15 | <PQL | 0.41 | 8.91 | 15 | PASS |
| CCV7 | CCV | 1 | 18.58 | 6.64 | 15 | PASS | 21.49 | 1.5 | 15 | PASS |
| CCB7 | CCB | 1 | 0.033 | 321.31 | 15 | <PQL | 0.35 | 6.19 | 15 | PASS |
| ICSA4 | ICSA | 1 | 0.093 | 147.45 | 15 | <PQL | 0.14 | 2.52 | 15 | PASS |
| ICSAB4 | ICSAB | 1 | 19.22 | 5.97 | 15 | PASS | 22.89 | 1.76 | 15 | PASS |
| CCV8 | CCV | 1 | 17.56 | 7.42 | 15 | PASS | 21.28 | 0.74 | 15 | PASS |
| CCB8 | CCB | 1 | <0.000 | 0 | 15 | PASS | 0.045 | 44.36 | 15 | <PQL |
| CCV9 | CCV | 1 | 19.73 | 2.24 | 15 | PASS | 21.29 | 0.76 | 15 | PASS |
| CCB9 | CCB | 1 | <0.000 | 0 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV10 | CCV | 1 | 19.048 | 4.85 | 15 | PASS | 22.2 | 0.99 | 15 | PASS |
| CCB10 | CCB | 1 | 0.13 | 211.022 | 15 | <PQL | 0.36 | 24.78 | 15 | <PQL |
| ICSA5 | ICSA | 1 | 0.076 | 137.37 | 15 | <PQL | 0.3 | 29.32 | 15 | <PQL |
| ICSAB5 | ICSAB | 1 | 16.87 | 7.67 | 15 | PASS | 23.094 | 1.36 | 15 | PASS |
| CCV11 | CCV | 1 | 18.48 | 8.66 | 15 | PASS | 21.19 | 1.29 | 15 | PASS |
| CCB11 | CCB | 1 | 0.12 | 140.71 | 15 | <PQL | 0.27 | 40.49 | 15 | <PQL |
| CCV12 | CCV | 1 | 18.91 | 6.24 | 15 | PASS | 21.72 | 1.36 | 15 | PASS |

**PERCENT RSD SUMMARY: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| CCB12 | CCB | 1 | 0.076 | 133.37 | 15 | <PQL | 0.31 | 34.26 | 15 | <PQL |
| CCV13 | CCV | 1 | 19.067 | 5.26 | 15 | PASS | 21.55 | 3.29 | 15 | PASS |
| CCB13 | CCB | 1 | 0.069 | 140.041 | 15 | <PQL | 0.26 | 25.6 | 15 | <PQL |
| CCV14 | CCV | 1 | 18.4 | 7.5 | 15 | PASS | 21.95 | 0.36 | 15 | PASS |
| CCB14 | CCB | 1 | 0.042 | 143.56 | 15 | <PQL | 0.3 | 11.94 | 15 | PASS |
| CCV15 | CCV | 1 | 16.68 | 8.57 | 15 | PASS | 21.97 | 1.52 | 15 | PASS |
| CCB15 | CCB | 1 | 0.11 | 107.77 | 15 | <PQL | 0.27 | 31.7 | 15 | <PQL |
| CCV15 | CCV | 1 | 18.6 | 6.43 | 15 | PASS | 21.94 | 3.13 | 15 | PASS |
| CCB15 | CCB | 1 | 0.15 | 149.52 | 15 | <PQL | 0.34 | 13.19 | 15 | PASS |
| CCV16 | CCV | 1 | 17.8 | 3.43 | 15 | PASS | 21.6 | 0.84 | 15 | PASS |
| CCV16 | CCV | 1 | 18.5 | 7.86 | 15 | PASS | 21.54 | 3.22 | 15 | PASS |
| CCB16 | CCB | 1 | 0.0099 | 660.5 | 15 | <PQL | 0.28 | 13.062 | 15 | PASS |

**PERCENT RSD SUMMARY: 190404A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.12 | 1.53 | 15 | PASS |
| Std2-0.5/5 ppb | ICAL | 1 | 0.65 | 25.71 | 15 | NR! |
| Std3-5/50 ppb | ICAL | 1 | 4.95 | 16.69 | 15 | NR! |
| Std4-10/100 ppb | ICAL | 1 | 10.53 | 6.27 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.032 | 12.72 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 37.96 | 0.84 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.37 | 3.93 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 200.3 | 2.93 | 15 | PASS |
| ICV | ICV | 1 | 11 | 6.43 | 15 | PASS |
| ICB | ICB | 1 | 0 | N/A | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.47 | 68.84 | 20 | <PQL |
| ICSA1 | ICSA | 1 | 0.16 | 112.56 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 20.38 | 7.25 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.66 | 53.009 | 20 | NR! |
| CCV1 | CCV | 1 | 21.42 | 4.11 | 15 | PASS |
| CCB1 | CCB | 1 | 0.051 | 173.21 | 15 | <PQL |
| N034688-002B | SAMP | 1 | 2.021 | 16.92 | 15 | NR! |
| N034688-003B | SAMP | 1 | 1.4 | 54.08 | 15 | NR! |
| N034688-005B | SAMP | 1 | 1.91 | 9.25 | 15 | PASS |
| N034688-006B | SAMP | 1 | 1.68 | 34.0094 | 15 | NR! |
| N034688-009B | SAMP | 1 | 1.76 | 36.43 | 15 | NR! |
| N034688-011B | SAMP | 1 | 1.93 | 21.31 | 15 | NR! |
| N034688-012B | SAMP | 1 | 1.61 | 70.88 | 15 | NR! |
| CCV2 | CCV | 1 | 20.74 | 7.6 | 15 | PASS |
| CCB2 | CCB | 1 | 0.1 | 86.62 | 15 | <PQL |
| N034688-013B | SAMP | 1 | 1.78 | 33.29 | 15 | NR! |
| CCV3 | CCV | 1 | 19.91 | 8.12 | 15 | PASS |
| CCB3 | CCB | 1 | 0.11 | 86.68 | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 22.53 | 4.88 | 15 | PASS |
| CCV4 | CCV | 1 | 21.53 | 1.93 | 15 | PASS |
| CCB4 | CCB | 1 | 0 | N/A | 15 | <PQL |
| N034688-002B | SAMP | 1 | 1.95 | 13.022 | 15 | PASS |
| N034688-003B | SAMP | 1 | 2.052 | 8.17 | 15 | PASS |
| N034688-006B | SAMP | 1 | 1.69 | 4.55 | 15 | PASS |
| N034688-009B | SAMP | 1 | 1.32 | 10.97 | 15 | PASS |
| N034688-011B | SAMP | 1 | 2.11 | 10.36 | 15 | PASS |
| N034688-012B | SAMP | 1 | 1.97 | 9.35 | 15 | PASS |
| N034688-013B | SAMP | 1 | 1.92 | 4.37 | 15 | PASS |
| CCV5 | CCV | 1 | 20.6 | 8.82 | 15 | PASS |

**PERCENT RSD SUMMARY: 190404A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| CCB5 | CCB | 1 | 0 | N/A | 15 | <PQL |
| ICSA3 | ICSA | 1 | 0.042 | 173.21 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 20.71 | 4.77 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190401A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0401001.D | RINSE | RINSE | 1 | 04/01/19 3:17 PM |
| A0401002.D | Cal Blank | IBLK | 1 | 04/01/19 3:24 PM |
| A0401003.D | Std1-0.1/1 ppb | ICAL | 1 | 04/01/19 3:30 PM |
| A0401004.D | Std2-0.5/5 ppb | ICAL | 1 | 04/01/19 3:36 PM |
| A0401005.D | Std3-5/50 ppb | ICAL | 1 | 04/01/19 3:42 PM |
| A0401006.D | Std4-10/100 ppb | ICAL | 1 | 04/01/19 3:48 PM |
| A0401007.D | Std5-20/200 ppb | ICAL | 1 | 04/01/19 3:53 PM |
| A0401008.D | Std6-40/400 ppb | ICAL | 1 | 04/01/19 3:59 PM |
| A0401009.D | Std7-100/1000 ppb | ICAL | 1 | 04/01/19 4:05 PM |
| A0401010.D | Std8-200/2000 ppb | ICAL | 1 | 04/01/19 4:11 PM |
| A0401011.D | ICV | ICV | 1 | 04/01/19 4:19 PM |
| A0401012.D | ICB | ICB | 1 | 04/01/19 4:26 PM |
| A0401013.D | LLICV | CCV1 | 1 | 04/01/19 4:32 PM |
| A0401014.D | ICSA1 | ICSA | 1 | 04/01/19 4:38 PM |
| A0401015.D | ICSAB1 | ICSAB | 1 | 04/01/19 4:44 PM |
| A0401016.D | LLICV | CCV1 | 1 | 04/01/19 4:54 PM |
| A0401017.D | N034689-007F | SAMP | 1 | 04/01/19 5:00 PM |
| A0401018.D | N034662-004D | SAMP | 1 | 04/01/19 5:07 PM |
| A0401019.D | N034707-003F | SAMP | 1 | 04/01/19 5:13 PM |
| A0401020.D | N034707-004F | SAMP | 1 | 04/01/19 5:19 PM |
| A0401021.D | N034707-003G | SAMP | 1 | 04/01/19 5:25 PM |
| A0401022.D | N034707-004G | SAMP | 1 | 04/01/19 5:31 PM |
| A0401023.D | RINSE | RINSE | 1 | 04/01/19 5:37 PM |
| A0401024.D | RINSE | RINSE | 1 | 04/01/19 5:43 PM |
| A0401025.D | RINSE | RINSE | 1 | 04/01/19 5:49 PM |
| A0401026.D | LCS-73030 | LCS | 1 | 04/01/19 5:55 PM |
| A0401027.D | CCV1 | CCV | 1 | 04/01/19 6:01 PM |
| A0401028.D | CCB1 | CCB | 1 | 04/01/19 6:08 PM |
| A0401029.D | MB-73030 | MBLK | 1 | 04/01/19 6:14 PM |
| A0401030.D | LCS-73030 | LCS | 1 | 04/01/19 6:20 PM |
| A0401031.D | N034644-001A | SAMP | 5 | 04/01/19 6:26 PM |
| A0401032.D | N034644-001A | SAMP | 1 | 04/01/19 6:32 PM |
| A0401033.D | N034644-001A-PS | PS | 1 | 04/01/19 6:38 PM |
| A0401034.D | N034644-001AMS | MS | 1 | 04/01/19 6:44 PM |
| A0401035.D | N034644-001AMSD | MSD | 1 | 04/01/19 6:50 PM |
| A0401036.D | N034644-003B | SAMP | 50 | 04/01/19 6:55 PM |
| A0401037.D | N034644-001A | SAMP | 1 | 04/01/19 7:01 PM |
| A0401038.D | N034644-001A | SAMP | 25 | 04/01/19 7:07 PM |
| A0401039.D | CCV2 | CCV | 1 | 04/01/19 7:13 PM |
| A0401040.D | CCB2 | CCB | 1 | 04/01/19 7:20 PM |
| A0401041.D | N034646-001A | SAMP | 1 | 04/01/19 7:26 PM |
| A0401042.D | N034644-001A-PS | PS | 5 | 04/01/19 7:32 PM |

**INJECTION LOG: 190401A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0401043.D | N034644-001AMS | MS | 5 | 04/01/19 7:37 PM |
| A0401044.D | N034644-001AMSD | MSD | 5 | 04/01/19 7:43 PM |
| A0401045.D | N034644-001A | SAMP | 50 | 04/01/19 7:49 PM |
| A0401046.D | N034644-001A | SAMP | 250 | 04/01/19 7:57 PM |
| A0401047.D | N034644-001A-PS | PS | 50 | 04/01/19 8:03 PM |
| A0401048.D | N034644-001AMS | MS | 50 | 04/01/19 8:09 PM |
| A0401049.D | N034644-001AMSD | MSD | 50 | 04/01/19 8:15 PM |
| A0401050.D | N034706-001A | SAMP | 1 | 04/01/19 8:21 PM |
| A0401051.D | CCV3 | CCV | 1 | 04/01/19 8:26 PM |
| A0401052.D | CCB3 | CCB | 1 | 04/01/19 8:32 PM |
| A0401053.D | ICSA3 2 | ICSA | 1 | 04/01/19 8:38 PM |
| A0401054.D | ICSAB3 2 | ICSAB | 1 | 04/01/19 8:44 PM |
| A0401055.D | N034688-002B | SAMP | 1 | 04/01/19 8:50 PM |
| A0401056.D | N034688-001B | SAMP | 1 | 04/01/19 8:56 PM |
| A0401057.D | N034688-003B | SAMP | 1 | 04/01/19 9:02 PM |
| A0401058.D | N034688-004B | SAMP | 1 | 04/01/19 9:08 PM |
| A0401059.D | N034688-005B | SAMP | 1 | 04/01/19 9:14 PM |
| A0401060.D | N034688-006B | SAMP | 1 | 04/01/19 9:20 PM |
| A0401061.D | N034688-007B | SAMP | 1 | 04/01/19 9:26 PM |
| A0401062.D | N034688-008B | SAMP | 1 | 04/01/19 9:32 PM |
| A0401063.D | N034688-009B | SAMP | 1 | 04/01/19 9:38 PM |
| A0401064.D | N034688-010B | SAMP | 1 | 04/01/19 9:43 PM |
| A0401065.D | CCV4 | CCV | 1 | 04/01/19 9:49 PM |
| A0401066.D | CCB4 | CCB | 1 | 04/01/19 9:54 PM |
| A0401067.D | N034688-011B | SAMP | 1 | 04/01/19 10:01 PM |
| A0401068.D | N034688-012B | SAMP | 1 | 04/01/19 10:07 PM |
| A0401069.D | N034688-013B | SAMP | 1 | 04/01/19 10:13 PM |
| A0401070.D | N034688-014B | SAMP | 1 | 04/01/19 10:19 PM |
| A0401071.D | N034688-015B | SAMP | 1 | 04/01/19 10:25 PM |
| A0401072.D | MB-73139 | MBLK | 1 | 04/01/19 10:31 PM |
| A0401073.D | LCS-73139 | LCS | 1 | 04/01/19 10:37 PM |
| A0401074.D | N034839-001A | SAMP | 1 | 04/01/19 10:43 PM |
| A0401075.D | N034839-001A | SAMP | 5 | 04/01/19 10:49 PM |
| A0401076.D | N034839-001A-PS | PS | 1 | 04/01/19 10:55 PM |
| A0401077.D | CCV5 | CCV | 1 | 04/01/19 11:01 PM |
| A0401078.D | CCB5 | CCB | 1 | 04/01/19 11:08 PM |
| A0401079.D | ICSA3 | ICSA | 1 | 04/01/19 11:12 PM |
| A0401081.D | ICSAB3 | ICSAB | 1 | 04/01/19 11:18 PM |
| A0401082.D | N034839-001A-MS | MS | 1 | 04/01/19 11:24 PM |
| A0401083.D | N034839-001A-MSD | MSD | 1 | 04/01/19 11:30 PM |
| A0401084.D | N034839-002A | SAMP | 1 | 04/01/19 11:36 PM |
| A0401085.D | N034839-003A | SAMP | 1 | 04/01/19 11:42 PM |

NS 4/9/2019

**INJECTION LOG: 190401A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0401086.D | N034839-004A | SAMP | 1 | 04/01/19 11:48 PM |
| A0401087.D | N034839-005A | SAMP | 1 | 04/01/19 11:54 PM |
| A0401088.D | N034839-006A | SAMP | 1 | 04/02/19 12:00 AM |
| A0401089.D | N034839-007A | SAMP | 1 | 04/02/19 12:06 AM |
| A0401090.D | N034836-005A | SAMP | 1 | 04/02/19 12:12 AM |
| A0401091.D | N034836-010A | SAMP | 1 | 04/02/19 12:18 AM |
| A0401092.D | CCV6 | CCV | 1 | 04/02/19 12:24 AM |
| A0401093.D | CCB6 | CCB | 1 | 04/02/19 12:30 AM |
| A0401094.D | N034836-015A | SAMP | 1 | 04/02/19 12:36 AM |
| A0401095.D | CCV7 | CCV | 1 | 04/02/19 12:42 AM |
| A0401096.D | CCB7 | CCB | 1 | 04/02/19 12:48 AM |
| A0401097.D | ICSA4 | ICSA | 1 | 04/02/19 12:54 AM |
| A0401098.D | ICSAB4 | ICSAB | 1 | 04/02/19 1:00 AM |
| A0401099.D | MB-73051 | MBLK | 1 | 04/02/19 2:28 AM |
| A0401100.D | LCS-73051 | LCS | 1 | 04/02/19 3:33 AM |
| A0401101.D | N034667-007A | SAMP | 1 | 04/02/19 3:38 AM |
| A0401102.D | N034667-007A | SAMP | 5 | 04/02/19 3:44 AM |
| A0401103.D | N034667-007A-PS | PS | 1 | 04/02/19 3:50 AM |
| A0401104.D | N034667-007A-MS | MS | 1 | 04/02/19 3:56 AM |
| A0401105.D | N034667-007A-MSD | MSD | 1 | 04/02/19 4:02 AM |
| A0401106.D | N034676-001A | SAMP | 1 | 04/02/19 4:08 AM |
| A0401107.D | N034676-002A | SAMP | 1 | 04/02/19 4:14 AM |
| A0401108.D | N034676-003A | SAMP | 1 | 04/02/19 4:20 AM |
| A0401109.D | CCV8 | CCV | 1 | 04/02/19 4:26 AM |
| A0401110.D | CCB8 | CCB | 1 | 04/02/19 4:32 AM |
| A0401111.D | N034677-001A | SAMP | 1 | 04/02/19 4:38 AM |
| A0401112.D | N034677-002A | SAMP | 1 | 04/02/19 4:44 AM |
| A0401113.D | N034677-003A | SAMP | 1 | 04/02/19 4:50 AM |
| A0401114.D | N034667-007A | SAMP | 25 | 04/02/19 4:55 AM |
| A0401115.D | N034667-007A-PS | PS | 5 | 04/02/19 5:01 AM |
| A0401116.D | N034667-007A-MS | MS | 5 | 04/02/19 5:07 AM |
| A0401117.D | N034667-007A-MSD | MSD | 5 | 04/02/19 5:13 AM |
| A0401118.D | N034676-001A | SAMP | 5 | 04/02/19 5:19 AM |
| A0401119.D | N034676-002A | SAMP | 5 | 04/02/19 5:25 AM |
| A0401120.D | N034676-003A | SAMP | 5 | 04/02/19 5:31 AM |
| A0401121.D | CCV9 | CCV | 1 | 04/02/19 5:37 AM |
| A0401122.D | CCB9 | CCB | 1 | 04/02/19 5:43 AM |
| A0401123.D | N034677-001A | SAMP | 5 | 04/02/19 5:49 AM |
| A0401124.D | N034677-002A | SAMP | 5 | 04/02/19 5:55 AM |
| A0401125.D | N034677-003A | SAMP | 5 | 04/02/19 6:01 AM |
| A0401126.D | MB-72980 | MBLK | 1 | 04/02/19 6:08 AM |
| A0401127.D | LCS-72980 | LCS | 1 | 04/02/19 6:12 AM |

**INJECTION LOG: 190401A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0401128.D | N034672-001A | SAMP | 1 | 04/02/19 6:18 AM |
| A0401129.D | N034672-001A | SAMP | 5 | 04/02/19 6:25 AM |
| A0401130.D | N034672-001A-PS | PS | 1 | 04/02/19 6:31 AM |
| A0401131.D | N034672-001A-MS | MS | 1 | 04/02/19 6:37 AM |
| A0401132.D | N034672-001A-MSD | MSD | 1 | 04/02/19 6:43 AM |
| A0401133.D | CCV10 | CCV | 1 | 04/02/19 6:49 AM |
| A0401134.D | CCB10 | CCB | 1 | 04/02/19 6:55 AM |
| A0401135.D | ICSA5 | ICSA | 1 | 04/02/19 7:02 AM |
| A0401136.D | ICSAB5 | ICSAB | 1 | 04/02/19 7:08 AM |
| A0401137.D | N034672-002A | SAMP | 1 | 04/02/19 9:57 AM |
| A0401138.D | N034672-003A | SAMP | 1 | 04/02/19 10:03 AM |
| A0401139.D | N034672-004A | SAMP | 1 | 04/02/19 10:09 AM |
| A0401140.D | N034672-001A | SAMP | 25 | 04/02/19 10:15 AM |
| A0401141.D | N034672-001A-PS | PS | 5 | 04/02/19 10:21 AM |
| A0401142.D | N034672-001A-MS | MS | 5 | 04/02/19 10:27 AM |
| A0401143.D | N034672-001A-MSD | MSD | 5 | 04/02/19 10:34 AM |
| A0401144.D | N034673-001A | SAMP | 1 | 04/02/19 10:40 AM |
| A0401145.D | N034673-002A | SAMP | 1 | 04/02/19 10:46 AM |
| A0401146.D | N034673-003A | SAMP | 1 | 04/02/19 10:52 AM |
| A0401147.D | CCV11 | CCV | 1 | 04/02/19 10:58 AM |
| A0401148.D | CCB11 | CCB | 1 | 04/02/19 11:04 AM |
| A0401149.D | N034673-004A | SAMP | 1 | 04/02/19 11:10 AM |
| A0401150.D | N034673-005A | SAMP | 1 | 04/02/19 11:16 AM |
| A0401151.D | N034673-006A | SAMP | 1 | 04/02/19 11:22 AM |
| A0401152.D | N034673-007A | SAMP | 1 | 04/02/19 11:27 AM |
| A0401153.D | N034673-001A | SAMP | 5 | 04/02/19 11:33 AM |
| A0401154.D | N034673-002A | SAMP | 5 | 04/02/19 11:40 AM |
| A0401155.D | N034673-003A | SAMP | 5 | 04/02/19 11:47 AM |
| A0401156.D | N034673-004A | SAMP | 5 | 04/02/19 11:53 AM |
| A0401157.D | N034673-005A | SAMP | 5 | 04/02/19 11:59 AM |
| A0401158.D | N034673-006A | SAMP | 5 | 04/02/19 12:05 PM |
| A0401159.D | CCV12 | CCV | 1 | 04/02/19 12:11 PM |
| A0401160.D | CCB12 | CCB | 1 | 04/02/19 12:17 PM |
| A0401161.D | N034673-007A | SAMP | 5 | 04/02/19 12:23 PM |
| A0401162.D | N034674-001A | SAMP | 1 | 04/02/19 12:29 PM |
| A0401163.D | N034674-002A | SAMP | 1 | 04/02/19 12:37 PM |
| A0401164.D | N034674-003A | SAMP | 1 | 04/02/19 12:43 PM |
| A0401165.D | N034674-004A | SAMP | 1 | 04/02/19 12:49 PM |
| A0401166.D | N034674-001A | SAMP | 5 | 04/02/19 12:55 PM |
| A0401167.D | N034674-002A | SAMP | 5 | 04/02/19 1:01 PM |
| A0401168.D | N034674-003A | SAMP | 5 | 04/02/19 1:14 PM |
| A0401169.D | N034674-004A | SAMP | 5 | 04/02/19 1:20 PM |

**INJECTION LOG: 190401A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0401170.D | N034675-001A | SAMP | 1 | 04/02/19 1:26 PM |
| A0401171.D | CCV13 | CCV | 1 | 04/02/19 1:32 PM |
| A0401172.D | CCB13 | CCB | 1 | 04/02/19 1:38 PM |
| A0401173.D | MB-73051 | MBLK | 1 | 04/02/19 1:44 PM |
| A0401174.D | MB-72980 | MBLK | 1 | 04/02/19 1:50 PM |
| A0401175.D | N034667-007A | SAMP | 1 | 04/02/19 1:56 PM |
| A0401176.D | N034676-001A | SAMP | 1 | 04/02/19 2:02 PM |
| A0401177.D | N034676-002A | SAMP | 1 | 04/02/19 2:08 PM |
| A0401178.D | N034676-003A | SAMP | 1 | 04/02/19 2:14 PM |
| A0401179.D | N034677-001A | SAMP | 1 | 04/02/19 2:20 PM |
| A0401180.D | N034677-002A | SAMP | 1 | 04/02/19 2:26 PM |
| A0401181.D | N034677-003A | SAMP | 1 | 04/02/19 2:31 PM |
| A0401182.D | N034672-001A | SAMP | 1 | 04/02/19 2:37 PM |
| A0401183.D | CCV14 | CCV | 1 | 04/02/19 2:43 PM |
| A0401184.D | CCB14 | CCB | 1 | 04/02/19 2:49 PM |
| A0401185.D | N034673-001A | SAMP | 1 | 04/02/19 2:55 PM |
| A0401186.D | N034673-002A | SAMP | 1 | 04/02/19 3:01 PM |
| A0401187.D | N034673-002A | SAMP | 5 | 04/02/19 3:07 PM |
| A0401188.D | N034673-002A | SAMP | 25 | 04/02/19 3:14 PM |
| A0401189.D | N034673-003A | SAMP | 1 | 04/02/19 3:20 PM |
| A0401190.D | N034672-002A | SAMP | 1 | 04/02/19 3:26 PM |
| A0401191.D | N034672-002A | SAMP | 5 | 04/02/19 3:32 PM |
| A0401192.D | N034672-003A | SAMP | 1 | 04/02/19 3:38 PM |
| A0401193.D | N034672-004A | SAMP | 1 | 04/02/19 3:44 PM |
| A0401194.D | N034674-001A | SAMP | 1 | 04/02/19 3:50 PM |
| A0401195.D | CCV15 | CCV | 1 | 04/02/19 3:56 PM |
| A0401196.D | CCB15 | CCB | 1 | 04/02/19 4:02 PM |
| A0401197.D | CCV15 | CCV | 1 | 04/02/19 4:08 PM |
| A0401198.D | CCB15 | CCB | 1 | 04/02/19 4:14 PM |
| A0401199.D | N034675-002A | SAMP | 1 | 04/02/19 4:20 PM |
| A0401200.D | N034675-003A | SAMP | 1 | 04/02/19 4:27 PM |
| A0401201.D | N034675-004A | SAMP | 1 | 04/02/19 4:33 PM |
| A0401202.D | N034675-005A | SAMP | 1 | 04/02/19 4:39 PM |
| A0401203.D | N034675-001A | SAMP | 5 | 04/02/19 4:45 PM |
| A0401204.D | N034675-002A | SAMP | 1 | 04/02/19 4:51 PM |
| A0401205.D | N034675-003A | SAMP | 5 | 04/02/19 4:56 PM |
| A0401206.D | N034675-004A | SAMP | 5 | 04/02/19 5:02 PM |
| A0401207.D | N034675-005A | SAMP | 1 | 04/02/19 5:08 PM |
| A0401208.D | N034675-005A | SAMP | 5 | 04/02/19 5:14 PM |
| A0401209.D | CCV16 | CCV | 1 | 04/02/19 5:20 PM |
| A0401210.D | CCV16 | CCV | 1 | 04/02/19 5:22 PM |
| A0401211.D | CCB16 | CCB | 1 | 04/02/19 5:28 PM |

**INJECTION LOG: 190404A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0404001.D | RINSE | RINSE | 1 | 04/04/19 1:59 PM |
| A0404002.D | Cal Blank | IBLK | 1 | 04/04/19 2:05 PM |
| A0404003.D | Std1-0.1/1 ppb | ICAL | 1 | 04/04/19 2:11 PM |
| A0404004.D | Std2-0.5/5 ppb | ICAL | 1 | 04/04/19 2:17 PM |
| A0404005.D | Std3-5/50 ppb | ICAL | 1 | 04/04/19 2:23 PM |
| A0404006.D | Std4-10/100 ppb | ICAL | 1 | 04/04/19 2:29 PM |
| A0404007.D | Std5-20/200 ppb | ICAL | 1 | 04/04/19 2:35 PM |
| A0404008.D | Std6-40/400 ppb | ICAL | 1 | 04/04/19 2:41 PM |
| A0404009.D | Std7-100/1000 ppb | ICAL | 1 | 04/04/19 2:47 PM |
| A0404010.D | Std8-200/2000 ppb | ICAL | 1 | 04/04/19 2:53 PM |
| A0404011.D | ICV | ICV | 1 | 04/04/19 2:59 PM |
| A0404012.D | ICB | ICB | 1 | 04/04/19 3:05 PM |
| A0404013.D | LLICV | CCV1 | 1 | 04/04/19 3:11 PM |
| A0404014.D | ICSA1 | ICSA | 1 | 04/04/19 3:17 PM |
| A0404015.D | ICSAB1 | ICSAB | 1 | 04/04/19 3:24 PM |
| A0404016.D | LLICV | CCV1 | 1 | 04/04/19 3:31 PM |
| A0404017.D | MB-73205 | MBLK | 1 | 04/04/19 3:54 PM |
| A0404018.D | LCS-73205 | LCS | 1 | 04/04/19 4:00 PM |
| A0404019.D | N034919-001A | SAMP | 1 | 04/04/19 4:06 PM |
| A0404020.D | N034919-001A | SAMP | 5 | 04/04/19 4:12 PM |
| A0404021.D | N034919-001A | SAMP | 1 | 04/04/19 4:18 PM |
| A0404022.D | N034919-001A-PS | PS | 1 | 04/04/19 4:24 PM |
| A0404023.D | N034919-001A-MS | MS | 1 | 04/04/19 4:31 PM |
| A0404024.D | N034919-001A-MSD | MSD | 1 | 04/04/19 4:36 PM |
| A0404025.D | N034919-001A | SAMP | 1 | 04/04/19 4:43 PM |
| A0404026.D | N034880-001E | SAMP | 1 | 04/04/19 4:49 PM |
| A0404027.D | CCV1 | CCV | 1 | 04/04/19 4:55 PM |
| A0404028.D | CCB1 | CCB | 1 | 04/04/19 5:01 PM |
| A0404029.D | N034880-002E | SAMP | 1 | 04/04/19 5:07 PM |
| A0404030.D | N034880-003C | SAMP | 1 | 04/04/19 5:13 PM |
| A0404031.D | N034889-003C | SAMP | 1 | 04/04/19 5:18 PM |
| A0404032.D | N034688-002B | SAMP | 1 | 04/04/19 5:24 PM |
| A0404033.D | N034688-003B | SAMP | 1 | 04/04/19 5:30 PM |
| A0404034.D | N034688-005B | SAMP | 1 | 04/04/19 5:36 PM |
| A0404035.D | N034688-006B | SAMP | 1 | 04/04/19 5:42 PM |
| A0404036.D | N034688-009B | SAMP | 1 | 04/04/19 5:48 PM |
| A0404037.D | N034688-011B | SAMP | 1 | 04/04/19 5:54 PM |
| A0404038.D | N034688-012B | SAMP | 1 | 04/04/19 6:00 PM |
| A0404039.D | CCV2 | CCV | 1 | 04/04/19 6:06 PM |
| A0404040.D | CCB2 | CCB | 1 | 04/04/19 6:19 PM |
| A0404041.D | N034688-013B | SAMP | 1 | 04/04/19 6:25 PM |
| A0404042.D | MB-73032 | MBLK | 1 | 04/04/19 6:31 PM |

**INJECTION LOG: 190404A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0404043.D | LCS-73032 | LCS | 1 | 04/04/19 6:37 PM |
| A0404044.D | N034708-001B | SAMP | 1 | 04/04/19 6:43 PM |
| A0404045.D | N034708-001B | SAMP | 5 | 04/04/19 6:49 PM |
| A0404046.D | N034708-001B-PS | PS | 1 | 04/04/19 6:54 PM |
| A0404047.D | N034708-001B-MS | MS | 1 | 04/04/19 7:00 PM |
| A0404048.D | N034708-001B-MSD | MSD | 1 | 04/04/19 7:07 PM |
| A0404049.D | N034708-002B | SAMP | 1 | 04/04/19 7:12 PM |
| A0404050.D | N034708-003B | SAMP | 1 | 04/04/19 7:18 PM |
| A0404051.D | CCV3 | CCV | 1 | 04/04/19 7:24 PM |
| A0404052.D | CCB3 | CCB | 1 | 04/04/19 7:30 PM |
| A0404053.D | ICSA2 | ICSA | 1 | 04/04/19 7:36 PM |
| A0404054.D | ICSAB2 | ICSAB | 1 | 04/04/19 7:42 PM |
| A0404055.D | N034708-004B | SAMP | 1 | 04/04/19 7:48 PM |
| A0404056.D | N034708-005B | SAMP | 1 | 04/04/19 7:55 PM |
| A0404057.D | N034708-006B | SAMP | 1 | 04/04/19 8:01 PM |
| A0404058.D | N034708-007B | SAMP | 1 | 04/04/19 8:07 PM |
| A0404059.D | N034708-008B | SAMP | 1 | 04/04/19 8:14 PM |
| A0404060.D | N034708-009B | SAMP | 1 | 04/04/19 8:20 PM |
| A0404061.D | N034708-010B | SAMP | 1 | 04/04/19 8:26 PM |
| A0404062.D | N034708-011B | SAMP | 1 | 04/04/19 8:29 PM |
| A0404063.D | N034708-012B | SAMP | 1 | 04/04/19 8:36 PM |
| A0404064.D | N034708-013B | SAMP | 1 | 04/04/19 8:42 PM |
| A0404065.D | CCV4 | CCV | 1 | 04/04/19 8:47 PM |
| A0404066.D | CCB4 | CCB | 1 | 04/04/19 8:52 PM |
| A0404067.D | N034880-003C | SAMP | 1 | 04/04/19 8:59 PM |
| A0404068.D | N034889-003C | SAMP | 1 | 04/04/19 9:05 PM |
| A0404069.D | N034688-002B | SAMP | 1 | 04/04/19 9:10 PM |
| A0404070.D | N034688-003B | SAMP | 1 | 04/04/19 9:17 PM |
| A0404071.D | N034688-006B | SAMP | 1 | 04/04/19 9:22 PM |
| A0404072.D | N034688-009B | SAMP | 1 | 04/04/19 9:27 PM |
| A0404073.D | N034688-011B | SAMP | 1 | 04/04/19 9:35 PM |
| A0404074.D | N034688-012B | SAMP | 1 | 04/04/19 9:43 PM |
| A0404075.D | N034688-013B | SAMP | 1 | 04/04/19 9:47 PM |
| A0404076.D | N034708-001B | SAMP | 1 | 04/04/19 9:53 PM |
| A0404077.D | CCV5 | CCV | 1 | 04/04/19 9:58 PM |
| A0404078.D | CCB5 | CCB | 1 | 04/04/19 10:04 PM |
| A0404079.D | ICSA3 | ICSA | 1 | 04/04/19 10:10 PM |
| A0404080.D | ICSAB3 | ICSAB | 1 | 04/04/19 10:16 PM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/22/2019 8:00:00 A**
Prep End Date: **3/22/2019 1:00:00 P**

Reviewed/ Date: 4/17/2019

Initials/ Date: 4/17/2019

Prep Batch **73030** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.5** | **01-19** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-73030 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-73030 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034644-001A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034644-001AMS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034644-001AMS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034644-003B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034646-001A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-003B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-004B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-005B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-006B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-007B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10549 | NITRIC ACID |
| 10553 | HYDROCHLORIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/22/2019 8:00:00 A**
Prep End Date: **3/22/2019 1:00:00 P**

Reviewed/ Date: 4/17/2019

Initials/ Date: 4/17/2019

Prep Batch **73030** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.5** | **01-19** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| N034688-008B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-009B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-010B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-011B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-012B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-013B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-014B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034688-015B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034706-001A | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10549 | NITRIC ACID |
| 10553 | HYDROCHLORIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

# INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 1 Apr 2019 08:15:29 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 105221.00 | 0.00 | |
| 24 Mg | 321638.00 | 0.00 | |
| 25 Mg | 40811.20 | 0.00 | |
| 26 Mg | 46107.50 | 0.00 | |
| 59 Co | 184869.00 | 0.00 | |
| 115 In | 270635.00 | 0.00 | |
| 206 Pb | 89481.30 | 0.00 | |
| 207 Pb | 78254.60 | 0.00 | |
| 208 Pb | 192546.00 | 0.00 | |

RSD (%)

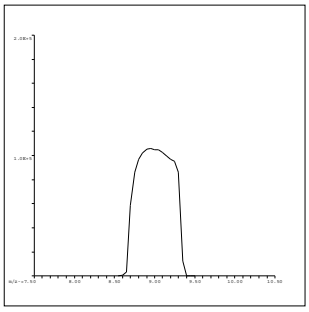
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 0.82 | 5.00 | |
| 24 Mg | 0.64 | 5.00 | |
| 25 Mg | 1.43 | 5.00 | |
| 26 Mg | 1.61 | 5.00 | |
| 59 Co | 1.05 | 5.00 | |
| 115 In | 0.49 | 5.00 | |
| 206 Pb | 1.10 | 5.00 | |
| 207 Pb | 0.74 | 5.00 | |
| 208 Pb | 0.77 | 5.00 | |

Ion Ratio

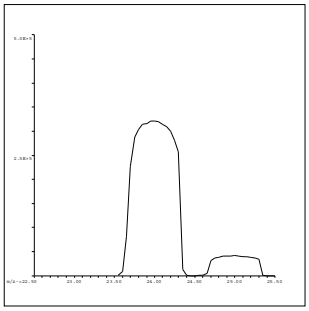
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | | | |
| 24 Mg | | | |
| 25 Mg | | | |
| 26 Mg | | | |
| 59 Co | | | |
| 115 In | | | |
| 206 Pb | | | |
| 207 Pb | | | |
| 208 Pb | | | |

Maximum Bkg. Count(CPS)

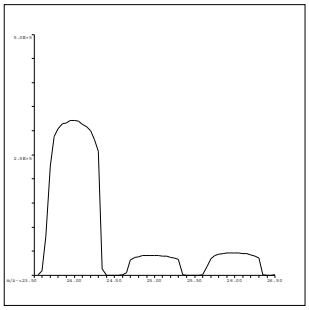
| Element | Actual | Required | Flag |
|---|---|---|---|



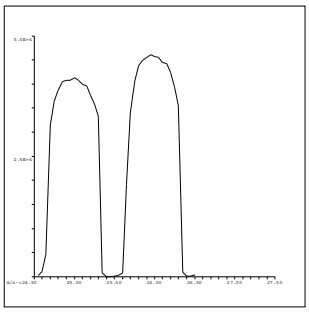
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



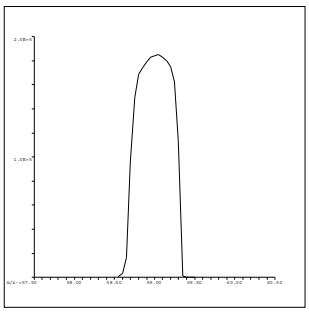
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



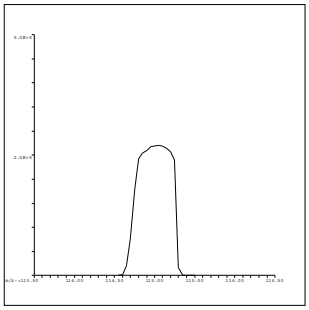
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



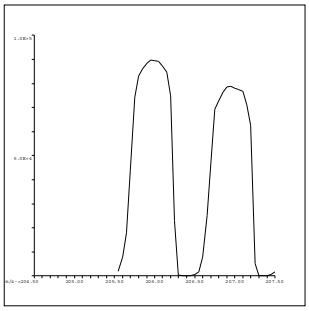
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



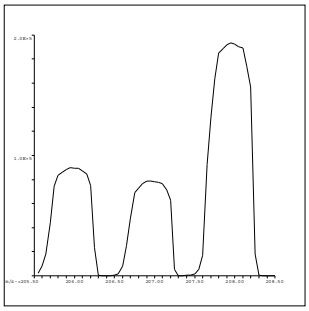
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



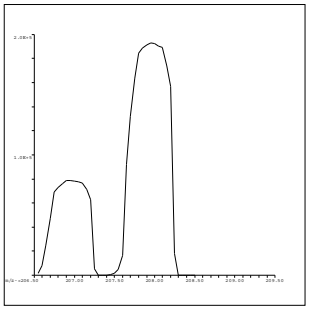
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 4 Apr 2019 12:22:21 pm
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 97427.00 | 0.00 | |
| 24 Mg | 241382.00 | 0.00 | |
| 25 Mg | 30802.10 | 0.00 | |
| 26 Mg | 34760.70 | 0.00 | |
| 59 Co | 119304.00 | 0.00 | |
| 115 In | 144326.00 | 0.00 | |
| 206 Pb | 51660.40 | 0.00 | |
| 207 Pb | 44523.60 | 0.00 | |
| 208 Pb | 111558.00 | 0.00 | |

RSD (%)

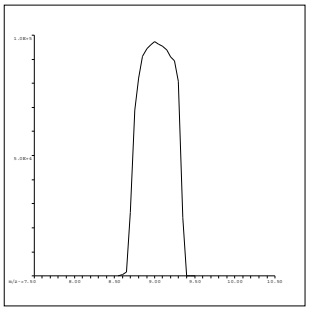
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 1.11 | 5.00 | |
| 24 Mg | 2.26 | 5.00 | |
| 25 Mg | 1.12 | 5.00 | |
| 26 Mg | 1.89 | 5.00 | |
| 59 Co | 1.01 | 5.00 | |
| 115 In | 1.16 | 5.00 | |
| 206 Pb | 0.62 | 5.00 | |
| 207 Pb | 0.49 | 5.00 | |
| 208 Pb | 1.00 | 5.00 | |

Ion Ratio

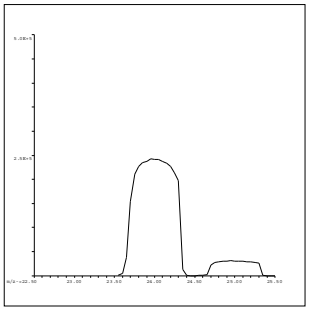
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | | | |
| 24 Mg | | | |
| 25 Mg | | | |
| 26 Mg | | | |
| 59 Co | | | |
| 115 In | | | |
| 206 Pb | | | |
| 207 Pb | | | |
| 208 Pb | | | |

Maximum Bkg. Count(CPS)

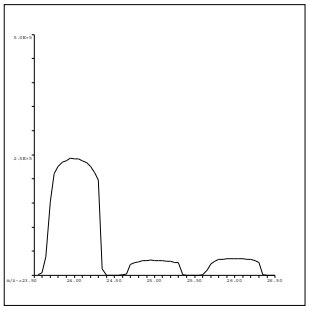
| Element | Actual | Required | Flag |
|---|---|---|---|



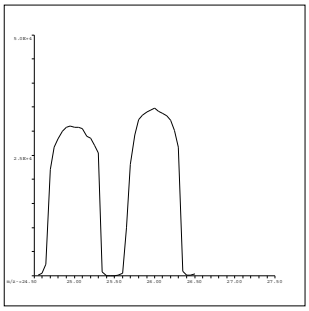
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



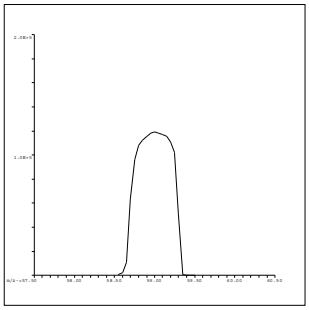
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



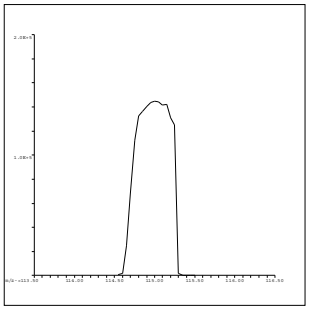
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



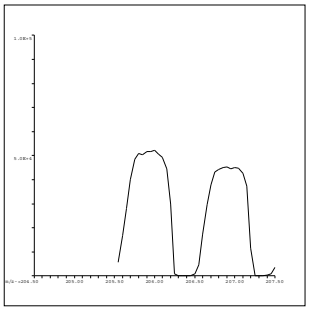
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



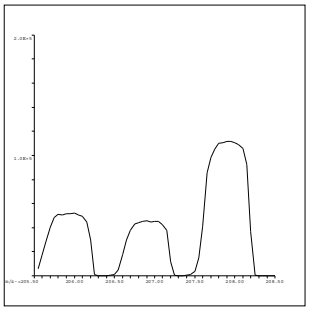
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



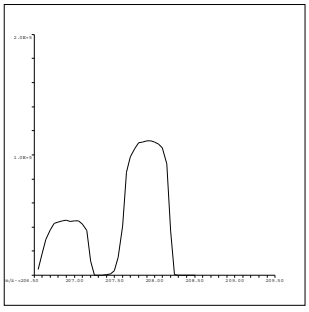
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 205.90
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.90
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190401A**

**Instrument ID: ICPMS-02**

| Analyte | Data File | A0401002.D | A0401003.D | A0401004.D | A0401005.D | A0401006.D | A0401007.D | A0401008.D | A0401009.D | A0401010.D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 04/01/2019 03:24 PM | 04/01/2019 03:30 PM | 04/01/2019 03:36 PM | 04/01/2019 03:42 PM | 04/01/2019 03:48 PM | 04/01/2019 03:53 PM | 04/01/2019 03:59 PM | 04/01/2019 04:05 PM | 04/01/2019 04:11 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std1-0.1/1 ppb | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.1/1 ug/L | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 45 Sc ( ISTD ) [ 2 ] | CPS | 27028.1 | | 26872.3 | 27281.9 | 27633.6 | 26788.8 | 27056 | 26429.3 | 25861.9 | |
| 55 Mn [ 2 ] | CPS | 22.2 | | 527.2 | 4998.2 | 9653.5 | 18640 | 37723.7 | 89898 | 174921.7 | 1.0000 |
| 52 Cr [ 2 ] | CPS | 1031.1 | | 1910.1 | 10783.6 | 20575.1 | 38891 | 77280.6 | 183445.4 | 357086.1 | 1.0000 |
| 72 Ge ( ISTD ) [ 1 ] | CPS | 11753.5 | | 11974.7 | 12057.1 | 12153.8 | 11674.6 | 11915.8 | 11488.8 | 11157.5 | |
| 78 Se [ 1 ] | CPS | 1.1 | | 25.6 | 190 | 431.1 | 796.7 | 1565.7 | 3907.3 | 7696.5 | 0.9999 |
| 72 Ge ( ISTD ) [ 2 ] | CPS | 15349.9 | 15847.1 | 15532.3 | 15252 | 15551.2 | 15318.7 | 15100.8 | 14766 | 14602.5 | |
| 75 As [ 2 ] | CPS | 10.2 | 37.8 | 115.1 | 1030.7 | 2023.7 | 3844 | 7725 | 18839.3 | 36613.3 | 1.0000 |
| 103 Rh ( ISTD ) [ 2 ] | CPS | 420857.5 | | 419259.8 | 424558.8 | 426960.8 | 416616.3 | 419509.3 | 404227.1 | 396859.7 | |
| 95 Mo [ 2 ] | CPS | 73.3 | | 367.8 | 3883.9 | 7960 | 16395.5 | 34443.2 | 86906.7 | 170771.5 | 0.9995 |
| 159 Tb ( ISTD ) [ 3 ] | CPS | 1464495.4 | | 1489537.7 | 1501999.5 | 1653545.3 | 1516033.6 | 1663725.6 | 1607242.7 | 1607243.2 | |
| 137 Ba [ 3 ] | CPS | 4.6 | | 1053.9 | 10593.7 | 23124.2 | 43037.5 | 90576.9 | 218741.6 | 432048.6 | 1.0000 |

| Standard Code |
|---|
| ICAL: 2MSST-180608B |
| ICAL: 2MSST-180205B |
| ICAL: 2MWST-181001C |
| IS Mix: 2MWST-181126B |

Calibration Acceptance Criteria: > 0.995 Correlation

**INITIAL CALIBRATION SUMMARY: 190404A**

**Instrument ID: ICPMS-02**

| Analyte | Data File | A0404002.D | A0404004.D | A0404005.D | A0404006.D | A0404007.D | A0404008.D | A0404009.D | A0404010.D | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 04/04/2019 02:05 PM | 04/04/2019 02:17 PM | 04/04/2019 02:23 PM | 04/04/2019 02:29 PM | 04/04/2019 02:35 PM | 04/04/2019 02:41 PM | 04/04/2019 02:47 PM | 04/04/2019 02:53 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 72 Ge ( ISTD ) [ 1 ] | CPS | 8124.5 | 8578.1 | 8526.9 | 8440.2 | 8505.8 | 8530.3 | 8175.6 | 7887.7 | |
| 78 Se [ 1 ] | CPS | 0 | 18.9 | 143.3 | 302.2 | 548.9 | 1100.1 | 2787 | 5368.8 | 0.9999 |

| Standard Code |
|---|
| ICAL: 2MSST-180608B |
| ICAL: 2MSST-180205B |
| ICAL: 2MWST-181001C |
| IS Mix: 2MWST-181126B |

Calibration Acceptance Criteria: > 0.995 Correlation

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336531** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 10.326 | 0.10 | 10.00 | 0 | 103 | 90 | 110 | | | | |
| Barium | 9.919 | 1.0 | 10.00 | 0 | 99.2 | 90 | 110 | | | | |
| Manganese | 106.825 | 0.50 | 100.0 | 0 | 107 | 90 | 110 | | | | |
| Molybdenum | 9.217 | 0.50 | 10.00 | 0 | 92.2 | 90 | 110 | | | | |
| Selenium | 9.615 | 0.50 | 10.00 | 0 | 96.2 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336533** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 1.092 | 1.0 | 1.000 | 0 | 109 | 80 | 120 | | | | |
| Manganese | 0.552 | 0.50 | 0.5000 | 0 | 110 | 80 | 120 | | | | |
| Molybdenum | 0.465 | 0.50 | 0.5000 | 0 | 93.0 | 80 | 120 | | | | |
| Selenium | 0.477 | 0.50 | 0.5000 | 0 | 95.5 | 80 | 120 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336536** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.106 | 0.10 | 0.1000 | 0 | 106 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336544** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.808 | 0.10 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Barium | 21.101 | 1.0 | 20.00 | 0 | 106 | 90 | 110 | | | | |
| Manganese | 20.475 | 0.50 | 20.00 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132910**
Client ID: **CCV** Batch ID: **R132910** TestNo: **EPA 6020** Analysis Date: **4/1/2019** SeqNo: **3336544**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 20.833 | 0.50 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Selenium | 19.143 | 0.50 | 20.00 | 0 | 95.7 | 90 | 110 | | | | |

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132910**
Client ID: **CCV** Batch ID: **R132910** TestNo: **EPA 6020** Analysis Date: **4/1/2019** SeqNo: **3336556**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.215 | 0.10 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Barium | 20.770 | 1.0 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Manganese | 20.645 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |
| Molybdenum | 20.522 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |
| Selenium | 18.311 | 0.50 | 20.00 | 0 | 91.6 | 90 | 110 | | | | |

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132910**
Client ID: **CCV** Batch ID: **R132910** TestNo: **EPA 6020** Analysis Date: **4/1/2019** SeqNo: **3336568**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.070 | 0.10 | 20.00 | 0 | 100 | 90 | 110 | | | | |
| Barium | 21.132 | 1.0 | 20.00 | 0 | 106 | 90 | 110 | | | | |
| Manganese | 20.293 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Molybdenum | 20.826 | 0.50 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Selenium | 18.583 | 0.50 | 20.00 | 0 | 92.9 | 90 | 110 | | | | |

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132910**
Client ID: **CCV** Batch ID: **R132910** TestNo: **EPA 6020** Analysis Date: **4/1/2019** SeqNo: **3336582**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.392 | 0.10 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Barium | 21.150 | 1.0 | 20.00 | 0 | 106 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336582** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 20.773 | 0.50 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Molybdenum | 20.192 | 0.50 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Selenium | 18.696 | 0.50 | 20.00 | 0 | 93.5 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336594** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.222 | 0.10 | 20.00 | 0 | 101 | 90 | 110 | | | | |
| Barium | 20.852 | 1.0 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Manganese | 20.971 | 0.50 | 20.00 | 0 | 105 | 90 | 110 | | | | |
| Molybdenum | 21.160 | 0.50 | 20.00 | 0 | 106 | 90 | 110 | | | | |
| Selenium | 19.456 | 0.50 | 20.00 | 0 | 97.3 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341625** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 10.996 | 0.50 | 10.00 | 0 | 110 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341627** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 0.467 | 0.50 | 0.5000 | 0 | 93.4 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341641** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 21.424 | 0.50 | 20.00 | 0 | 107 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341653** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 20.745 | 0.50 | 20.00 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341665** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 19.913 | 0.50 | 20.00 | 0 | 99.6 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341679** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 21.530 | 0.50 | 20.00 | 0 | 108 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341691** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 20.597 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336409** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.368 | 1.0 | 10.00 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336411** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 0.877 | 1.0 | 1.000 | 0 | 87.7 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336422** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.751 | 1.0 | 20.00 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336434** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 21.824 | 1.0 | 20.00 | 0 | 109 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336446** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.982 | 1.0 | 20.00 | 0 | 105 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336460** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.586 | 1.0 | 20.00 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336472** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.369 | 1.0 | 20.00 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **ICB** SampType: **ICB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132910**
Client ID: **ICB** Batch ID: **R132910** TestNo: **EPA 6020** Analysis Date: **4/1/2019** SeqNo: **3336532**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

Sample ID **CCB1** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132910**
Client ID: **CCB** Batch ID: **R132910** TestNo: **EPA 6020** Analysis Date: **4/1/2019** SeqNo: **3336545**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

Sample ID **CCB2** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132910**
Client ID: **CCB** Batch ID: **R132910** TestNo: **EPA 6020** Analysis Date: **4/1/2019** SeqNo: **3336557**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336569** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336583** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336595** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341626** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341642** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341654** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341666** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341680** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341692** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336410** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336423** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 0.222 | 1.0 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336435** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336447** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336461** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336473** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336534** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336535** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.753 | 0.10 | 20.00 | 0 | 98.8 | 80 | 120 | | | | |
| Barium | 21.059 | 1.0 | 20.00 | 0 | 105 | 80 | 120 | | | | |
| Manganese | 18.270 | 0.50 | 20.00 | 0 | 91.3 | 80 | 120 | | | | |
| Molybdenum | 20.730 | 0.50 | 20.00 | 0 | 104 | 80 | 120 | | | | |
| Selenium | 17.879 | 0.50 | 20.00 | 0 | 89.4 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336570** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.224 | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336571** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 21.056 | 0.10 | 20.00 | 0 | 105 | 80 | 120 | | | | |
| Barium | 22.334 | 1.0 | 20.00 | 0 | 112 | 80 | 120 | | | | |
| Manganese | 19.226 | 0.50 | 20.00 | 0 | 96.1 | 80 | 120 | | | | |
| Molybdenum | 21.885 | 0.50 | 20.00 | 0 | 109 | 80 | 120 | | | | |
| Selenium | 17.390 | 0.50 | 20.00 | 0 | 87.0 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336596** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336597** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.435 | 0.10 | 20.00 | 0 | 102 | 80 | 120 | | | | |
| Barium | 23.179 | 1.0 | 20.00 | 0 | 116 | 80 | 120 | | | | |
| Manganese | 19.602 | 0.50 | 20.00 | 0 | 98.0 | 80 | 120 | | | | |
| Molybdenum | 22.085 | 0.50 | 20.00 | 0 | 110 | 80 | 120 | | | | |
| Selenium | 16.769 | 0.50 | 20.00 | 0 | 83.8 | 80 | 120 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341628** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341629** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 20.376 | 0.50 | 20.00 | 0 | 102 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341667** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341668** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 22.529 | 0.50 | 20.00 | 0 | 113 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341693** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341694** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 20.709 | 0.50 | 20.00 | 0 | 104 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336412** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336413** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.015 | 1.0 | 20.00 | 0 | 100 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336448** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 0.158 | 1.0 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336449** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 19.561 | 1.0 | 20.00 | 0 | 97.8 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336474** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132910** | TestNo: **EPA 6020** | | Analysis Date: **4/1/2019** | SeqNo: **3336475** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 18.962 | 1.0 | 20.00 | 0 | 94.8 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 159 Tb ( ISTD ) [ 3 ] | | | | | 45 Sc ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 1464495.4 | 1464495.4 | 100 | PASS | 70-125 | 27028.1 | 27028.1 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 1521916.2 | 1464495.4 | 103.92 | PASS | 70-125 | 27497.9 | 27028.1 | 101.74 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 1489537.7 | 1464495.4 | 101.71 | PASS | 70-125 | 26872.3 | 27028.1 | 99.42 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 1501999.5 | 1464495.4 | 102.56 | PASS | 70-125 | 27281.9 | 27028.1 | 100.94 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 1653545.3 | 1464495.4 | 112.91 | PASS | 70-125 | 27633.6 | 27028.1 | 102.24 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 1516033.6 | 1464495.4 | 103.52 | PASS | 70-125 | 26788.8 | 27028.1 | 99.11 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 1663725.6 | 1464495.4 | 113.6 | PASS | 70-125 | 27056 | 27028.1 | 100.1 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 1607242.7 | 1464495.4 | 109.75 | PASS | 70-125 | 26429.3 | 27028.1 | 97.78 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 1607243.2 | 1464495.4 | 109.75 | PASS | 70-125 | 25861.9 | 27028.1 | 95.69 | PASS | 70-125 |
| ICV | ICV | 1 | 1542094.3 | 1464495.4 | 105.3 | PASS | 70-125 | 24355.1 | 27028.1 | 90.11 | PASS | 70-125 |
| ICB | ICB | 1 | 1592700.7 | 1464495.4 | 108.75 | PASS | 70-125 | 25642.6 | 27028.1 | 94.87 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 1503636 | 1464495.4 | 102.67 | PASS | 70-125 | 27103.8 | 27028.1 | 100.28 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 1528216.5 | 1464495.4 | 104.35 | PASS | 70-125 | 27974.1 | 27028.1 | 103.5 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 1530482 | 1464495.4 | 104.51 | PASS | 70-125 | 27679.2 | 27028.1 | 102.41 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 1469283.8 | 1464495.4 | 100.33 | PASS | 70-125 | 25170.8 | 27028.1 | 93.13 | PASS | 70-125 |
| LCS-73030 | LCS | 1 | 1469738.3 | 1464495.4 | 100.36 | PASS | 70-125 | 27914.1 | 27028.1 | 103.28 | PASS | 70-125 |
| CCV1 | CCV | 1 | 1706050 | 1464495.4 | 116.49 | PASS | 70-125 | 30107.9 | 27028.1 | 111.39 | PASS | 70-125 |
| CCB1 | CCB | 1 | 1528118.1 | 1464495.4 | 104.34 | PASS | 70-125 | 24637.8 | 27028.1 | 91.16 | PASS | 70-125 |
| MB-73030 | MBLK | 1 | 1532531.8 | 1464495.4 | 104.65 | PASS | 70-125 | 25366.6 | 27028.1 | 93.85 | PASS | 70-125 |
| LCS-73030 | LCS | 1 | 1425112.9 | 1464495.4 | 97.31 | PASS | 70-125 | 25006 | 27028.1 | 92.52 | PASS | 70-125 |
| N034644-001A | SAMP | 5 | 1538523.7 | 1464495.4 | 105.06 | PASS | 70-125 | 24677.7 | 27028.1 | 91.3 | PASS | 70-125 |
| N034644-001A | SAMP | 1 | 1516954.1 | 1464495.4 | 103.58 | PASS | 70-125 | 24933.7 | 27028.1 | 92.25 | PASS | 70-125 |
| N034644-001A-PS | PS | 1 | 1569932.9 | 1464495.4 | 107.2 | PASS | 70-125 | 26297 | 27028.1 | 97.3 | PASS | 70-125 |
| N034644-001AMS | MS | 1 | 1583120 | 1464495.4 | 108.1 | PASS | 70-125 | 26840 | 27028.1 | 99.3 | PASS | 70-125 |
| N034644-001AMSD | MSD | 1 | 1585715.1 | 1464495.4 | 108.28 | PASS | 70-125 | 27188.4 | 27028.1 | 100.59 | PASS | 70-125 |
| N034644-003B | SAMP | 50 | 1600952.6 | 1464495.4 | 109.32 | PASS | 70-125 | 27990.8 | 27028.1 | 103.56 | PASS | 70-125 |
| N034644-001A | SAMP | 1 | 1069186.6 | 1464495.4 | 73.007 | PASS | 70-125 | 16153.9 | 27028.1 | 59.77 | NR! | 70-125 |
| N034644-001A | SAMP | 25 | 1526288.7 | 1464495.4 | 104.22 | PASS | 70-125 | 28527.3 | 27028.1 | 105.55 | PASS | 70-125 |
| CCV2 | CCV | 1 | 1665468.5 | 1464495.4 | 113.72 | PASS | 70-125 | 28617.5 | 27028.1 | 105.88 | PASS | 70-125 |
| CCB2 | CCB | 1 | 1464281.1 | 1464495.4 | 99.99 | PASS | 70-125 | 20842.5 | 27028.1 | 77.11 | PASS | 70-125 |
| N034646-001A | SAMP | 1 | 1494900.8 | 1464495.4 | 102.08 | PASS | 70-125 | 24733.5 | 27028.1 | 91.51 | PASS | 70-125 |
| N034644-001A-PS | PS | 5 | 1579244.7 | 1464495.4 | 107.84 | PASS | 70-125 | 26943.5 | 27028.1 | 99.69 | PASS | 70-125 |
| N034644-001AMS | MS | 5 | 1555790.6 | 1464495.4 | 106.23 | PASS | 70-125 | 26042.1 | 27028.1 | 96.35 | PASS | 70-125 |
| N034644-001AMSD | MSD | 5 | 1552278.6 | 1464495.4 | 105.99 | PASS | 70-125 | 25649.3 | 27028.1 | 94.9 | PASS | 70-125 |
| N034644-001A | SAMP | 50 | 1540697.1 | 1464495.4 | 105.2 | PASS | 70-125 | 25781.6 | 27028.1 | 95.39 | PASS | 70-125 |
| N034644-001A | SAMP | 250 | 1324415.6 | 1464495.4 | 90.43 | PASS | 70-125 | 25734.9 | 27028.1 | 95.22 | PASS | 70-125 |
| N034644-001A-PS | PS | 50 | 1543251.3 | 1464495.4 | 105.38 | PASS | 70-125 | 25021.7 | 27028.1 | 92.58 | PASS | 70-125 |
| N034644-001AMS | MS | 50 | 1526735.8 | 1464495.4 | 104.25 | PASS | 70-125 | 24653.3 | 27028.1 | 91.21 | PASS | 70-125 |
| N034644-001AMSD | MSD | 50 | 1533052.4 | 1464495.4 | 104.68 | PASS | 70-125 | 25033.8 | 27028.1 | 92.62 | PASS | 70-125 |
| N034706-001A | SAMP | 1 | 1399261.3 | 1464495.4 | 95.55 | PASS | 70-125 | 24942.7 | 27028.1 | 92.28 | PASS | 70-125 |
| CCV3 | CCV | 1 | 1701286.2 | 1464495.4 | 116.17 | PASS | 70-125 | 29310.9 | 27028.1 | 108.45 | PASS | 70-125 |

**INTERNAL STANDARD: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 159 Tb ( ISTD ) [ 3 ] | | | | | 45 Sc ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| CCB3 | CCB | 1 | 1401583.2 | 1464495.4 | 95.7 | PASS | 70-125 | 19883.5 | 27028.1 | 73.57 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 1526022.3 | 1464495.4 | 104.2 | PASS | 70-125 | 28035.3 | 27028.1 | 103.73 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 1577728.1 | 1464495.4 | 107.73 | PASS | 70-125 | 29754 | 27028.1 | 110.09 | PASS | 70-125 |
| N034688-002B | SAMP | 1 | 1588017.7 | 1464495.4 | 108.43 | PASS | 70-125 | 26419.4 | 27028.1 | 97.75 | PASS | 70-125 |
| N034688-001B | SAMP | 1 | 1549681.8 | 1464495.4 | 105.82 | PASS | 70-125 | 25967.6 | 27028.1 | 96.076 | PASS | 70-125 |
| N034688-003B | SAMP | 1 | 1596565 | 1464495.4 | 109.02 | PASS | 70-125 | 26827.9 | 27028.1 | 99.26 | PASS | 70-125 |
| N034688-004B | SAMP | 1 | 1492927.7 | 1464495.4 | 101.94 | PASS | 70-125 | 26668.6 | 27028.1 | 98.67 | PASS | 70-125 |
| N034688-005B | SAMP | 1 | 1603613.9 | 1464495.4 | 109.5 | PASS | 70-125 | 26685.4 | 27028.1 | 98.73 | PASS | 70-125 |
| N034688-006B | SAMP | 1 | 1627361.9 | 1464495.4 | 111.12 | PASS | 70-125 | 26946.9 | 27028.1 | 99.7 | PASS | 70-125 |
| N034688-007B | SAMP | 1 | 1558913.9 | 1464495.4 | 106.45 | PASS | 70-125 | 26303.7 | 27028.1 | 97.32 | PASS | 70-125 |
| N034688-008B | SAMP | 1 | 1472812.9 | 1464495.4 | 100.57 | PASS | 70-125 | 25994.3 | 27028.1 | 96.18 | PASS | 70-125 |
| N034688-009B | SAMP | 1 | 1470544.5 | 1464495.4 | 100.41 | PASS | 70-125 | 26312.5 | 27028.1 | 97.35 | PASS | 70-125 |
| N034688-010B | SAMP | 1 | 1575061.3 | 1464495.4 | 107.55 | PASS | 70-125 | 26980.3 | 27028.1 | 99.82 | PASS | 70-125 |
| CCV4 | CCV | 1 | 1683459 | 1464495.4 | 114.95 | PASS | 70-125 | 28477.2 | 27028.1 | 105.36 | PASS | 70-125 |
| CCB4 | CCB | 1 | 1388692.6 | 1464495.4 | 94.82 | PASS | 70-125 | 19196.1 | 27028.1 | 71.023 | PASS | 70-125 |
| N034688-011B | SAMP | 1 | 1455539.6 | 1464495.4 | 99.39 | PASS | 70-125 | 25969.8 | 27028.1 | 96.084 | PASS | 70-125 |
| N034688-012B | SAMP | 1 | 1487131.1 | 1464495.4 | 101.55 | PASS | 70-125 | 26338.2 | 27028.1 | 97.45 | PASS | 70-125 |
| N034688-013B | SAMP | 1 | 1497945.5 | 1464495.4 | 102.28 | PASS | 70-125 | 26380.3 | 27028.1 | 97.6 | PASS | 70-125 |
| N034688-014B | SAMP | 1 | 1593184.1 | 1464495.4 | 108.79 | PASS | 70-125 | 26544 | 27028.1 | 98.21 | PASS | 70-125 |
| N034688-015B | SAMP | 1 | 1570085.3 | 1464495.4 | 107.21 | PASS | 70-125 | 26600.8 | 27028.1 | 98.42 | PASS | 70-125 |
| CCV5 | CCV | 1 | 1592003 | 1464495.4 | 108.71 | PASS | 70-125 | 24732.3 | 27028.1 | 91.51 | PASS | 70-125 |
| CCB5 | CCB | 1 | 1455718.6 | 1464495.4 | 99.4 | PASS | 70-125 | 21363.1 | 27028.1 | 79.04 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 1396156.3 | 1464495.4 | 95.33 | PASS | 70-125 | 22255.5 | 27028.1 | 82.34 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 1629824.5 | 1464495.4 | 111.29 | PASS | 70-125 | 27789.4 | 27028.1 | 102.82 | PASS | 70-125 |
| CCV6 | CCV | 1 | 1499964.1 | 1464495.4 | 102.42 | PASS | 70-125 | 20871.5 | 27028.1 | 77.22 | PASS | 70-125 |
| CCB6 | CCB | 1 | 1430572 | 1464495.4 | 97.68 | PASS | 70-125 | 21003.8 | 27028.1 | 77.71 | PASS | 70-125 |
| CCV7 | CCV | 1 | 1530332.1 | 1464495.4 | 104.5 | PASS | 70-125 | 22506.9 | 27028.1 | 83.27 | PASS | 70-125 |
| CCB7 | CCB | 1 | 1425150.4 | 1464495.4 | 97.31 | PASS | 70-125 | 21494.5 | 27028.1 | 79.53 | PASS | 70-125 |
| ICSA4 | ICSA | 1 | 1471011.6 | 1464495.4 | 100.44 | PASS | 70-125 | 23111.1 | 27028.1 | 85.51 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 1399770.8 | 1464495.4 | 95.58 | PASS | 70-125 | 25605.8 | 27028.1 | 94.74 | PASS | 70-125 |
| CCV8 | CCV | 1 | 1371301 | 1464495.4 | 93.64 | PASS | 70-125 | 19689.9 | 27028.1 | 72.85 | PASS | 70-125 |
| CCB8 | CCB | 1 | 1077639.9 | 1464495.4 | 73.58 | PASS | 70-125 | 15657.8 | 27028.1 | 57.93 | NR! | 70-125 |
| CCV9 | CCV | 1 | 1289191.9 | 1464495.4 | 88.03 | PASS | 70-125 | 18903.5 | 27028.1 | 69.94 | NR! | 70-125 |
| CCB9 | CCB | 1 | 1074850.6 | 1464495.4 | 73.39 | PASS | 70-125 | 15078.4 | 27028.1 | 55.79 | NR! | 70-125 |
| CCV10 | CCV | 1 | 1220342.3 | 1464495.4 | 83.33 | PASS | 70-125 | 17859 | 27028.1 | 66.076 | NR! | 70-125 |
| CCB10 | CCB | 1 | 1037032.1 | 1464495.4 | 70.81 | PASS | 70-125 | 17024.7 | 27028.1 | 62.99 | NR! | 70-125 |
| ICSA5 | ICSA | 1 | 1234596.4 | 1464495.4 | 84.3 | PASS | 70-125 | 20615.5 | 27028.1 | 76.27 | PASS | 70-125 |
| ICSAB5 | ICSAB | 1 | 1221615 | 1464495.4 | 83.42 | PASS | 70-125 | 23072.2 | 27028.1 | 85.36 | PASS | 70-125 |
| CCV11 | CCV | 1 | 1332330.2 | 1464495.4 | 90.98 | PASS | 70-125 | 19395.2 | 27028.1 | 71.76 | PASS | 70-125 |
| CCB11 | CCB | 1 | 1057812.5 | 1464495.4 | 72.23 | PASS | 70-125 | 17863.4 | 27028.1 | 66.092 | NR! | 70-125 |
| CCV12 | CCV | 1 | 1379267.7 | 1464495.4 | 94.18 | PASS | 70-125 | 19385.1 | 27028.1 | 71.72 | PASS | 70-125 |

**INTERNAL STANDARD: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 159 Tb ( ISTD ) [ 3 ] | | | | | 45 Sc ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| CCB12 | CCB | 1 | 1214990.6 | 1464495.4 | 82.96 | PASS | 70-125 | 18119.3 | 27028.1 | 67.039 | NR! | 70-125 |
| CCV13 | CCV | 1 | 1454964.4 | 1464495.4 | 99.35 | PASS | 70-125 | 20104.9 | 27028.1 | 74.39 | PASS | 70-125 |
| CCB13 | CCB | 1 | 1321844.1 | 1464495.4 | 90.26 | PASS | 70-125 | 18400.7 | 27028.1 | 68.08 | NR! | 70-125 |
| CCV14 | CCV | 1 | 1398556.4 | 1464495.4 | 95.5 | PASS | 70-125 | 18582 | 27028.1 | 68.75 | NR! | 70-125 |
| CCB14 | CCB | 1 | 1237617.2 | 1464495.4 | 84.51 | PASS | 70-125 | 17030.3 | 27028.1 | 63.01 | NR! | 70-125 |
| CCV15 | CCV | 1 | 1362138 | 1464495.4 | 93.011 | PASS | 70-125 | 18115.9 | 27028.1 | 67.026 | NR! | 70-125 |
| CCB15 | CCB | 1 | 1183475.3 | 1464495.4 | 80.81 | PASS | 70-125 | 16642.2 | 27028.1 | 61.57 | NR! | 70-125 |
| CCV15 | CCV | 1 | 1330987.4 | 1464495.4 | 90.88 | PASS | 70-125 | 17875.7 | 27028.1 | 66.14 | NR! | 70-125 |
| CCB15 | CCB | 1 | 1148420.7 | 1464495.4 | 78.42 | PASS | 70-125 | 16019.3 | 27028.1 | 59.27 | NR! | 70-125 |
| CCV16 | CCV | 1 | 1241474.5 | 1464495.4 | 84.77 | PASS | 70-125 | 16761.1 | 27028.1 | 62.014 | NR! | 70-125 |
| CCV16 | CCV | 1 | 1245137 | 1464495.4 | 85.022 | PASS | 70-125 | 16102.7 | 27028.1 | 59.58 | NR! | 70-125 |
| CCB16 | CCB | 1 | 1093313.7 | 1464495.4 | 74.65 | PASS | 70-125 | 15491.1 | 27028.1 | 57.31 | NR! | 70-125 |

**INTERNAL STANDARD: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 15349.9 | 15349.9 | 100 | PASS | 70-125 | 11753.5 | 11753.5 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 15847.1 | 15349.9 | 103.24 | PASS | 70-125 | 11878 | 11753.5 | 101.06 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 15532.3 | 15349.9 | 101.19 | PASS | 70-125 | 11974.7 | 11753.5 | 101.88 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 15252 | 15349.9 | 99.36 | PASS | 70-125 | 12057.1 | 11753.5 | 102.58 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 15551.2 | 15349.9 | 101.31 | PASS | 70-125 | 12153.8 | 11753.5 | 103.41 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 15318.7 | 15349.9 | 99.8 | PASS | 70-125 | 11674.6 | 11753.5 | 99.33 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 15100.8 | 15349.9 | 98.38 | PASS | 70-125 | 11915.8 | 11753.5 | 101.38 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 14766 | 15349.9 | 96.2 | PASS | 70-125 | 11488.8 | 11753.5 | 97.75 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 14602.5 | 15349.9 | 95.13 | PASS | 70-125 | 11157.5 | 11753.5 | 94.93 | PASS | 70-125 |
| ICV | ICV | 1 | 13951.9 | 15349.9 | 90.89 | PASS | 70-125 | 10582.6 | 11753.5 | 90.038 | PASS | 70-125 |
| ICB | ICB | 1 | 14714.8 | 15349.9 | 95.86 | PASS | 70-125 | 10955.1 | 11753.5 | 93.21 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 15497.8 | 15349.9 | 100.96 | PASS | 70-125 | 12280.5 | 11753.5 | 104.48 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 15592.3 | 15349.9 | 101.58 | PASS | 70-125 | 11805.7 | 11753.5 | 100.44 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 15364.3 | 15349.9 | 100.09 | PASS | 70-125 | 11120.8 | 11753.5 | 94.62 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 14027.5 | 15349.9 | 91.38 | PASS | 70-125 | 10687.2 | 11753.5 | 90.93 | PASS | 70-125 |
| LCS-73030 | LCS | 1 | 15923.8 | 15349.9 | 103.74 | PASS | 70-125 | 12506.3 | 11753.5 | 106.4 | PASS | 70-125 |
| CCV1 | CCV | 1 | 16560 | 15349.9 | 107.88 | PASS | 70-125 | 13524.9 | 11753.5 | 115.07 | PASS | 70-125 |
| CCB1 | CCB | 1 | 13966.4 | 15349.9 | 90.99 | PASS | 70-125 | 10399.2 | 11753.5 | 88.48 | PASS | 70-125 |
| MB-73030 | MBLK | 1 | 14301.1 | 15349.9 | 93.17 | PASS | 70-125 | 11234.2 | 11753.5 | 95.58 | PASS | 70-125 |
| LCS-73030 | LCS | 1 | 14257.8 | 15349.9 | 92.89 | PASS | 70-125 | 11362.1 | 11753.5 | 96.67 | PASS | 70-125 |
| N034644-001A | SAMP | 5 | 14320 | 15349.9 | 93.29 | PASS | 70-125 | 11040.8 | 11753.5 | 93.94 | PASS | 70-125 |
| N034644-001A | SAMP | 1 | 13955.2 | 15349.9 | 90.91 | PASS | 70-125 | 10971.8 | 11753.5 | 93.35 | PASS | 70-125 |
| N034644-001A-PS | PS | 1 | 14641.4 | 15349.9 | 95.38 | PASS | 70-125 | 11951.4 | 11753.5 | 101.68 | PASS | 70-125 |
| N034644-001AMS | MS | 1 | 14776 | 15349.9 | 96.26 | PASS | 70-125 | 11814.7 | 11753.5 | 100.52 | PASS | 70-125 |
| N034644-001AMSD | MSD | 1 | 15064.1 | 15349.9 | 98.14 | PASS | 70-125 | 12064.8 | 11753.5 | 102.65 | PASS | 70-125 |
| N034644-003B | SAMP | 50 | 15820.4 | 15349.9 | 103.07 | PASS | 70-125 | 12507.4 | 11753.5 | 106.41 | PASS | 70-125 |
| N034644-001A | SAMP | 1 | 9306.3 | 15349.9 | 60.63 | NR! | 70-125 | 7333 | 11753.5 | 62.39 | NR! | 70-125 |
| N034644-001A | SAMP | 25 | 15753.6 | 15349.9 | 102.63 | PASS | 70-125 | 12998.9 | 11753.5 | 110.6 | PASS | 70-125 |
| CCV2 | CCV | 1 | 16043.9 | 15349.9 | 104.52 | PASS | 70-125 | 13116.8 | 11753.5 | 111.6 | PASS | 70-125 |
| CCB2 | CCB | 1 | 12518.5 | 15349.9 | 81.55 | PASS | 70-125 | 9908.9 | 11753.5 | 84.31 | PASS | 70-125 |
| N034646-001A | SAMP | 1 | 13816.2 | 15349.9 | 90.008 | PASS | 70-125 | 11115.2 | 11753.5 | 94.57 | PASS | 70-125 |
| N034644-001A-PS | PS | 5 | 15059.6 | 15349.9 | 98.11 | PASS | 70-125 | 12222.8 | 11753.5 | 103.99 | PASS | 70-125 |
| N034644-001AMS | MS | 5 | 14901.7 | 15349.9 | 97.08 | PASS | 70-125 | 12090.4 | 11753.5 | 102.87 | PASS | 70-125 |
| N034644-001AMSD | MSD | 5 | 14509.1 | 15349.9 | 94.52 | PASS | 70-125 | 11641.2 | 11753.5 | 99.045 | PASS | 70-125 |
| N034644-001A | SAMP | 50 | 14919.4 | 15349.9 | 97.2 | PASS | 70-125 | 11907 | 11753.5 | 101.31 | PASS | 70-125 |
| N034644-001A | SAMP | 250 | 14932.8 | 15349.9 | 97.28 | PASS | 70-125 | 12025.9 | 11753.5 | 102.32 | PASS | 70-125 |
| N034644-001A-PS | PS | 50 | 14391.3 | 15349.9 | 93.76 | PASS | 70-125 | 11295.4 | 11753.5 | 96.1 | PASS | 70-125 |
| N034644-001AMS | MS | 50 | 14374.6 | 15349.9 | 93.65 | PASS | 70-125 | 11344.3 | 11753.5 | 96.52 | PASS | 70-125 |
| N034644-001AMSD | MSD | 50 | 14434.6 | 15349.9 | 94.037 | PASS | 70-125 | 11378.8 | 11753.5 | 96.81 | PASS | 70-125 |
| N034706-001A | SAMP | 1 | 13883 | 15349.9 | 90.44 | PASS | 70-125 | 10487 | 11753.5 | 89.22 | PASS | 70-125 |
| CCV3 | CCV | 1 | 16732.3 | 15349.9 | 109.01 | PASS | 70-125 | 13622.8 | 11753.5 | 115.9 | PASS | 70-125 |

**INTERNAL STANDARD: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| CCB3 | CCB | 1 | 11932.5 | 15349.9 | 77.74 | PASS | 70-125 | 9445.3 | 11753.5 | 80.36 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 15582.3 | 15349.9 | 101.51 | PASS | 70-125 | 12470.7 | 11753.5 | 106.1 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 16057.2 | 15349.9 | 104.61 | PASS | 70-125 | 13033.4 | 11753.5 | 110.89 | PASS | 70-125 |
| N034688-002B | SAMP | 1 | 14860.5 | 15349.9 | 96.81 | PASS | 70-125 | 12436.2 | 11753.5 | 105.81 | PASS | 70-125 |
| N034688-001B | SAMP | 1 | 14668.1 | 15349.9 | 95.56 | PASS | 70-125 | 12219.4 | 11753.5 | 103.96 | PASS | 70-125 |
| N034688-003B | SAMP | 1 | 15127.4 | 15349.9 | 98.55 | PASS | 70-125 | 12750.9 | 11753.5 | 108.49 | PASS | 70-125 |
| N034688-004B | SAMP | 1 | 15020.7 | 15349.9 | 97.86 | PASS | 70-125 | 12593 | 11753.5 | 107.14 | PASS | 70-125 |
| N034688-005B | SAMP | 1 | 15275.4 | 15349.9 | 99.51 | PASS | 70-125 | 12824.3 | 11753.5 | 109.11 | PASS | 70-125 |
| N034688-006B | SAMP | 1 | 15306.5 | 15349.9 | 99.72 | PASS | 70-125 | 12746.4 | 11753.5 | 108.45 | PASS | 70-125 |
| N034688-007B | SAMP | 1 | 14759.3 | 15349.9 | 96.15 | PASS | 70-125 | 12838.8 | 11753.5 | 109.23 | PASS | 70-125 |
| N034688-008B | SAMP | 1 | 15254.2 | 15349.9 | 99.38 | PASS | 70-125 | 12699.8 | 11753.5 | 108.05 | PASS | 70-125 |
| N034688-009B | SAMP | 1 | 14937.3 | 15349.9 | 97.31 | PASS | 70-125 | 12670.8 | 11753.5 | 107.8 | PASS | 70-125 |
| N034688-010B | SAMP | 1 | 15223.1 | 15349.9 | 99.17 | PASS | 70-125 | 12826.6 | 11753.5 | 109.13 | PASS | 70-125 |
| CCV4 | CCV | 1 | 16285.3 | 15349.9 | 106.09 | PASS | 70-125 | 13559.4 | 11753.5 | 115.36 | PASS | 70-125 |
| CCB4 | CCB | 1 | 11421 | 15349.9 | 74.4 | PASS | 70-125 | 8899.3 | 11753.5 | 75.72 | PASS | 70-125 |
| N034688-011B | SAMP | 1 | 14888.3 | 15349.9 | 96.99 | PASS | 70-125 | 12415.1 | 11753.5 | 105.63 | PASS | 70-125 |
| N034688-012B | SAMP | 1 | 15008.4 | 15349.9 | 97.78 | PASS | 70-125 | 12557.4 | 11753.5 | 106.84 | PASS | 70-125 |
| N034688-013B | SAMP | 1 | 15290.9 | 15349.9 | 99.62 | PASS | 70-125 | 12937.7 | 11753.5 | 110.08 | PASS | 70-125 |
| N034688-014B | SAMP | 1 | 14966.1 | 15349.9 | 97.5 | PASS | 70-125 | 13054.5 | 11753.5 | 111.07 | PASS | 70-125 |
| N034688-015B | SAMP | 1 | 15190.9 | 15349.9 | 98.96 | PASS | 70-125 | 12902.2 | 11753.5 | 109.77 | PASS | 70-125 |
| CCV5 | CCV | 1 | 14677 | 15349.9 | 95.62 | PASS | 70-125 | 11977 | 11753.5 | 101.9 | PASS | 70-125 |
| CCB5 | CCB | 1 | 12487.4 | 15349.9 | 81.35 | PASS | 70-125 | 10008.9 | 11753.5 | 85.16 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 12769.8 | 15349.9 | 83.19 | PASS | 70-125 | 9896.6 | 11753.5 | 84.2 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 15346.5 | 15349.9 | 99.98 | PASS | 70-125 | 13037.8 | 11753.5 | 110.93 | PASS | 70-125 |
| CCV6 | CCV | 1 | 12604.1 | 15349.9 | 82.11 | PASS | 70-125 | 10090.1 | 11753.5 | 85.85 | PASS | 70-125 |
| CCB6 | CCB | 1 | 12296.1 | 15349.9 | 80.11 | PASS | 70-125 | 10442.6 | 11753.5 | 88.85 | PASS | 70-125 |
| CCV7 | CCV | 1 | 13564.9 | 15349.9 | 88.37 | PASS | 70-125 | 11374.3 | 11753.5 | 96.77 | PASS | 70-125 |
| CCB7 | CCB | 1 | 12610.8 | 15349.9 | 82.16 | PASS | 70-125 | 10577.1 | 11753.5 | 89.99 | PASS | 70-125 |
| ICSA4 | ICSA | 1 | 12887.7 | 15349.9 | 83.96 | PASS | 70-125 | 10851.7 | 11753.5 | 92.33 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 14095.4 | 15349.9 | 91.83 | PASS | 70-125 | 11973.7 | 11753.5 | 101.87 | PASS | 70-125 |
| CCV8 | CCV | 1 | 11913.6 | 15349.9 | 77.61 | PASS | 70-125 | 9902.2 | 11753.5 | 84.25 | PASS | 70-125 |
| CCB8 | CCB | 1 | 9192.9 | 15349.9 | 59.89 | NR! | 70-125 | 7254.1 | 11753.5 | 61.72 | NR! | 70-125 |
| CCV9 | CCV | 1 | 11348.7 | 15349.9 | 73.93 | PASS | 70-125 | 9356.3 | 11753.5 | 79.6 | PASS | 70-125 |
| CCB9 | CCB | 1 | 9395.2 | 15349.9 | 61.21 | NR! | 70-125 | 7291.9 | 11753.5 | 62.04 | NR! | 70-125 |
| CCV10 | CCV | 1 | 11170.9 | 15349.9 | 72.78 | PASS | 70-125 | 9061.7 | 11753.5 | 77.098 | PASS | 70-125 |
| CCB10 | CCB | 1 | 10390.3 | 15349.9 | 67.69 | NR! | 70-125 | 8547 | 11753.5 | 72.72 | PASS | 70-125 |
| ICSA5 | ICSA | 1 | 11438.8 | 15349.9 | 74.52 | PASS | 70-125 | 9413 | 11753.5 | 80.087 | PASS | 70-125 |
| ICSAB5 | ICSAB | 1 | 12677.5 | 15349.9 | 82.59 | PASS | 70-125 | 10968.5 | 11753.5 | 93.32 | PASS | 70-125 |
| CCV11 | CCV | 1 | 11620 | 15349.9 | 75.7 | PASS | 70-125 | 9852.2 | 11753.5 | 83.82 | PASS | 70-125 |
| CCB11 | CCB | 1 | 10880.6 | 15349.9 | 70.88 | PASS | 70-125 | 9060.6 | 11753.5 | 77.089 | PASS | 70-125 |
| CCV12 | CCV | 1 | 11563.3 | 15349.9 | 75.33 | PASS | 70-125 | 9746.6 | 11753.5 | 82.93 | PASS | 70-125 |

**INTERNAL STANDARD: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| CCB12 | CCB | 1 | 10937.4 | 15349.9 | 71.25 | PASS | 70-125 | 9349.6 | 11753.5 | 79.55 | PASS | 70-125 |
| CCV13 | CCV | 1 | 12762.1 | 15349.9 | 83.14 | PASS | 70-125 | 10654.9 | 11753.5 | 90.65 | PASS | 70-125 |
| CCB13 | CCB | 1 | 11573.4 | 15349.9 | 75.4 | PASS | 70-125 | 10069 | 11753.5 | 85.67 | PASS | 70-125 |
| CCV14 | CCV | 1 | 12136 | 15349.9 | 79.062 | PASS | 70-125 | 10368.1 | 11753.5 | 88.21 | PASS | 70-125 |
| CCB14 | CCB | 1 | 11085.2 | 15349.9 | 72.22 | PASS | 70-125 | 9406.4 | 11753.5 | 80.031 | PASS | 70-125 |
| CCV15 | CCV | 1 | 11932.5 | 15349.9 | 77.74 | PASS | 70-125 | 10157.9 | 11753.5 | 86.42 | PASS | 70-125 |
| CCB15 | CCB | 1 | 10941.8 | 15349.9 | 71.28 | PASS | 70-125 | 9405.3 | 11753.5 | 80.021 | PASS | 70-125 |
| CCV15 | CCV | 1 | 11240.9 | 15349.9 | 73.23 | PASS | 70-125 | 10076.7 | 11753.5 | 85.73 | PASS | 70-125 |
| CCB15 | CCB | 1 | 10700.5 | 15349.9 | 69.71 | NR! | 70-125 | 9166.2 | 11753.5 | 77.99 | PASS | 70-125 |
| CCV16 | CCV | 1 | 10825 | 15349.9 | 70.52 | PASS | 70-125 | 9371.9 | 11753.5 | 79.74 | PASS | 70-125 |
| CCV16 | CCV | 1 | 10467 | 15349.9 | 68.19 | NR! | 70-125 | 8823.7 | 11753.5 | 75.073 | PASS | 70-125 |
| CCB16 | CCB | 1 | 9871 | 15349.9 | 64.31 | NR! | 70-125 | 8581.4 | 11753.5 | 73.011 | PASS | 70-125 |

**INTERNAL STANDARD: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 420857.5 | 420857.5 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 432889.8 | 420857.5 | 102.86 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 419259.8 | 420857.5 | 99.62 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 424558.8 | 420857.5 | 100.88 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 426960.8 | 420857.5 | 101.45 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 416616.3 | 420857.5 | 98.99 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 419509.3 | 420857.5 | 99.68 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 404227.1 | 420857.5 | 96.048 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 396859.7 | 420857.5 | 94.3 | PASS | 70-125 |
| ICV | ICV | 1 | 391673.3 | 420857.5 | 93.066 | PASS | 70-125 |
| ICB | ICB | 1 | 409566.9 | 420857.5 | 97.32 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 422942 | 420857.5 | 100.5 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 395037 | 420857.5 | 93.86 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 389353.7 | 420857.5 | 92.51 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 401343.5 | 420857.5 | 95.36 | PASS | 70-125 |
| LCS-73030 | LCS | 1 | 422560.5 | 420857.5 | 100.4 | PASS | 70-125 |
| CCV1 | CCV | 1 | 445840.2 | 420857.5 | 105.94 | PASS | 70-125 |
| CCB1 | CCB | 1 | 390324.1 | 420857.5 | 92.74 | PASS | 70-125 |
| MB-73030 | MBLK | 1 | 392709.6 | 420857.5 | 93.31 | PASS | 70-125 |
| LCS-73030 | LCS | 1 | 387288.6 | 420857.5 | 92.024 | PASS | 70-125 |
| N034644-001A | SAMP | 5 | 366357.8 | 420857.5 | 87.05 | PASS | 70-125 |
| N034644-001A | SAMP | 1 | 345193.5 | 420857.5 | 82.021 | PASS | 70-125 |
| N034644-001A-PS | PS | 1 | 364032.3 | 420857.5 | 86.5 | PASS | 70-125 |
| N034644-001AMS | MS | 1 | 364905.9 | 420857.5 | 86.71 | PASS | 70-125 |
| N034644-001AMSD | MSD | 1 | 373927.9 | 420857.5 | 88.85 | PASS | 70-125 |
| N034644-003B | SAMP | 50 | 409409.3 | 420857.5 | 97.28 | PASS | 70-125 |
| N034644-001A | SAMP | 1 | 241548.4 | 420857.5 | 57.39 | NR! | 70-125 |
| N034644-001A | SAMP | 25 | 409932.1 | 420857.5 | 97.4 | PASS | 70-125 |
| CCV2 | CCV | 1 | 430942.5 | 420857.5 | 102.4 | PASS | 70-125 |
| CCB2 | CCB | 1 | 345482.6 | 420857.5 | 82.09 | PASS | 70-125 |
| N034646-001A | SAMP | 1 | 339827.5 | 420857.5 | 80.75 | PASS | 70-125 |
| N034644-001A-PS | PS | 5 | 382749.7 | 420857.5 | 90.95 | PASS | 70-125 |
| N034644-001AMS | MS | 5 | 375360.5 | 420857.5 | 89.19 | PASS | 70-125 |
| N034644-001AMSD | MSD | 5 | 368682.6 | 420857.5 | 87.6 | PASS | 70-125 |
| N034644-001A | SAMP | 50 | 385974.2 | 420857.5 | 91.71 | PASS | 70-125 |
| N034644-001A | SAMP | 250 | 392690.2 | 420857.5 | 93.31 | PASS | 70-125 |
| N034644-001A-PS | PS | 50 | 378794.8 | 420857.5 | 90.006 | PASS | 70-125 |
| N034644-001AMS | MS | 50 | 375372.5 | 420857.5 | 89.19 | PASS | 70-125 |
| N034644-001AMSD | MSD | 50 | 377610.4 | 420857.5 | 89.72 | PASS | 70-125 |
| N034706-001A | SAMP | 1 | 332569.2 | 420857.5 | 79.022 | PASS | 70-125 |
| CCV3 | CCV | 1 | 438316.8 | 420857.5 | 104.15 | PASS | 70-125 |

**INTERNAL STANDARD: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| CCB3 | CCB | 1 | 329049.9 | 420857.5 | 78.19 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 390033 | 420857.5 | 92.68 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 404531 | 420857.5 | 96.12 | PASS | 70-125 |
| N034688-002B | SAMP | 1 | 371005.6 | 420857.5 | 88.15 | PASS | 70-125 |
| N034688-001B | SAMP | 1 | 360189.7 | 420857.5 | 85.58 | PASS | 70-125 |
| N034688-003B | SAMP | 1 | 373844.7 | 420857.5 | 88.83 | PASS | 70-125 |
| N034688-004B | SAMP | 1 | 369591 | 420857.5 | 87.82 | PASS | 70-125 |
| N034688-005B | SAMP | 1 | 373108.9 | 420857.5 | 88.65 | PASS | 70-125 |
| N034688-006B | SAMP | 1 | 374312.4 | 420857.5 | 88.94 | PASS | 70-125 |
| N034688-007B | SAMP | 1 | 368009 | 420857.5 | 87.44 | PASS | 70-125 |
| N034688-008B | SAMP | 1 | 364573.8 | 420857.5 | 86.63 | PASS | 70-125 |
| N034688-009B | SAMP | 1 | 366039 | 420857.5 | 86.97 | PASS | 70-125 |
| N034688-010B | SAMP | 1 | 369137.3 | 420857.5 | 87.71 | PASS | 70-125 |
| CCV4 | CCV | 1 | 426693.8 | 420857.5 | 101.39 | PASS | 70-125 |
| CCB4 | CCB | 1 | 322503.6 | 420857.5 | 76.63 | PASS | 70-125 |
| N034688-011B | SAMP | 1 | 362592.9 | 420857.5 | 86.16 | PASS | 70-125 |
| N034688-012B | SAMP | 1 | 366909.5 | 420857.5 | 87.18 | PASS | 70-125 |
| N034688-013B | SAMP | 1 | 368490.4 | 420857.5 | 87.56 | PASS | 70-125 |
| N034688-014B | SAMP | 1 | 370329.7 | 420857.5 | 87.99 | PASS | 70-125 |
| N034688-015B | SAMP | 1 | 366157.3 | 420857.5 | 87.003 | PASS | 70-125 |
| CCV5 | CCV | 1 | 387470.3 | 420857.5 | 92.067 | PASS | 70-125 |
| CCB5 | CCB | 1 | 347800.4 | 420857.5 | 82.64 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 328371.7 | 420857.5 | 78.024 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 381191.1 | 420857.5 | 90.57 | PASS | 70-125 |
| CCV6 | CCV | 1 | 348252.1 | 420857.5 | 82.75 | PASS | 70-125 |
| CCB6 | CCB | 1 | 339988.9 | 420857.5 | 80.78 | PASS | 70-125 |
| CCV7 | CCV | 1 | 363424.7 | 420857.5 | 86.35 | PASS | 70-125 |
| CCB7 | CCB | 1 | 343174.2 | 420857.5 | 81.54 | PASS | 70-125 |
| ICSA4 | ICSA | 1 | 322377.8 | 420857.5 | 76.6 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 352523.3 | 420857.5 | 83.76 | PASS | 70-125 |
| CCV8 | CCV | 1 | 320223.4 | 420857.5 | 76.088 | PASS | 70-125 |
| CCB8 | CCB | 1 | 263858.9 | 420857.5 | 62.7 | NR! | 70-125 |
| CCV9 | CCV | 1 | 305223.4 | 420857.5 | 72.52 | PASS | 70-125 |
| CCB9 | CCB | 1 | 260350.2 | 420857.5 | 61.86 | NR! | 70-125 |
| CCV10 | CCV | 1 | 293383.6 | 420857.5 | 69.71 | NR! | 70-125 |
| CCB10 | CCB | 1 | 277034.4 | 420857.5 | 65.83 | NR! | 70-125 |
| ICSA5 | ICSA | 1 | 285203.2 | 420857.5 | 67.77 | NR! | 70-125 |
| ICSAB5 | ICSAB | 1 | 309677.9 | 420857.5 | 73.58 | PASS | 70-125 |
| CCV11 | CCV | 1 | 314195.1 | 420857.5 | 74.66 | PASS | 70-125 |
| CCB11 | CCB | 1 | 290870.3 | 420857.5 | 69.11 | NR! | 70-125 |
| CCV12 | CCV | 1 | 317654.5 | 420857.5 | 75.48 | PASS | 70-125 |

**INTERNAL STANDARD: 190401A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| CCB12 | CCB | 1 | 299224.4 | 420857.5 | 71.099 | PASS | 70-125 |
| CCV13 | CCV | 1 | 338252.7 | 420857.5 | 80.37 | PASS | 70-125 |
| CCB13 | CCB | 1 | 311740.6 | 420857.5 | 74.073 | PASS | 70-125 |
| CCV14 | CCV | 1 | 320546.9 | 420857.5 | 76.17 | PASS | 70-125 |
| CCB14 | CCB | 1 | 298712.9 | 420857.5 | 70.98 | PASS | 70-125 |
| CCV15 | CCV | 1 | 312145.9 | 420857.5 | 74.17 | PASS | 70-125 |
| CCB15 | CCB | 1 | 287721.3 | 420857.5 | 68.37 | NR! | 70-125 |
| CCV15 | CCV | 1 | 306760.3 | 420857.5 | 72.89 | PASS | 70-125 |
| CCB15 | CCB | 1 | 282080.7 | 420857.5 | 67.025 | NR! | 70-125 |
| CCV16 | CCV | 1 | 286356.2 | 420857.5 | 68.041 | NR! | 70-125 |
| CCV16 | CCV | 1 | 284357 | 420857.5 | 67.57 | NR! | 70-125 |
| CCB16 | CCB | 1 | 266386.7 | 420857.5 | 63.3 | NR! | 70-125 |

**INTERNAL STANDARD: 190404A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 8124.5 | 8124.5 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 8353.5 | 8124.5 | 102.82 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 8578.1 | 8124.5 | 105.58 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 8526.9 | 8124.5 | 104.95 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 8440.2 | 8124.5 | 103.89 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 8505.8 | 8124.5 | 104.69 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 8530.3 | 8124.5 | 104.99 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 8175.6 | 8124.5 | 100.63 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 7887.7 | 8124.5 | 97.085 | PASS | 70-125 |
| ICV | ICV | 1 | 7525.3 | 8124.5 | 92.62 | PASS | 70-125 |
| ICB | ICB | 1 | 7451.9 | 8124.5 | 91.72 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 7680.9 | 8124.5 | 94.54 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 8269 | 8124.5 | 101.78 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 8281.3 | 8124.5 | 101.93 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 7381.9 | 8124.5 | 90.86 | PASS | 70-125 |
| CCV1 | CCV | 1 | 8274.6 | 8124.5 | 101.85 | PASS | 70-125 |
| CCB1 | CCB | 1 | 6327 | 8124.5 | 77.88 | PASS | 70-125 |
| N034688-002B | SAMP | 1 | 8264.6 | 8124.5 | 101.72 | PASS | 70-125 |
| N034688-003B | SAMP | 1 | 8269 | 8124.5 | 101.78 | PASS | 70-125 |
| N034688-005B | SAMP | 1 | 8044.5 | 8124.5 | 99.015 | PASS | 70-125 |
| N034688-006B | SAMP | 1 | 8015.6 | 8124.5 | 98.66 | PASS | 70-125 |
| N034688-009B | SAMP | 1 | 7816.6 | 8124.5 | 96.21 | PASS | 70-125 |
| N034688-011B | SAMP | 1 | 7964.4 | 8124.5 | 98.029 | PASS | 70-125 |
| N034688-012B | SAMP | 1 | 8032.2 | 8124.5 | 98.86 | PASS | 70-125 |
| CCV2 | CCV | 1 | 7634.3 | 8124.5 | 93.97 | PASS | 70-125 |
| CCB2 | CCB | 1 | 6188 | 8124.5 | 76.16 | PASS | 70-125 |
| N034688-013B | SAMP | 1 | 7182.9 | 8124.5 | 88.41 | PASS | 70-125 |
| CCV3 | CCV | 1 | 7218.5 | 8124.5 | 88.85 | PASS | 70-125 |
| CCB3 | CCB | 1 | 6148 | 8124.5 | 75.67 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 7172.9 | 8124.5 | 88.29 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 6720.5 | 8124.5 | 82.72 | PASS | 70-125 |
| CCV4 | CCV | 1 | 8066.7 | 8124.5 | 99.29 | PASS | 70-125 |
| CCB4 | CCB | 1 | 6642.7 | 8124.5 | 81.76 | PASS | 70-125 |
| N034688-002B | SAMP | 1 | 7227.4 | 8124.5 | 88.96 | PASS | 70-125 |
| N034688-003B | SAMP | 1 | 8137.8 | 8124.5 | 100.16 | PASS | 70-125 |
| N034688-006B | SAMP | 1 | 6591.5 | 8124.5 | 81.13 | PASS | 70-125 |
| N034688-009B | SAMP | 1 | 7450.8 | 8124.5 | 91.71 | PASS | 70-125 |
| N034688-011B | SAMP | 1 | 8046.7 | 8124.5 | 99.042 | PASS | 70-125 |
| N034688-012B | SAMP | 1 | 6993.9 | 8124.5 | 86.084 | PASS | 70-125 |
| N034688-013B | SAMP | 1 | 8005.5 | 8124.5 | 98.54 | PASS | 70-125 |
| CCV5 | CCV | 1 | 7769.9 | 8124.5 | 95.64 | PASS | 70-125 |

**INTERNAL STANDARD: 190404A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| CCB5 | CCB | 1 | 6527.1 | 8124.5 | 80.34 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 7818.8 | 8124.5 | 96.24 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 7785.4 | 8124.5 | 95.83 | PASS | 70-125 |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-MS-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034688
Test Method: EPA 6020
Analysis Date: 04 / 01, 03 & 04 / 2019

Matrix: Groundwater
Batch No.: 73030

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test for Ba failed. However, PS passed criteria.
Dilution test is not applicable to As & Se. The calculated concentration is <25RL.

| Sample ID | Analyte | Symbol | Units | Calc Val | Oqual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|---|
| N034644-001A DT 5x | Arsenic | As | µg/L | 1.274769 | NA | 1.15416 | 10.45% | 10 |
| N034644-001A DT 5x | Barium | Ba | µg/L | 9.952546 | FAIL | 33.92276 | 70.66% | 10 |
| N034644-001A DT 5x | Manganese | Mn | µg/L | 76.7295 | PASS | 71.49093 | 7.33% | 10 |
| N034644-001A DT 5x | Molybdenum | Mo | µg/L | 22.90105 | PASS | 24.01361 | 4.63% | 10 |
| N034644-001A DT 5x | Selenium | Se | µg/L | 12.63168 | NA | 11.76164 | 7.40% | 10 |
| N034644-001A DT 250x | Chromium | Cr | µg/L | 4630.194 | PASS | 4450.629 | 4.03% | 10 |

Note: NA - Not Applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **N034644-001A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132910**
Client ID: **ZZZZZZ** Batch ID: **73030** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **4/1/2019** SeqNo: **3336550**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.664 | 0.10 | 10.00 | 1.154 | 105 | 80 | 120 | | | | |
| Barium | 42.722 | 1.0 | 10.00 | 33.92 | 88.0 | 80 | 120 | | | | |
| Manganese | 169.616 | 0.50 | 100.0 | 71.49 | 98.1 | 80 | 120 | | | | |
| Molybdenum | 36.604 | 0.50 | 10.00 | 24.01 | 126 | 80 | 120 | | | | S |
| Selenium | 21.338 | 0.50 | 10.00 | 11.76 | 95.8 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034688
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | **N034644-001A-PS** | SampType: **PS** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132910** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **73030** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/1/2019** | SeqNo: **3336442** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 4495.667 | 50 | 10.00 | 4451 | 450 | 80 | 120 | | | | S |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Amount of Sample:** 25 mL
**Units:** ug/L

| Analyte | AMT SPIKED, ppb | 1 | 2 | 3 | 4 | 5 | 6 | 7 | SD | MDL | LOD | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANTIMONY | 0.50 | 0.525 | 0.514 | 0.473 | 0.500 | 0.492 | 0.486 | 0.530 | 0.0210 | 0.0660 | 0.100 | 0.50 |
| ARSENIC | 0.10 | 0.099 | 0.104 | 0.087 | 0.048 | 0.060 | 0.069 | 0.120 | 0.0259 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 1.00 | 1.041 | 1.059 | 1.052 | 1.011 | 0.967 | 0.957 | 1.023 | 0.0403 | 0.1264 | 0.250 | 1.00 |
| BERYLLIUM | 0.50 | 0.469 | 0.476 | 0.473 | 0.495 | 0.480 | 0.488 | 0.507 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.50 | 0.515 | 0.513 | 0.492 | 0.534 | 0.499 | 0.483 | 0.508 | 0.0168 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 1.00 | 0.979 | 0.986 | 0.940 | 0.990 | 0.946 | 0.978 | 0.977 | 0.0197 | 0.0618 | 0.250 | 1.00 |
| COBALT | 0.50 | 0.499 | 0.489 | 0.486 | 0.488 | 0.465 | 0.502 | 0.505 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| COPPER | 1.00 | 1.110 | 0.667 | 1.039 | 1.060 | 1.006 | 1.099 | 1.075 | 0.1544 | 0.4850 | 0.500 | 1.00 |
| IRON | 10.00 | 10.873 | 10.802 | 10.142 | 9.991 | 9.846 | 9.852 | 10.596 | 0.4463 | 1.4014 | 2.500 | 10.00 |
| LEAD | 1.00 | 0.928 | 0.931 | 0.899 | 0.996 | 0.990 | 0.987 | 0.997 | 0.0406 | 0.1274 | 0.250 | 1.00 |
| MANGANESE | 0.50 | 0.577 | 0.588 | 0.561 | 0.566 | 0.517 | 0.541 | 0.520 | 0.0276 | 0.0866 | 0.100 | 0.50 |
| MOLYBDENUM | 0.50 | 0.514 | 0.504 | 0.467 | 0.478 | 0.456 | 0.433 | 0.527 | 0.0338 | 0.1061 | 0.250 | 0.50 |
| NICKEL | 1.00 | 0.961 | 0.965 | 0.977 | 0.907 | 0.914 | 0.962 | 1.075 | 0.0551 | 0.1731 | 0.250 | 1.00 |
| SELENIUM | 0.50 | 0.450 | 0.478 | 0.419 | 0.693 | 0.707 | 0.495 | 0.555 | 0.1155 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.50 | 0.558 | 0.511 | 0.490 | 0.542 | 0.458 | 0.490 | 0.684 | 0.0745 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.50 | 0.437 | 0.428 | 0.408 | 0.538 | 0.446 | 0.438 | 0.525 | 0.0504 | 0.1583 | 0.250 | 0.50 |
| URANIUM | 0.50 | 0.478 | 0.467 | 0.461 | 0.517 | 0.510 | 0.521 | 0.521 | 0.0267 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 1.00 | 0.950 | 0.969 | 0.900 | 0.844 | 0.829 | 0.848 | 1.053 | 0.0820 | 0.2574 | 0.500 | 1.00 |
| ZINC | 10.00 | 11.259 | 11.279 | 10.915 | 9.620 | 9.849 | 9.745 | 10.241 | 0.7235 | 2.2717 | 2.500 | 10.00 |

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Units:** ug/L

| Analyte | MDLs | MDLb | MDL | LOD | PQL |
|---|---|---|---|---|---|
| ANTIMONY | 0.0660 | 0.1564 | 0.1564 | 0.300 | 0.50 |
| ARSENIC | 0.0813 | 0.0387 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 0.1264 | 0.1497 | 0.1497 | 0.300 | 1.00 |
| BERYLLIUM | 0.0424 | 0.0153 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.0527 | 0.0060 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 0.0618 | 0.1298 | 0.1298 | 0.300 | 1.00 |
| COBALT | 0.0424 | 0.0339 | 0.0424 | 0.100 | 0.50 |
| COPPER | 0.4850 | 0.5459 | 0.5459 | 0.600 | 1.00 |
| IRON | 1.4014 | 4.3484 | 4.3484 | 5.000 | 10.00 |
| LEAD | 0.1274 | 0.1008 | 0.1274 | 0.300 | 1.00 |
| MANGANESE | 0.0866 | 0.2552 | 0.2552 | 0.300 | 0.50 |
| MOLYBDENUM | 0.1061 | 0.2149 | 0.2149 | 0.300 | 0.50 |
| NICKEL | 0.1731 | 0.2606 | 0.2606 | 0.300 | 1.00 |
| SELENIUM | 0.3628 | 0.0953 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.2340 | 0.2023 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.1583 | 0.1924 | 0.1924 | 0.300 | 0.50 |
| URANIUM | 0.0838 | 0.0020 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 0.2574 | 0.2768 | 0.2768 | 0.600 | 1.00 |
| ZINC | 2.2717 | 0.4511 | 2.2717 | 3.000 | 10.00 |

April 11, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034708

RE: PG&E Topock - RMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on March 20, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucas for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034708

# CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Sample N034708-014 (AB3-0319) for Hexavalent Chromium were not analyzed as per COC.

Analytical Comments for EPA 218.6:

Because the results for total dissolved chromium (1.7 ug/L) and hexavalent chromium (0 ug/L) for sample N034708-012 (R-19-0319) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Analytical Comments for EPA 6020_Dissolved:

Molybdenum in Method Blank has detect >1/2 RL, however, samples result for this analyte is greater than 5x the Method Blank detection.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Barium in QC samples N034708-001B-MS and N034708-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Because the results for total dissolved chromium (1.7 ug/L) and hexavalent chromium (0 ug/L) for sample N034708-012 (R-19-0319) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 2.8 and 0 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

## ASSET Laboratories

**Date:** *11-Apr-19*

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034708
**Contract No:**

# Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034708-001A | C-CON-D-0319 | Groundwater | 3/20/2019 11:00:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-001B | C-CON-D-0319 | Groundwater | 3/20/2019 11:00:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-001C | C-CON-D-0319 | Groundwater | 3/20/2019 11:00:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-001D | C-CON-D-0319 | Groundwater | 3/20/2019 11:00:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-001E | C-CON-D-0319 | Groundwater | 3/20/2019 11:00:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-002A | C-CON-S-0319 | Groundwater | 3/20/2019 10:45:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-002B | C-CON-S-0319 | Groundwater | 3/20/2019 10:45:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-002C | C-CON-S-0319 | Groundwater | 3/20/2019 10:45:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-002D | C-CON-S-0319 | Groundwater | 3/20/2019 10:45:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-002E | C-CON-S-0319 | Groundwater | 3/20/2019 10:45:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-003A | MW-911-Q119 | Groundwater | 3/20/2019 11:10:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-003B | MW-911-Q119 | Groundwater | 3/20/2019 11:10:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-003C | MW-911-Q119 | Groundwater | 3/20/2019 11:10:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-003D | MW-911-Q119 | Groundwater | 3/20/2019 11:10:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-003E | MW-911-Q119 | Groundwater | 3/20/2019 11:10:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-004A | C-MAR-D-0319 | Groundwater | 3/20/2019 9:00:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-004B | C-MAR-D-0319 | Groundwater | 3/20/2019 9:00:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-004C | C-MAR-D-0319 | Groundwater | 3/20/2019 9:00:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-004D | C-MAR-D-0319 | Groundwater | 3/20/2019 9:00:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-004E | C-MAR-D-0319 | Groundwater | 3/20/2019 9:00:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-005A | C-MAR-S-0319 | Groundwater | 3/20/2019 8:50:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-005B | C-MAR-S-0319 | Groundwater | 3/20/2019 8:50:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-005C | C-MAR-S-0319 | Groundwater | 3/20/2019 8:50:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-005D | C-MAR-S-0319 | Groundwater | 3/20/2019 8:50:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-005E | C-MAR-S-0319 | Groundwater | 3/20/2019 8:50:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-006A | C-NR1-D-0319 | Groundwater | 3/20/2019 11:35:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-006B | C-NR1-D-0319 | Groundwater | 3/20/2019 11:35:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-006C | C-NR1-D-0319 | Groundwater | 3/20/2019 11:35:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-006D | C-NR1-D-0319 | Groundwater | 3/20/2019 11:35:00 AM | 3/20/2019 | 4/11/2019 |

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034708
**Contract No:**

# Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034708-006E | C-NR1-D-0319 | Groundwater | 3/20/2019 11:35:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-007A | C-NR1-S-0319 | Groundwater | 3/20/2019 11:45:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-007B | C-NR1-S-0319 | Groundwater | 3/20/2019 11:45:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-007C | C-NR1-S-0319 | Groundwater | 3/20/2019 11:45:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-007D | C-NR1-S-0319 | Groundwater | 3/20/2019 11:45:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-007E | C-NR1-S-0319 | Groundwater | 3/20/2019 11:45:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-008A | C-NR3-D-0319 | Groundwater | 3/20/2019 12:20:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-008B | C-NR3-D-0319 | Groundwater | 3/20/2019 12:20:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-008C | C-NR3-D-0319 | Groundwater | 3/20/2019 12:20:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-008D | C-NR3-D-0319 | Groundwater | 3/20/2019 12:20:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-008E | C-NR3-D-0319 | Groundwater | 3/20/2019 12:20:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-009A | C-NR3-S-0319 | Groundwater | 3/20/2019 12:30:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-009B | C-NR3-S-0319 | Groundwater | 3/20/2019 12:30:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-009C | C-NR3-S-0319 | Groundwater | 3/20/2019 12:30:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-009D | C-NR3-S-0319 | Groundwater | 3/20/2019 12:30:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-009E | C-NR3-S-0319 | Groundwater | 3/20/2019 12:30:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-010A | C-NR4-D-0319 | Groundwater | 3/20/2019 12:55:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-010B | C-NR4-D-0319 | Groundwater | 3/20/2019 12:55:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-010C | C-NR4-D-0319 | Groundwater | 3/20/2019 12:55:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-010D | C-NR4-D-0319 | Groundwater | 3/20/2019 12:55:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-010E | C-NR4-D-0319 | Groundwater | 3/20/2019 12:55:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-011A | C-NR4-S-0319 | Groundwater | 3/20/2019 1:05:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-011B | C-NR4-S-0319 | Groundwater | 3/20/2019 1:05:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-011C | C-NR4-S-0319 | Groundwater | 3/20/2019 1:05:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-011D | C-NR4-S-0319 | Groundwater | 3/20/2019 1:05:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-011E | C-NR4-S-0319 | Groundwater | 3/20/2019 1:05:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-012A | R-19-0319 | Groundwater | 3/20/2019 9:30:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-012B | R-19-0319 | Groundwater | 3/20/2019 9:30:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-012C | R-19-0319 | Groundwater | 3/20/2019 9:30:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-012D | R-19-0319 | Groundwater | 3/20/2019 9:30:00 AM | 3/20/2019 | 4/11/2019 |

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034708
**Contract No:**

# Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034708-012E | R-19-0319 | Groundwater | 3/20/2019 9:30:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-013A | RRB-0319 | Groundwater | 3/20/2019 9:50:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-013B | RRB-0319 | Groundwater | 3/20/2019 9:50:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-013C | RRB-0319 | Groundwater | 3/20/2019 9:50:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-013D | RRB-0319 | Groundwater | 3/20/2019 9:50:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-013E | RRB-0319 | Groundwater | 3/20/2019 9:50:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-014A | AB3-0319 | Groundwater | 3/20/2019 9:55:00 AM | 3/20/2019 | 4/11/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 920 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-911-Q119 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 900 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 900 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:20:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:55:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 920 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 1:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 920 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-19-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 920 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | RRB-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 940 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID | N034708-005DDUP | SampType: | DUP | TestCode: | 120.1_WPGE | Units: | umhos/cm | Prep Date: | | RunNo: | 132674 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132674 | TestNo: | EPA 120.1 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3325145 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 909.000 | 0.10 | | | | | | 908.0 | 0.110 | 2 | |

| Sample ID | N034708-013DDUP | SampType: | DUP | TestCode: | 120.1_WPGE | Units: | umhos/cm | Prep Date: | | RunNo: | 132674 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132674 | TestNo: | EPA 120.1 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3325154 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 932.000 | 0.10 | | | | | | 935.0 | 0.321 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.0 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.1 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-003

**Client Sample ID:** MW-911-Q119
**Collection Date:** 3/20/2019 11:10:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.1 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-006

**Client Sample ID:** C-NR1-D-0319
**Collection Date:** 3/20/2019 11:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.1 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.1 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:20:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.1 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.1 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:55:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.1 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 1:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.1 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-19-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | RRB-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.1 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 150.1_4500H+B_W**

Sample ID **N034708-005DDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **132671**
Client ID: **ZZZZZZ** Batch ID: **R132671** TestNo: **SM4500-H+B** Analysis Date: **3/21/2019** SeqNo: **3325109**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 8.210 | 0.10 | | | | | | 8.160 | 0.611 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

Sample ID **N034708-013DDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **132671**
Client ID: **ZZZZZZ** Batch ID: **R132671** TestNo: **SM4500-H+B** Analysis Date: **3/21/2019** SeqNo: **3325118**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 8.100 | 0.10 | | | | | | 8.070 | 0.371 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190322B** QC Batch: **73043** | | | | | PrepDate **3/22/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322B** | QC Batch: **73043** | | | PrepDate | **3/22/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-911-Q119 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322B** | QC Batch: **73043** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322B** | QC Batch: **73043** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322B** | QC Batch: **73043** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | 8.5 | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322B** | QC Batch: **73043** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322B** | QC Batch: **73043** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:20:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322B** | QC Batch: **73043** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322B** | QC Batch: **73043** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:55:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190322B** QC Batch: **73043** | | | | | PrepDate **3/22/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 1:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190322C** QC Batch: **73044** | | | | | PrepDate **3/22/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-19-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322C** | QC Batch: **73044** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | RRB-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322C** | QC Batch: **73044** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.2_2540D_W**

| Sample ID **LCS-73043** | SampType: **LCS** | TestCode: **160.2_2540D** | Units: **mg/L** | Prep Date: **3/22/2019** | RunNo: **132711** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **73043** | TestNo: **SM2540D** | | Analysis Date: **3/22/2019** | SeqNo: **3326848** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | 932.000 | 10 | 1000 | 0 | 93.2 | 80 | 120 | | | | |

| Sample ID **MB-73043** | SampType: **MBLK** | TestCode: **160.2_2540D** | Units: **mg/L** | Prep Date: **3/22/2019** | RunNo: **132711** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **73043** | TestNo: **SM2540D** | | Analysis Date: **3/22/2019** | SeqNo: **3326849** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 10 | | | | | | | | | |

| Sample ID **N034708-005DDUP** | SampType: **DUP** | TestCode: **160.2_2540D** | Units: **mg/L** | Prep Date: **3/22/2019** | RunNo: **132711** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73043** | TestNo: **SM2540D** | | Analysis Date: **3/22/2019** | SeqNo: **3326855** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | 8.500 | 5.0 | | | | | | 8.500 | 0 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.2_2540D_W**

| Sample ID | LCS-73044 | SampType: | LCS | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 3/22/2019 | RunNo: | 132712 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73044 | TestNo: | SM2540D | | | Analysis Date: | 3/22/2019 | SeqNo: | 3326861 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | 941.000 | 10 | 1000 | 0 | 94.1 | 80 | 120 | | | | |

| Sample ID | MB-73044 | SampType: | MBLK | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 3/22/2019 | RunNo: | 132712 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73044 | TestNo: | SM2540D | | | Analysis Date: | 3/22/2019 | SeqNo: | 3326862 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 10 | | | | | | | | | |

| Sample ID | N034708-011DDUP | SampType: | DUP | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 3/22/2019 | RunNo: | 132712 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73044 | TestNo: | SM2540D | | | Analysis Date: | 3/22/2019 | SeqNo: | 3326867 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 5.0 | | | | | | 0 | 0 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-001

**Client Sample ID:** C-CON-D-0319
**Collection Date:** 3/20/2019 11:00:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 10:30 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 04:18 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-002

**Client Sample ID:** C-CON-S-0319
**Collection Date:** 3/20/2019 10:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 11:48 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 04:47 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-911-Q119 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 12:07 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 04:53 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | **EPA 218.6** | | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 12:26 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 04:59 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 12:45 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 05:17 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 01:03 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 05:23 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-007

**Client Sample ID:** C-NR1-S-0319
**Collection Date:** 3/20/2019 11:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 01:41 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 05:29 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:20:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 02:00 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 05:35 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 02:19 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 05:41 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:55:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 02:38 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 05:47 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-011

**Client Sample ID:** C-NR4-S-0319
**Collection Date:** 3/20/2019 1:05:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 02:57 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 05:53 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-012

**Client Sample ID:** R-19-0319
**Collection Date:** 3/20/2019 9:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 03:35 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | 1.7 | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 05:58 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | RRB-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 03:54 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 06:04 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | MB-R132665 | SampType: | MBLK | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132665 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132665 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3324959 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | | | |

| Sample ID | LCS-R132665 | SampType: | LCS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132665 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132665 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3324960 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | 5.197 | 0.20 | 5.000 | 0 | 104 | 90 | 110 | | | | | | |

| Sample ID | N034706-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132665 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132665 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3324963 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | 1.059 | 0.20 | 1.000 | 0 | 106 | 90 | 110 | | | | | | |

| Sample ID | N034705-001ADUP | SampType: | DUP | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132665 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132665 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3324964 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | 1268.980 | 40 | | | | | | 1261 | 0.664 | 20 | | | |

| Sample ID | N034705-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132665 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132665 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3324965 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | 2298.720 | 40 | 1000 | 1261 | 104 | 90 | 110 | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **N034708-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132665**
Client ID: **ZZZZZZ** Batch ID: **R132665** TestNo: **EPA 218.6** Analysis Date: **3/21/2019** SeqNo: **3324967**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.961 | 0.20 | 1.000 | 0 | 96.1 | 90 | 110 | | | | |

Sample ID **N034708-001AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132665**
Client ID: **ZZZZZZ** Batch ID: **R132665** TestNo: **EPA 218.6** Analysis Date: **3/21/2019** SeqNo: **3324968**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.030 | 0.20 | 1.000 | 0 | 103 | 90 | 110 | 0.9611 | 6.96 | 20 | |

Sample ID **N034708-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132665**
Client ID: **ZZZZZZ** Batch ID: **R132665** TestNo: **EPA 218.6** Analysis Date: **3/21/2019** SeqNo: **3324972**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.074 | 0.20 | 1.000 | 0 | 107 | 90 | 110 | | | | |

Sample ID **N034708-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132665**
Client ID: **ZZZZZZ** Batch ID: **R132665** TestNo: **EPA 218.6** Analysis Date: **3/21/2019** SeqNo: **3324974**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.046 | 0.20 | 1.000 | 0 | 105 | 90 | 110 | | | | |

Sample ID **N034708-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132665**
Client ID: **ZZZZZZ** Batch ID: **R132665** TestNo: **EPA 218.6** Analysis Date: **3/21/2019** SeqNo: **3324976**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.065 | 0.20 | 1.000 | 0 | 106 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **N034708-005AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132665** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132665** | TestNo: **EPA 218.6** | | Analysis Date: **3/21/2019** | SeqNo: **3325686** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.030 | 0.20 | 1.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **N034708-006AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132665** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132665** | TestNo: **EPA 218.6** | | Analysis Date: **3/21/2019** | SeqNo: **3325688** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.052 | 0.20 | 1.000 | 0 | 105 | 90 | 110 | | | | |

| Sample ID **N034708-007AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132665** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132665** | TestNo: **EPA 218.6** | | Analysis Date: **3/21/2019** | SeqNo: **3325692** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.088 | 0.20 | 1.000 | 0 | 109 | 90 | 110 | | | | |

| Sample ID **N034708-008AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132665** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132665** | TestNo: **EPA 218.6** | | Analysis Date: **3/21/2019** | SeqNo: **3325694** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.045 | 0.20 | 1.000 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **N034708-009AMS** | SampType: **MS** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132665** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132665** | TestNo: **EPA 218.6** | | Analysis Date: **3/21/2019** | SeqNo: **3325696** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.034 | 0.20 | 1.000 | 0 | 103 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034708-010AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132665 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132665 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3325698 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.999 | 0.20 | 1.000 | 0 | 99.9 | 90 | 110 | | | | |

| Sample ID | N034708-011AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132665 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132665 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3325700 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.035 | 0.20 | 1.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID | N034708-012AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132665 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132665 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3325704 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.074 | 0.20 | 1.000 | 0 | 107 | 90 | 110 | | | | |

| Sample ID | N034708-013AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132665 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132665 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3325706 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.009 | 0.20 | 1.000 | 0 | 101 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | MB-73032 | SampType: | MBLK | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132982 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73032 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/4/2019 | SeqNo: | 3340371 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-73032 | SampType: | LCS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132982 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73032 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/4/2019 | SeqNo: | 3340372 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.929 | 1.0 | 10.00 | 0 | 99.3 | 85 | 115 | | | | |

| Sample ID | N034708-001B-MS | SampType: | MS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132982 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73032 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/4/2019 | SeqNo: | 3340376 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.411 | 1.0 | 10.00 | 0 | 94.1 | 75 | 125 | | | | |

| Sample ID | N034708-001B-MSD | SampType: | MSD | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132982 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73032 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/4/2019 | SeqNo: | 3340377 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.367 | 1.0 | 10.00 | 0 | 93.7 | 75 | 125 | 9.411 | 0.469 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | | PrepDate | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.41 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.40 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-911-Q119 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.41 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.82 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:20:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.40 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

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|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.40 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:55:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.40 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 1:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.40 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-012

**Client Sample ID:** R-19-0319
**Collection Date:** 3/20/2019 9:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.41 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | RRB-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.36 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | MB-R132840 | SampType: | MBLK | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132840 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/28/2019 | SeqNo: | 3332754 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID | LCS-R132840 | SampType: | LCS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132840 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/28/2019 | SeqNo: | 3332755 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.486 | 0.050 | 0.5000 | 0 | 97.3 | 85 | 115 | | | | |

| Sample ID | N034708-003EDUP | SampType: | DUP | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132840 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/28/2019 | SeqNo: | 3332759 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.419 | 0.050 | | | | | | 0.4095 | 2.39 | 20 | |

| Sample ID | N034708-004EMS | SampType: | MS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132840 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/28/2019 | SeqNo: | 3332761 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 1.285 | 0.050 | 0.5000 | 0.8215 | 92.7 | 75 | 125 | | | | |

| Sample ID | N034708-004EMSD | SampType: | MSD | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132840 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/28/2019 | SeqNo: | 3332762 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 1.354 | 0.050 | 0.5000 | 0.8215 | 106 | 75 | 125 | 1.285 | 5.18 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-001

**Client Sample ID:** C-CON-D-0319
**Collection Date:** 3/20/2019 11:00:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73018** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 07:27 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73024** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 43 | 18 | 20 | | ug/L | 1 | 3/28/2019 10:36 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190411A** | QC Batch: **73331** | | | PrepDate | **4/10/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 4/11/2019 11:28 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190411A** | QC Batch: **73330** | | | PrepDate | **4/10/2019** | | Analyst: **CEI** |
| Iron | 67 | 18 | 20 | | ug/L | 1 | 4/11/2019 12:19 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-911-Q119 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190411A** | QC Batch: **73331** | | | PrepDate | **4/10/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 4/11/2019 11:49 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190411A** | QC Batch: **73330** | | | PrepDate | **4/10/2019** | | Analyst: **CEI** |
| Iron | 55 | 18 | 20 | | ug/L | 1 | 4/11/2019 12:41 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73018** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 26 | 18 | 20 | | ug/L | 1 | 3/28/2019 07:56 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73024** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 100 | 18 | 20 | | ug/L | 1 | 3/28/2019 11:13 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73018** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 08:00 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73024** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 150 | 18 | 20 | | ug/L | 1 | 3/28/2019 11:17 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73018** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 08:13 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73024** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 34 | 18 | 20 | | ug/L | 1 | 3/28/2019 11:21 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73018** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 08:17 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73024** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 110 | 18 | 20 | | ug/L | 1 | 3/28/2019 11:25 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-008

**Client Sample ID:** C-NR3-D-0319
**Collection Date:** 3/20/2019 12:20:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73018** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 31 | 18 | 20 | | ug/L | 1 | 3/28/2019 08:21 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73024** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 39 | 18 | 20 | | ug/L | 1 | 3/28/2019 11:38 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| **EPA 3010A** | | | **EPA 6010B** | | | | |
| RunID: **NV00922-ICP2_190411A** | QC Batch: **73331** | | | PrepDate | **4/10/2019** | | Analyst: **CEI** |
| Iron | 23 | 18 | 20 | | ug/L | 1 | 4/11/2019 11:54 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| **EPA 3010A** | | | **EPA 6010B** | | | | |
| RunID: **NV00922-ICP2_190411A** | QC Batch: **73330** | | | PrepDate | **4/10/2019** | | Analyst: **CEI** |
| Iron | 26 | 18 | 20 | | ug/L | 1 | 4/11/2019 12:45 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:55:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73018** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 08:28 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73024** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 33 | 18 | 20 | | ug/L | 1 | 3/28/2019 11:45 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-011

**Client Sample ID:** C-NR4-S-0319
**Collection Date:** 3/20/2019 1:05:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190411A** | QC Batch: **73331** | | | PrepDate | **4/10/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 4/11/2019 12:07 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190411A** | QC Batch: **73330** | | | PrepDate | **4/10/2019** | | Analyst: **CEI** |
| Iron | 26 | 18 | 20 | | ug/L | 1 | 4/11/2019 12:59 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-012

**Client Sample ID:** R-19-0319
**Collection Date:** 3/20/2019 9:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73018** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 08:36 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73024** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 58 | 18 | 20 | | ug/L | 1 | 3/28/2019 11:53 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-013

**Client Sample ID:** RRB-0319
**Collection Date:** 3/20/2019 9:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73018** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 08:40 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73024** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 44 | 18 | 20 | | ug/L | 1 | 3/28/2019 11:57 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **MB-73018** | SampType: **MBLK** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **3/21/2019** | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **73018** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3333008** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID **LCS-73018** | SampType: **LCS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **3/21/2019** | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **73018** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3333011** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 97.680 | 20 | 100.0 | 0 | 97.7 | 85 | 115 | | | | |

| Sample ID **N034708-001B-MS** | SampType: **MS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **3/21/2019** | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73018** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3333015** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 105.058 | 20 | 100.0 | 0 | 105 | 75 | 125 | | | | |

| Sample ID **N034708-001B-MSD** | SampType: **MSD** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **3/21/2019** | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73018** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3333016** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 105.480 | 20 | 100.0 | 0 | 105 | 75 | 125 | 105.1 | 0.400 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID | MB-73331 | SampType: | MBLK | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 4/10/2019 | RunNo: | 133148 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73331 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 4/11/2019 | SeqNo: | 3347744 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID | LCS-73331 | SampType: | LCS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 4/10/2019 | RunNo: | 133148 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73331 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 4/11/2019 | SeqNo: | 3347745 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 110.807 | 20 | 100.0 | 0 | 111 | 85 | 115 | | | | |

| Sample ID | N034708-002B-MS | SampType: | MS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 4/10/2019 | RunNo: | 133148 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73331 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 4/11/2019 | SeqNo: | 3347749 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 103.290 | 20 | 100.0 | 0 | 103 | 75 | 125 | | | | |

| Sample ID | N034708-002B-MSD | SampType: | MSD | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 4/10/2019 | RunNo: | 133148 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73331 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 4/11/2019 | SeqNo: | 3347750 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 102.771 | 20 | 100.0 | 0 | 103 | 75 | 125 | 103.3 | 0.504 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID | MB-73024 | SampType: | MBLK | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132851 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73024 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333212 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID | LCS1-73024 | SampType: | LCS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132851 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73024 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333213 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 96.234 | 20 | 100.0 | 0 | 96.2 | 85 | 115 | | | | |

| Sample ID | N034708-001C-MS1 | SampType: | MS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132851 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73024 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333219 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 135.500 | 20 | 100.0 | 42.65 | 92.8 | 75 | 125 | | | | |

| Sample ID | N034708-001C-MSD | SampType: | MSD | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132851 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73024 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333220 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 135.550 | 20 | 100.0 | 42.65 | 92.9 | 75 | 125 | 135.5 | 0.0370 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID | MB-73330 | SampType: | MBLK | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 4/10/2019 | RunNo: | 133148 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73330 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 4/11/2019 | SeqNo: | 3347792 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID | LCS-73330 | SampType: | LCS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 4/10/2019 | RunNo: | 133148 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73330 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 4/11/2019 | SeqNo: | 3347793 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 101.359 | 20 | 100.0 | 0 | 101 | 85 | 115 | | | | |

| Sample ID | N034708-002C-MS | SampType: | MS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 4/10/2019 | RunNo: | 133148 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73330 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 4/11/2019 | SeqNo: | 3347797 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 169.775 | 20 | 100.0 | 66.99 | 103 | 75 | 125 | | | | |

| Sample ID | N034708-002C-MSD | SampType: | MSD | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 4/10/2019 | RunNo: | 133148 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73330 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 4/11/2019 | SeqNo: | 3347798 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 169.956 | 20 | 100.0 | 66.99 | 103 | 75 | 125 | 169.8 | 0.107 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-001

**Client Sample ID:** C-CON-D-0319
**Collection Date:** 3/20/2019 11:00:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.5 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 04:18 AM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 04:18 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 04:18 AM |
| Molybdenum | 5.1 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 04:18 AM |
| Selenium | 1.9 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 09:53 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| **EPA 3010A** | | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | | PrepDate | **3/22/2019** | Analyst: **CEI** |
| Arsenic | 2.3 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 04:47 AM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 04:47 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 04:47 AM |
| Molybdenum | 4.9 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 04:47 AM |
| Selenium | 1.6 | 0.36 | 0.50 | | µg/L | 1 | 4/10/2019 12:34 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-911-Q119 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | | PrepDate | **3/22/2019** | Analyst: **CEI** |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 04:53 AM |
| Barium | 100 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 04:53 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 04:53 AM |
| Molybdenum | 4.9 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 04:53 AM |
| Selenium | 1.6 | 0.36 | 0.50 | | µg/L | 1 | 4/10/2019 12:40 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 04:59 AM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 04:59 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 04:59 AM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 04:59 AM |
| Selenium | 1.9 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 07:48 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | | PrepDate | **3/22/2019** | Analyst: **CEI** |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 05:17 AM |
| Barium | 100 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 05:17 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 05:17 AM |
| Molybdenum | 4.5 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 05:17 AM |
| Selenium | 1.7 | 0.36 | 0.50 | | µg/L | 1 | 4/10/2019 12:58 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | | PrepDate | **3/22/2019** | Analyst: **CEI** |
| Arsenic | 2.0 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 05:23 AM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 05:23 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 05:23 AM |
| Molybdenum | 4.6 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 05:23 AM |
| Selenium | 1.7 | 0.36 | 0.50 | | µg/L | 1 | 4/10/2019 01:41 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | | PrepDate | **3/22/2019** | Analyst: **CEI** |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 05:29 AM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 05:29 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 05:29 AM |
| Molybdenum | 4.7 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 05:29 AM |
| Selenium | 2.3 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 08:07 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:20:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | | PrepDate | **3/22/2019** | Analyst: **CEI** |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 05:35 AM |
| Barium | 100 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 05:35 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 05:35 AM |
| Molybdenum | 4.7 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 05:35 AM |
| Selenium | 1.4 | 0.36 | 0.50 | | µg/L | 1 | 4/10/2019 01:10 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | | PrepDate | **3/22/2019** | Analyst: **CEI** |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 05:41 AM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 05:41 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 05:41 AM |
| Molybdenum | 4.8 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 05:41 AM |
| Selenium | 1.4 | 0.36 | 0.50 | | µg/L | 1 | 4/10/2019 01:16 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-010

**Client Sample ID:** C-NR4-D-0319
**Collection Date:** 3/20/2019 12:55:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 05:47 AM |
| Barium | 100 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 05:47 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 05:47 AM |
| Molybdenum | 4.5 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 05:47 AM |
| Selenium | 1.6 | 0.36 | 0.50 | | µg/L | 1 | 4/10/2019 02:12 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 1:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | | PrepDate | **3/22/2019** | Analyst: **CEI** |
| Arsenic | 2.3 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 05:53 AM |
| Barium | 100 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 05:53 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 05:53 AM |
| Molybdenum | 4.7 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 05:53 AM |
| Selenium | 1.6 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 08:29 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-012

**Client Sample ID:** R-19-0319
**Collection Date:** 3/20/2019 9:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.3 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 05:58 AM |
| Barium | 100 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 05:58 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 05:58 AM |
| Molybdenum | 4.7 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 05:58 AM |
| Selenium | 1.8 | 0.36 | 0.50 | | µg/L | 1 | 4/10/2019 02:24 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | RRB-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | | PrepDate | **3/22/2019** | Analyst: **CEI** |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 06:04 AM |
| Barium | 100 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 06:04 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 06:04 AM |
| Molybdenum | 4.4 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 06:04 AM |
| Selenium | 1.4 | 0.36 | 0.50 | | µg/L | 1 | 4/10/2019 01:34 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **MB-73032** | SampType: **MBLK** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **73032** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/4/2019** | SeqNo: **3340439** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.369 | 0.50 | | | | | | | | | |

| Sample ID **LCS-73032** | SampType: **LCS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **73032** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/4/2019** | SeqNo: **3340440** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.844 | 0.10 | 10.00 | 0 | 98.4 | 85 | 115 | | | | |
| Barium | 10.458 | 1.0 | 10.00 | 0 | 105 | 85 | 115 | | | | |
| Manganese | 104.813 | 0.50 | 100.0 | 0 | 105 | 85 | 115 | | | | |
| Molybdenum | 9.709 | 0.50 | 10.00 | 0 | 97.1 | 85 | 115 | | | | |

| Sample ID **N034708-001B-MS** | SampType: **MS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73032** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/4/2019** | SeqNo: **3340444** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.669 | 0.10 | 10.00 | 2.450 | 92.2 | 75 | 125 | | | | |
| Barium | 108.515 | 1.0 | 10.00 | 107.8 | 6.75 | 75 | 125 | | | | S |
| Manganese | 99.590 | 0.50 | 100.0 | 0 | 99.6 | 75 | 125 | | | | |
| Molybdenum | 16.016 | 0.50 | 10.00 | 5.126 | 109 | 75 | 125 | | | | |

| Sample ID **N034708-001B-MSD** | SampType: **MSD** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73032** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/4/2019** | SeqNo: **3340445** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.667 | 0.10 | 10.00 | 2.450 | 92.2 | 75 | 125 | 11.67 | 0.0119 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | N034708-001B-MSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132982 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73032 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/4/2019 | SeqNo: | 3340445 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 111.187 | 1.0 | 10.00 | 107.8 | 33.5 | 75 | 125 | 108.5 | 2.43 | 20 | S |
| Manganese | 99.567 | 0.50 | 100.0 | 0 | 99.6 | 75 | 125 | 99.59 | 0.0236 | 20 | |
| Molybdenum | 16.019 | 0.50 | 10.00 | 5.126 | 109 | 75 | 125 | 16.02 | 0.0174 | 20 | |

| Sample ID | MB-73032 | SampType: | MBLK | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 133012 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73032 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/4/2019 | SeqNo: | 3341656 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID | LCS-73032 | SampType: | LCS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 133012 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73032 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/4/2019 | SeqNo: | 3341657 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 10.806 | 0.50 | 10.00 | 0 | 108 | 85 | 115 | | | | |

| Sample ID | N034708-001B-MS | SampType: | MS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 133012 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73032 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/4/2019 | SeqNo: | 3341661 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 11.586 | 0.50 | 10.00 | 1.905 | 96.8 | 75 | 125 | | | | |

| Sample ID | N034708-001B-MSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 133012 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73032 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/4/2019 | SeqNo: | 3341662 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 10.524 | 0.50 | 10.00 | 1.905 | 86.2 | 75 | 125 | 11.59 | 9.61 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | N034708-001B-PS | SampType: | PS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 132982 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73032 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/4/2019 | SeqNo: | 3340443 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 12.053 | 0.10 | 10.00 | 2.450 | 96.0 | 80 | 120 | | | | |
| Barium | 112.196 | 1.0 | 10.00 | 107.8 | 43.6 | 80 | 120 | | | | S |
| Manganese | 100.058 | 0.50 | 100.0 | 0 | 100 | 80 | 120 | | | | |
| Molybdenum | 15.515 | 0.50 | 10.00 | 5.126 | 104 | 80 | 120 | | | | |

| Sample ID | N034708-001B-PS | SampType: | PS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | | RunNo: | 133012 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73032 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/4/2019 | SeqNo: | 3341660 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 11.893 | 0.50 | 10.00 | 1.905 | 99.9 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD

Page 1 of 2

| | | |
|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com daniel.arcos@tetratech.com | Address: |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@plvox.com P.O.# |
| Submitted By: Jason Mahan | Phone: 916-786-3302 Fax: | Phone: 949-727-1400, ext 200 Fax: |
| Title: Project Manager | Sampled By: Jason Mahan | Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface |
| Signature: Date: 3/20/19 | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | |
| I hereby authorize ASSET Labs to perform the tests indicated below. | Signature: Date: 3/20/19 | |
| Project Name: PG&E Topock - RMP | | |
| Project Number: RC000783.8010 | | |

| EDD Requirement | | QA/QC | | Sample Receipt Condition | Y | N |
|---|---|---|---|---|---|---|
| Excel EDD | | RTNE | | 1. Chilled | ✓ | |
| Geotracker | | RWQCB | ✓ | 2. Headspace | | |
| Labspec | | CalTrans | | 3. Container Intact | ✓ | |
| Others | ✓ | LEVEL III | | 4. Seal Present | | |
| Specify: RWQCB | | LEVEL IV | | 5. IR number | | |
| Global ID: | | Regulatory | | 6. Method of Cooling: ICE | | |
| | | Specify State: | | Sample Temp: 3.3c/1.9c/2.5c/2.3c | | |

Courier:

Tracking No.:

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH | Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Sb, Mo, Ba | Total metals (SW6010B); HNO3 Fe | Anions (E300.0); Br, Cl, SO4 | Specific Conductance (E120.1) | pH (SM4500HB) | TDS (SM2540C) | Alkalinity (Total, reported as CaCO3) (SM2320B) | TSS (SM2540) | Nitrate/Nitrite (SM4500NO3) Nitrogen; H2SO4 | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | N034708-01 | C-CON-D-0319 | 3/20/2019 | 11:00 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | 3NS | |
| 3 | -02 | C-CON-S-0319 | 3/20/2019 | 10:45 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | 3NS | |
| 5 | -03 | MW-911-Q119 | 3/20/2019 | 11:10 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | 3NS | |
| 7 | -04 | C-MAR-D-0319 | 3/20/2019 | 09:00 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | 3NS | |
| 8 | -05 | C-MAR-S-0319 | 3/20/2019 | 08:50 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | 3NS | |
| 9 | -06 | C-NR1-D-0319 | 3/20/2019 | 11:35 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | 3NS | |
| 10 | -07 | C-NR1-S-0319 | 3/20/2019 | 11:45 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | 3NS | |
| 11 | -08 | C-NR3-D-0319 | 3/20/2019 | 12:20 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | 3NS | |
| 12 | -09 | C-NR3-S-0319 | 3/20/2019 | 12:30 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | 3NS | |
| 14 | -10 | C-NR4-D-0319 | 3/20/2019 | 12:55 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | 3NS | |

| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| | 3/20/19 1600 | JORDAN Lee | 3/20/19 1600 |
| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |
| JORDAN Lee | 3/20/19 2015 | JORDAN Lee | 3/20/19 2015 |
| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days and results will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 5% of the total project price.
4. Add 10% surcharge for Level III Data Packages. 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using improper methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

| Preservatives: | | | | Container Type: | | |
|---|---|---|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C | T=Tube | V=VOA | P=Pint |
| Z=$Zn(AC)_2$ | O=NaOH | T=$Na_2S_2O_3$ | | J=Jar | B=Tedlar | G=Glass |
| Others/Specify: | B (NH4)2SO4/NH4OH | | | M=Metal | M=Metal | C=Can |

White=Laboratory Copy
Yellow=Customer's Copy

# ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGY

## CHAIN OF CUSTODY RECORD

Page 2 of 2


Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com


| | | | | | |
|---|---|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement | QA/QC | Sample Receipt Condition |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | Excel EDD | RTNE | Y N |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@jerliken.com | Address: | Geotracker | RWQCB ✓ | 1. Chilled ✓ |
| Phone: 916-788-3302 Fax | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@plvox.com P.O.# | Labspec | CalTrans | 2. Headspace |
| Submitted By: Jason Mahr | Phone: 916-788-3302 Fax | Phone: 949-727-1400, ext 200 Fax | Others ✓ | LEVEL III | 3. Container Intact ✓ |
| Title: Project Manager | Sampled By: Jason Mahr | | Specify: RWQCB | LEVEL IV | 4. Seal Present ✓ |
| Signature: Date: 3/20/19 | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | | Global ID: | Regulatory | 5. IR number ✓ |
| I hereby authorize ASSET Labs to perform the tests indicated below. | Signature: Date: 3/20/19 | | | Specify State: | 6. Method of Cooling: ICE |
| Project Name: PG&E Topock - RMP | | | | | Sample Temp: 3.3°C/1.9°C/2.3°C/2.3°C |
| Project Number: RC000753.0601 | | | | | Courier: Tracking No.: |

Matrix: Ground x | Sediment | Potable | Soil | NPDES | Other Solid | Surface

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly) | Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH | Dissolved metals (SW6010B/SW6020A-dig) FF; HNO3 Cr (500mL poly) | Dissolved metals (SW6010B/SW6020A-dig) FF; HNO3 Ca, Mg, K, Na, B (500mL poly) | Dissolved metals (SW6010B/SW6020A-dig) FF; HNO3 As, Mn, Fe, Sr, Mo, Ba (500mL poly) | Total metals (SW6010B); HNO3 Fe (500 mL poly) | Anions (E300.0); Br, Cl, SO4 (1 liter poly) | Specific Conductance (E120.1) (1 liter poly) | pH (SM4500HB) (1 liter poly) | TDS (SM2540C) (1 liter poly) | Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly) | TSS (SM2540) (1 liter poly) | Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 (125 mL poly) | Oxygen and deuterium stable isotopes (CFIRM) (1 250 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034708-11 | C-NR4-S-0319 | 3/20/2019 | 13:05 | | X | | X | | X | X | | X | X | | X | X | | | E | 7 | P | BNS | |
| 2 | -12 | R-19-0319 | 3/20/2019 | 9:30 | | X | | X | | X | X | | X | X | | X | X | | | E | 7 | P | BNS | |
| 3 | -13 | RRB-0319 | 3/20/2019 | 09:50 | | X | | X | | X | X | | X | X | | X | X | | | E | 7 | P | BNS | |
| 4 | -14 | AB3-0319 | 3/20/2019 | 09:55 | | | X | | | | | | | | | | | | | E | 1 | P | BN | Hold |

| Relinquished by (Signature and Printed Name): | Date/Time: | Received by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| | 3/20/19 1600 | JORDAN LG | 3/20/19 1600 |
| Relinquished by (Signature and Printed Name): JORDAN LG 3/20/19 2015 | Date/Time: | Received by (Signature and Printed Name): JORDAN LG 3/20/19 2015 | Date/Time: |
| Relinquished by (Signature and Printed Name): | Date/Time: | Received by (Signature and Printed Name): | Date/Time: |

**Turn Around Time (TAT)**

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

**Special Instructions:**

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs=200% Next Day=100% 2 Workdays=50% 3 Workdays=25 % 4 Workdays=20%
3. Custom EDD formats will be considered 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable samples.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

| Preservatives: | | | | Container Type: | | |
|---|---|---|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C | T=Tube | V=VOA | P=Pint |
| Z=$Zn(AC)_2$ | O=NaOH | T=$Na_2S_2O_3$ | | J=Jar | B=Tedlar | G=Glass |
| Others/Specify: | B (NH4)2SO4/NH4OH | | | M=Metal | M=Metal | C=Can |

White=Laboratory Copy

Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 3/20/2019 | Workorder: | N034708 |
| Rep sample Temp (Deg C): | 3.3/1.9/2.3/2.3 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | NA | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☐ | No ☑ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☑ | No ☐ | NA ☐ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments: Samples for pH were past holding time upon receipt.

Checklist Completed By: YR 3/21/2019

Reviewed By: LG 032419

# ASSET Laboratories

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034708

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/20/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-001A | C-CON-D-0319 | 3/20/2019 11:00:00 AM | 4/3/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-001B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-001C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-001D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-001E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-002A | C-CON-S-0319 | 3/20/2019 10:45:00 AM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-002B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-002C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-002D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034708

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/20/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-002D | C-CON-S-0319 | 3/20/2019 10:45:00 AM | 4/3/2019 | Groundwater | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-002E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-003A | MW-911-Q119 | 3/20/2019 11:10:00 AM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-003B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-003C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-003D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-003E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-004A | C-MAR-D-0319 | 3/20/2019 9:00:00 AM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-004B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034708

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/20/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-004B | C-MAR-D-0319 | 3/20/2019 9:00:00 AM | 4/3/2019 | Groundwater | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-004C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-004D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-004E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-005A | C-MAR-S-0319 | 3/20/2019 8:50:00 AM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-005B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-005C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-005D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034708

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/20/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-005E | C-MAR-S-0319 | 3/20/2019 8:50:00 AM | 4/3/2019 | Groundwater | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-006A | C-NR1-D-0319 | 3/20/2019 11:35:00 AM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-006B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-006C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-006D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-006E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-007A | C-NR1-S-0319 | 3/20/2019 11:45:00 AM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-007B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-007C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034708

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/20/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-007C | C-NR1-S-0319 | 3/20/2019 11:45:00 AM | 4/3/2019 | Groundwater | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-007D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-007E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-008A | C-NR3-D-0319 | 3/20/2019 12:20:00 PM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-008B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-008C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-008D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-008E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-009A | C-NR3-S-0319 | 3/20/2019 12:30:00 PM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-009B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034708

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/20/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-009B | C-NR3-S-0319 | 3/20/2019 12:30:00 PM | 4/3/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-009C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-009D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-009E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-010A | C-NR4-D-0319 | 3/20/2019 12:55:00 PM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-010B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-010C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-010D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034708

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/20/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-010D | C-NR4-D-0319 | 3/20/2019 12:55:00 PM | 4/3/2019 | Groundwater | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-010E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-011A | C-NR4-S-0319 | 3/20/2019 1:05:00 PM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-011B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-011C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-011D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-011E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-012A | R-19-0319 | 3/20/2019 9:30:00 AM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-012B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034708

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/20/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-012C | R-19-0319 | 3/20/2019 9:30:00 AM | 4/3/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-012D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-012E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-013A | RRB-0319 | 3/20/2019 9:50:00 AM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-013B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-013C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-013D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-013E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-014A | AB3-0319 | 3/20/2019 9:55:00 AM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☑ | ☐ | ☐ | WW |

# ASSET Laboratories

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034708

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/20/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-015A | FOLDER | 4/3/2019 | 4/3/2019 | | EDD | RWQCB | ☐ | ☐ | ☐ | LAB |
| | | | 4/3/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 4/3/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# *ARCADIS*

Project: PG&E Topock - RMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N034708

## *ANALYTICAL and QC RESULTS*
## *SAMPLE RECEIVING ITEMS*

*PRIVILEGED AND CONFIDENTIAL*

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## ASSET Laboratories Work Order: N034708


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April 11, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N034708

RE: PG&E Topock - RMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on March 20, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucas for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034708

# CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Sample N034708-014 (AB3-0319) for Hexavalent Chromium were not analyzed as per COC.

Analytical Comments for EPA 218.6:

Because the results for total dissolved chromium (1.7 ug/L) and hexavalent chromium (0 ug/L) for sample N034708-012 (R-19-0319) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Analytical Comments for EPA 6020_Dissolved:

Molybdenum in Method Blank has detect >1/2 RL, however, samples result for this analyte is greater than 5x the Method Blank detection.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Barium in QC samples N034708-001B-MS and N034708-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Because the results for total dissolved chromium (1.7 ug/L) and hexavalent chromium (0 ug/L) for sample N034708-012 (R-19-0319) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 2.8 and 0 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

## ASSET Laboratories

**Date:** *11-Apr-19*

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034708
**Contract No:**

# Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034708-001A | C-CON-D-0319 | Groundwater | 3/20/2019 11:00:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-001B | C-CON-D-0319 | Groundwater | 3/20/2019 11:00:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-001C | C-CON-D-0319 | Groundwater | 3/20/2019 11:00:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-001D | C-CON-D-0319 | Groundwater | 3/20/2019 11:00:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-001E | C-CON-D-0319 | Groundwater | 3/20/2019 11:00:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-002A | C-CON-S-0319 | Groundwater | 3/20/2019 10:45:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-002B | C-CON-S-0319 | Groundwater | 3/20/2019 10:45:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-002C | C-CON-S-0319 | Groundwater | 3/20/2019 10:45:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-002D | C-CON-S-0319 | Groundwater | 3/20/2019 10:45:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-002E | C-CON-S-0319 | Groundwater | 3/20/2019 10:45:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-003A | MW-911-Q119 | Groundwater | 3/20/2019 11:10:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-003B | MW-911-Q119 | Groundwater | 3/20/2019 11:10:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-003C | MW-911-Q119 | Groundwater | 3/20/2019 11:10:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-003D | MW-911-Q119 | Groundwater | 3/20/2019 11:10:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-003E | MW-911-Q119 | Groundwater | 3/20/2019 11:10:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-004A | C-MAR-D-0319 | Groundwater | 3/20/2019 9:00:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-004B | C-MAR-D-0319 | Groundwater | 3/20/2019 9:00:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-004C | C-MAR-D-0319 | Groundwater | 3/20/2019 9:00:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-004D | C-MAR-D-0319 | Groundwater | 3/20/2019 9:00:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-004E | C-MAR-D-0319 | Groundwater | 3/20/2019 9:00:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-005A | C-MAR-S-0319 | Groundwater | 3/20/2019 8:50:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-005B | C-MAR-S-0319 | Groundwater | 3/20/2019 8:50:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-005C | C-MAR-S-0319 | Groundwater | 3/20/2019 8:50:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-005D | C-MAR-S-0319 | Groundwater | 3/20/2019 8:50:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-005E | C-MAR-S-0319 | Groundwater | 3/20/2019 8:50:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-006A | C-NR1-D-0319 | Groundwater | 3/20/2019 11:35:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-006B | C-NR1-D-0319 | Groundwater | 3/20/2019 11:35:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-006C | C-NR1-D-0319 | Groundwater | 3/20/2019 11:35:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-006D | C-NR1-D-0319 | Groundwater | 3/20/2019 11:35:00 AM | 3/20/2019 | 4/11/2019 |

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034708
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034708-006E | C-NR1-D-0319 | Groundwater | 3/20/2019 11:35:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-007A | C-NR1-S-0319 | Groundwater | 3/20/2019 11:45:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-007B | C-NR1-S-0319 | Groundwater | 3/20/2019 11:45:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-007C | C-NR1-S-0319 | Groundwater | 3/20/2019 11:45:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-007D | C-NR1-S-0319 | Groundwater | 3/20/2019 11:45:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-007E | C-NR1-S-0319 | Groundwater | 3/20/2019 11:45:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-008A | C-NR3-D-0319 | Groundwater | 3/20/2019 12:20:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-008B | C-NR3-D-0319 | Groundwater | 3/20/2019 12:20:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-008C | C-NR3-D-0319 | Groundwater | 3/20/2019 12:20:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-008D | C-NR3-D-0319 | Groundwater | 3/20/2019 12:20:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-008E | C-NR3-D-0319 | Groundwater | 3/20/2019 12:20:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-009A | C-NR3-S-0319 | Groundwater | 3/20/2019 12:30:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-009B | C-NR3-S-0319 | Groundwater | 3/20/2019 12:30:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-009C | C-NR3-S-0319 | Groundwater | 3/20/2019 12:30:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-009D | C-NR3-S-0319 | Groundwater | 3/20/2019 12:30:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-009E | C-NR3-S-0319 | Groundwater | 3/20/2019 12:30:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-010A | C-NR4-D-0319 | Groundwater | 3/20/2019 12:55:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-010B | C-NR4-D-0319 | Groundwater | 3/20/2019 12:55:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-010C | C-NR4-D-0319 | Groundwater | 3/20/2019 12:55:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-010D | C-NR4-D-0319 | Groundwater | 3/20/2019 12:55:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-010E | C-NR4-D-0319 | Groundwater | 3/20/2019 12:55:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-011A | C-NR4-S-0319 | Groundwater | 3/20/2019 1:05:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-011B | C-NR4-S-0319 | Groundwater | 3/20/2019 1:05:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-011C | C-NR4-S-0319 | Groundwater | 3/20/2019 1:05:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-011D | C-NR4-S-0319 | Groundwater | 3/20/2019 1:05:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-011E | C-NR4-S-0319 | Groundwater | 3/20/2019 1:05:00 PM | 3/20/2019 | 4/11/2019 |
| N034708-012A | R-19-0319 | Groundwater | 3/20/2019 9:30:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-012B | R-19-0319 | Groundwater | 3/20/2019 9:30:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-012C | R-19-0319 | Groundwater | 3/20/2019 9:30:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-012D | R-19-0319 | Groundwater | 3/20/2019 9:30:00 AM | 3/20/2019 | 4/11/2019 |

**CLIENT:** ARCADIS U.S., Inc. - California
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab Order:** N034708
**Contract No:**

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N034708-012E | R-19-0319 | Groundwater | 3/20/2019 9:30:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-013A | RRB-0319 | Groundwater | 3/20/2019 9:50:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-013B | RRB-0319 | Groundwater | 3/20/2019 9:50:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-013C | RRB-0319 | Groundwater | 3/20/2019 9:50:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-013D | RRB-0319 | Groundwater | 3/20/2019 9:50:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-013E | RRB-0319 | Groundwater | 3/20/2019 9:50:00 AM | 3/20/2019 | 4/11/2019 |
| N034708-014A | AB3-0319 | Groundwater | 3/20/2019 9:55:00 AM | 3/20/2019 | 4/11/2019 |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 920 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-911-Q119 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 900 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 900 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:20:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 910 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:55:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 920 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-011

**Client Sample ID:** C-NR4-S-0319
**Collection Date:** 3/20/2019 1:05:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 920 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-19-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 920 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | RRB-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_190321E** | QC Batch: **R132674** | | | PrepDate | | | Analyst: **LR** |
| Specific Conductance | 940 | 0.10 | 0.10 | | umhos/cm | 1 | 3/21/2019 02:35 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID **N034708-005DDUP** | SampType: **DUP** | TestCode: **120.1_WPGE** | Units: **umhos/cm** | Prep Date: | RunNo: **132674** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132674** | TestNo: **EPA 120.1** | | Analysis Date: **3/21/2019** | SeqNo: **3325145** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 909.000 | 0.10 | | | | | | 908.0 | 0.110 | 2 | |

| Sample ID **N034708-013DDUP** | SampType: **DUP** | TestCode: **120.1_WPGE** | Units: **umhos/cm** | Prep Date: | RunNo: **132674** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132674** | TestNo: **EPA 120.1** | | Analysis Date: **3/21/2019** | SeqNo: **3325154** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 932.000 | 0.10 | | | | | | 935.0 | 0.321 | 2 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-001

**Client Sample ID:** C-CON-D-0319
**Collection Date:** 3/20/2019 11:00:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.0 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-002

**Client Sample ID:** C-CON-S-0319
**Collection Date:** 3/20/2019 10:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.1 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-911-Q119 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.1 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-005

**Client Sample ID:** C-MAR-S-0319
**Collection Date:** 3/20/2019 8:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.1 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-007

**Client Sample ID:** C-NR1-S-0319
**Collection Date:** 3/20/2019 11:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.1 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:20:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.1 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.1 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:55:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.1 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-011

**Client Sample ID:** C-NR4-S-0319
**Collection Date:** 3/20/2019 1:05:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.1 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-19-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.2 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | RRB-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PH** | | | | | | | |
| | | | **SM4500-H+B** | | | | |
| RunID: **NV00922-WC_190321C** | QC Batch: **R132671** | | | PrepDate | | | Analyst: **LR** |
| pH | 8.1 | 0.10 | 0.10 | H | pH Units | 1 | 3/21/2019 02:00 PM |
| Temp. at time of pH Analysis | 25 | 0.10 | 0.10 | H | °C | 1 | 3/21/2019 02:00 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 150.1_4500H+B_W**

Sample ID **N034708-005DDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **132671**
Client ID: **ZZZZZZ** Batch ID: **R132671** TestNo: **SM4500-H+B** Analysis Date: **3/21/2019** SeqNo: **3325109**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 8.210 | 0.10 | | | | | | 8.160 | 0.611 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

Sample ID **N034708-013DDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **132671**
Client ID: **ZZZZZZ** Batch ID: **R132671** TestNo: **SM4500-H+B** Analysis Date: **3/21/2019** SeqNo: **3325118**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 8.100 | 0.10 | | | | | | 8.070 | 0.371 | 10 | H |
| Temp. at time of pH Analysis | 25.000 | 0.10 | | | | | | 25.00 | 0 | 10 | H |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190322B** QC Batch: **73043** | | | | | PrepDate **3/22/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190322B** QC Batch: **73043** | | | | PrepDate | **3/22/2019** | Analyst: **LR** | |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-911-Q119 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322B** | QC Batch: **73043** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190322B** QC Batch: **73043** | | | | | PrepDate **3/22/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322B** | QC Batch: **73043** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | 8.5 | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322B** | QC Batch: **73043** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322B** | QC Batch: **73043** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:20:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322B** | QC Batch: **73043** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322B** QC Batch: **73043** | | | | PrepDate | **3/22/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:55:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190322B** QC Batch: **73043** | | | | | PrepDate **3/22/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 1:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190322C** | QC Batch: **73044** | | | | PrepDate **3/22/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-19-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540D** | | | | |
| RunID: **NV00922-WC_190322C** | QC Batch: **73044** | | | | PrepDate | **3/22/2019** | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | RRB-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL NON-FILTERABLE RESIDUE** | | | | | **SM2540D** | | |
| RunID: **NV00922-WC_190322C** QC Batch: **73044** | | | | | PrepDate **3/22/2019** | | Analyst: **LR** |
| Suspended Solids (Residue, Non-Filterable) | ND | 5.0 | 5.0 | | mg/L | 1 | 3/22/2019 08:22 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.2_2540D_W**

| Sample ID **LCS-73043** | SampType: **LCS** | TestCode: **160.2_2540D** | Units: **mg/L** | Prep Date: **3/22/2019** | RunNo: **132711** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **73043** | TestNo: **SM2540D** | | Analysis Date: **3/22/2019** | SeqNo: **3326848** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | 932.000 | 10 | 1000 | 0 | 93.2 | 80 | 120 | | | | |

| Sample ID **MB-73043** | SampType: **MBLK** | TestCode: **160.2_2540D** | Units: **mg/L** | Prep Date: **3/22/2019** | RunNo: **132711** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **73043** | TestNo: **SM2540D** | | Analysis Date: **3/22/2019** | SeqNo: **3326849** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 10 | | | | | | | | | |

| Sample ID **N034708-005DDUP** | SampType: **DUP** | TestCode: **160.2_2540D** | Units: **mg/L** | Prep Date: **3/22/2019** | RunNo: **132711** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73043** | TestNo: **SM2540D** | | Analysis Date: **3/22/2019** | SeqNo: **3326855** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | 8.500 | 5.0 | | | | | | 8.500 | 0 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.2_2540D_W**

| Sample ID | LCS-73044 | SampType: | LCS | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 3/22/2019 | RunNo: | 132712 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73044 | TestNo: | SM2540D | | | Analysis Date: | 3/22/2019 | SeqNo: | 3326861 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | 941.000 | 10 | 1000 | 0 | 94.1 | 80 | 120 | | | | |

| Sample ID | MB-73044 | SampType: | MBLK | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 3/22/2019 | RunNo: | 132712 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73044 | TestNo: | SM2540D | | | Analysis Date: | 3/22/2019 | SeqNo: | 3326862 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 10 | | | | | | | | | |

| Sample ID | N034708-011DDUP | SampType: | DUP | TestCode: | 160.2_2540D | Units: | mg/L | Prep Date: | 3/22/2019 | RunNo: | 132712 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73044 | TestNo: | SM2540D | | | Analysis Date: | 3/22/2019 | SeqNo: | 3326867 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suspended Solids (Residue, Non-Filter | ND | 5.0 | | | | | | 0 | 0 | 5 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 10:30 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 04:18 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 11:48 AM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 04:47 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-911-Q119 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 12:07 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 04:53 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 12:26 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 04:59 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 12:45 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 05:17 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-006

**Client Sample ID:** C-NR1-D-0319
**Collection Date:** 3/20/2019 11:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 01:03 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 05:23 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 01:41 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 05:29 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:20:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 02:00 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 05:35 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 02:19 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 05:41 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:55:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 02:38 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 05:47 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 1:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** QC Batch: **R132665** | | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 02:57 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** QC Batch: **73032** | | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 05:53 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | R-19-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:30:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-012 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** | QC Batch: **R132665** | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 03:35 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | 1.7 | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 05:58 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | RRB-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_190321A** | QC Batch: **R132665** | | | PrepDate | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 3/21/2019 03:54 PM |
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | | **EPA 3010A** | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 4/4/2019 06:04 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | MB-R132665 | SampType: | MBLK | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132665 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132665 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3324959 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | | | |

| Sample ID | LCS-R132665 | SampType: | LCS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132665 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132665 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3324960 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | 5.197 | 0.20 | 5.000 | 0 | 104 | 90 | 110 | | | | | | |

| Sample ID | N034706-002AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132665 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132665 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3324963 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | 1.059 | 0.20 | 1.000 | 0 | 106 | 90 | 110 | | | | | | |

| Sample ID | N034705-001ADUP | SampType: | DUP | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132665 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132665 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3324964 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | 1268.980 | 40 | | | | | | 1261 | 0.664 | 20 | | | |

| Sample ID | N034705-001AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132665 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132665 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3324965 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | 2298.720 | 40 | 1000 | 1261 | 104 | 90 | 110 | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **N034708-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132665**
Client ID: **ZZZZZZ** Batch ID: **R132665** TestNo: **EPA 218.6** Analysis Date: **3/21/2019** SeqNo: **3324967**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.961 | 0.20 | 1.000 | 0 | 96.1 | 90 | 110 | | | | |

Sample ID **N034708-001AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132665**
Client ID: **ZZZZZZ** Batch ID: **R132665** TestNo: **EPA 218.6** Analysis Date: **3/21/2019** SeqNo: **3324968**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.030 | 0.20 | 1.000 | 0 | 103 | 90 | 110 | 0.9611 | 6.96 | 20 | |

Sample ID **N034708-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132665**
Client ID: **ZZZZZZ** Batch ID: **R132665** TestNo: **EPA 218.6** Analysis Date: **3/21/2019** SeqNo: **3324972**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.074 | 0.20 | 1.000 | 0 | 107 | 90 | 110 | | | | |

Sample ID **N034708-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132665**
Client ID: **ZZZZZZ** Batch ID: **R132665** TestNo: **EPA 218.6** Analysis Date: **3/21/2019** SeqNo: **3324974**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.046 | 0.20 | 1.000 | 0 | 105 | 90 | 110 | | | | |

Sample ID **N034708-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132665**
Client ID: **ZZZZZZ** Batch ID: **R132665** TestNo: **EPA 218.6** Analysis Date: **3/21/2019** SeqNo: **3324976**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.065 | 0.20 | 1.000 | 0 | 106 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID | N034708-005AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132665 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132665 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3325686 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.030 | 0.20 | 1.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID | N034708-006AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132665 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132665 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3325688 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.052 | 0.20 | 1.000 | 0 | 105 | 90 | 110 | | | | |

| Sample ID | N034708-007AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132665 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132665 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3325692 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.088 | 0.20 | 1.000 | 0 | 109 | 90 | 110 | | | | |

| Sample ID | N034708-008AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132665 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132665 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3325694 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.045 | 0.20 | 1.000 | 0 | 104 | 90 | 110 | | | | |

| Sample ID | N034708-009AMS | SampType: | MS | TestCode: | 218.6_WPGE | Units: | µg/L | Prep Date: | | RunNo: | 132665 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132665 | TestNo: | EPA 218.6 | | | Analysis Date: | 3/21/2019 | SeqNo: | 3325696 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.034 | 0.20 | 1.000 | 0 | 103 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

Sample ID **N034708-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132665**
Client ID: **ZZZZZZ** Batch ID: **R132665** TestNo: **EPA 218.6** Analysis Date: **3/21/2019** SeqNo: **3325698**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.999 | 0.20 | 1.000 | 0 | 99.9 | 90 | 110 | | | | |

Sample ID **N034708-011AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132665**
Client ID: **ZZZZZZ** Batch ID: **R132665** TestNo: **EPA 218.6** Analysis Date: **3/21/2019** SeqNo: **3325700**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.035 | 0.20 | 1.000 | 0 | 103 | 90 | 110 | | | | |

Sample ID **N034708-012AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132665**
Client ID: **ZZZZZZ** Batch ID: **R132665** TestNo: **EPA 218.6** Analysis Date: **3/21/2019** SeqNo: **3325704**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.074 | 0.20 | 1.000 | 0 | 107 | 90 | 110 | | | | |

Sample ID **N034708-013AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **132665**
Client ID: **ZZZZZZ** Batch ID: **R132665** TestNo: **EPA 218.6** Analysis Date: **3/21/2019** SeqNo: **3325706**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.009 | 0.20 | 1.000 | 0 | 101 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | MB-73032 | SampType: | MBLK | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132982 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73032 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/4/2019 | SeqNo: | 3340371 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID | LCS-73032 | SampType: | LCS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132982 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73032 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/4/2019 | SeqNo: | 3340372 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.929 | 1.0 | 10.00 | 0 | 99.3 | 85 | 115 | | | | |

| Sample ID | N034708-001B-MS | SampType: | MS | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132982 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73032 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/4/2019 | SeqNo: | 3340376 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.411 | 1.0 | 10.00 | 0 | 94.1 | 75 | 125 | | | | |

| Sample ID | N034708-001B-MSD | SampType: | MSD | TestCode: | 6020DIS_CrP | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132982 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73032 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/4/2019 | SeqNo: | 3340377 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.367 | 1.0 | 10.00 | 0 | 93.7 | 75 | 125 | 9.411 | 0.469 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.41 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 10:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | | PrepDate | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.40 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | MW-911-Q119 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:10:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.41 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.82 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | Analyst: **QBM** | |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:35:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-006 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR1-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:45:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-007 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.39 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:20:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.40 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.40 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:55:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-010 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.40 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR4-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 1:05:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-011 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.40 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-012

**Client Sample ID:** R-19-0319
**Collection Date:** 3/20/2019 9:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | | PrepDate | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.41 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | RRB-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-013 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_190328A** | QC Batch: **R132840** | | PrepDate | | | | Analyst: **QBM** |
| Nitrate/Nitrite as N | 0.36 | 0.032 | 0.050 | | mg/L | 1 | 3/28/2019 |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID | MB-R132840 | SampType: | MBLK | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R132840 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/28/2019 | SeqNo: | 3332754 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID | LCS-R132840 | SampType: | LCS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R132840 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/28/2019 | SeqNo: | 3332755 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.486 | 0.050 | 0.5000 | 0 | 97.3 | 85 | 115 | | | | |

| Sample ID | N034708-003EDUP | SampType: | DUP | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132840 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/28/2019 | SeqNo: | 3332759 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.419 | 0.050 | | | | | | 0.4095 | 2.39 | 20 | |

| Sample ID | N034708-004EMS | SampType: | MS | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132840 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/28/2019 | SeqNo: | 3332761 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 1.285 | 0.050 | 0.5000 | 0.8215 | 92.7 | 75 | 125 | | | | |

| Sample ID | N034708-004EMSD | SampType: | MSD | TestCode: | 4500N03F_W | Units: | mg/L | Prep Date: | | RunNo: | 132840 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R132840 | TestNo: | SM4500-NO3 | | | Analysis Date: | 3/28/2019 | SeqNo: | 3332762 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 1.354 | 0.050 | 0.5000 | 0.8215 | 106 | 75 | 125 | 1.285 | 5.18 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-001

**Client Sample ID:** C-CON-D-0319
**Collection Date:** 3/20/2019 11:00:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73018** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 07:27 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73024** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 43 | 18 | 20 | | ug/L | 1 | 3/28/2019 10:36 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-002

**Client Sample ID:** C-CON-S-0319
**Collection Date:** 3/20/2019 10:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190411A** | QC Batch: **73331** | | | PrepDate | **4/10/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 4/11/2019 11:28 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190411A** | QC Batch: **73330** | | | PrepDate | **4/10/2019** | | Analyst: **CEI** |
| Iron | 67 | 18 | 20 | | ug/L | 1 | 4/11/2019 12:19 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-003

**Client Sample ID:** MW-911-Q119
**Collection Date:** 3/20/2019 11:10:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190411A** | QC Batch: **73331** | | | PrepDate | **4/10/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 4/11/2019 11:49 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190411A** | QC Batch: **73330** | | | PrepDate | **4/10/2019** | | Analyst: **CEI** |
| Iron | 55 | 18 | 20 | | ug/L | 1 | 4/11/2019 12:41 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 9:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-004 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73018** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 26 | 18 | 20 | | ug/L | 1 | 3/28/2019 07:56 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73024** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 100 | 18 | 20 | | ug/L | 1 | 3/28/2019 11:13 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-005

**Client Sample ID:** C-MAR-S-0319
**Collection Date:** 3/20/2019 8:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73018** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 08:00 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73024** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 150 | 18 | 20 | | ug/L | 1 | 3/28/2019 11:17 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-006

**Client Sample ID:** C-NR1-D-0319
**Collection Date:** 3/20/2019 11:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73018** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 08:13 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73024** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 34 | 18 | 20 | | ug/L | 1 | 3/28/2019 11:21 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-007

**Client Sample ID:** C-NR1-S-0319
**Collection Date:** 3/20/2019 11:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73018** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 08:17 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73024** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 110 | 18 | 20 | | ug/L | 1 | 3/28/2019 11:25 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:20:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-008 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73018** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 31 | 18 | 20 | | ug/L | 1 | 3/28/2019 08:21 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73024** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 39 | 18 | 20 | | ug/L | 1 | 3/28/2019 11:38 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-NR3-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 12:30:00 PM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-009 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190411A** | QC Batch: **73331** | | | PrepDate | **4/10/2019** | | Analyst: **CEI** |
| Iron | 23 | 18 | 20 | | ug/L | 1 | 4/11/2019 11:54 AM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190411A** | QC Batch: **73330** | | | PrepDate | **4/10/2019** | | Analyst: **CEI** |
| Iron | 26 | 18 | 20 | | ug/L | 1 | 4/11/2019 12:45 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-010

**Client Sample ID:** C-NR4-D-0319
**Collection Date:** 3/20/2019 12:55:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73018** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 08:28 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73024** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 33 | 18 | 20 | | ug/L | 1 | 3/28/2019 11:45 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-011

**Client Sample ID:** C-NR4-S-0319
**Collection Date:** 3/20/2019 1:05:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190411A** | QC Batch: **73331** | | | PrepDate | **4/10/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 4/11/2019 12:07 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190411A** | QC Batch: **73330** | | | PrepDate | **4/10/2019** | | Analyst: **CEI** |
| Iron | 26 | 18 | 20 | | ug/L | 1 | 4/11/2019 12:59 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-012

**Client Sample ID:** R-19-0319
**Collection Date:** 3/20/2019 9:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73018** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 08:36 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73024** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 58 | 18 | 20 | | ug/L | 1 | 3/28/2019 11:53 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-013

**Client Sample ID:** RRB-0319
**Collection Date:** 3/20/2019 9:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328E** | QC Batch: **73018** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | ND | 18 | 20 | | ug/L | 1 | 3/28/2019 08:40 PM |
| **TOTAL METALS BY ICP** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6010B** | | | |
| RunID: **NV00922-ICP2_190328F** | QC Batch: **73024** | | | PrepDate | **3/21/2019** | | Analyst: **CEI** |
| Iron | 44 | 18 | 20 | | ug/L | 1 | 3/28/2019 11:57 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **MB-73018** | SampType: **MBLK** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **3/21/2019** | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **73018** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3333008** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID **LCS-73018** | SampType: **LCS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **3/21/2019** | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **73018** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3333011** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 97.680 | 20 | 100.0 | 0 | 97.7 | 85 | 115 | | | | |

| Sample ID **N034708-001B-MS** | SampType: **MS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **3/21/2019** | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73018** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3333015** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 105.058 | 20 | 100.0 | 0 | 105 | 75 | 125 | | | | |

| Sample ID **N034708-001B-MSD** | SampType: **MSD** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: **3/21/2019** | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73018** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/28/2019** | SeqNo: **3333016** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 105.480 | 20 | 100.0 | 0 | 105 | 75 | 125 | 105.1 | 0.400 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID | MB-73331 | SampType: | MBLK | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 4/10/2019 | RunNo: | 133148 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73331 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 4/11/2019 | SeqNo: | 3347744 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID | LCS-73331 | SampType: | LCS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 4/10/2019 | RunNo: | 133148 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73331 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 4/11/2019 | SeqNo: | 3347745 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 110.807 | 20 | 100.0 | 0 | 111 | 85 | 115 | | | | |

| Sample ID | N034708-002B-MS | SampType: | MS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 4/10/2019 | RunNo: | 133148 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73331 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 4/11/2019 | SeqNo: | 3347749 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 103.290 | 20 | 100.0 | 0 | 103 | 75 | 125 | | | | |

| Sample ID | N034708-002B-MSD | SampType: | MSD | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | 4/10/2019 | RunNo: | 133148 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73331 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 4/11/2019 | SeqNo: | 3347750 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 102.771 | 20 | 100.0 | 0 | 103 | 75 | 125 | 103.3 | 0.504 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID | MB-73024 | SampType: | MBLK | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132851 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73024 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333212 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID | LCS1-73024 | SampType: | LCS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132851 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73024 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333213 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 96.234 | 20 | 100.0 | 0 | 96.2 | 85 | 115 | | | | |

| Sample ID | N034708-001C-MS1 | SampType: | MS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132851 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73024 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333219 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 135.500 | 20 | 100.0 | 42.65 | 92.8 | 75 | 125 | | | | |

| Sample ID | N034708-001C-MSD | SampType: | MSD | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 3/21/2019 | RunNo: | 132851 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73024 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333220 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 135.550 | 20 | 100.0 | 42.65 | 92.9 | 75 | 125 | 135.5 | 0.0370 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID | MB-73330 | SampType: | MBLK | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 4/10/2019 | RunNo: | 133148 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73330 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 4/11/2019 | SeqNo: | 3347792 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | 20 | | | | | | | | | |

| Sample ID | LCS-73330 | SampType: | LCS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 4/10/2019 | RunNo: | 133148 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73330 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 4/11/2019 | SeqNo: | 3347793 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 101.359 | 20 | 100.0 | 0 | 101 | 85 | 115 | | | | |

| Sample ID | N034708-002C-MS | SampType: | MS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 4/10/2019 | RunNo: | 133148 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73330 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 4/11/2019 | SeqNo: | 3347797 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 169.775 | 20 | 100.0 | 66.99 | 103 | 75 | 125 | | | | |

| Sample ID | N034708-002C-MSD | SampType: | MSD | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | 4/10/2019 | RunNo: | 133148 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73330 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 4/11/2019 | SeqNo: | 3347798 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 169.956 | 20 | 100.0 | 66.99 | 103 | 75 | 125 | 169.8 | 0.107 | 20 | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-CON-D-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 11:00:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | PrepDate | **3/22/2019** | | Analyst: **CEI** |
| Arsenic | 2.5 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 04:18 AM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 04:18 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 04:18 AM |
| Molybdenum | 5.1 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 04:18 AM |
| Selenium | 1.9 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 09:53 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-002

**Client Sample ID:** C-CON-S-0319
**Collection Date:** 3/20/2019 10:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.3 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 04:47 AM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 04:47 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 04:47 AM |
| Molybdenum | 4.9 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 04:47 AM |
| Selenium | 1.6 | 0.36 | 0.50 | | µg/L | 1 | 4/10/2019 12:34 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-003

**Client Sample ID:** MW-911-Q119
**Collection Date:** 3/20/2019 11:10:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 04:53 AM |
| Barium | 100 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 04:53 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 04:53 AM |
| Molybdenum | 4.9 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 04:53 AM |
| Selenium | 1.6 | 0.36 | 0.50 | | µg/L | 1 | 4/10/2019 12:40 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-004

**Client Sample ID:** C-MAR-D-0319
**Collection Date:** 3/20/2019 9:00:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 04:59 AM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 04:59 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 04:59 AM |
| Molybdenum | 5.0 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 04:59 AM |
| Selenium | 1.9 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 07:48 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

| | | | |
|---|---|---|---|
| **CLIENT:** | ARCADIS U.S., Inc. - California | **Client Sample ID:** | C-MAR-S-0319 |
| **Lab Order:** | N034708 | **Collection Date:** | 3/20/2019 8:50:00 AM |
| **Project:** | PG&E Topock - RMP, RC000753.801D | **Matrix:** | GROUNDWATER |
| **Lab ID:** | N034708-005 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | | **EPA 6020** | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | | PrepDate | **3/22/2019** | Analyst: **CEI** |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 05:17 AM |
| Barium | 100 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 05:17 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 05:17 AM |
| Molybdenum | 4.5 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 05:17 AM |
| Selenium | 1.7 | 0.36 | 0.50 | | µg/L | 1 | 4/10/2019 12:58 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-006

**Client Sample ID:** C-NR1-D-0319
**Collection Date:** 3/20/2019 11:35:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.0 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 05:23 AM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 05:23 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 05:23 AM |
| Molybdenum | 4.6 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 05:23 AM |
| Selenium | 1.7 | 0.36 | 0.50 | | µg/L | 1 | 4/10/2019 01:41 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded | ND | Not Detected at the Reporting Limit |
| S | Spike/Surrogate outside of limits due to matrix interference | | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-007

**Client Sample ID:** C-NR1-S-0319
**Collection Date:** 3/20/2019 11:45:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 05:29 AM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 05:29 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 05:29 AM |
| Molybdenum | 4.7 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 05:29 AM |
| Selenium | 2.3 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 08:07 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-008

**Client Sample ID:** C-NR3-D-0319
**Collection Date:** 3/20/2019 12:20:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 05:35 AM |
| Barium | 100 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 05:35 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 05:35 AM |
| Molybdenum | 4.7 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 05:35 AM |
| Selenium | 1.4 | 0.36 | 0.50 | | µg/L | 1 | 4/10/2019 01:10 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-009

**Client Sample ID:** C-NR3-S-0319
**Collection Date:** 3/20/2019 12:30:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 05:41 AM |
| Barium | 110 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 05:41 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 05:41 AM |
| Molybdenum | 4.8 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 05:41 AM |
| Selenium | 1.4 | 0.36 | 0.50 | | µg/L | 1 | 4/10/2019 01:16 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-010

**Client Sample ID:** C-NR4-D-0319
**Collection Date:** 3/20/2019 12:55:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.1 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 05:47 AM |
| Barium | 100 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 05:47 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 05:47 AM |
| Molybdenum | 4.5 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 05:47 AM |
| Selenium | 1.6 | 0.36 | 0.50 | | µg/L | 1 | 4/10/2019 02:12 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-011

**Client Sample ID:** C-NR4-S-0319
**Collection Date:** 3/20/2019 1:05:00 PM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.3 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 05:53 AM |
| Barium | 100 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 05:53 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 05:53 AM |
| Molybdenum | 4.7 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 05:53 AM |
| Selenium | 1.6 | 0.36 | 0.50 | | µg/L | 1 | 4/4/2019 08:29 PM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**ASSET Laboratories**

# ANALYTICAL RESULTS

**Print Date:** *10-Apr-19*

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-012

**Client Sample ID:** R-19-0319
**Collection Date:** 3/20/2019 9:30:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.3 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 05:58 AM |
| Barium | 100 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 05:58 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 05:58 AM |
| Molybdenum | 4.7 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 05:58 AM |
| Selenium | 1.8 | 0.36 | 0.50 | | µg/L | 1 | 4/10/2019 02:24 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Lab Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D
**Lab ID:** N034708-013

**Client Sample ID:** RRB-0319
**Collection Date:** 3/20/2019 9:50:00 AM
**Matrix:** GROUNDWATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **DISSOLVED METALS BY ICP-MS** | | | | | | | |
| | **EPA 3010A** | | | **EPA 6020** | | | |
| RunID: **NV00922-ICP7_190403D** | QC Batch: **73032** | | | PrepDate | **3/22/2019** | Analyst: **CEI** | |
| Arsenic | 2.2 | 0.081 | 0.10 | | µg/L | 1 | 4/4/2019 06:04 AM |
| Barium | 100 | 0.15 | 1.0 | | µg/L | 1 | 4/4/2019 06:04 AM |
| Manganese | ND | 0.26 | 0.50 | | µg/L | 1 | 4/4/2019 06:04 AM |
| Molybdenum | 4.4 | 0.21 | 0.50 | | µg/L | 1 | 4/4/2019 06:04 AM |
| Selenium | 1.4 | 0.36 | 0.50 | | µg/L | 1 | 4/10/2019 01:34 AM |

**Qualifiers:**

| | |
|---|---|
| B | Analyte detected in the associated Method Blank |
| H | Holding times for preparation or analysis exceeded |
| S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out |
| E | Value above quantitation range |
| ND | Not Detected at the Reporting Limit |
| | Results are wet unless otherwise specified |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **MB-73032** | SampType: **MBLK** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **73032** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/4/2019** | SeqNo: **3340439** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.369 | 0.50 | | | | | | | | | |

| Sample ID **LCS-73032** | SampType: **LCS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **73032** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/4/2019** | SeqNo: **3340440** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.844 | 0.10 | 10.00 | 0 | 98.4 | 85 | 115 | | | | |
| Barium | 10.458 | 1.0 | 10.00 | 0 | 105 | 85 | 115 | | | | |
| Manganese | 104.813 | 0.50 | 100.0 | 0 | 105 | 85 | 115 | | | | |
| Molybdenum | 9.709 | 0.50 | 10.00 | 0 | 97.1 | 85 | 115 | | | | |

| Sample ID **N034708-001B-MS** | SampType: **MS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73032** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/4/2019** | SeqNo: **3340444** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.669 | 0.10 | 10.00 | 2.450 | 92.2 | 75 | 125 | | | | |
| Barium | 108.515 | 1.0 | 10.00 | 107.8 | 6.75 | 75 | 125 | | | | S |
| Manganese | 99.590 | 0.50 | 100.0 | 0 | 99.6 | 75 | 125 | | | | |
| Molybdenum | 16.016 | 0.50 | 10.00 | 5.126 | 109 | 75 | 125 | | | | |

| Sample ID **N034708-001B-MSD** | SampType: **MSD** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: **3/22/2019** | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73032** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/4/2019** | SeqNo: **3340445** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 11.667 | 0.10 | 10.00 | 2.450 | 92.2 | 75 | 125 | 11.67 | 0.0119 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID | N034708-001B-MSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 132982 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73032 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/4/2019 | SeqNo: | 3340445 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Barium | 111.187 | 1.0 | 10.00 | 107.8 | 33.5 | 75 | 125 | 108.5 | 2.43 | 20 | S | | |
| Manganese | 99.567 | 0.50 | 100.0 | 0 | 99.6 | 75 | 125 | 99.59 | 0.0236 | 20 | | | |
| Molybdenum | 16.019 | 0.50 | 10.00 | 5.126 | 109 | 75 | 125 | 16.02 | 0.0174 | 20 | | | |

| Sample ID | MB-73032 | SampType: | MBLK | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 133012 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 73032 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/4/2019 | SeqNo: | 3341656 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Selenium | ND | 0.50 | | | | | | | | | | | |

| Sample ID | LCS-73032 | SampType: | LCS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 133012 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 73032 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/4/2019 | SeqNo: | 3341657 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Selenium | 10.806 | 0.50 | 10.00 | 0 | 108 | 85 | 115 | | | | | | |

| Sample ID | N034708-001B-MS | SampType: | MS | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 133012 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73032 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/4/2019 | SeqNo: | 3341661 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Selenium | 11.586 | 0.50 | 10.00 | 1.905 | 96.8 | 75 | 125 | | | | | | |

| Sample ID | N034708-001B-MSD | SampType: | MSD | TestCode: | 6020_DIS | Units: | µg/L | Prep Date: | 3/22/2019 | RunNo: | 133012 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73032 | TestNo: | EPA 6020 | EPA 3010A | | Analysis Date: | 4/4/2019 | SeqNo: | 3341662 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Selenium | 10.524 | 0.50 | 10.00 | 1.905 | 86.2 | 75 | 125 | 11.59 | 9.61 | 20 | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **N034708-001B-PS** | SampType: **PS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73032** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/4/2019** | SeqNo: **3340443** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 12.053 | 0.10 | 10.00 | 2.450 | 96.0 | 80 | 120 | | | | |
| Barium | 112.196 | 1.0 | 10.00 | 107.8 | 43.6 | 80 | 120 | | | | S |
| Manganese | 100.058 | 0.50 | 100.0 | 0 | 100 | 80 | 120 | | | | |
| Molybdenum | 15.515 | 0.50 | 10.00 | 5.126 | 104 | 80 | 120 | | | | |

| Sample ID **N034708-001B-PS** | SampType: **PS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73032** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/4/2019** | SeqNo: **3341660** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 11.893 | 0.50 | 10.00 | 1.905 | 99.9 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

# CHAIN OF CUSTODY RECORD

Page 1 of 2

| | | |
|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com daniel.arcos@tetratech.com | Address: |
| Phone: 916-786-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@plvox.com P.O.# |
| Submitted By: Jason Mahan | Phone: 916-786-3302 Fax: | Phone: 949-727-1400, ext 200 Fax: |
| Title: Project Manager | | |
| Signature: Dated: 3/20/19 | Sampled By: Jason Mahan | |
| I hereby authorize ASSET Labs to perform the tests indicated below. | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | |
| Project Name: PG&E Topock - RMP | Signature: Date: 3/20/19 | |
| Project Number: RC000763.8010 | | |

Matrix: Ground x | Sediment | Potable | Soil | NPDES | Other Solid | Surface

| EDD Requirement | | QA/QC | | Sample Receipt Condition | Y | N |
|---|---|---|---|---|---|---|
| Excel EDD | | RTNE | | 1. Chilled | ✓ | |
| Geotracker | | RWQCB | ✓ | 2. Headspace | | |
| Labspec | | CalTrans | | 3. Container Intact | ✓ | |
| Others | ✓ | LEVEL III | | 4. Seal Present | | |
| Specify: RWQCB | | LEVEL IV | | 5. IR number | | |
| Global ID: | | Regulatory | | 6. Method of Cooling: | | |
| | | Specify State: | | Ice | | |

Sample Temp: 3.3c/1.9c/2.5c/2.3c

Courier:

Tracking No.:

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH | Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B | Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Sb, Mo, Ba | Total metals (SW6010B); HNO3 Fe | Anions (E300.0); Br, Cl, SO4 | Specific Conductance (E120.1) | pH (SM4500HB) | TDS (SM2540C) | Alkalinity (Total, reported as CaCO3) (SM2320B) | TSS (SM2540) | Nitrate/Nitrite (SM4500NO3) Nitrogen; H2SO4 | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 3x250 mL poly | | 500mL poly | 500mL poly | 500mL poly | 500 mL poly | 1 liter poly | 1 liter poly | 1 liter poly | 1 liter poly | 1 liter poly | 1 liter poly | 125 mL poly | | | | | |
| 2 | N034708-01 | C-CON-D-0319 | 3/20/2019 | 11:00 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | 3N | |
| 3 | -02 | C-CON-S-0319 | 3/20/2019 | 10:45 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | 3N | |
| 5 | -03 | MW-911-Q119 | 3/20/2019 | 11:10 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | 3N | |
| 7 | -04 | C-MAR-D-0319 | 3/20/2019 | 09:00 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | 3N | |
| 8 | -05 | C-MAR-S-0319 | 3/20/2019 | 08:50 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | 3N | |
| 9 | -06 | C-NR1-D-0319 | 3/20/2019 | 11:35 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | 3N | |
| 10 | -07 | C-NR1-S-0319 | 3/20/2019 | 11:45 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | 3N | |
| 11 | -08 | C-NR3-D-0319 | 3/20/2019 | 12:20 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | 3N | |
| 12 | -09 | C-NR3-S-0319 | 3/20/2019 | 12:30 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | 3N | |
| 14 | -10 | C-NR4-D-0319 | 3/20/2019 | 12:55 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | 3N | |

| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| | 3/20/19 1600 | JORDAN Lee | 3/20/19 1600 |
| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |
| JORDAN Lee | 3/20/19 2015 | JORDAN Lee | 3/20/19 2015 |
| Relinquished by (Signature and Printed Name): | Date/Time: | Relinquished by (Signature and Printed Name): | Date/Time: |

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days and results will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 5% of the total project price.
4. Add 10% surcharge for Level III Data Packages. 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using improper methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

| Preservatives: | | | | Container Type: | | |
|---|---|---|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C | T=Tube | V=VOA | P=Pint |
| Z=$Zn(AC)_2$ | O=NaOH | T=$Na_2S_2O_3$ | | J=Jar | B=Tedlar | G=Glass |
| Others/Specify: | B (NH4)2SO4/NH4OH | | | M=Metal | M=Metal | C=Can |

White=Laboratory Copy
Yellow=Customer's Copy

# ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGY

## CHAIN OF CUSTODY RECORD

Page 2 of 2


Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com


| | | | |
|---|---|---|---|
| Client: Arcadis | Report to: Dan Bush | Bill to: Marty Bloes | EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID: |
| Address: 1410 Rocky Ridge Dr # 330 | Company: Arcadis | Address: | QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State: |
| Address: Roseville, CA 95661 | Email: dan.bush@arcadis.com; daniel.moore@arcadis.com | Address: | Sample Receipt Condition (Y N): 1. Chilled ✓; 2. Headspace; 3. Container Intact; 4. Seal Present; 5. IR number; 6. Method of Cooling: ICE |
| Phone: 916-788-3302 Fax: | Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661 | Email to: mbloes@plvox.com P.O.# | Sample Temp: 3.3°C/1.9°C/2.3°C/2.3°C |
| Submitted By: Jason Mahon | Phone: 916-788-3302 Fax: | Phone: 949-727-1400, ext 200 Fax | |
| Title: Project Manager | | | |
| Signature: Date: 3/20/19 | Sampled By: Jason Mahon | Matrix: Ground x Sediment; Potable Soil; NPDES Other Solid; Surface | Courier: Tracking No.: |
| I hereby authorize ASSET Labs to perform the tests indicated below. | I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for | | |
| Project Name: PG&E Topock - RMP | Signature: Date: 3/20/19 | | |
| Project Number: RC000753.0601 | | | |

| Item No. | Laboratory Work Order No. | Sample ID/Location | Sample Date | Sample Time | Others | Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly) | Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH | Dissolved metals (SW6010B/SW6020A-dig) FF; HNO3 Cr (500mL poly) | Dissolved metals (SW6010B/SW6020A-dig) FF; HNO3 Ca, Mg, K, Na, B (500mL poly) | Dissolved metals (SW6010B/SW6020A-dig) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (500mL poly) | Total metals (SW6010B); HNO3 Fe (500 mL poly) | Anions (E300.0); Br, Cl, SO4 (1 liter poly) | Specific Conductance (E120.1) (1 liter poly) | pH (SM4500HB) (1 liter poly) | TDS (SM2540C) (1 liter poly) | Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly) | TSS (SM2540) (1 liter poly) | Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 (125 mL poly) | Oxygen and deuterium stable isotopes (CFIRM) (1 250 mL poly) | Turn Around Time | No. of Container | Container Type | PRESERVATION | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N034708-11 | C-NR4-S-0319 | 3/20/2019 | 13:05 | | X | | X | | X | X | | X | X | | X | X | | E | 7 | P | BNS | |
| 2 | -12 | R-19-0319 | 3/20/2019 | 9:30 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | BNS | |
| 3 | -13 | RRB-0319 | 3/20/2019 | 09:50 | | X | | X | | X | X | | X | X | | | X | X | E | 7 | P | BNS | |
| 4 | -14 | AB3-0319 | 3/20/2019 | 09:55 | | | X | | | | | | | | | | | | E | 1 | P | BN | Hold |

| Relinquished by (Signature and Printed Name): | Date/Time: | Received by (Signature and Printed Name): | Date/Time: |
|---|---|---|---|
| | 3/20/19 1600 | JORDAN LG | 3/20/19 1600 |
| Relinquished by (Signature and Printed Name): | Date/Time: | Received by (Signature and Printed Name): | Date/Time: |
| JORDAN LG | 3/20/19 2015 | JORDAN LG | 3/20/19 2015 |
| Relinquished by (Signature and Printed Name): | Date/Time: | Received by (Signature and Printed Name): | Date/Time: |

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instructions:

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=25%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable samples.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

| Preservatives: | | | | Container Type: | | |
|---|---|---|---|---|---|---|
| H=HCL | N=$HNO_3$ | S=$H_2SO_4$ | C=4°C | T=Tube | V=VOA | P=Pint |
| Z=$Zn(AC)_2$ | O=NaOH | T=$Na_2S_2O_3$ | | J=Jar | B=Tedlar | G=Glass |
| Others/Specify: | B (NH4)2SO4/NH4OH | | | M=Metal | M=Metal | C=Can |

White=Laboratory Copy

Yellow=Customer's Copy

## ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

| | | | |
|---|---|---|---|
| Cooler Received/Opened On: | 3/20/2019 | Workorder: | N034708 |
| Rep sample Temp (Deg C): | 3.3/1.9/2.3/2.3 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | NA | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| 1. Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☐ | No ☑ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☑ | No ☐ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☑ | No ☐ | NA ☐ |
| 16. Were there Non-Conformance issues at login? | Yes ☑ | No ☐ | NA ☐ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments: Samples for pH were past holding time upon receipt.

Checklist Completed By: YR 3/21/2019

Reviewed By: LG 032419

# ASSET Laboratories

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034708

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/20/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-001A | C-CON-D-0319 | 3/20/2019 11:00:00 AM | 4/3/2019 | Groundwater | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-001B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-001C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-001D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-001E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-002A | C-CON-S-0319 | 3/20/2019 10:45:00 AM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-002B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-002C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-002D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034708

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/20/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-002D | C-CON-S-0319 | 3/20/2019 10:45:00 AM | 4/3/2019 | Groundwater | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-002E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-003A | MW-911-Q119 | 3/20/2019 11:10:00 AM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-003B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-003C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-003D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-003E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-004A | C-MAR-D-0319 | 3/20/2019 9:00:00 AM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-004B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034708

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/20/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-004B | C-MAR-D-0319 | 3/20/2019 9:00:00 AM | 4/3/2019 | Groundwater | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-004C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-004D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-004E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-005A | C-MAR-S-0319 | 3/20/2019 8:50:00 AM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-005B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-005C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-005D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034708

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/20/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-005E | C-MAR-S-0319 | 3/20/2019 8:50:00 AM | 4/3/2019 | Groundwater | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-006A | C-NR1-D-0319 | 3/20/2019 11:35:00 AM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-006B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-006C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-006D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-006E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-007A | C-NR1-S-0319 | 3/20/2019 11:45:00 AM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-007B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-007C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034708

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/20/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-007C | C-NR1-S-0319 | 3/20/2019 11:45:00 AM | 4/3/2019 | Groundwater | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-007D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-007E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-008A | C-NR3-D-0319 | 3/20/2019 12:20:00 PM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-008B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-008C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-008D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-008E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-009A | C-NR3-S-0319 | 3/20/2019 12:30:00 PM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-009B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034708

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/20/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-009B | C-NR3-S-0319 | 3/20/2019 12:30:00 PM | 4/3/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-009C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-009D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-009E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-010A | C-NR4-D-0319 | 3/20/2019 12:55:00 PM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-010B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-010C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-010D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034708

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/20/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-010D | C-NR4-D-0319 | 3/20/2019 12:55:00 PM | 4/3/2019 | Groundwater | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-010E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-011A | C-NR4-S-0319 | 3/20/2019 1:05:00 PM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-011B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-011C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-011D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-011E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-012A | R-19-0319 | 3/20/2019 9:30:00 AM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-012B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034708

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/20/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-012C | R-19-0319 | 3/20/2019 9:30:00 AM | 4/3/2019 | Groundwater | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-012D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-012E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-013A | RRB-0319 | 3/20/2019 9:50:00 AM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N034708-013B | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | DISSOLVED METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6020 | DISSOLVED METALS BY ICP-MS | ☐ | ☐ | ☐ | WW |
| N034708-013C | | | 4/3/2019 | | EPA 3010A | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| N034708-013D | | | 4/3/2019 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM4500-H+B | pH | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | SM2540D | TOTAL NON-FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 4/3/2019 | | | Total Suspended Solids Prep | ☐ | ☐ | ☐ | WW |
| N034708-013E | | | 4/3/2019 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N034708-014A | AB3-0319 | 3/20/2019 9:55:00 AM | 4/3/2019 | | EPA 218.6 | Hexavalent Chromium by IC | ☑ | ☐ | ☐ | WW |

## WORK ORDER Summary

*21-Mar-19*

**WorkOrder:** N034708

**Client ID:** ARCUS02

**Project:** PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 3/20/2019

**Comments:**

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-015A | FOLDER | 4/3/2019 | 4/3/2019 | | EDD | RWQCB | ☐ | ☐ | ☐ | LAB |
| | | | 4/3/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 4/3/2019 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# List of Analysts

## ASSET Laboratories Work Order: N034708

| NAME | TEST METHOD |
|---|---|
| Quennie Manimtim | SM 4500-NO3F |
| Claire Ignacio | EPA 6010B_Dissolved, EPA 6010B, EPA 6020_Dissolved |
| Ria Abes | EPA 218.6 |
| Lilia Ramit | EPA 120.1, SM 4500-H+B, SM 2540D |

# EPA 120.1

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R132674 **Analyst:** LSR

**ASSET #:** N034708 **Date Analyzed:** 21-Mar

**Method:** EPA 120.1

| Initial Calibration | 1st Level Review Y | 1st Level Review N | 1st Level Review N/A | 2nd Level Review Y | 2nd Level Review N | 2nd Level Review N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | | | X | | | |
| 11. LCS compounds within control limits. | | | X | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 3/26/2019

2nd Level Reviewer: 4/3/2019 Date:

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

# Conductivity Logbook

Date: 3/20/19 1045
Analyst: LRR

CONT'D

| | Standard | Std ID | Reading | Comments |
|---|---|---|---|---|
| | 11.26 µS/cm | CNV-181011A | 11.50 @ 19.6°C | % Rec: (90-110%) |
| | 1410 | 190107D | 1405 @ 19.4°C | |
| | 9965 | 190218B | 9940 @ 19.4°C | |
| | 99661 | 181121B | 103400 @ 19.2°C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | NOS4688-11D | H2O | 815 @ 17.8°C | |
| 2 | 12D | | 818 @ 17.6°C | |
| 3 | 13D | | 828 @ 17.4°C | |
| 4 | 14C | | 918 @ 17.7°C | |
| 5 | 15C | | 893 @ 17.8°C | |
| 6 | 15CDUP | | 891 @ 17.4°C | |
| 7 | | | | |
| 8 | | | | |
| 9 | 1413 µS/cm | CNV-181022A | 1430 @ 18.8°C | |
| 10 | 10000 | B | 9960 @ 19.1°C | |
| Dup | 99922 | CNV-190111H | 99100 @ 19.1°C | RPD Criteria: 2% |
| | Std Chk: | | | % Rec: (90-110%) |

Date: 3/21/19 1435
Analyst: LRR

Julia Ramit 3/26/2019

| | Standard | Std ID | Reading | Comments |
|---|---|---|---|---|
| | 11.26 µS/cm | CNV-181011A | 11.75 @ 20.5°C | % Rec: (90-110%) |
| | 1410 | 190107D | 1435 @ 20.7°C | |
| | 9965 | 190218B | 9970 @ 20.7°C | |
| | 99661 | 181121B | 100100 @ 20.7°C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | NOS4708-1D | H2O | 922 @ 19.2°C | |
| 2 | 2D | | 908 @ 19.1°C | |
| 3 | 3D | | 904 @ 18.7°C | STD CHECK |
| 4 | 4D | | 903 @ 18.6°C | 1413 CNV 181022A |
| 5 | 5D | | 908 @ 18.6°C | = 1463 @ 20.3°C |
| 6 | 5DDUP | | 909 @ 18.3°C | 10000 CNV 181022 B |
| 7 | 6D | | 911 @ 18.4°C | = 9760 @ 20.5°C |
| 8 | 7D | | 908 @ 18.6°C | 99922 CNV 190111 H |
| 9 | 8D | | 906 @ 18.7°C | = 95600 @ 19.0°C |
| 10 | 9D | | 912 @ 18.8°C | |
| ~~Dup~~ | 10D | | 915 @ 19.0°C | RPD Criteria: 2% |
| | Std Chk: | | | % Rec: (90-110%) |

Logbook # 7

# Conductivity Logbook

**Date:** 3/21/19 1435

**Analyst:** LSR COND

| Standard | Std ID | Reading | Comments |
|---|---|---|---|
| 11.26 uS/cm | CINV-181011A | 11.75 @ 20.5°C | % Rec: (90-110%) |
| 1410 | 190107D | 1435 @ 20.7°C | |
| 9965 | 190218B | 9970 @ 20.7°C | |
| 99661 | 181218B | 100100 @ 20.7°C | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | N034708-11D | H2O | 924 @ 18.4°C | |
| 2 | 12D | | 921 @ 19.0°C | |
| 3 | 13D | | 935 @ 19.2°C | |
| 4 | 13DDUP | | 932 @ 18.8°C | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | 1413 uS/cm | CINV-180222A | 1467 @ 20.3°C | |
| 9 | 10000 | B | 9840 @ 20.3°C | |
| 10 | 99922 | CINV-190111H | 95300 @ 20.1°C | |
| Dup | | | | RPD Criteria: 2% |
| | Std Chk: | | | % Rec: (90-110%) |

**Date:** _____ Julia Ramit 3/26/2019

**Analyst:** _____

| Standard | Std ID | Reading | Comments |
|---|---|---|---|
| | | | % Rec: (90-110%) |
| | | | |
| | | | |

| | Sample ID | Matrix | Reading | Comments |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| Dup | | | | RPD Criteria: 2% |
| | Std Chk: | | | % Rec: (90-110%) |

Logbook # 7

# SM 4500-H+B

# pH Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R132671 **Instrument ID:** pH meter

**ASSET #:** N034708 **Analyst:** LSR

**Date Analyzed:** 21-Mar

**Method:** EPA 150.1 / SM 4500H+B

| pH Meter Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. Was the meter calibrated using 3 buffers (4,7 and 10)? | X | | | | | |
| 2. Was a closing buffer used at the end of analysis? | X | | | | | |
| 3. Was the meter checked every 10 samples? | X | | | | | |
| **Sample Information** | | | | | | |
| 4. Are all samples analyzed within hold time. | | X | | | | |
| **QC Items** | | | | | | |
| 5. Was a duplicate sample analyzed? | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 6. Are Non-Conformances documented | | | X | | | |
| 7. Runlog complete and included in package. | X | | | | | |
| **Preliminary Report** | | | | | | |
| 8. Does the raw data match the preliminary report? | X | | | | | |
| 9. Are analytical results correct? | X | | | | | |
| 10. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: Julia Ramit Date: 3/26/2019

2nd Level Reviewer: 4/3/2019 Date:

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

# pH Logbook

**Date:** 3/21/19 1215
**Analyst:** LR

| Standard | Std ID | pH | Comments |
|---|---|---|---|
| Buffer 7 | CNV-190107A | 7.01 @25C | |
| Buffer 4 | " B | 4.02 @25C | |
| Buffer 10 | CNV-190111G | 10.02 @25C | |
| Slope | | 96.0% | Acceptance Criteria: 95%-105% |

| | Sample ID | Matrix | pH | Comments |
|---|---|---|---|---|
| 1 | NB34704-1D | H2O | 10.94 @25C | |
| 2 | 1D DUP | " | 10.96 @25C | |
| 3 | 2D | " | 8.84 @25C | |
| 4 | 3D | " | 8.03 @25C | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | Accept: 10% water, 20% soil |
| Dup | | | | |
| | Buffer 7, 4, 10 (Circle one) | CNV-190218A | 6.98 @25C | Accept: +/-0.05 pH units from expected value |

**Date:** 3/21/19 1400
**Analyst:** LR

Julia Ramit 3/26/2019

| Standard | Std ID | pH | Comments |
|---|---|---|---|
| Buffer 7 | CNV-190107A | 7.01 @25C | |
| Buffer 4 | " B | 4.02 @25C | |
| Buffer 10 | CNV-190111G | 10.02 @25C | |
| Slope | | 96.0% | Acceptance Criteria: 95%-105% |

| | Sample ID | Matrix | pH | Comments |
|---|---|---|---|---|
| 1 | NB34708-1D | H2O | 7.98 @25C | |
| 2 | 2D | " | 8.08 @25C | |
| 3 | 3D | " | 8.10 @25C | |
| 4 | 4D | " | 8.18 @25C | |
| 5 | 5D | " | 8.16 @25C | |
| 6 | 5D DUP | " | 8.21 @25C | |
| 7 | 6D | " | 8.08 @25C | |
| 8 | 7D | " | 8.11 @25C | Buffer 7 CNV190218A = 6.98 @25C |
| 9 | 8D | " | 8.07 @25C | |
| 10 | 9D | " | 8.10 @25C | |
| Dup | 10D | " | 8.07 @25C | Accept: 10% water, 20% soil |
| | | | | Accept: +/-0.05 pH units from expected value |

# pH Logbook

**Date:** 3/21/19 1400
**Analyst:** LSR

CONT

| Standard | Std ID | pH | Comments |
|---|---|---|---|
| Buffer 7 | CNV-190107A | 7.0 @25C | |
| Buffer 4 | " B | 4.02 @25C | |
| Buffer 10 | CNV-190111G | 10.02 @25C | |
| Slope | | 96.0% | Acceptance Criteria: 95%-105% |

| | Sample ID | Matrix | pH | Comments |
|---|---|---|---|---|
| 1 | N034708-11D | H2O | 8.07 @25C | |
| 2 | " 12D | " | 8.20 @25C | |
| 3 | " 13D | " | 8.07 @25C | |
| 4 | " 13D DUP | " | 8.10 @25°C | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| Dup | | | | Accept: 10% water, 20% soil |
| | Buffer 7, 4, 10 (Circle one) | CNV-190218A | 6.95 @25°C | Accept: +/-0.05 pH units from expected value |

**Date:** 3/22/19 925
**Analyst:** LSR

Julia Ramit 3/26/2019

| Standard | Std ID | pH | Comments |
|---|---|---|---|
| Buffer 7 | CNV-190107A | 7.01 @25C | |
| Buffer 4 | " B | 4.02 @25C | |
| Buffer 10 | CNV-190111G | 10.03 @25°C | |
| Slope | | 96.7% | Acceptance Criteria: 95%-105% |

| | Sample ID | Matrix | pH | Comments |
|---|---|---|---|---|
| 1 | N034721-1B | H2O | 4.56 @25C | |
| 2 | " 2B | " | 4.98 @25C | |
| 3 | " 3B | " | 6.49 @25°C | |
| 4 | " 3B DUP | " | 6.52 @25°C | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | Buffer 7 CNV190218A |
| 9 | | | | = 6.98 @ 25°C |
| 10 | | | | |
| Dup | | | | Accept: 10% water, 20% soil |
| | Buffer 4, 10 (Circle one) | | | Accept: +/-0.05 pH units from expected value |

# SM 2540D

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 73043/73044 **Analyst:** LSR

**ASSET #:** N034708 **Date Analyzed:** 22-Mar

**Method:** EPA 160.2 / SM 2540D

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | | | X | | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | | | X | | | |
| 3. ICV within ± 15% of expected value. | | | X | | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | | | X | | | |
| 5. CCV within ± 15% of expected value. | | | X | | | |
| 6. Calibration blanks run after ICV and CCV? | | | X | | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | | | X | | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | | | X | | | |
| 9. Are all samples analyzed within hold time. | X | | | | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | | | |
| 11. LCS compounds within control limits. | X | | | | | |
| 12. MS/MSD, RPD's are within control limits | X | | | | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | |
| 14. Runlog complete and included in package. | X | | | | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | | | |
| 18. Are analytical results correct? | X | | | | | |
| 19. Is the QC summary report present and complete? | X | | | | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer Julia Ramit Date: 3/22/2019

2nd Level Reviewer 4/3/2019 Date: —

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** SM 2540D
**TEST NAME:** Total Non-Filterable Residue
**MATRIX:** Water

FORMULA:

Calculate TSS concentration in mg/L, in the original sample as follows:

$$\text{TSS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N034708-001D,** TSS concentration in mg/L is calculated as follows:

$$\text{TSS, mg/L} = \frac{(1.3974- 1.3971) *1000000}{200}$$
$$= 1.5 \text{ mg/L}$$

Since reporting limit is 10 mg/L, therefore:

TSS = ND mg/L

Julia Ramit 3/22/2019

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/22/2019 8:22:43 A**
Prep End Date: **3/22/2019 2:45:00 P**
Reviewed/ Date: 4/3/2019
Initials/ Date: Lilia Ramit 3/22/2019
Prep Batch **73043** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**
Prep Factor Units: **mL / mL** Temp. (°C): **105**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-73043 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-73043 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034708-001D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034708-002D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034708-003D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034708-004D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034708-005D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034708-005D-DU | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034708-006D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034708-007D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034708-008D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034708-009D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034708-010D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10405 | Glass Fiber Filter, 47mm |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| IWST190107D | 1000 ppm Talc | LCS | 100 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/22/2019 8:22:43 A**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Julia Ramit 3/22/2019

Prep Batch **73043** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: mL / mL

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-73043 | Water | IWS7P01073D | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-73043 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034708-001D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034708-002D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034708-003D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034708-004D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034708-005D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034708-005D-DU | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034708-006D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034708-007D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034708-008D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034708-009D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034708-010D | Groundwater | | 100 \| 200 | ☐ | 0 | 0 | 100 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10405

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/22/2019 8:22:45 A**
Prep End Date: **3/22/2019 2:45:00 P**
Reviewed/ Date: 4/3/2019
Initials/ Date: Lilia Ramit 3/22/2019
Prep Batch **73044** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**
Prep Factor Units: **mL / mL** Temp. (°C): **105**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-73044 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-73044 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034688-011D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034688-012D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034688-013D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034708-011D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034708-011D-DU | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034708-012D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |
| N034708-013D | Groundwater | | 200 | ☐ | 0 | 0 | 100 | 0.500 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10405 | Glass Fiber Filter, 47mm |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| IWST190107D | 1000 ppm Talc | LCS | 100 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/22/2019 8:22:45 A**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 3/22/2019

Prep Batch **73044** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit** Prep Factor Units: **mL / mL**

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-73044 | Water WST190107D | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| MB-73044 | Water | | 100 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034688-011D | Groundwater | | 100 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034688-012D | Groundwater | | 100 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034688-013D | Groundwater | | 100 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034708-011D | Groundwater | | 100 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034708-011D-DU | Groundwater | | 100 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034708-012D | Groundwater | | 100 200 | ☐ | 0 | 0 | 100 | 1.000 | | |
| N034708-013D | Groundwater | | 100 200 | ☐ | 0 | 0 | 100 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10405

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

## SOLIDS RAW DATA

TEST: (TSS) TDS/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 3/22/19 822 | MB1 73043 | 100 | 1.4086<br>1.4082 | 1.4080<br>1.4080 | |
| | LCS1 73043 | 100 | 1.4102<br>1.4103 | 1.5038<br>1.5035 | |
| 1 | NU34708-1D | 200 | 1.3974<br>1.3971 | 1.3975<br>1.3974 | |
| 2 | 2D | 200 | 1.4100<br>1.4101 | 1.4105<br>1.4105 | |
| 3 | 3D | 200 | 1.4020<br>1.4016 | 1.4015<br>1.4015 | 1 |
| 4 | 4D | 200 | 1.4094<br>1.4090 | 1.4094<br>1.4094 | |
| 5 | 5D | 200 | 1.4276<br>1.4272 | 1.4293<br>1.4289 | |
| D1 | 5D DUP | 200 | 1.3977<br>1.3973 | 1.3997<br>1.3990 | |
| 6 | 6D | 200 | 1.3999<br>1.3995 | 1.3999<br>1.3997 | |
| 7 | 7D | 200 | 1.3913<br>1.3909 | 1.3911<br>1.3910 | |

Julia Ramit 3/22/2019



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# SOLIDS RAW DATA

TEST :TSS/ TDS/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 3/22/19 8 | N034708-8D | 200 | 1.3996<br>1.3992 | 1.3994<br>1.3993 | |
| 9 | 9D | 200 | 1.4091<br>1.4089 | 1.4088<br>1.4088 | |
| 10 | 10D | 200 | 1.3903<br>1.3901 | 1.3903<br>1.3902 | |
| | | | | | |
| | | | | | 1 |
| | | | | | |
| | | | | | |
| | | | | | |
| | Julia Ramit | | 3/22/2019 | | |
| | | | | | |



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# TOTAL SUSPENDED SOLIDS, TSS

## TSS, mg/L = (A-B) * 10000*PF

**where:**

**A =** weight in g of aluminum dish + filter disc + residue after drying
**B =** weight in g of aluminum dish + filter disc
**PF =** 100/volume of sample used in mL

| Date: | vol of sample (mL) | weight in g of aluminum dish + filter disc (B) | weight in g of aluminum dish + filter disc + residue after drying (A) | A-B*10000 | Prep Fact (PF) | TSS, mg/L | Sample Type |
|---|---|---|---|---|---|---|---|
| 3/22/2019 | | | | | | | |
| MB-73043 | 100 | 1.4082 | 1.4080 | -2.0000 | 1.00 | -2 | MBLK |
| LCS-73043 | 100 | 1.4103 | 1.5035 | 932.0000 | 1.00 | 932 | LCS |
| N034708-001D | 200 | 1.3971 | 1.3974 | 3.0000 | 0.50 | 1.5 | SAMP |
| N034708-002D | 200 | 1.4101 | 1.4105 | 4.0000 | 0.50 | 2 | SAMP |
| N034708-003D | 200 | 1.4016 | 1.4015 | -1.0000 | 0.50 | -0.5 | SAMP |
| N034708-004D | 200 | 1.409 | 1.4094 | 4.0000 | 0.50 | 2 | SAMP |
| N034708-005D | 200 | 1.4272 | 1.4289 | 17.0000 | 0.50 | 8.5 | SAMP |
| N034708-005DDUP | 200 | 1.3973 | 1.399 | 17.0000 | 0.50 | 8.5 | DUP |
| N034708-006D | 200 | 1.3995 | 1.3997 | 2.0000 | 0.50 | 1 | SAMP |
| N034708-007D | 200 | 1.3909 | 1.391 | 1.0000 | 0.50 | 0.5 | SAMP |
| N034708-008D | 200 | 1.3992 | 1.3993 | 1.0000 | 0.50 | 0.5 | SAMP |
| N034708-009D | 200 | 1.4089 | 1.4088 | -1.0000 | 0.50 | -0.5 | SAMP |
| N034708-010D | 200 | 1.3901 | 1.3902 | 1.0000 | 0.50 | 0.5 | SAMP |

Julia Ramit 3/22/2019

## SOLIDS RAW DATA

TEST: (TSS) TDS/TS

| Date | Sample ID | Sample Vol. (ml) | Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g) | Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g) | Comments |
|---|---|---|---|---|---|
| 3/22/19 822 | MB2 73044 | 100 | 1.4217<br>1.4215 | 1.4213<br>1.4213 | |
| | LCS2 73044 | 100 | 1.4146<br>1.4147 | 1.5087<br>1.5088 | |
| 11 | N034688-11D | 200 | 1.4244<br>1.4245 | 1.4244<br>1.4244 | |
| 12 | 12D | 200 | 1.4066<br>1.4066 | 1.4065<br>1.4066 | |
| 13 | 13D | 200 | 1.4214<br>1.4212 | 1.4213<br>1.4213 | 1 |
| 14 | N034708-11D | 200 | 1.4080<br>1.4076 | 1.4077<br>1.4077 | |
| D2 | 11D DUP | 200 | 1.4096<br>1.4092 | 1.4094<br>1.4094 | |
| 15 | 12D | 200 | 1.4065<br>1.4066 | 1.4064<br>1.4065 | |
| 16 | 13D | 200 | 1.4155<br>1.4151 | 1.4158<br>1.4158 | |
| | 0.9999 @ 1445 3/22/19 | | | UR | |

Julia Ramit 3/22/2019



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ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

# TOTAL SUSPENDED SOLIDS, TSS

## TSS, mg/L = (A-B) * 10000*PF

**where:**

**A =** weight in g of aluminum dish + filter disc + residue after drying
**B =** weight in g of aluminum dish + filter disc
**PF =** 100/volume of sample used in mL

| Date: | vol of sample (mL) | weight in g of aluminum dish + filter disc (B) | weight in g of aluminum dish + filter disc + residue after drying (A) | A-B*10000 | Prep Fact (PF) | TSS, mg/L | Sample Type |
|---|---|---|---|---|---|---|---|
| 3/22/2019 | | | | | | | |
| MB-73044 | 100 | 1.4215 | 1.4213 | -2.0000 | 1.00 | -2 | MBLK |
| LCS-73044 | 100 | 1.4147 | 1.5088 | 941.0000 | 1.00 | 941 | LCS |
| N034688-011D | 200 | 1.4245 | 1.4244 | -1.0000 | 0.50 | -0.5 | SAMP |
| N034688-012D | 200 | 1.4066 | 1.4066 | 0.0000 | 0.50 | 0 | SAMP |
| N034688-013D | 200 | 1.4212 | 1.4213 | 1.0000 | 0.50 | 0.5 | SAMP |
| N034708-011D | 200 | 1.4076 | 1.4077 | 1.0000 | 0.50 | 0.5 | SAMP |
| N034708-011DDUP | 200 | 1.4092 | 1.4094 | 2.0000 | 0.50 | 1 | DUP |
| N034708-012D | 200 | 1.4066 | 1.4065 | -1.0000 | 0.50 | -0.5 | SAMP |
| N034708-013D | 200 | 1.4151 | 1.4158 | 7.0000 | 0.50 | 3.5 | SAMP |

Julia Ramit 3/22/2019

# EPA 218.6

# IC Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

**QC Batch Number:** R132665
**ASSET #:** N034708

**Instrument ID:** IC-07
**Analyst:** RBA
**Date Analyzed:** 3/21/2019

**Method:**

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. ICAL before initial sample analysis and is not more than 4 weeks old. | X | | | X | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995, r =0.999 (Cr6+)) | X | | | X | | |
| 3. ICV within ± 10% of expected value. | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 injections and at the end of analysis sequence. | X | | | X | | |
| 5. CCV within ± 10% of expected value. (± 5% for EPA 218.6) | X | | | X | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | X | | |
| 7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only) | X | | | X | | |
| 8. Do all calibration blanks ( ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+) | X | | | X | | |
| 9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL? | X | | | X | | |
| **Sample Information** | | | | | | |
| 10. All samples are within linear range. | X | | | X | | |
| 11. All samples pH within 9.3-9.7 when analyzed? | X | | | X | | |
| 12. Duplicate sample injections for every sample. (7199 only) | | | X | | | X |
| 13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only) | X | | | X | | |
| 14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only) | | | X | | | X |
| 15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | X | | | | | X |
| 16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ? | | | X | | | X |
| 18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only) | X | | | X | | |
| 19. EPA 3060A digestion performed on solid samples (7199 only) | | | X | | | X |
| 20. Are all peaks within RT window, ± 0.2 min? | X | | | X | | |
| 21. Are all samples analyzed within hold time? | X | | | X | | |
| 22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only) | | | X | | | X |
| **QC Items** | | | | | | |
| 23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+) | X | | | X | | |
| 24. LCS compounds are within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits. | X | | | X | | |
| 26. Soluble and Insoluble matrix spike within control limits (7199 solids only) | | | X | | | X |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Extraction log complete and included in package (if applicable) | | | X | | | X |
| 29. All manual integrations initialed, date and reasons included. | X | | | X | | |
| 30. Before and after manual integration chromatogram included in the package | X | | | X | | |
| 31. All samples and QC raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 32. Does the raw data match the preliminary report? | X | | | X | | |
| 33. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 34 Is the QC summary report present and complete? | X | | | X | | |

Comments:

**SECOND LEVEL REVIEW:**

| | Y | N | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Is QC present and complete? | | | |
| 4. Are analytical results correct? (dilutions,calculations) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer: rba Date: 3/22/2019

2nd Level Reviewer: 3/28/2019 Date: ____

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 218.6
**TEST NAME:** HEXAVALENT CHROMIUM BY IC
**MATRIX:** Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N034708-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.0000 * 1$$

$$Cr^{+6}, \mu g/L = 0.0000$$

Since PQL is 0.2 µg/L,

$$\mathbf{Cr^{+6}, \mu g/L = ND}$$

*NS* 3/28/2019

# ANALYSIS RUN LOG

**INJECTION LOG: 190313A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:00 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:11 AM | Not Reported |
| 3 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 03/13/19 9:21 AM | Reported |
| 4 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:30 AM | Reported |
| 5 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:41 AM | Not Reported |
| 6 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:53 AM | Reported |
| 7 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:02 AM | Reported |
| 8 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:12 AM | Reported |
| 9 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:21 AM | Reported |
| 10 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:31 AM | Reported |
| 11 | ICV | ICV | 1 | Hexavalent Chromium | 03/13/19 10:49 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 03/13/19 11:00 AM | Reported |
| 13 | ICB | ICB | 1 | Hexavalent Chromium | 03/13/19 11:10 AM | Reported |
| 14 | MB-R132461 | MBLK | 1 | Hexavalent Chromium | 03/13/19 11:19 AM | Reported |
| 15 | LCS-R132461 | LCS | 1 | Hexavalent Chromium | 03/13/19 11:29 AM | Reported |
| 16 | N034570-001A | SAMP | 1 | Hexavalent Chromium | 03/13/19 11:38 AM | Not Reported |
| 17 | N034572-001A | SAMP | 1 | Hexavalent Chromium | 03/13/19 11:48 AM | Not Reported |
| 18 | N034573-002A | SAMP | 1 | Hexavalent Chromium | 03/13/19 11:57 AM | Not Reported |
| 19 | N034570-001AMS | MS | 5 | Hexavalent Chromium | 03/13/19 12:07 PM | Reported |
| 20 | N034572-001AMS | MS | 5 | Hexavalent Chromium | 03/13/19 12:16 PM | Not Reported |
| 21 | N034572-001AMS | MS | 10 | Hexavalent Chromium | 03/13/19 12:33 PM | Reported |
| 22 | N034570-001A | SAMP | 5 | Hexavalent Chromium | 03/13/19 12:45 PM | Reported |
| 23 | N034572-001A | SAMP | 10 | Hexavalent Chromium | 03/13/19 12:54 PM | Reported |
| 24 | CCV-1 | CCV1 | 1 | Hexavalent Chromium | 03/13/19 1:04 PM | Reported |
| 25 | CCB-1 | CCB | 1 | Hexavalent Chromium | 03/13/19 1:13 PM | Reported |
| 26 | N034570-001AMSD | MSD | 5 | Hexavalent Chromium | 03/13/19 1:23 PM | Reported |
| 27 | N034570-001ADUP | DUP | 5 | Hexavalent Chromium | 03/13/19 1:32 PM | Reported |
| 28 | N034570-001AMS | MS | 1 | Hexavalent Chromium | 03/13/19 1:42 PM | Not Reported |
| 29 | N034572-001A | SAMP | 5 | Hexavalent Chromium | 03/13/19 1:51 PM | Not Reported |
| 30 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 2:00 PM | Not Reported |
| 31 | N034573-002A | SAMP | 1 | Hexavalent Chromium | 03/13/19 2:10 PM | Reported |
| 32 | N034573-002AMS | MS | 1 | Hexavalent Chromium | 03/13/19 2:19 PM | Reported |
| 33 | CCV-2 | CCV | 1 | Hexavalent Chromium | 03/13/19 2:29 PM | Reported |
| 34 | CCB-2 | CCB | 1 | Hexavalent Chromium | 03/13/19 2:53 PM | Reported |
| 35 | N034558-001A | SAMP | 5000 | Hexavalent Chromium | 03/13/19 3:14 PM | Reported |
| 36 | N034558-001AREP | DUP | 5000 | Hexavalent Chromium | 03/13/19 3:24 PM | Reported |
| 37 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 3:34 PM | Not Reported |
| 38 | CCV-3 | CCV1 | 1 | Hexavalent Chromium | 03/13/19 3:43 PM | Reported |
| 39 | CCB-3 | CCB | 1 | Hexavalent Chromium | 03/13/19 3:53 PM | Reported |
| 40 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 4:02 PM | Not Reported |
| 41 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 4:12 PM | Not Reported |

jnba 3/17/2019

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190313A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **14/Mar/19 08:23:03** |
| *No. of Injections:* | **44** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 03/13/2019 09:00 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 03/13/2019 09:11 | Finished | BLANK |
| 3 | iBLANK | 3 | 1000 | Unknown | | 03/13/2019 09:21 | Finished | INSTRUMENT BLANK |
| 4 | STD1-0.2 ppb | 4 | 1000 | Calibration Standard | 01 | 03/13/2019 09:30 | Finished | 0.2 ppb, IWST-190221A |
| 5 | STD2-1.0 ppb | 5 | 1000 | Unknown | | 03/13/2019 09:41 | Finished | 1.0 ppb, IWST-190221A |
| 6 | STD3-5.0 ppb | 6 | 1000 | Calibration Standard | 03 | 03/13/2019 09:53 | Finished | 5.0 ppb, IWST-1190221A |
| 7 | STD4-10.0 ppb | 7 | 1000 | Calibration Standard | 04 | 03/13/2019 10:02 | Finished | 10 ppb, IWST-190221A |
| 8 | STD5-15.0 ppb | 8 | 1000 | Calibration Standard | 05 | 03/13/2019 10:12 | Finished | 15 ppb, IWST-190221A |
| 9 | STD6-20.0 ppb | 9 | 1000 | Calibration Standard | 06 | 03/13/2019 10:21 | Finished | 20 ppb, IWST-190221A |
| 10 | STD2-1.0 ppb | 10 | 1000 | Calibration Standard | 02 | 03/13/2019 10:31 | Finished | 1.0 ppb, IWST-190221A |
| 11 | ICV,ICV,1, | 12 | 1000 | Unknown | | 03/13/2019 10:49 | Finished | ICV @5ppb, IWST-190221B |
| 12 | PQL@0.2ppb,CCV2,1 | 13 | 1000 | Unknown | | 03/13/2019 11:00 | Finished | PQL @ 0.2ppb |
| 13 | ICB,ICB,1, | 14 | 1000 | Unknown | | 03/13/2019 11:10 | Finished | ICB R190211C |
| 14 | MB-H2O,MBLK,1, | 15 | 1000 | Unknown | | 03/13/2019 11:19 | Finished | MB R190211C |
| 15 | LCS-H2O,LCS,1, | 16 | 1000 | Unknown | | 03/13/2019 11:29 | Finished | LCS @5ppb, IWST-190221B |
| 16 | N034570-001A,SAMF | 17 | 1000 | Unknown | | 03/13/2019 11:38 | Finished | SAMP,10mL |
| 17 | N034572-001A,SAMF | 18 | 1000 | Unknown | | 03/13/2019 11:48 | Finished | SAMP,10mL |
| 18 | N034573-002A,SAMF | 19 | 1000 | Unknown | | 03/13/2019 11:57 | Finished | SAMP,10mL |
| 19 | N034570-001AMS,MS | 20 | 1000 | Unknown | | 03/13/2019 12:07 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 20 | N034572-001AMS,MS | 21 | 1000 | Unknown | | 03/13/2019 12:16 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 21 | N034572-001AMS,MS | 23 | 1000 | Unknown | | 03/13/2019 12:33 | Finished | MS (1ppb), IWST-190221B,1>1 |
| 22 | N034570-001A,SAMF | 24 | 1000 | Unknown | | 03/13/2019 12:45 | Finished | SAMP,2>10mL |
| 23 | N034572-001A,SAMF | 25 | 1000 | Unknown | | 03/13/2019 12:54 | Finished | SAMP,1>10mL |
| 24 | CCV-1,CCV1,1, | 26 | 1000 | Unknown | | 03/13/2019 13:04 | Finished | CCV @10ppb, IWST-190221A |
| 25 | CCB-1,CCB,1, | 27 | 1000 | Unknown | | 03/13/2019 13:13 | Finished | CCB R190211C |
| 26 | N034570-001AMSD,M | 28 | 1000 | Unknown | | 03/13/2019 13:23 | Finished | MSD (1ppb), IWST-190221B,2 |
| 27 | N034570-001ADUP,D | 29 | 1000 | Unknown | | 03/13/2019 13:32 | Finished | SAMP,10mL |
| 28 | N034570-001AMS,MS | 30 | 1000 | Unknown | | 03/13/2019 13:42 | Finished | MS (1ppb), IWST-190221B,10 |
| 29 | N034572-001A,SAMF | 31 | 1000 | Unknown | | 03/13/2019 13:51 | Finished | SAMP,2>10mL |
| 30 | BLANK | 32 | 1000 | Unknown | | 03/13/2019 14:00 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034573-002A,SAMF | 33 | 1000 | Unknown | | 03/13/2019 14:10 | Finished | SAMP,10mL |
| 32 | N034573-002AMS,MS | 34 | 1000 | Unknown | | 03/13/2019 14:19 | Finished | MS (1ppb), IWST-190221B,10 |
| 33 | CCV-2,CCV,1, | 35 | 1000 | Unknown | | 03/13/2019 14:29 | Finished | CCV @5ppb, IWST-190221A |
| 34 | CCB-2,CCB,1, | 37 | 1000 | Unknown | | 03/13/2019 14:53 | Finished | CCB R190211C |
| 35 | N034558-001A,SAMF | 1 | 1000 | Unknown | | 03/13/2019 15:14 | Finished | SAMP,0.002>10mL |
| 36 | N034558-001AREP,D | 2 | 1000 | Unknown | | 03/13/2019 15:24 | Finished | REP,0.002>10mL |
| 37 | BLANK | 3 | 1000 | Unknown | | 03/13/2019 15:34 | Finished | BLANK |
| 38 | CCV-3,CCV1,1, | 4 | 1000 | Unknown | | 03/13/2019 15:43 | Finished | CCV @10ppb, IWST-190221A |
| 39 | CCB-3,CCB,1, | 5 | 1000 | Unknown | | 03/13/2019 15:53 | Finished | CCB R190211C |
| 40 | BLANK | 6 | 1000 | Unknown | | 03/13/2019 16:02 | Finished | BLANK |
| 41 | BLANK | 7 | 1000 | Unknown | | 03/13/2019 16:12 | Finished | BLANK |
| 42 | SHUTDOWN | 8 | 1000 | Unknown | | 03/13/2019 16:21 | Finished | |
| 43 | Eluent: R190312D | 9 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 44 | PCR: R190312E | 10 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

rba 3/17/2019

**INJECTION LOG: 190321A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:00 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:11 AM | Not Reported |
| 3 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 03/13/19 9:21 AM | Reported |
| 4 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:30 AM | Reported |
| 5 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:41 AM | Not Reported |
| 6 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:53 AM | Reported |
| 7 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:02 AM | Reported |
| 8 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:12 AM | Reported |
| 9 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:21 AM | Reported |
| 10 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:31 AM | Reported |
| 11 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/21/19 8:44 AM | Not Reported |
| 12 | CCV-1 | CCV | 1 | Hexavalent Chromium | 03/21/19 8:54 AM | Reported |
| 13 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 03/21/19 9:04 AM | Reported |
| 14 | CCB-1 | CCB | 1 | Hexavalent Chromium | 03/21/19 9:13 AM | Reported |
| 15 | MB-R132665 | MBLK | 1 | Hexavalent Chromium | 03/21/19 9:23 AM | Reported |
| 16 | LCS-R132665 | LCS | 1 | Hexavalent Chromium | 03/21/19 9:32 AM | Reported |
| 17 | N034705-001A | SAMP | 200 | Hexavalent Chromium | 03/21/19 9:42 AM | Reported |
| 18 | N034706-002A | SAMP | 1 | Hexavalent Chromium | 03/21/19 9:51 AM | Reported |
| 19 | N034706-002AMS | MS | 1 | Hexavalent Chromium | 03/21/19 10:01 AM | Reported |
| 20 | N034705-001ADUP | DUP | 200 | Hexavalent Chromium | 03/21/19 10:10 AM | Reported |
| 21 | N034705-001AMS | MS | 200 | Hexavalent Chromium | 03/21/19 10:20 AM | Reported |
| 22 | N034708-001A | SAMP | 1 | Hexavalent Chromium | 03/21/19 10:30 AM | Reported |
| 23 | N034708-001AMS | MS | 1 | Hexavalent Chromium | 03/21/19 10:41 AM | Reported |
| 24 | N034708-001AMSD | MSD | 1 | Hexavalent Chromium | 03/21/19 10:51 AM | Reported |
| 25 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 03/21/19 11:00 AM | Not Reported |
| 26 | CCB-2 | CCB | 1 | Hexavalent Chromium | 03/21/19 11:10 AM | Not Reported |
| 27 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 03/21/19 11:27 AM | Reported |
| 28 | CCB-2 | CCB | 1 | Hexavalent Chromium | 03/21/19 11:38 AM | Reported |
| 29 | N034708-002A | SAMP | 1 | Hexavalent Chromium | 03/21/19 11:48 AM | Reported |
| 30 | N034708-002AMS | MS | 1 | Hexavalent Chromium | 03/21/19 11:57 AM | Reported |
| 31 | N034708-003A | SAMP | 1 | Hexavalent Chromium | 03/21/19 12:07 PM | Reported |
| 32 | N034708-003AMS | MS | 1 | Hexavalent Chromium | 03/21/19 12:16 PM | Reported |
| 33 | N034708-004A | SAMP | 1 | Hexavalent Chromium | 03/21/19 12:26 PM | Reported |
| 34 | N034708-004AMS | MS | 1 | Hexavalent Chromium | 03/21/19 12:35 PM | Reported |
| 35 | N034708-005A | SAMP | 1 | Hexavalent Chromium | 03/21/19 12:45 PM | Reported |
| 36 | N034708-005AMS | MS | 1 | Hexavalent Chromium | 03/21/19 12:54 PM | Reported |
| 37 | N034708-006A | SAMP | 1 | Hexavalent Chromium | 03/21/19 1:03 PM | Reported |
| 38 | N034708-006AMS | MS | 1 | Hexavalent Chromium | 03/21/19 1:13 PM | Reported |
| 39 | CCV-3 | CCV | 1 | Hexavalent Chromium | 03/21/19 1:22 PM | Reported |
| 40 | CCB-3 | CCB | 1 | Hexavalent Chromium | 03/21/19 1:32 PM | Reported |
| 41 | N034708-007A | SAMP | 1 | Hexavalent Chromium | 03/21/19 1:41 PM | Reported |
| 42 | N034708-007AMS | MS | 1 | Hexavalent Chromium | 03/21/19 1:51 PM | Reported |

**INJECTION LOG: 190321A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034708-008A | SAMP | 1 | Hexavalent Chromium | 03/21/19 2:00 PM | Reported |
| 44 | N034708-008AMS | MS | 1 | Hexavalent Chromium | 03/21/19 2:10 PM | Reported |
| 45 | N034708-009A | SAMP | 1 | Hexavalent Chromium | 03/21/19 2:19 PM | Reported |
| 46 | N034708-009AMS | MS | 1 | Hexavalent Chromium | 03/21/19 2:29 PM | Reported |
| 47 | N034708-010A | SAMP | 1 | Hexavalent Chromium | 03/21/19 2:38 PM | Reported |
| 48 | N034708-010AMS | MS | 1 | Hexavalent Chromium | 03/21/19 2:48 PM | Reported |
| 49 | N034708-011A | SAMP | 1 | Hexavalent Chromium | 03/21/19 2:57 PM | Reported |
| 50 | N034708-011AMS | MS | 1 | Hexavalent Chromium | 03/21/19 3:06 PM | Reported |
| 51 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 03/21/19 3:16 PM | Reported |
| 52 | CCB-4 | CCB | 1 | Hexavalent Chromium | 03/21/19 3:25 PM | Reported |
| 53 | N034708-012A | SAMP | 1 | Hexavalent Chromium | 03/21/19 3:35 PM | Reported |
| 54 | N034708-012AMS | MS | 1 | Hexavalent Chromium | 03/21/19 3:44 PM | Reported |
| 55 | N034708-013A | SAMP | 1 | Hexavalent Chromium | 03/21/19 3:54 PM | Reported |
| 56 | N034708-013AMS | MS | 1 | Hexavalent Chromium | 03/21/19 4:03 PM | Reported |
| 57 | CCV-5 | CCV | 1 | Hexavalent Chromium | 03/21/19 4:13 PM | Reported |
| 58 | CCB-5 | CCB | 1 | Hexavalent Chromium | 03/21/19 4:22 PM | Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190321A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **21/Mar/19 17:16:43** |
| *No. of Injections:* | **61** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 03/13/2019 09:00 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 03/13/2019 09:11 | Finished | BLANK |
| 3 | iBLANK | 3 | 1000 | Unknown | | 03/13/2019 09:21 | Finished | INSTRUMENT BLANK |
| 4 | STD1-0.2 ppb | 4 | 1000 | Calibration Standard | 01 | 03/13/2019 09:30 | Finished | 0.2 ppb, IWST-190221A |
| 5 | STD2-1.0 ppb | 5 | 1000 | Unknown | | 03/13/2019 09:41 | Finished | 1.0 ppb, IWST-190221A |
| 6 | STD3-5.0 ppb | 6 | 1000 | Calibration Standard | 03 | 03/13/2019 09:53 | Finished | 5.0 ppb, IWST-1190221A |
| 7 | STD4-10.0 ppb | 7 | 1000 | Calibration Standard | 04 | 03/13/2019 10:02 | Finished | 10 ppb, IWST-190221A |
| 8 | STD5-15.0 ppb | 8 | 1000 | Calibration Standard | 05 | 03/13/2019 10:12 | Finished | 15 ppb, IWST-190221A |
| 9 | STD6-20.0 ppb | 9 | 1000 | Calibration Standard | 06 | 03/13/2019 10:21 | Finished | 20 ppb, IWST-190221A |
| 10 | STD2-1.0 ppb | 10 | 1000 | Calibration Standard | 02 | 03/13/2019 10:31 | Finished | 1.0 ppb, IWST-190221A |
| 11 | BLANK | 1 | 1000 | Unknown | | 03/21/2019 08:44 | Finished | BLANK |
| 12 | CCV-1,CCV,1, | 2 | 1000 | Unknown | | 03/21/2019 08:54 | Finished | ICV @5ppb, IWST-190221B |
| 13 | PQL@0.2ppb,CCV2,1 | 3 | 1000 | Unknown | | 03/21/2019 09:04 | Finished | PQL @ 0.2ppb |
| 14 | CCB-1,CCB,1, | 4 | 1000 | Unknown | | 03/21/2019 09:13 | Finished | ICB R190211C |
| 15 | MB-H2O,MBLK,1, | 5 | 1000 | Unknown | | 03/21/2019 09:23 | Finished | MB R190211C |
| 16 | LCS-H2O,LCS,1, | 6 | 1000 | Unknown | | 03/21/2019 09:32 | Finished | LCS @5ppb, IWST-190221B |
| 17 | N034705-001A,SAMF | 7 | 1000 | Unknown | | 03/21/2019 09:42 | Finished | SAMP,0.05>10mL |
| 18 | N034706-002A,SAMF | 8 | 1000 | Unknown | | 03/21/2019 09:51 | Finished | SAMP,10mL |
| 19 | N034706-002AMS,MS | 9 | 1000 | Unknown | | 03/21/2019 10:01 | Finished | MS (1ppb), IWST-190221B,10 |
| 20 | N034705-001ADUP,D | 10 | 1000 | Unknown | | 03/21/2019 10:10 | Finished | DUP,0.05>10mL |
| 21 | N034705-001AMS,MS | 11 | 1000 | Unknown | | 03/21/2019 10:20 | Finished | MS (5ppb), IWST-190221B,0.0 |
| 22 | N034708-001A,SAMF | 13 | 1000 | Unknown | | 03/21/2019 10:30 | Finished | SAMP,10mL |
| 23 | N034708-001AMS,MS | 14 | 1000 | Unknown | | 03/21/2019 10:41 | Finished | MS (1ppb), IWST-190221B,10 |
| 24 | N034708-001AMSD,M | 15 | 1000 | Unknown | | 03/21/2019 10:51 | Finished | MSD (1ppb), IWST-190221B,1 |
| 25 | CCV-2,CCV1,1, | 16 | 1000 | Unknown | | 03/21/2019 11:00 | Finished | CCV @10ppb, IWST-190221A |
| 26 | CCB-2,CCB,1, | 17 | 1000 | Unknown | | 03/21/2019 11:10 | Finished | CCB R190211C |
| 27 | CCV-2,CCV1,1, | 16 | 1000 | Unknown | | 03/21/2019 11:27 | Finished | CCV @10ppb, IWST-190221A |
| 28 | CCB-2,CCB,1, | 17 | 1000 | Unknown | | 03/21/2019 11:38 | Finished | CCB R190211C |
| 29 | N034708-002A,SAMF | 18 | 1000 | Unknown | | 03/21/2019 11:48 | Finished | SAMP,10mL |
| 30 | N034708-002AMS,MS | 19 | 1000 | Unknown | | 03/21/2019 11:57 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034708-003A,SAMF | 20 | 1000 | Unknown | | 03/21/2019 12:07 | Finished | SAMP,10mL |
| 32 | N034708-003AMS,MS | 21 | 1000 | Unknown | | 03/21/2019 12:16 | Finished | MS (1ppb), IWST-190221B,10 |
| 33 | N034708-004A,SAMF | 22 | 1000 | Unknown | | 03/21/2019 12:26 | Finished | SAMP,10mL |
| 34 | N034708-004AMS,MS | 23 | 1000 | Unknown | | 03/21/2019 12:35 | Finished | MS (1ppb), IWST-190221B,10 |
| 35 | N034708-005A,SAMF | 24 | 1000 | Unknown | | 03/21/2019 12:45 | Finished | SAMP,10mL |
| 36 | N034708-005AMS,MS | 25 | 1000 | Unknown | | 03/21/2019 12:54 | Finished | MS (1ppb), IWST-190221B,10 |
| 37 | N034708-006A,SAMF | 26 | 1000 | Unknown | | 03/21/2019 13:03 | Finished | SAMP,10mL |
| 38 | N034708-006AMS,MS | 27 | 1000 | Unknown | | 03/21/2019 13:13 | Finished | MS (1ppb), IWST-190221B,10 |
| 39 | CCV-3,CCV,1, | 28 | 1000 | Unknown | | 03/21/2019 13:22 | Finished | CCV @5ppb, IWST-190221A |
| 40 | CCB-3,CCB,1, | 29 | 1000 | Unknown | | 03/21/2019 13:32 | Finished | CCB R190211C |
| 41 | N034708-007A,SAMF | 30 | 1000 | Unknown | | 03/21/2019 13:41 | Finished | SAMP,10mL |
| 42 | N034708-007AMS,MS | 31 | 1000 | Unknown | | 03/21/2019 13:51 | Finished | MS (1ppb), IWST-190221B,10 |
| 43 | N034708-008A,SAMF | 32 | 1000 | Unknown | | 03/21/2019 14:00 | Finished | SAMP,10mL |
| 44 | N034708-008AMS,MS | 33 | 1000 | Unknown | | 03/21/2019 14:10 | Finished | MS (1ppb), IWST-190221B,10 |
| 45 | N034708-009A,SAMF | 34 | 1000 | Unknown | | 03/21/2019 14:19 | Finished | SAMP,10mL |
| 46 | N034708-009AMS,MS | 35 | 1000 | Unknown | | 03/21/2019 14:29 | Finished | MS (1ppb), IWST-190221B,10 |
| 47 | N034708-010A,SAMF | 36 | 1000 | Unknown | | 03/21/2019 14:38 | Finished | SAMP,10mL |
| 48 | N034708-010AMS,MS | 37 | 1000 | Unknown | | 03/21/2019 14:48 | Finished | MS (1ppb), IWST-190221B,10 |
| 49 | N034708-011A,SAMF | 38 | 1000 | Unknown | | 03/21/2019 14:57 | Finished | SAMP,10mL |
| 50 | N034708-011AMS,MS | 39 | 1000 | Unknown | | 03/21/2019 15:06 | Finished | MS (1ppb), IWST-190221B,10 |
| 51 | CCV-4,CCV1,1, | 40 | 1000 | Unknown | | 03/21/2019 15:16 | Finished | CCV @10ppb, IWST-190221A |
| 52 | CCB-4,CCB,1, | 41 | 1000 | Unknown | | 03/21/2019 15:25 | Finished | CCB R190211C |
| 53 | N034708-012A,SAMF | 42 | 1000 | Unknown | | 03/21/2019 15:35 | Finished | SAMP,10mL |
| 54 | N034708-012AMS,MS | 43 | 1000 | Unknown | | 03/21/2019 15:44 | Finished | MS (1ppb), IWST-190221B,10 |
| 55 | N034708-013A,SAMF | 44 | 1000 | Unknown | | 03/21/2019 15:54 | Finished | SAMP,10mL |
| 56 | N034708-013AMS,MS | 45 | 1000 | Unknown | | 03/21/2019 16:03 | Finished | MS (1ppb), IWST-190221B,10 |
| 57 | CCV-5,CCV,1, | 46 | 1000 | Unknown | | 03/21/2019 16:13 | Finished | CCV @5ppb, IWST-190221A |
| 58 | CCB-5,CCB,1, | 47 | 1000 | Unknown | | 03/21/2019 16:22 | Finished | CCB R190211C |
| 59 | SHUTDOWN | 48 | 1000 | Unknown | | 03/21/2019 16:32 | Finished | |
| 60 | Eluent: R190320A | 49 | 1000 | Unknown | | n.a. | Finished | Eluent |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | PCR: R190320B | 50 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# SAMPLE PREPARATION LOG

# Hexavalent Chromium Preparation and Runlog

## Sample Preparation

Date Prepared: 3/21/19
Time Prepared: 0908H
Prepared By: NBA

Slope : 96.02
pH 4: 4.02
7: 7.01
10: 10.02

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CLNU-181102A
NH4OH + NH4SO4 eluent: M90320A / M90222A
NH4OH + NH4SO4 buffer: M902UC

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | N034705-1A | 9.59 | – | ~250ml | ~250ml | | |
| 2) | N034706-2A | 9.61 | – | | | | |
| 3) | N034707-1A | 9.24 | – | | | | |
| 4) | 2A | 9.31 | – | | | | |
| 5) | 3A | 9.33 | – | | | | |
| 6) | 4A | 9.31 | – | | | | |
| 7) | 5A | 9.40 | – | | | | |
| 8) | N034708-1A | 9.43 | – | | | | 1/3 |
| 9) | 1A ~~2A~~ | 9.40 | – | | | | 2/3 |
| 10) | 1A ~~3A~~ | 9.42 | – | | | | 3/3 |
| 11) | 2A ~~4A~~ | 9.47 | – | | | | 1/3 |
| 12) | 2A | 9.46 | – | | | | 2/3 |
| 13) | 2A | 9.45 | – | | | | 3/3 |
| 14) | 3A | 9.46 | – | | | | 1/3 |
| 15) | 3A | 9.44 | – | | | | 2/3 |
| | 3A | 9.48 | – | | | | 3/3 |

## Sample Preparation

Date Prepared: 3/21/19
Time Prepared: 0908A
Prepared By: NBA

Reagent ID:
Sulfuric Acid: 10563
Diphenylcarbazide: CLNU-181102A
NH4OH + NH4SO4 eluent: M90320A
NH4OH + NH4SO4 buffer: M902UC

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | N034708-4A | 9.40 | – | ~250ml | ~250ml | | 1/3 |
| 2) | 4A | 9.38 | – | | | | 2/3 |
| 3) | 4A | 9.40 | – | | | | 3/3 |
| 4) | 5A | 9.46 | – | | | | 1/3 |
| 5) | 5A | 9.44 | – | | | | 2/3 |
| 6) | 5A | 9.46 | – | | | | 3/3 |
| 7) | 6A | 9.50 | – | | | | 1/3 |
| 8) | 6A | 9.52 | – | | | | 2/3 |
| 9) | 6A | 9.49 | – | | | | 3/3 |
| 10) | 7A | 9.39 | – | | | | 1/3 |
| 11) | 7A | 9.39 | – | | | | 2/3 |
| 12) | 7A | 9.38 | – | | | | 3/3 |
| 13) | 8A | 9.46 | – | | | | 1/3 |
| 14) | 8A | 9.46 | – | | | | 2/3 |
| 15) | 8A | 9.47 | – | | | | 3/3 |
| | 9A | 9.50 | – | | | | 1/3 |

Logbook No. 16

# Hexavalent Chromium Preparation and Runlog

## Sample Preparation

Date Prepared: 2/24/16
Time Prepared: 0908
Prepared By: MSA

Reagent ID:
Sulfuric Acid: M56
Diphenylcarbazide: CaN-18/02A
NH4OH + NH4SO4 eluent: M903AA
NH4OH + NH4SO4 buffer: M902AC

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | MW4708-9A | 9.48 | - | ~50mL | ~50mL | | 1/3 |
| 2) | 9A | 9.49 | - | | | | 2/3 |
| 3) | 10A | 9.42 | - | | | | 3/3 |
| 4) | 10A | 9.40 | - | | | | 1/3 |
| 5) | 10A | 9.42 | - | | | | 2/3 |
| 6) | 11A | 9.46 | - | | | | 3/3 |
| 7) | 11A | 9.46 | - | | | | 1/3 |
| 8) | 11A | 9.45 | - | | | | 2/3 |
| 9) | 12A | 9.39 | - | | | | 3/3 |
| 10) | 12A | 9.43 | - | | | | 1/3 |
| 11) | 12A | 9.42 | - | | | | 2/3 |
| 12) | 13A | 9.43 | - | | | | 3/3 |
| 13) | 14A | 9.41 | - | | | | 1/3 |
| 14) | 14A | 9.44 | - | | | | 2/3 |
| 15) | 14A | 9.57 | - | | | | 3/3 |
| | | | | | | | 1/1 |

## Sample Preparation

Date Prepared:
Time Prepared:
Prepared By:

Reagent ID:
Sulfuric Acid:
Diphenylcarbazide:
NH4OH + NH4SO4 eluent:
NH4OH + NH4SO4 buffer:

| | Sample ID. | pH of sample | pH after treatment | Initial Volume of sample | Final Volume after buffer add'n | Volume of buffer added | Comments |
|---|---|---|---|---|---|---|---|
| 1) | | | | | | | |
| 2) | | | | | | | |
| 3) | | | | | | | |
| 4) | | | | | | | |
| 5) | | | | | | | |
| 6) | | | | | | | |
| 7) | | | | | | | |
| 8) | | | | | | | |
| 9) | | | | | | | |
| 10) | | | | | | | |
| 11) | | | | | | | |
| 12) | | | | | | | |
| 13) | | | | | | | |
| 14) | | | | | | | |
| 15) | | | | | | | |

Logbook No. 16

# INITIAL CALIBRATION DATA SUMMARY

**(EPA 218.6) - INITIAL CALIBRATION**

Instrument ID: IC-07
Date Calibrated: 3/13/2019

Initial Calibration:

| Hexavalent Chromium | STD1 | STD2 | STD3 | STD4 | STD5 | STD6 | |
|---|---|---|---|---|---|---|---|
| COMPOUND, in ug/L | 0.2 | 1 | 5 | 10 | 15 | 20 | $R^2$ |
| Area,mAU*min | 0.0471 | 0.2238 | 1.1057 | 2.1988 | 3.2845 | 4.4091 | 1.0000 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | Stock | Working |
|---|---|---|
| Standard Concentration: | 1,000,000 PPB | 1,000 PPB |
| Standard ID: | ISST-170814H | IWST-190221A |

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132665** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132665** | TestNo: **EPA 218.6** | | Analysis Date: **3/13/2019** | SeqNo: **3324953** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.154 | 0.20 | 5.000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132665** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132665** | TestNo: **EPA 218.6** | | Analysis Date: **3/13/2019** | SeqNo: **3324954** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.235 | 0.20 | 0.2000 | 0 | 117 | 80 | 120 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132665** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132665** | TestNo: **EPA 218.6** | | Analysis Date: **3/21/2019** | SeqNo: **3324956** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.143 | 0.20 | 5.000 | 0 | 103 | 95 | 105 | | | | |

| Sample ID **PQL@0.2ppb** | SampType: **CCV2** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132665** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132665** | TestNo: **EPA 218.6** | | Analysis Date: **3/21/2019** | SeqNo: **3324957** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.214 | 0.20 | 0.2000 | 0 | 107 | 80 | 120 | | | | |

| Sample ID **CCV-2** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132665** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132665** | TestNo: **EPA 218.6** | | Analysis Date: **3/21/2019** | SeqNo: **3324969** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 9.973 | 0.20 | 10.00 | 0 | 99.7 | 95 | 105 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCV-3** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132665** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132665** | TestNo: **EPA 218.6** | | Analysis Date: **3/21/2019** | SeqNo: **3325689** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.223 | 0.20 | 5.000 | 0 | 104 | 95 | 105 | | | | |

| Sample ID **CCV-4** | SampType: **CCV1** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132665** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132665** | TestNo: **EPA 218.6** | | Analysis Date: **3/21/2019** | SeqNo: **3325701** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 10.007 | 0.20 | 10.00 | 0 | 100 | 95 | 105 | | | | |

| Sample ID **CCV-5** | SampType: **CCV** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132665** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132665** | TestNo: **EPA 218.6** | | Analysis Date: **3/21/2019** | SeqNo: **3325707** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.085 | 0.20 | 5.000 | 0 | 102 | 95 | 105 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132665** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132665** | TestNo: **EPA 218.6** | | Analysis Date: **3/13/2019** | SeqNo: **3324955** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132665** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132665** | TestNo: **EPA 218.6** | | Analysis Date: **3/21/2019** | SeqNo: **3324958** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132665** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132665** | TestNo: **EPA 218.6** | | Analysis Date: **3/21/2019** | SeqNo: **3324970** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-3** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132665** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132665** | TestNo: **EPA 218.6** | | Analysis Date: **3/21/2019** | SeqNo: **3325690** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

| Sample ID **CCB-4** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132665** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132665** | TestNo: **EPA 218.6** | | Analysis Date: **3/21/2019** | SeqNo: **3325702** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WPGE**

| Sample ID **CCB-5** | SampType: **CCB** | TestCode: **218.6_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **132665** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132665** | TestNo: **EPA 218.6** | | Analysis Date: **3/21/2019** | SeqNo: **3325708** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# RETENTION TIME SUMMARY

**RETENTION TIME (RT) SUMMARY**

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 3/21/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.206 | |
| CCV-1 | 4.206 | |
| CCV-2 | 4.215 | |
| CCV-3 | 4.206 | |
| CCV-4 | 4.206 | |
| CCV-5 | 4.215 | |

| | |
|---|---|
| **Average** | 4.210 |
| **Actual RT Window** | 4.130 - 4.290 |
| **Applied RT Window** | 4.010 - 4.410 |

| | | |
|---|---|---|
| MB-R132665 | N.A. | N.A. |
| LCS-R132665 | 4.206 | PASS |
| N034705-001A | 4.206 | PASS |
| N034706-002A | N.A. | N.A. |
| N034706-002AMS | 4.206 | PASS |
| N034705-001ADUP | 4.206 | PASS |
| N034705-001AMS | 4.215 | PASS |
| N034708-001A | N.A. | N.A. |
| N034708-001AMS | 4.206 | PASS |
| N034708-001AMSD | 4.190 | PASS |
| N034708-002A | N.A. | N.A. |
| N034708-002AMS | 4.206 | PASS |
| N034708-003A | N.A. | N.A. |
| N034708-003AMS | 4.206 | PASS |
| N034708-004A | N.A. | N.A. |
| N034708-004AMS | 4.206 | PASS |
| N034708-005A | N.A. | N.A. |
| N034708-005AMS | 4.215 | PASS |
| N034708-006A | N.A. | N.A. |
| N034708-006AMS | 4.206 | PASS |
| N034708-007A | N.A. | N.A. |
| N034708-007AMS | 4.198 | PASS |

## RETENTION TIME (RT) SUMMARY

**Instrument ID:** IC-07

**Analytical Sequence**

Date Analyzed: 3/21/2019

| Sample Name | Retention Time | Evaluation |
|---|---|---|
| ICV | 4.206 | |
| CCV-1 | 4.206 | |
| CCV-2 | 4.215 | |
| CCV-3 | 4.206 | |
| CCV-4 | 4.206 | |
| CCV-5 | 4.215 | |
| **Average** | 4.210 | |
| **Actual RT Window** | 4.130 - 4.290 | |
| **Applied RT Window** | 4.010 - 4.410 | |
| N034708-008A | N.A. | N.A. |
| N034708-008AMS | 4.198 | PASS |
| N034708-009A | N.A. | N.A. |
| N034708-009AMS | 4.206 | PASS |
| N034708-010A | N.A. | N.A. |
| N034708-010AMS | 4.198 | PASS |
| N034708-011A | N.A. | N.A. |
| N034708-011AMS | 4.198 | PASS |
| N034708-012A | N.A. | N.A. |
| N034708-012AMS | 4.206 | PASS |
| N034708-013A | N.A. | N.A. |
| N034708-013AMS | 4.215 | PASS |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

| Datafile | 170505 | 170508 | 170509 | 170510 | 170511 | 170512 | 170515 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analyte** | **#1** | **#2** | **#3** | **#4** | **#5** | **#6** | **#7** | **Spike Conc., mg/L** | **SD** | **$t_{(n-1)}$ value** | **MDL** | **PQL** | **Remarks** |
| Hexavalent Chromium | 0.1949 | 0.2135 | 0.1840 | 0.1828 | 0.2011 | 0.1936 | 0.1911 | 0.20 | 0.0105 | 3.143 | **0.0331** | **0.20** | OK,meets criteria |

Students' **t** Values at 99% CL

| # | $t_{(n-1)}$ |
|---|---|
| 10 | 2.821 |
| 9 | 2.896 |
| 8 | 2.998 |
| 7 | 3.143 |

## LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

| Compound | MDL | LOD Spike Conc., µg/L | LOD actual Conc., µg/L |
|---|---|---|---|
| Hexavalent Chromium | 0.0331 | 0.100 | 0.116 |

| Compound | PQL | PQL Spike Conc., µg/L | PQL actual Conc., µg/L | % Recovery |
|---|---|---|---|---|
| Hexavalent Chromium | 0.200 | 0.200 | 0.201 | **100** |

# RAW DATA

# INITIAL CALIBRATION

**INJECTION LOG: 190313A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:00 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:11 AM | Not Reported |
| 3 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 03/13/19 9:21 AM | Reported |
| 4 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:30 AM | Reported |
| 5 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:41 AM | Not Reported |
| 6 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:53 AM | Reported |
| 7 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:02 AM | Reported |
| 8 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:12 AM | Reported |
| 9 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:21 AM | Reported |
| 10 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:31 AM | Reported |
| 11 | ICV | ICV | 1 | Hexavalent Chromium | 03/13/19 10:49 AM | Reported |
| 12 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 03/13/19 11:00 AM | Reported |
| 13 | ICB | ICB | 1 | Hexavalent Chromium | 03/13/19 11:10 AM | Reported |
| 14 | MB-R132461 | MBLK | 1 | Hexavalent Chromium | 03/13/19 11:19 AM | Reported |
| 15 | LCS-R132461 | LCS | 1 | Hexavalent Chromium | 03/13/19 11:29 AM | Reported |
| 16 | N034570-001A | SAMP | 1 | Hexavalent Chromium | 03/13/19 11:38 AM | Not Reported |
| 17 | N034572-001A | SAMP | 1 | Hexavalent Chromium | 03/13/19 11:48 AM | Not Reported |
| 18 | N034573-002A | SAMP | 1 | Hexavalent Chromium | 03/13/19 11:57 AM | Not Reported |
| 19 | N034570-001AMS | MS | 5 | Hexavalent Chromium | 03/13/19 12:07 PM | Reported |
| 20 | N034572-001AMS | MS | 5 | Hexavalent Chromium | 03/13/19 12:16 PM | Not Reported |
| 21 | N034572-001AMS | MS | 10 | Hexavalent Chromium | 03/13/19 12:33 PM | Reported |
| 22 | N034570-001A | SAMP | 5 | Hexavalent Chromium | 03/13/19 12:45 PM | Reported |
| 23 | N034572-001A | SAMP | 10 | Hexavalent Chromium | 03/13/19 12:54 PM | Reported |
| 24 | CCV-1 | CCV1 | 1 | Hexavalent Chromium | 03/13/19 1:04 PM | Reported |
| 25 | CCB-1 | CCB | 1 | Hexavalent Chromium | 03/13/19 1:13 PM | Reported |
| 26 | N034570-001AMSD | MSD | 5 | Hexavalent Chromium | 03/13/19 1:23 PM | Reported |
| 27 | N034570-001ADUP | DUP | 5 | Hexavalent Chromium | 03/13/19 1:32 PM | Reported |
| 28 | N034570-001AMS | MS | 1 | Hexavalent Chromium | 03/13/19 1:42 PM | Not Reported |
| 29 | N034572-001A | SAMP | 5 | Hexavalent Chromium | 03/13/19 1:51 PM | Not Reported |
| 30 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 2:00 PM | Not Reported |
| 31 | N034573-002A | SAMP | 1 | Hexavalent Chromium | 03/13/19 2:10 PM | Reported |
| 32 | N034573-002AMS | MS | 1 | Hexavalent Chromium | 03/13/19 2:19 PM | Reported |
| 33 | CCV-2 | CCV | 1 | Hexavalent Chromium | 03/13/19 2:29 PM | Reported |
| 34 | CCB-2 | CCB | 1 | Hexavalent Chromium | 03/13/19 2:53 PM | Reported |
| 35 | N034558-001A | SAMP | 5000 | Hexavalent Chromium | 03/13/19 3:14 PM | Reported |
| 36 | N034558-001AREP | DUP | 5000 | Hexavalent Chromium | 03/13/19 3:24 PM | Reported |
| 37 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 3:34 PM | Not Reported |
| 38 | CCV-3 | CCV1 | 1 | Hexavalent Chromium | 03/13/19 3:43 PM | Reported |
| 39 | CCB-3 | CCB | 1 | Hexavalent Chromium | 03/13/19 3:53 PM | Reported |
| 40 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 4:02 PM | Not Reported |
| 41 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 4:12 PM | Not Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190313A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **14/Mar/19 08:23:03** |
| *No. of Injections:* | **44** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 03/13/2019 09:00 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 03/13/2019 09:11 | Finished | BLANK |
| 3 | iBLANK | 3 | 1000 | Unknown | | 03/13/2019 09:21 | Finished | INSTRUMENT BLANK |
| 4 | STD1-0.2 ppb | 4 | 1000 | Calibration Standard | 01 | 03/13/2019 09:30 | Finished | 0.2 ppb, IWST-190221A |
| 5 | STD2-1.0 ppb | 5 | 1000 | Unknown | | 03/13/2019 09:41 | Finished | 1.0 ppb, IWST-190221A |
| 6 | STD3-5.0 ppb | 6 | 1000 | Calibration Standard | 03 | 03/13/2019 09:53 | Finished | 5.0 ppb, IWST-1190221A |
| 7 | STD4-10.0 ppb | 7 | 1000 | Calibration Standard | 04 | 03/13/2019 10:02 | Finished | 10 ppb, IWST-190221A |
| 8 | STD5-15.0 ppb | 8 | 1000 | Calibration Standard | 05 | 03/13/2019 10:12 | Finished | 15 ppb, IWST-190221A |
| 9 | STD6-20.0 ppb | 9 | 1000 | Calibration Standard | 06 | 03/13/2019 10:21 | Finished | 20 ppb, IWST-190221A |
| 10 | STD2-1.0 ppb | 10 | 1000 | Calibration Standard | 02 | 03/13/2019 10:31 | Finished | 1.0 ppb, IWST-190221A |
| 11 | ICV,ICV,1, | 12 | 1000 | Unknown | | 03/13/2019 10:49 | Finished | ICV @5ppb, IWST-190221B |
| 12 | PQL@0.2ppb,CCV2,1 | 13 | 1000 | Unknown | | 03/13/2019 11:00 | Finished | PQL @ 0.2ppb |
| 13 | ICB,ICB,1, | 14 | 1000 | Unknown | | 03/13/2019 11:10 | Finished | ICB R190211C |
| 14 | MB-H2O,MBLK,1, | 15 | 1000 | Unknown | | 03/13/2019 11:19 | Finished | MB R190211C |
| 15 | LCS-H2O,LCS,1, | 16 | 1000 | Unknown | | 03/13/2019 11:29 | Finished | LCS @5ppb, IWST-190221B |
| 16 | N034570-001A,SAMP | 17 | 1000 | Unknown | | 03/13/2019 11:38 | Finished | SAMP,10mL |
| 17 | N034572-001A,SAMP | 18 | 1000 | Unknown | | 03/13/2019 11:48 | Finished | SAMP,10mL |
| 18 | N034573-002A,SAMP | 19 | 1000 | Unknown | | 03/13/2019 11:57 | Finished | SAMP,10mL |
| 19 | N034570-001AMS,MS | 20 | 1000 | Unknown | | 03/13/2019 12:07 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 20 | N034572-001AMS,MS | 21 | 1000 | Unknown | | 03/13/2019 12:16 | Finished | MS (1ppb), IWST-190221B,2>1 |
| 21 | N034572-001AMS,MS | 23 | 1000 | Unknown | | 03/13/2019 12:33 | Finished | MS (1ppb), IWST-190221B,1>1 |
| 22 | N034570-001A,SAMP | 24 | 1000 | Unknown | | 03/13/2019 12:45 | Finished | SAMP,2>10mL |
| 23 | N034572-001A,SAMP | 25 | 1000 | Unknown | | 03/13/2019 12:54 | Finished | SAMP,1>10mL |
| 24 | CCV-1,CCV1,1, | 26 | 1000 | Unknown | | 03/13/2019 13:04 | Finished | CCV @10ppb, IWST-190221A |
| 25 | CCB-1,CCB,1, | 27 | 1000 | Unknown | | 03/13/2019 13:13 | Finished | CCB R190211C |
| 26 | N034570-001AMSD,M | 28 | 1000 | Unknown | | 03/13/2019 13:23 | Finished | MSD (1ppb), IWST-190221B,2> |
| 27 | N034570-001ADUP,D | 29 | 1000 | Unknown | | 03/13/2019 13:32 | Finished | SAMP,10mL |
| 28 | N034570-001AMS,MS | 30 | 1000 | Unknown | | 03/13/2019 13:42 | Finished | MS (1ppb), IWST-190221B,10 |
| 29 | N034572-001A,SAMP | 31 | 1000 | Unknown | | 03/13/2019 13:51 | Finished | SAMP,2>10mL |
| 30 | BLANK | 32 | 1000 | Unknown | | 03/13/2019 14:00 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034573-002A,SAMP | 33 | 1000 | Unknown | | 03/13/2019 14:10 | Finished | SAMP,10mL |
| 32 | N034573-002AMS,MS | 34 | 1000 | Unknown | | 03/13/2019 14:19 | Finished | MS (1ppb), IWST-190221B,10 |
| 33 | CCV-2,CCV,1, | 35 | 1000 | Unknown | | 03/13/2019 14:29 | Finished | CCV @5ppb, IWST-190221A |
| 34 | CCB-2,CCB,1, | 37 | 1000 | Unknown | | 03/13/2019 14:53 | Finished | CCB R190211C |
| 35 | N034558-001A,SAMP | 1 | 1000 | Unknown | | 03/13/2019 15:14 | Finished | SAMP,0.002>10mL |
| 36 | N034558-001AREP,D | 2 | 1000 | Unknown | | 03/13/2019 15:24 | Finished | REP,0.002>10mL |
| 37 | BLANK | 3 | 1000 | Unknown | | 03/13/2019 15:34 | Finished | BLANK |
| 38 | CCV-3,CCV1,1, | 4 | 1000 | Unknown | | 03/13/2019 15:43 | Finished | CCV @10ppb, IWST-190221A |
| 39 | CCB-3,CCB,1, | 5 | 1000 | Unknown | | 03/13/2019 15:53 | Finished | CCB R190211C |
| 40 | BLANK | 6 | 1000 | Unknown | | 03/13/2019 16:02 | Finished | BLANK |
| 41 | BLANK | 7 | 1000 | Unknown | | 03/13/2019 16:12 | Finished | BLANK |
| 42 | SHUTDOWN | 8 | 1000 | Unknown | | 03/13/2019 16:21 | Finished | |
| 43 | Eluent: R190312D | 9 | 1000 | Unknown | | n.a. | Finished | Eluent |
| 44 | PCR: R190312E | 10 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

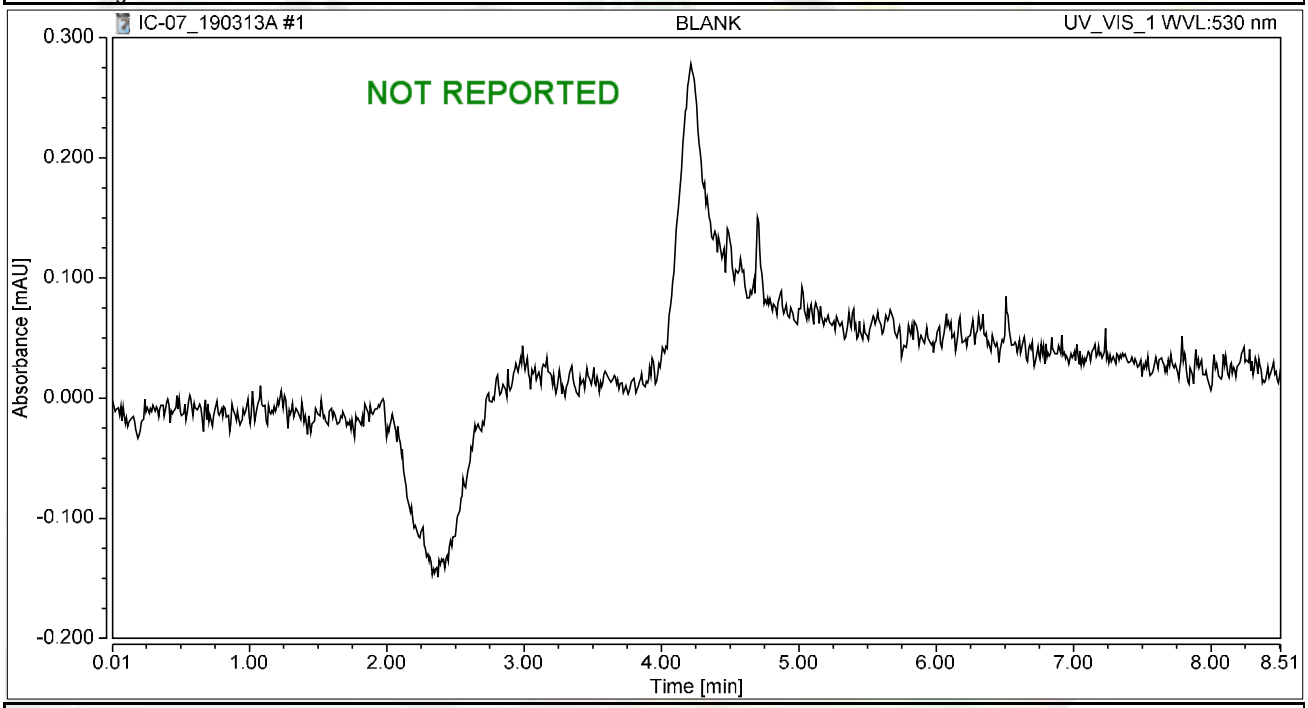
rba 3/17/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

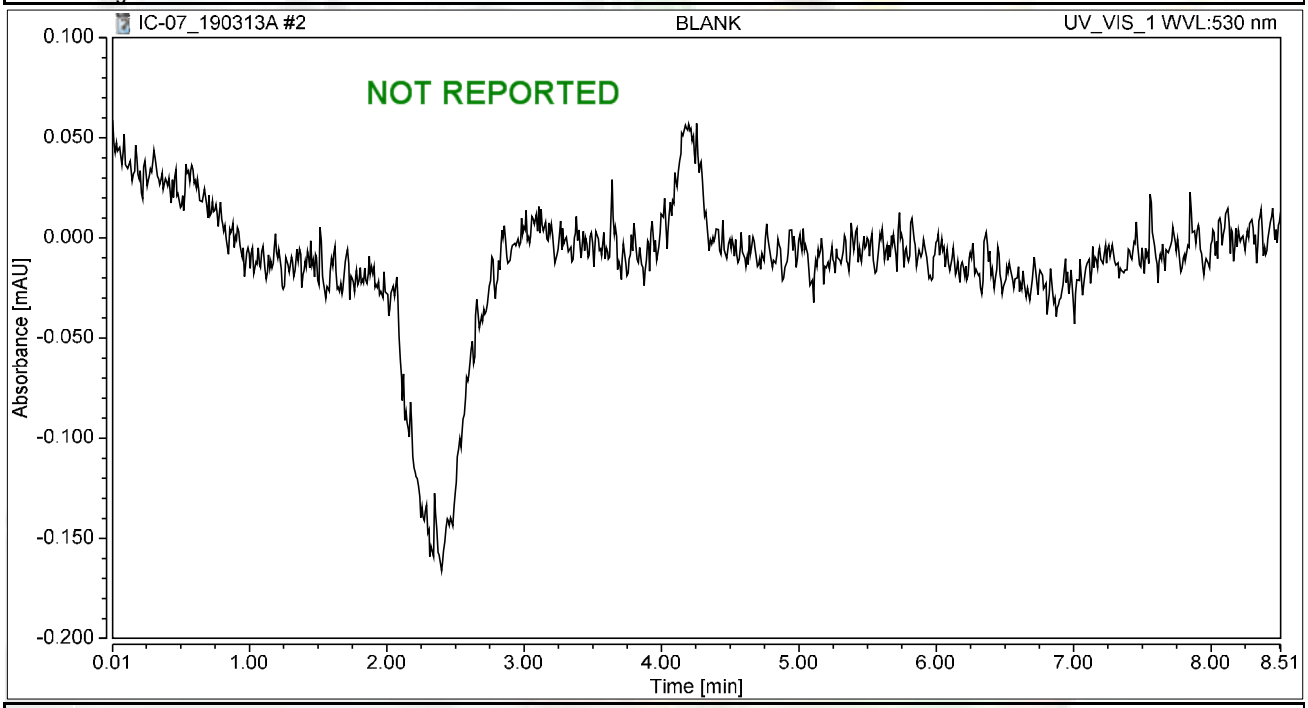
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:11** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

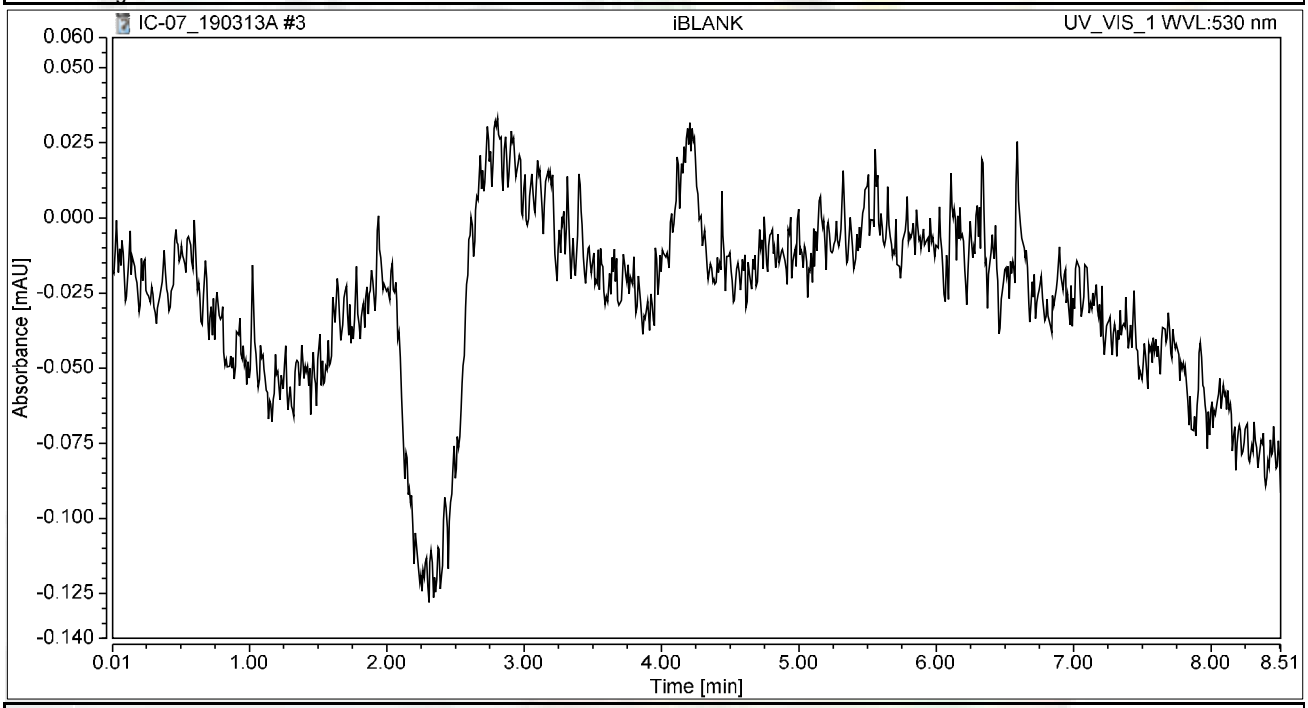
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **iBLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

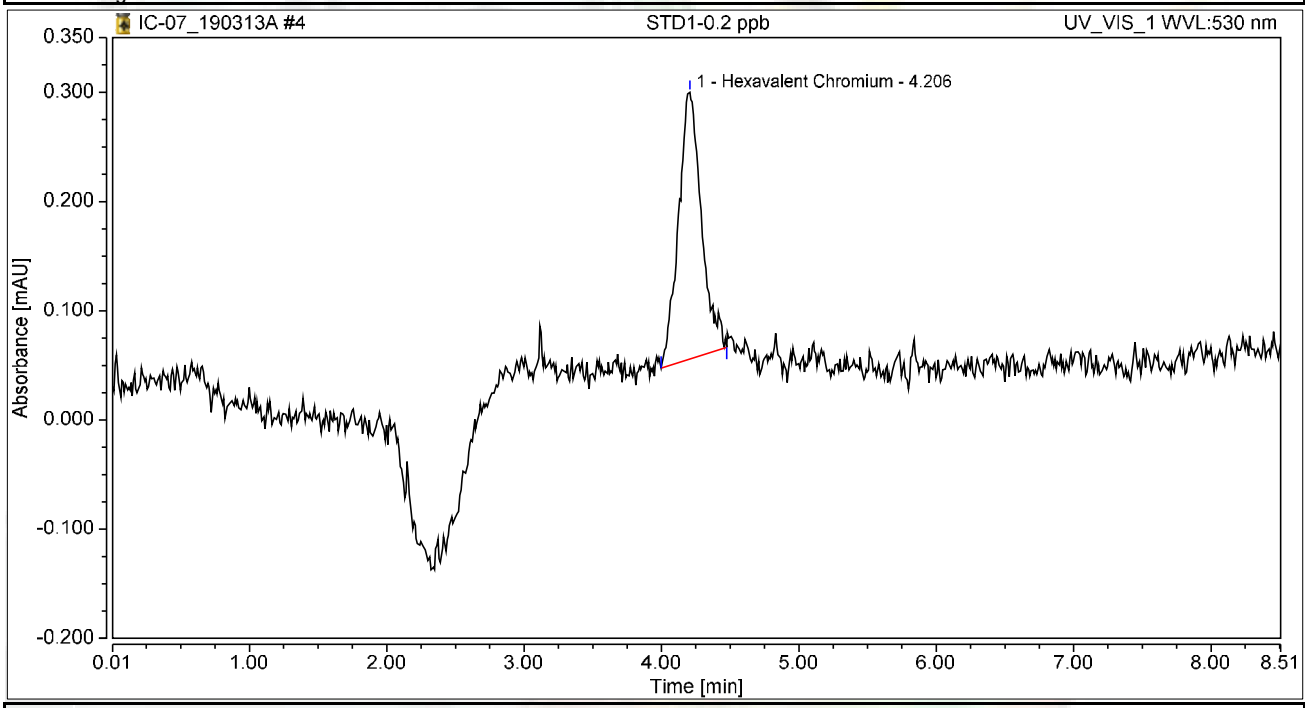
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD1-0.2 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **01** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

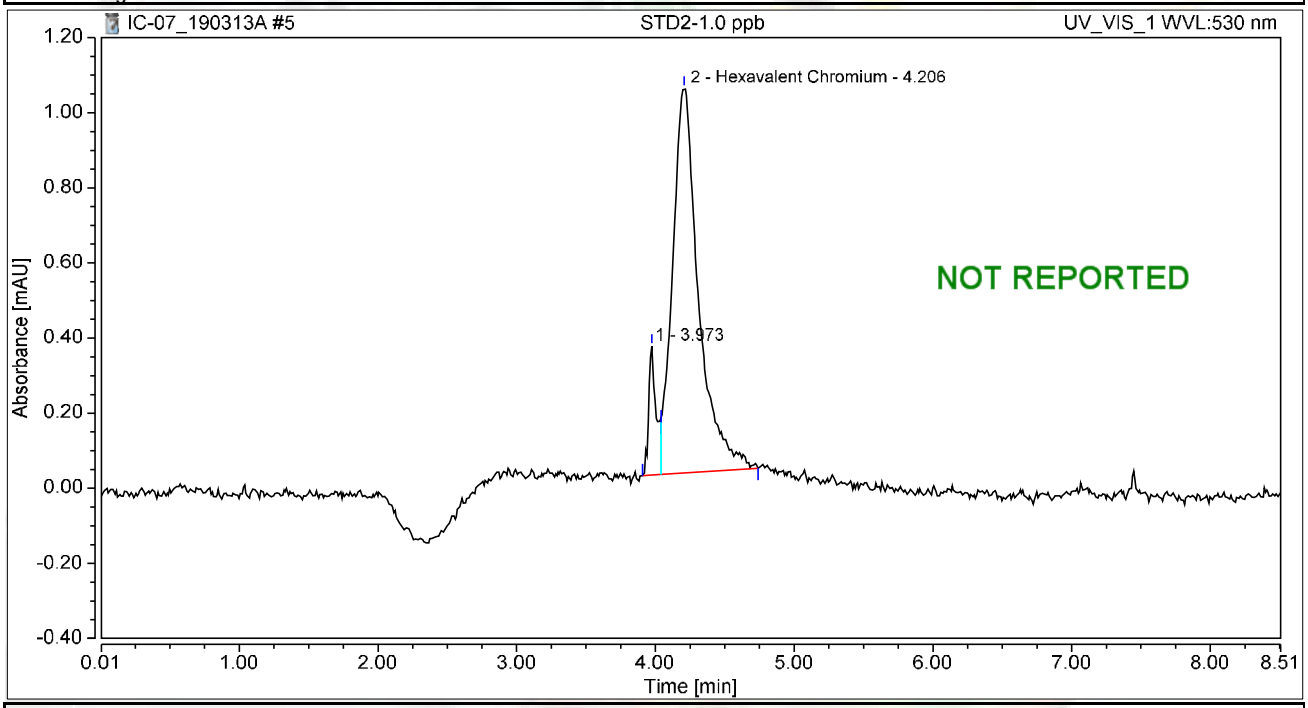
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.047 | 0.244 | 100.00 | 100.00 | 0.2139 |
| **Total:** | | | **0.047** | **0.244** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:41** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

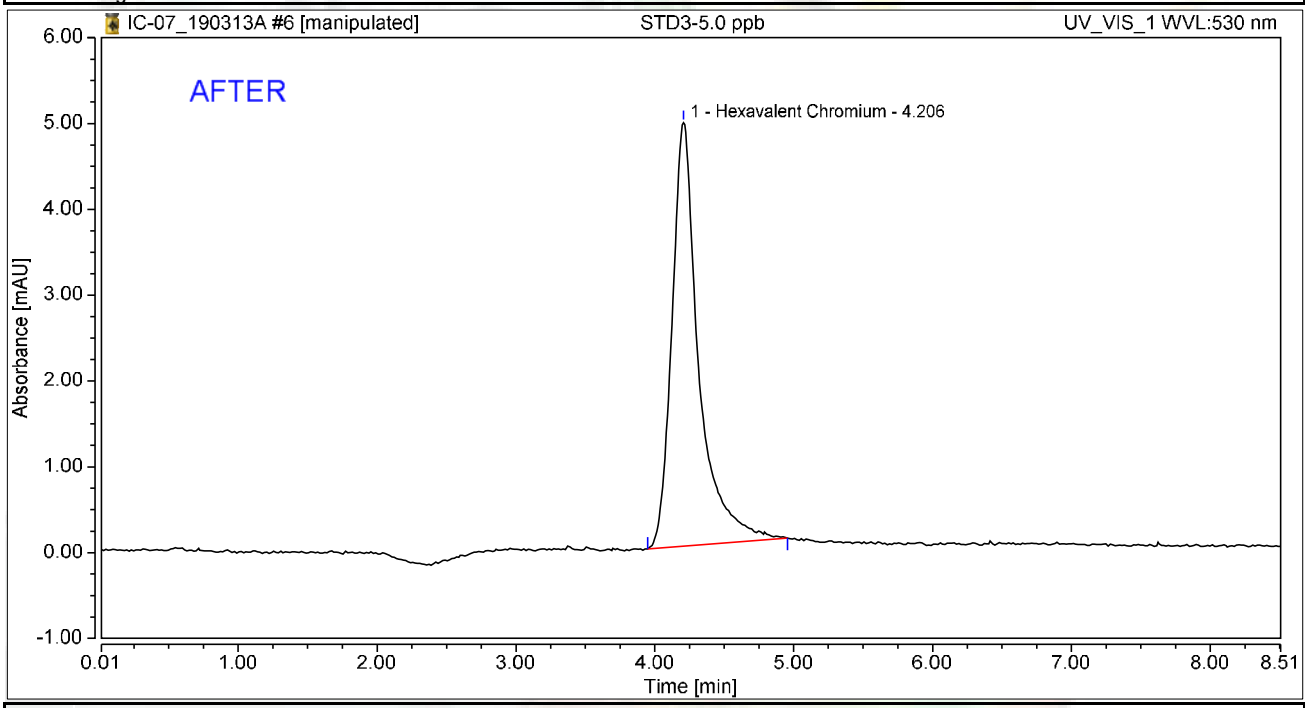
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | | 3.973 | 0.021 | 0.344 | 8.72 | 25.14 | n.a. |
| 2 | Hexavalent Chromium | 4.206 | 0.223 | 1.025 | 91.28 | 74.86 | 1.0122 |
| **Total:** | | | **0.244** | **1.369** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD3-5.0 ppb** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **03** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.106 | 4.936 | 100.00 | 100.00 | 5.0269 |
| **Total:** | | | **1.106** | **4.936** | **100.00** | **100.00** | |

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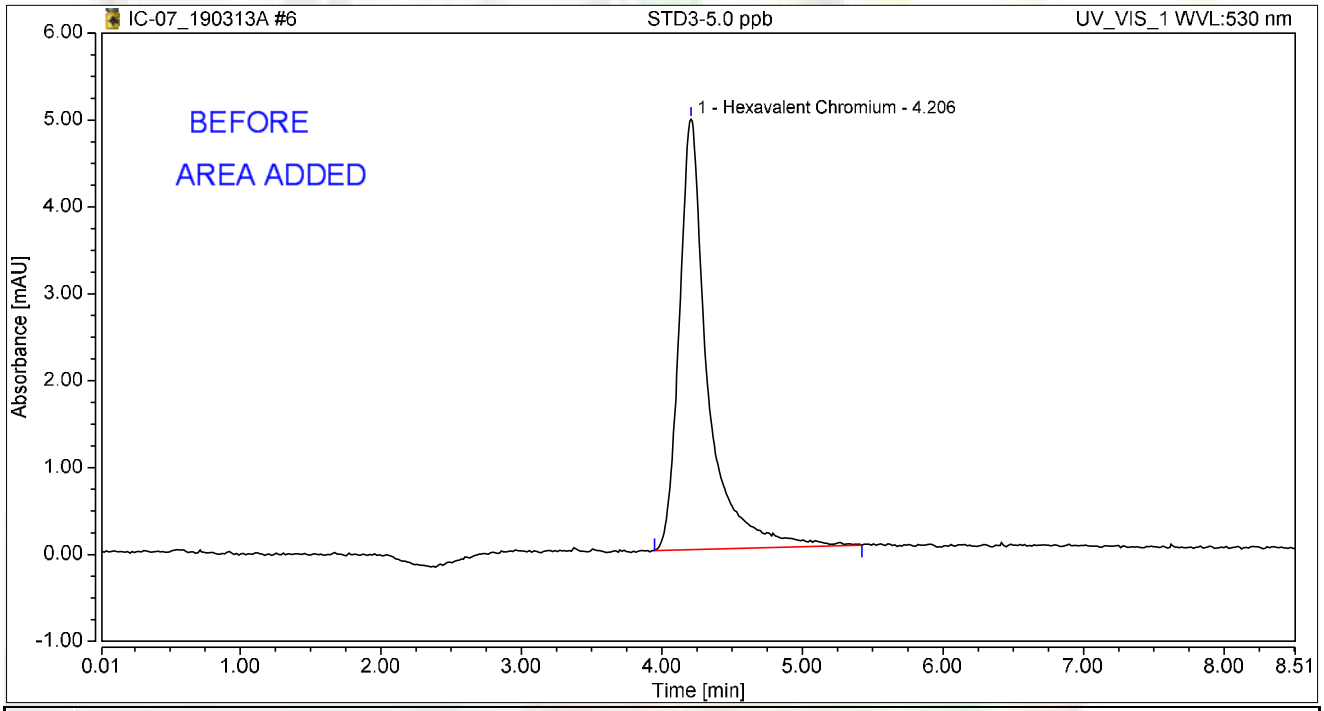
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD3-5.0 ppb** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **03** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 09:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.165 | 4.957 | 100.00 | 100.00 | 4.7988 |
| **Total:** | | | **1.165** | **4.957** | **100.00** | **100.00** | |

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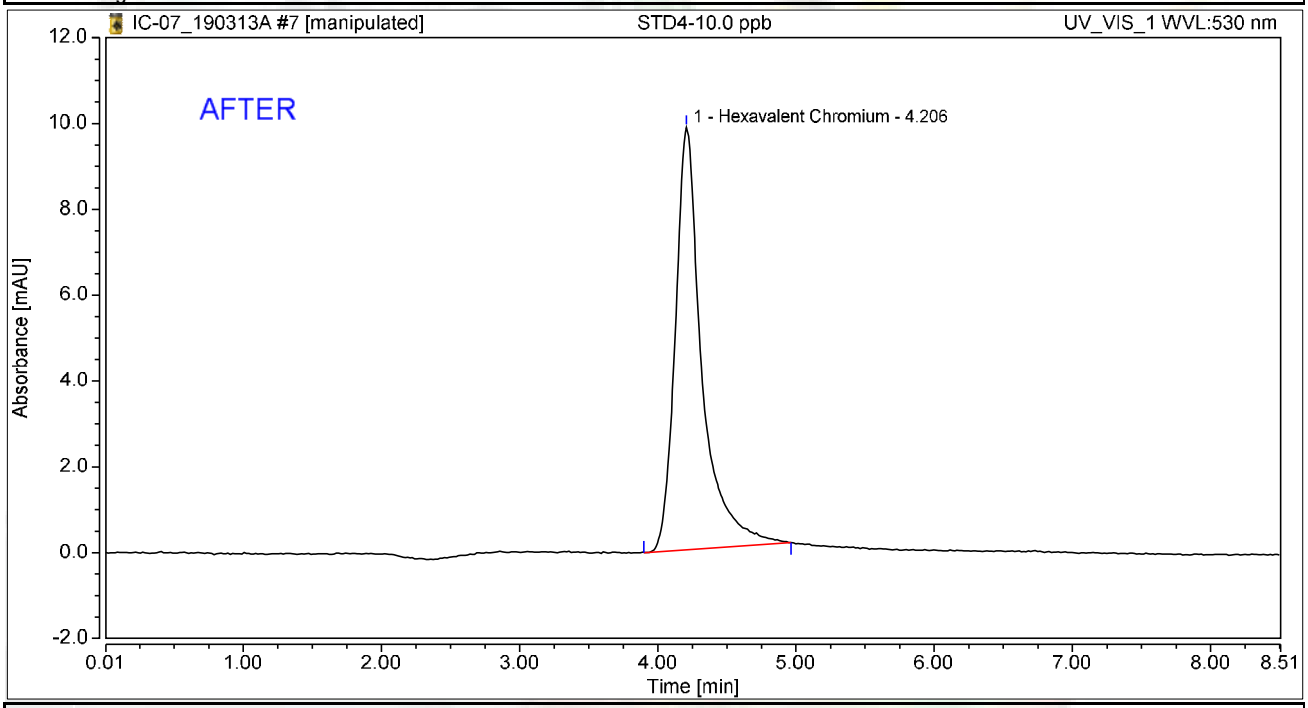
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD4-10.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **04** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 2.199 | 9.844 | 100.00 | 100.00 | 9.9965 |
| **Total:** | | | **2.199** | **9.844** | **100.00** | **100.00** | |

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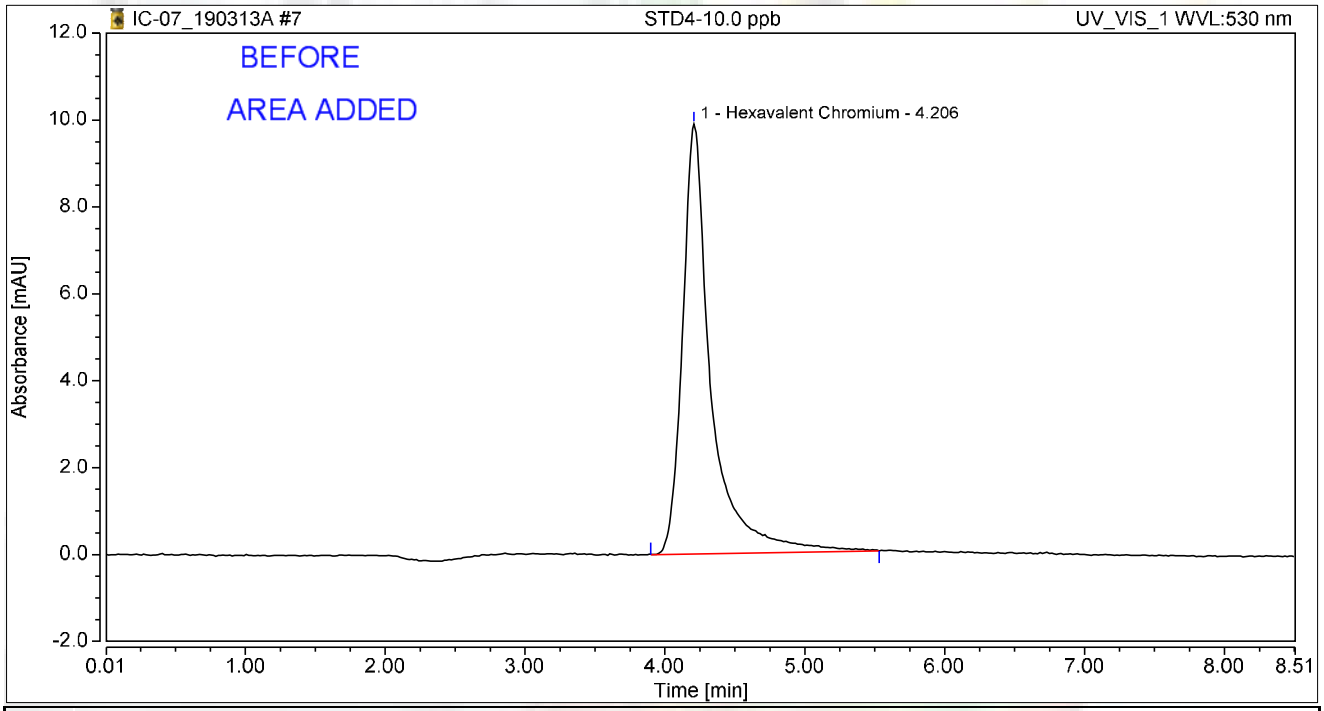
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD4-10.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **04** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:02** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 2.344 | 9.896 | 100.00 | 100.00 | 9.6561 |
| **Total:** | | | **2.344** | **9.896** | **100.00** | **100.00** | |

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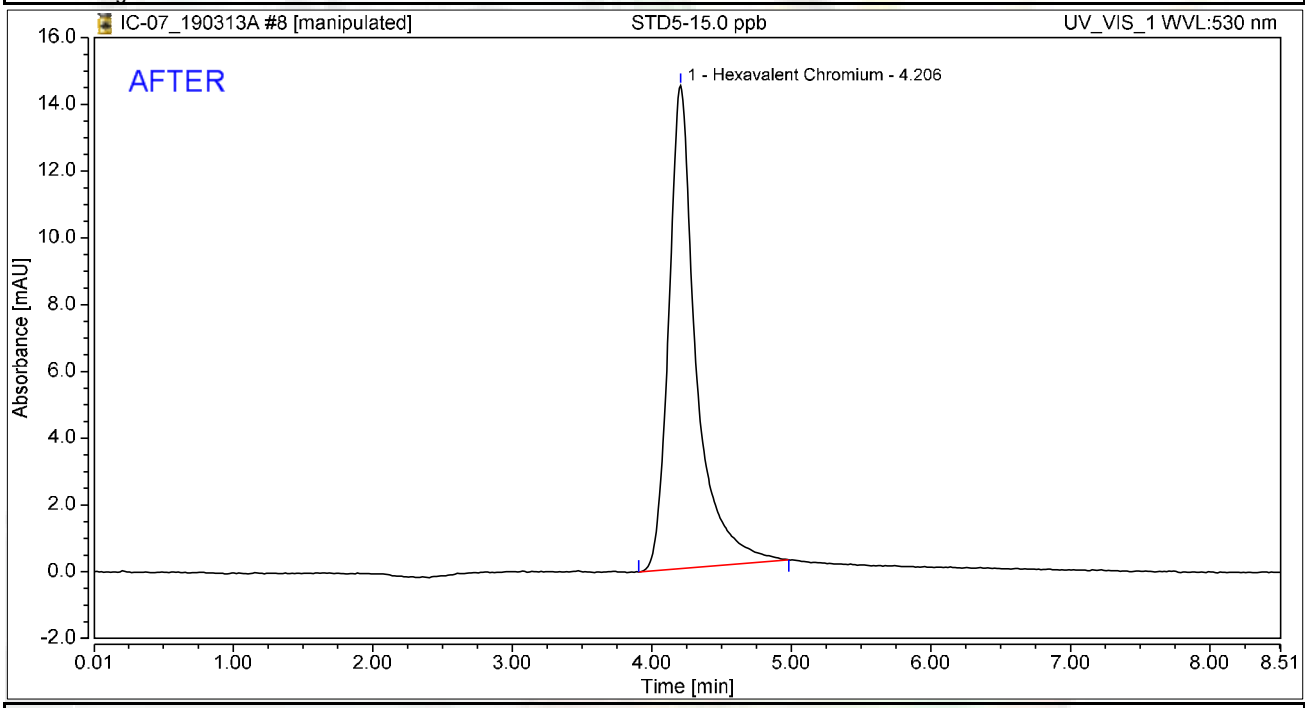
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 3.284 | 14.466 | 100.00 | 100.00 | 14.9322 |
| **Total:** | | | **3.284** | **14.466** | **100.00** | **100.00** | |

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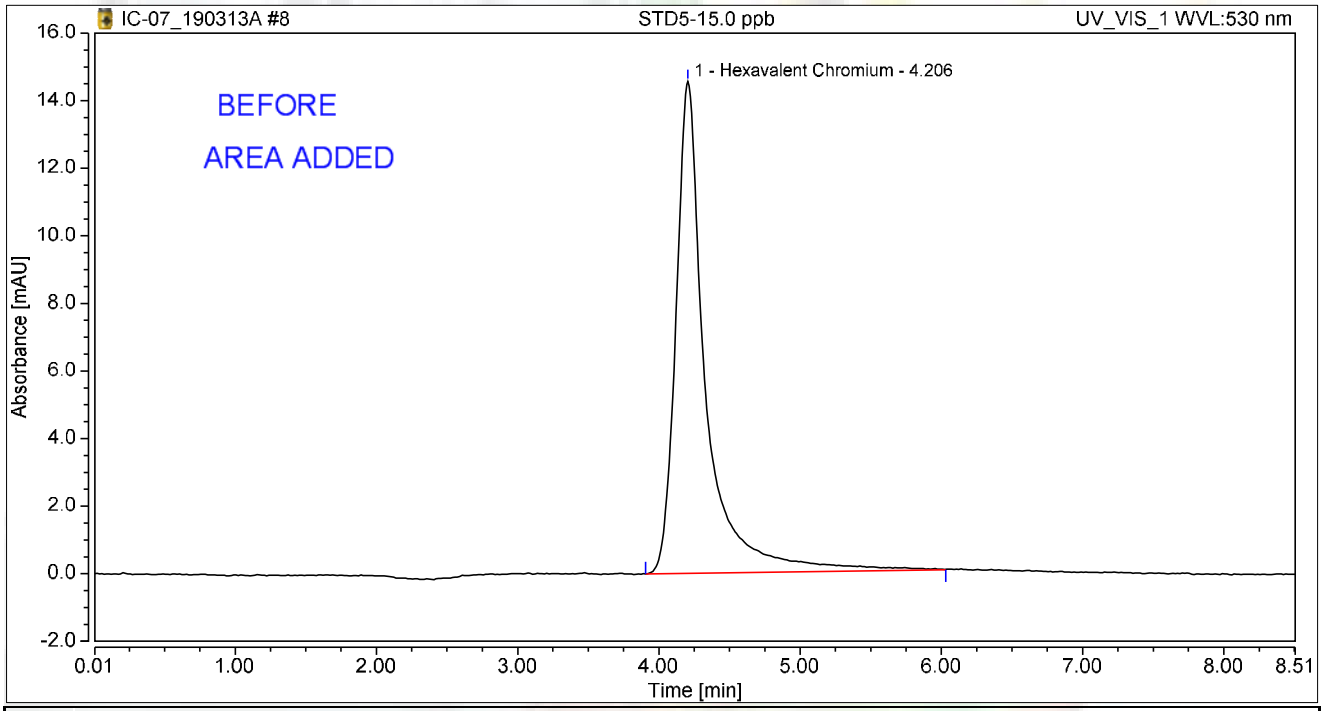
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD5-15.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **05** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:12** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 3.580 | 14.551 | 100.00 | 100.00 | 14.7476 |
| **Total:** | | | **3.580** | **14.551** | **100.00** | **100.00** | |

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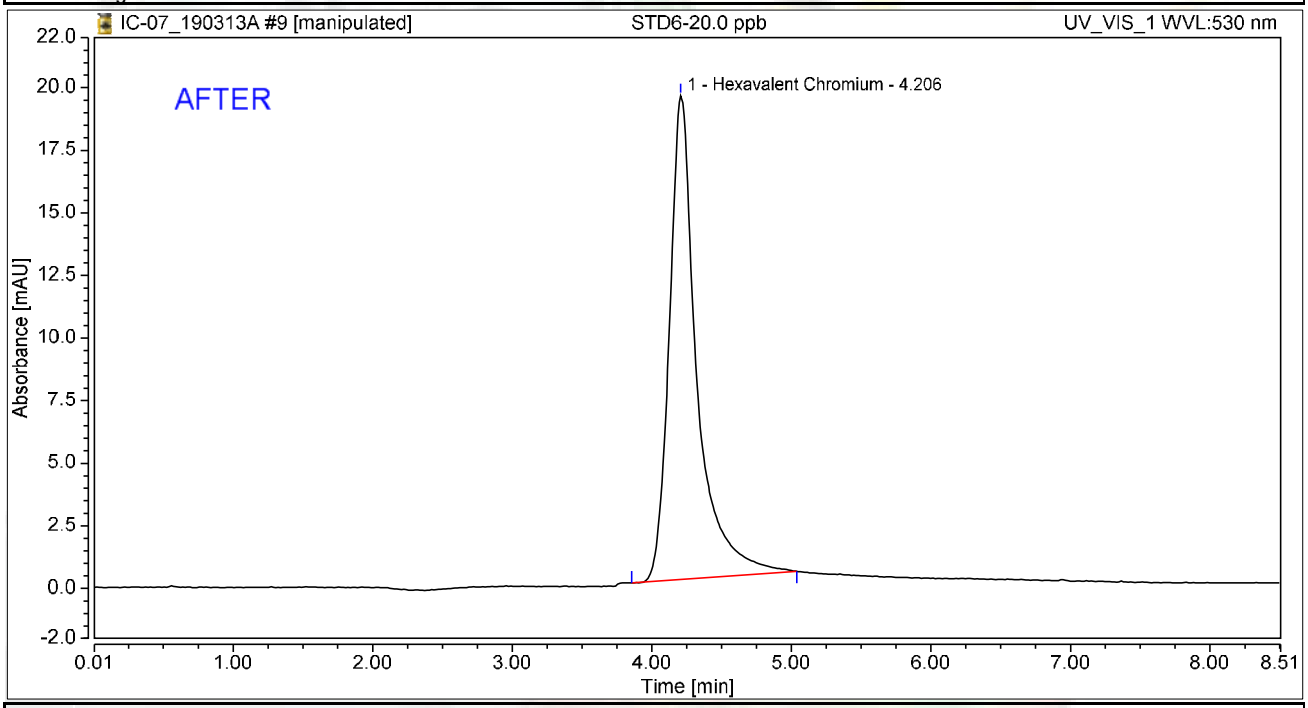
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD6-20.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **06** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 4.409 | 19.328 | 100.00 | 100.00 | 20.0449 |
| **Total:** | | | **4.409** | **19.328** | **100.00** | **100.00** | |

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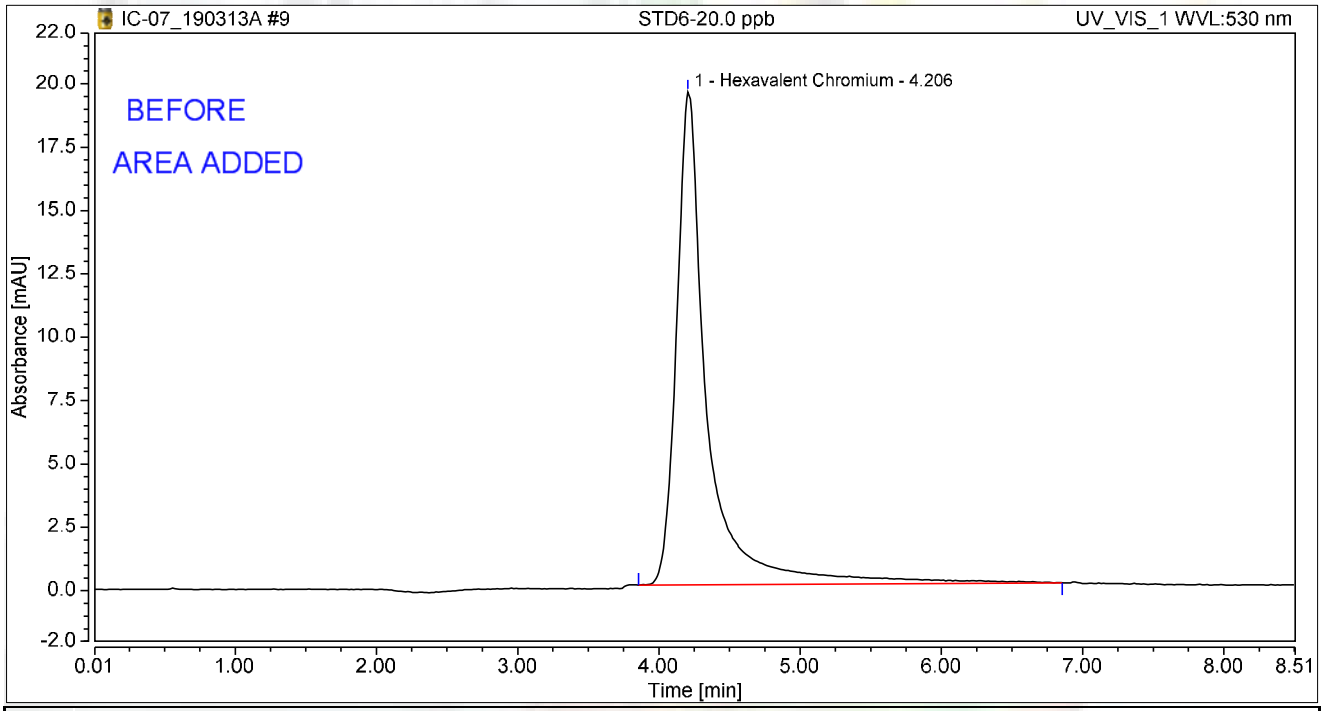
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD6-20.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **06** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:21** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 4.956 | 19.454 | 100.00 | 100.00 | 20.4140 |
| **Total:** | | | **4.956** | **19.454** | **100.00** | **100.00** | |

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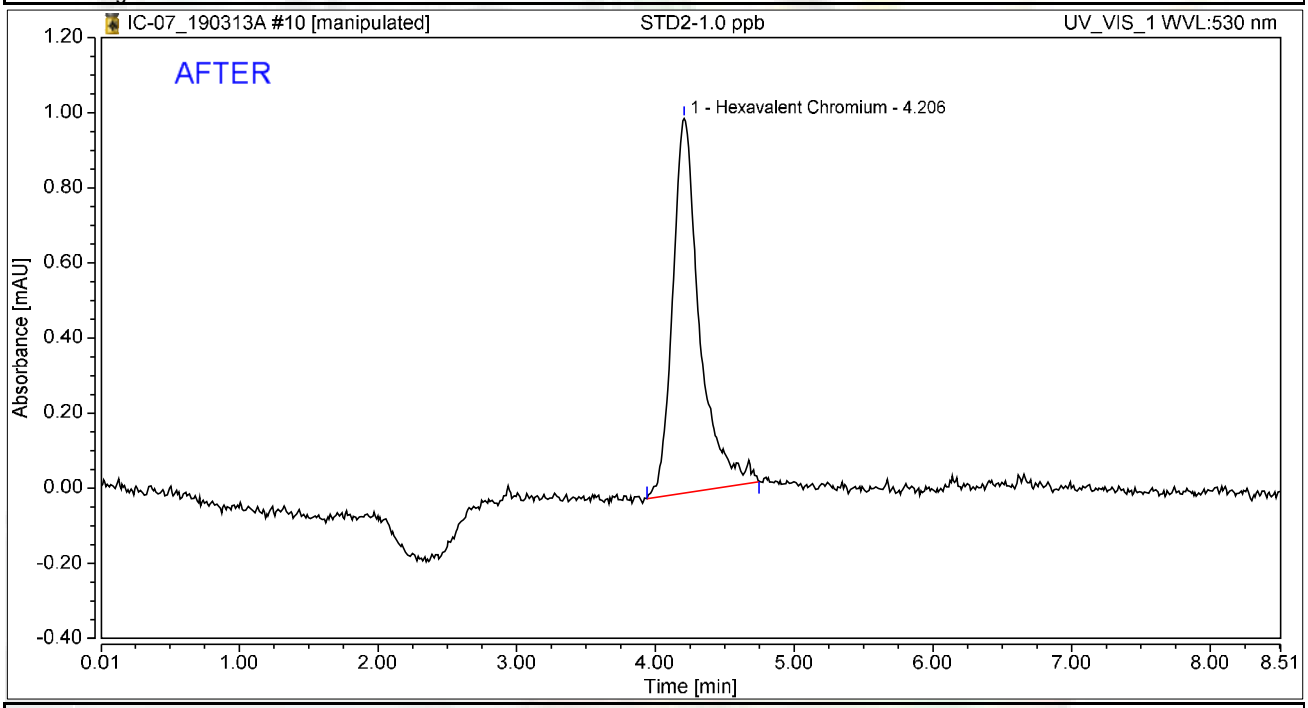
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.224 | 0.997 | 100.00 | 100.00 | 1.0173 |
| **Total:** | | | **0.224** | **0.997** | **100.00** | **100.00** | |

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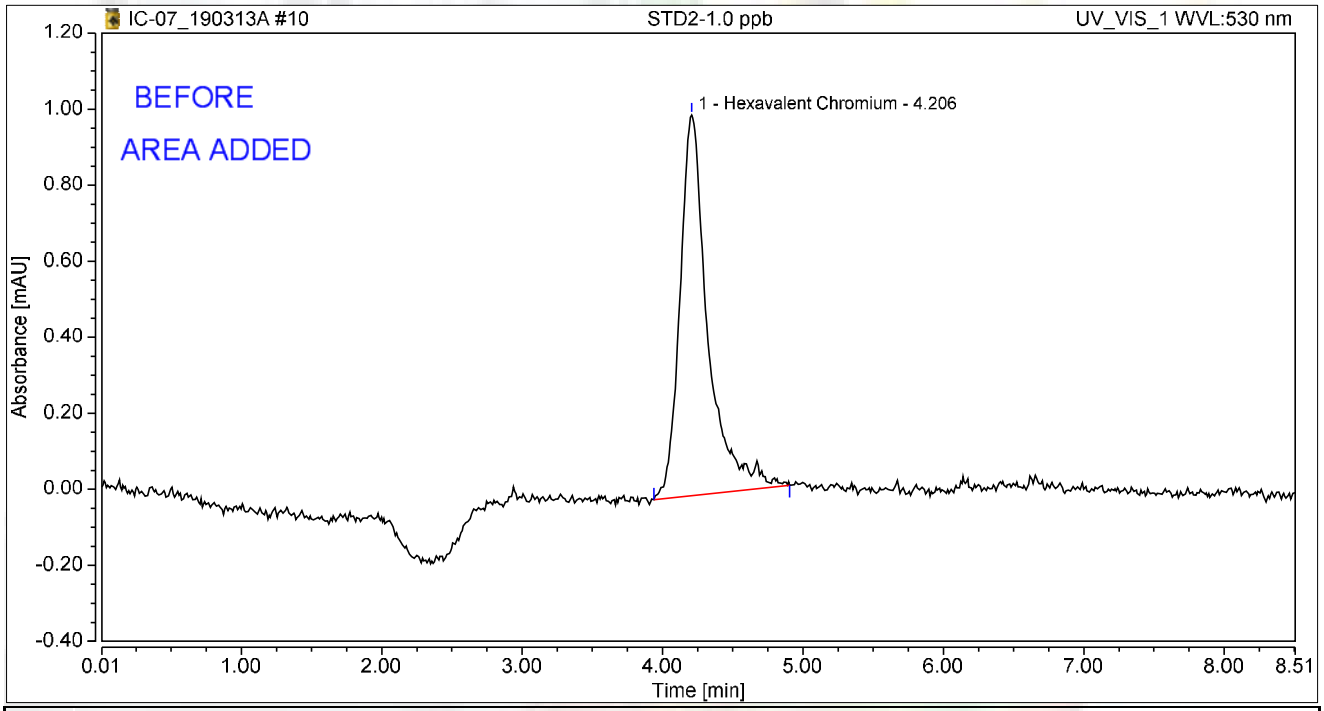
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **STD2-1.0 ppb** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Calibration Standard** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | **02** | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:31** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.231 | 1.002 | 100.00 | 100.00 | 0.9515 |
| **Total:** | | | **0.231** | **1.002** | **100.00** | **100.00** | |

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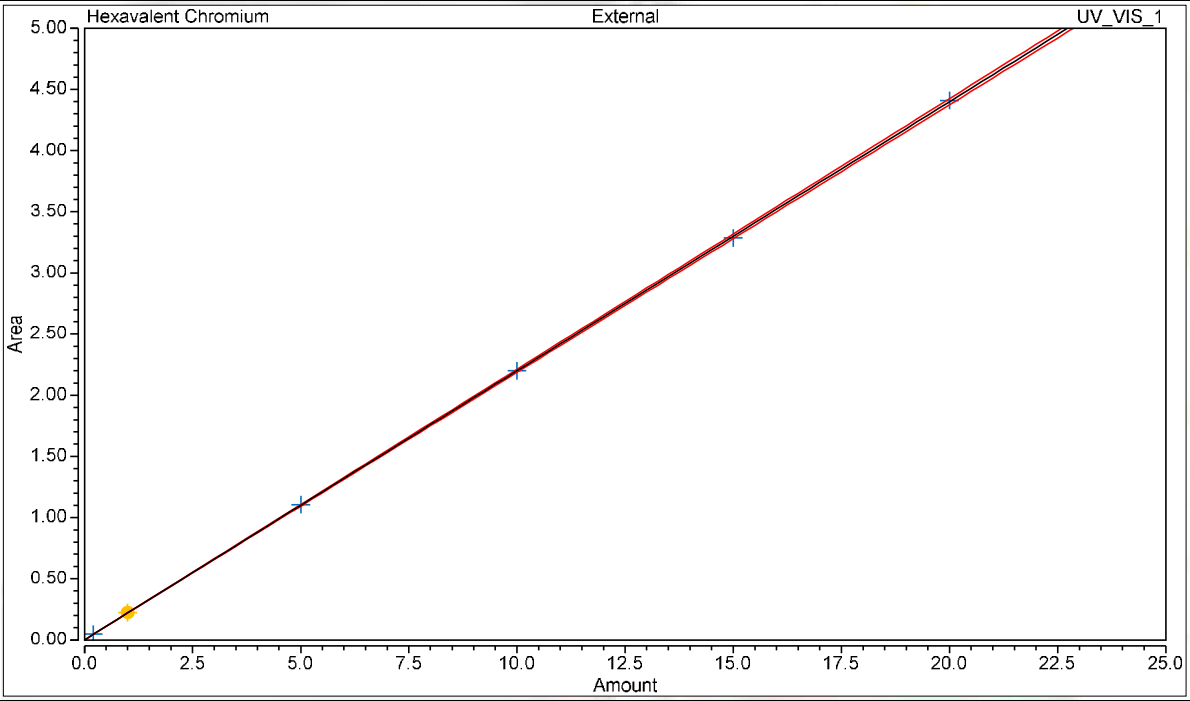
# Initial Calibration Summary

| Calibration Details | Hexavalent Chromium | | |
|---|---|---|---|
| *Calibration Type* | Lin | *Offset (C0)* | 0.0000 |
| *Evaluation Type* | Area | *Slope (C1)* | 0.2200 |
| *Number of Calibration Points* | 6 | *Curve (C2)* | 0.0000 |
| *Number of disabled Calibration Points* | 0 | *R-Square* | 0.99997 |

Calibration Plot — Hexavalent Chromium




Calibration Results — Hexavalent Chromium

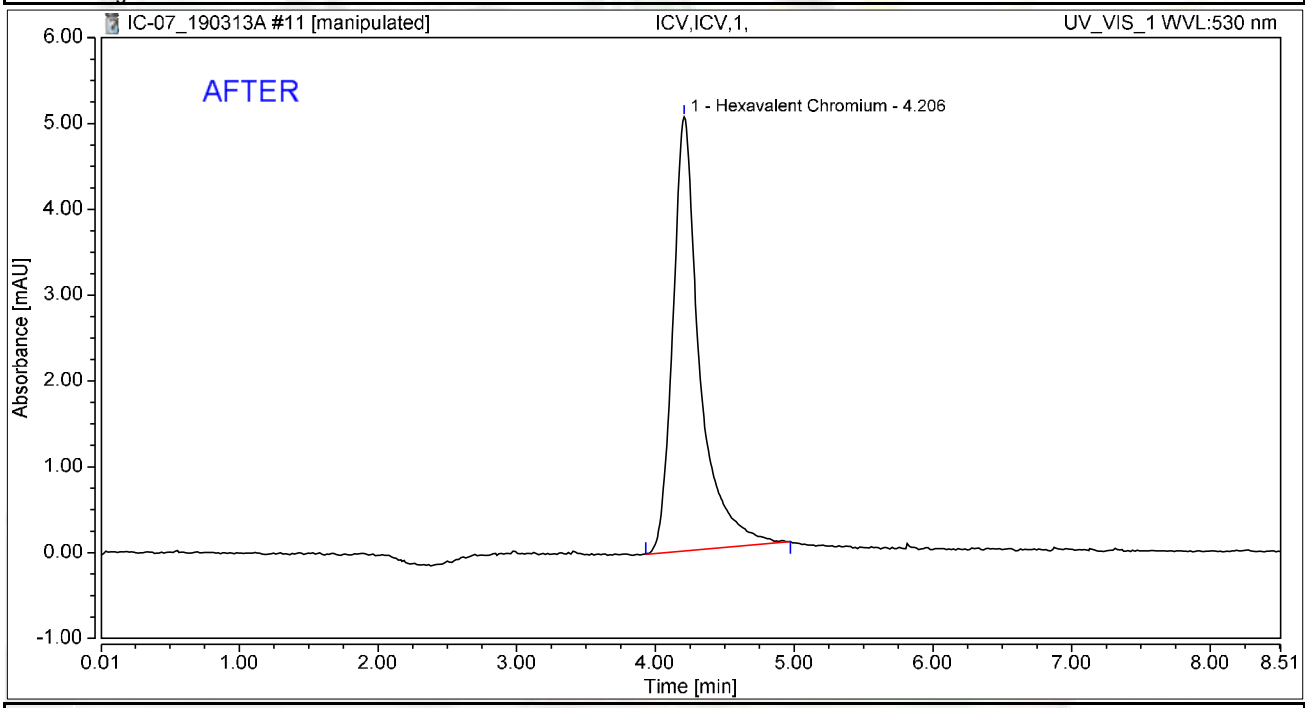
| No. | Injection Name | Calibration Level | X Value | Y Value | Area mAU*min | Height mAU |
|---|---|---|---|---|---|---|
| 4 | STD1-0.2 ppb | 01 | 0.2000 | 0.0471 | 0.047 | 0.244 |
| 6 | STD3-5.0 ppb | 03 | 5.0000 | 1.1057 | 1.106 | 4.936 |
| 7 | STD4-10.0 ppb | 04 | 10.0000 | 2.1988 | 2.199 | 9.844 |
| 8 | STD5-15.0 ppb | 05 | 15.0000 | 3.2845 | 3.284 | 14.466 |
| 9 | STD6-20.0 ppb | 06 | 20.0000 | 4.4091 | 4.409 | 19.328 |
| 10 | STD2-1.0 ppb | 02 | 1.0000 | 0.2238 | 0.224 | 0.997 |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICV,ICV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.134 | 5.058 | 100.00 | 100.00 | 5.1539 |
| **Total:** | | | **1.134** | **5.058** | **100.00** | **100.00** | |

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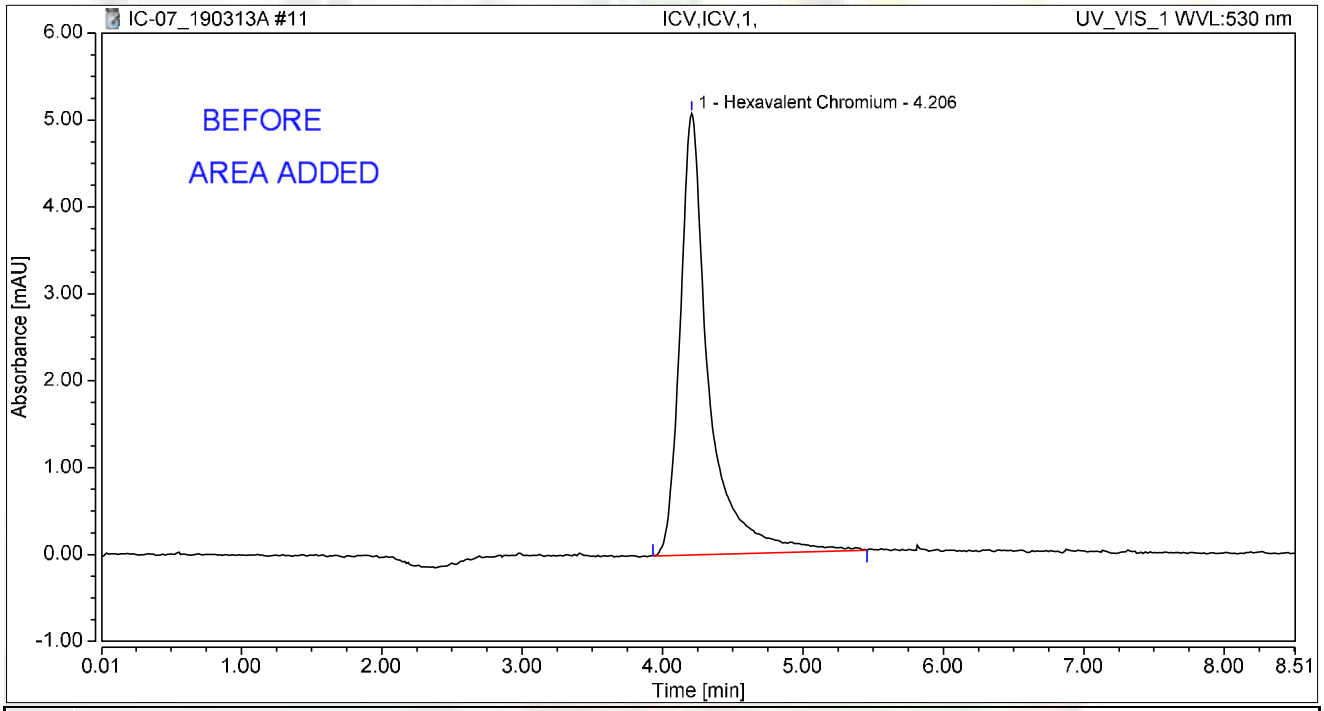
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICV,ICV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **12** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 10:49** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.210 | 5.084 | 100.00 | 100.00 | 4.9834 |
| **Total:** | | | **1.210** | **5.084** | **100.00** | **100.00** | |

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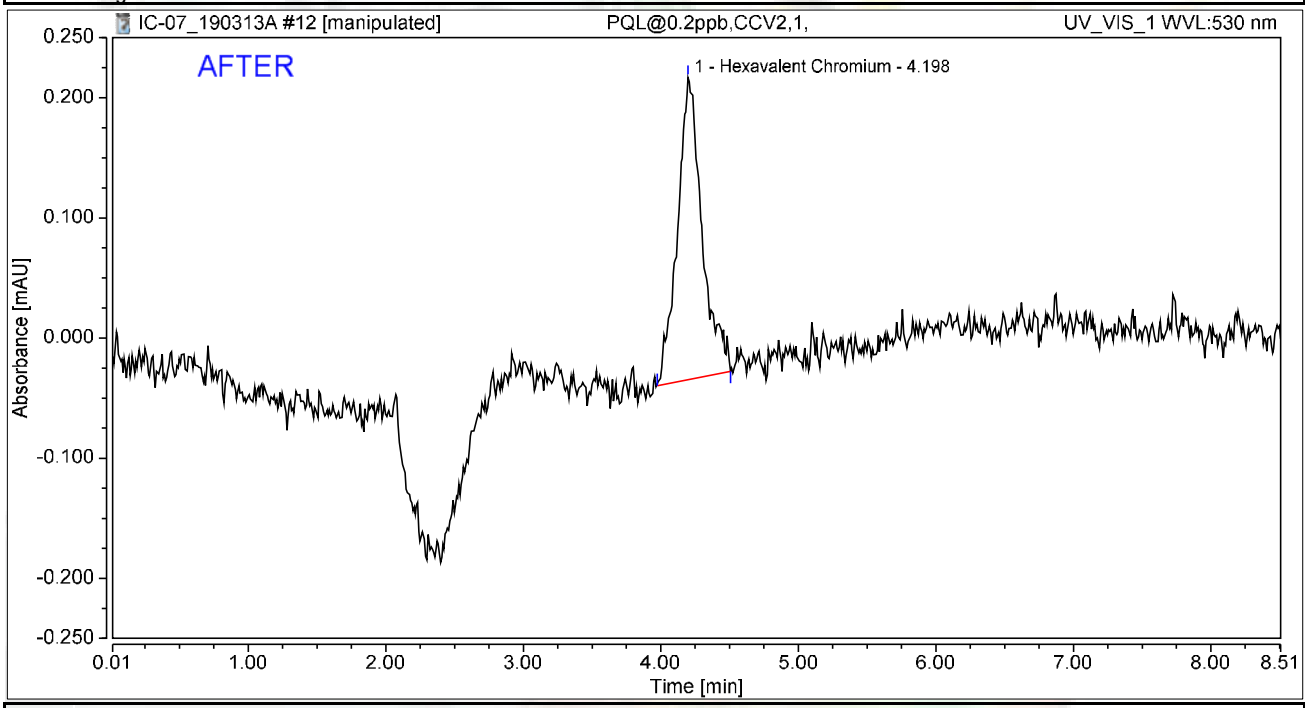
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 11:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.052 | 0.251 | 100.00 | 100.00 | 0.2346 |
| **Total:** | | | **0.052** | **0.251** | **100.00** | **100.00** | |

rba 3/17/2019

Reviewed by:
Nancy 3/26/2019

My first report/Integration

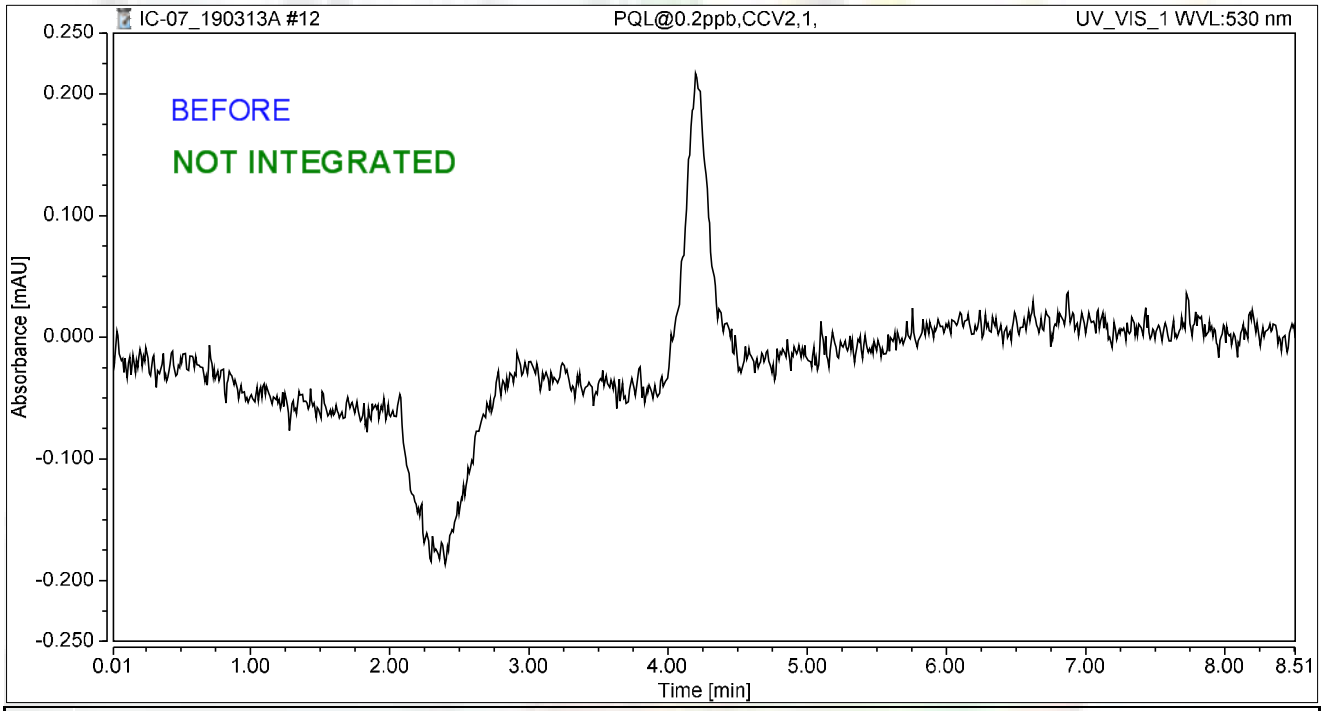
Chromeleon (c) Dionex
Version 7.1.1.1127

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 11:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

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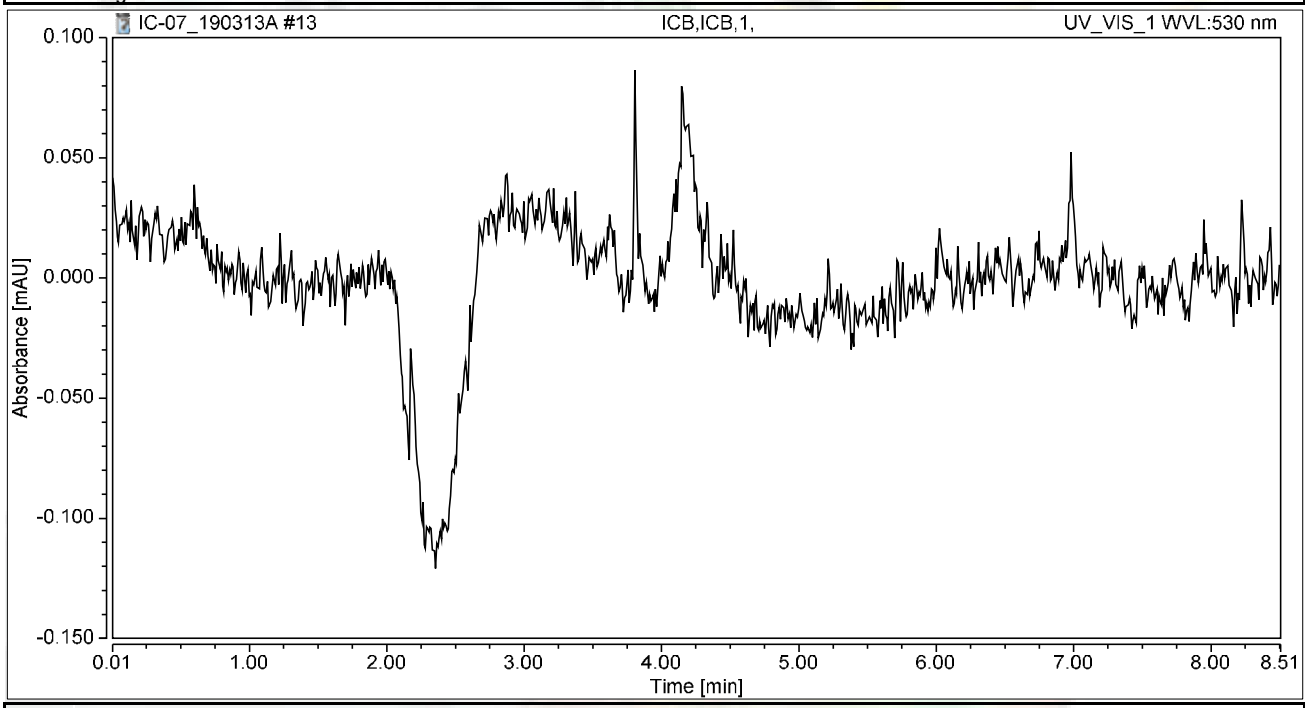
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ICB,ICB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **13/Mar/19 11:10** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# RAW DATA

**INJECTION LOG: 190321A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 1 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:00 AM | Not Reported |
| 2 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/13/19 9:11 AM | Not Reported |
| 3 | iBLANK | iBLANK | 1 | Hexavalent Chromium | 03/13/19 9:21 AM | Reported |
| 4 | STD-0.2 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:30 AM | Reported |
| 5 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:41 AM | Not Reported |
| 6 | STD-5.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 9:53 AM | Reported |
| 7 | STD-10.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:02 AM | Reported |
| 8 | STD-15.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:12 AM | Reported |
| 9 | STD-20.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:21 AM | Reported |
| 10 | STD-1.0 ppb | ICAL | 1 | Hexavalent Chromium | 03/13/19 10:31 AM | Reported |
| 11 | BLANK | BLANK | 1 | Hexavalent Chromium | 03/21/19 8:44 AM | Not Reported |
| 12 | CCV-1 | CCV | 1 | Hexavalent Chromium | 03/21/19 8:54 AM | Reported |
| 13 | PQL@0.2ppb | CCV2 | 1 | Hexavalent Chromium | 03/21/19 9:04 AM | Reported |
| 14 | CCB-1 | CCB | 1 | Hexavalent Chromium | 03/21/19 9:13 AM | Reported |
| 15 | MB-R132665 | MBLK | 1 | Hexavalent Chromium | 03/21/19 9:23 AM | Reported |
| 16 | LCS-R132665 | LCS | 1 | Hexavalent Chromium | 03/21/19 9:32 AM | Reported |
| 17 | N034705-001A | SAMP | 200 | Hexavalent Chromium | 03/21/19 9:42 AM | Reported |
| 18 | N034706-002A | SAMP | 1 | Hexavalent Chromium | 03/21/19 9:51 AM | Reported |
| 19 | N034706-002AMS | MS | 1 | Hexavalent Chromium | 03/21/19 10:01 AM | Reported |
| 20 | N034705-001ADUP | DUP | 200 | Hexavalent Chromium | 03/21/19 10:10 AM | Reported |
| 21 | N034705-001AMS | MS | 200 | Hexavalent Chromium | 03/21/19 10:20 AM | Reported |
| 22 | N034708-001A | SAMP | 1 | Hexavalent Chromium | 03/21/19 10:30 AM | Reported |
| 23 | N034708-001AMS | MS | 1 | Hexavalent Chromium | 03/21/19 10:41 AM | Reported |
| 24 | N034708-001AMSD | MSD | 1 | Hexavalent Chromium | 03/21/19 10:51 AM | Reported |
| 25 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 03/21/19 11:00 AM | Not Reported |
| 26 | CCB-2 | CCB | 1 | Hexavalent Chromium | 03/21/19 11:10 AM | Not Reported |
| 27 | CCV-2 | CCV1 | 1 | Hexavalent Chromium | 03/21/19 11:27 AM | Reported |
| 28 | CCB-2 | CCB | 1 | Hexavalent Chromium | 03/21/19 11:38 AM | Reported |
| 29 | N034708-002A | SAMP | 1 | Hexavalent Chromium | 03/21/19 11:48 AM | Reported |
| 30 | N034708-002AMS | MS | 1 | Hexavalent Chromium | 03/21/19 11:57 AM | Reported |
| 31 | N034708-003A | SAMP | 1 | Hexavalent Chromium | 03/21/19 12:07 PM | Reported |
| 32 | N034708-003AMS | MS | 1 | Hexavalent Chromium | 03/21/19 12:16 PM | Reported |
| 33 | N034708-004A | SAMP | 1 | Hexavalent Chromium | 03/21/19 12:26 PM | Reported |
| 34 | N034708-004AMS | MS | 1 | Hexavalent Chromium | 03/21/19 12:35 PM | Reported |
| 35 | N034708-005A | SAMP | 1 | Hexavalent Chromium | 03/21/19 12:45 PM | Reported |
| 36 | N034708-005AMS | MS | 1 | Hexavalent Chromium | 03/21/19 12:54 PM | Reported |
| 37 | N034708-006A | SAMP | 1 | Hexavalent Chromium | 03/21/19 1:03 PM | Reported |
| 38 | N034708-006AMS | MS | 1 | Hexavalent Chromium | 03/21/19 1:13 PM | Reported |
| 39 | CCV-3 | CCV | 1 | Hexavalent Chromium | 03/21/19 1:22 PM | Reported |
| 40 | CCB-3 | CCB | 1 | Hexavalent Chromium | 03/21/19 1:32 PM | Reported |
| 41 | N034708-007A | SAMP | 1 | Hexavalent Chromium | 03/21/19 1:41 PM | Reported |
| 42 | N034708-007AMS | MS | 1 | Hexavalent Chromium | 03/21/19 1:51 PM | Reported |

**INJECTION LOG: 190321A**

**Instrument ID: IC-07**

| Sample No | Sample Name | Type | DF | Peak Name | Injection Date/Time | Comments |
|---|---|---|---|---|---|---|
| 43 | N034708-008A | SAMP | 1 | Hexavalent Chromium | 03/21/19 2:00 PM | Reported |
| 44 | N034708-008AMS | MS | 1 | Hexavalent Chromium | 03/21/19 2:10 PM | Reported |
| 45 | N034708-009A | SAMP | 1 | Hexavalent Chromium | 03/21/19 2:19 PM | Reported |
| 46 | N034708-009AMS | MS | 1 | Hexavalent Chromium | 03/21/19 2:29 PM | Reported |
| 47 | N034708-010A | SAMP | 1 | Hexavalent Chromium | 03/21/19 2:38 PM | Reported |
| 48 | N034708-010AMS | MS | 1 | Hexavalent Chromium | 03/21/19 2:48 PM | Reported |
| 49 | N034708-011A | SAMP | 1 | Hexavalent Chromium | 03/21/19 2:57 PM | Reported |
| 50 | N034708-011AMS | MS | 1 | Hexavalent Chromium | 03/21/19 3:06 PM | Reported |
| 51 | CCV-4 | CCV1 | 1 | Hexavalent Chromium | 03/21/19 3:16 PM | Reported |
| 52 | CCB-4 | CCB | 1 | Hexavalent Chromium | 03/21/19 3:25 PM | Reported |
| 53 | N034708-012A | SAMP | 1 | Hexavalent Chromium | 03/21/19 3:35 PM | Reported |
| 54 | N034708-012AMS | MS | 1 | Hexavalent Chromium | 03/21/19 3:44 PM | Reported |
| 55 | N034708-013A | SAMP | 1 | Hexavalent Chromium | 03/21/19 3:54 PM | Reported |
| 56 | N034708-013AMS | MS | 1 | Hexavalent Chromium | 03/21/19 4:03 PM | Reported |
| 57 | CCV-5 | CCV | 1 | Hexavalent Chromium | 03/21/19 4:13 PM | Reported |
| 58 | CCB-5 | CCB | 1 | Hexavalent Chromium | 03/21/19 4:22 PM | Reported |

# Injection Log Summary

## Sequence Details

| | | | |
|---|---|---|---|
| *Name:* | **IC-07_190321A** | *Created On:* | **24/Jul/12 17:17:21** |
| *Directory:* | **Instrument Data\IC-7\2018** | *Created By:* | **ics 5000** |
| *Data Vault:* | **ChromeleonLocal2** | *Updated On:* | **21/Mar/19 17:16:43** |
| *No. of Injections:* | **61** | *Updated By:* | **ics 5000** |

## Injection Details

| No. | Injection Name | Position | Volume µL | Type | Level | Inject Time | Status | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | BLANK | 1 | 1000 | Unknown | | 03/13/2019 09:00 | Finished | BLANK |
| 2 | BLANK | 2 | 1000 | Unknown | | 03/13/2019 09:11 | Finished | BLANK |
| 3 | iBLANK | 3 | 1000 | Unknown | | 03/13/2019 09:21 | Finished | INSTRUMENT BLANK |
| 4 | STD1-0.2 ppb | 4 | 1000 | Calibration Standard | 01 | 03/13/2019 09:30 | Finished | 0.2 ppb, IWST-190221A |
| 5 | STD2-1.0 ppb | 5 | 1000 | Unknown | | 03/13/2019 09:41 | Finished | 1.0 ppb, IWST-190221A |
| 6 | STD3-5.0 ppb | 6 | 1000 | Calibration Standard | 03 | 03/13/2019 09:53 | Finished | 5.0 ppb, IWST-1190221A |
| 7 | STD4-10.0 ppb | 7 | 1000 | Calibration Standard | 04 | 03/13/2019 10:02 | Finished | 10 ppb, IWST-190221A |
| 8 | STD5-15.0 ppb | 8 | 1000 | Calibration Standard | 05 | 03/13/2019 10:12 | Finished | 15 ppb, IWST-190221A |
| 9 | STD6-20.0 ppb | 9 | 1000 | Calibration Standard | 06 | 03/13/2019 10:21 | Finished | 20 ppb, IWST-190221A |
| 10 | STD2-1.0 ppb | 10 | 1000 | Calibration Standard | 02 | 03/13/2019 10:31 | Finished | 1.0 ppb, IWST-190221A |
| 11 | BLANK | 1 | 1000 | Unknown | | 03/21/2019 08:44 | Finished | BLANK |
| 12 | CCV-1,CCV,1, | 2 | 1000 | Unknown | | 03/21/2019 08:54 | Finished | ICV @5ppb, IWST-190221B |
| 13 | PQL@0.2ppb,CCV2,1 | 3 | 1000 | Unknown | | 03/21/2019 09:04 | Finished | PQL @ 0.2ppb |
| 14 | CCB-1,CCB,1, | 4 | 1000 | Unknown | | 03/21/2019 09:13 | Finished | ICB R190211C |
| 15 | MB-H2O,MBLK,1, | 5 | 1000 | Unknown | | 03/21/2019 09:23 | Finished | MB R190211C |
| 16 | LCS-H2O,LCS,1, | 6 | 1000 | Unknown | | 03/21/2019 09:32 | Finished | LCS @5ppb, IWST-190221B |
| 17 | N034705-001A,SAMF | 7 | 1000 | Unknown | | 03/21/2019 09:42 | Finished | SAMP,0.05>10mL |
| 18 | N034706-002A,SAMF | 8 | 1000 | Unknown | | 03/21/2019 09:51 | Finished | SAMP,10mL |
| 19 | N034706-002AMS,MS | 9 | 1000 | Unknown | | 03/21/2019 10:01 | Finished | MS (1ppb), IWST-190221B,10 |
| 20 | N034705-001ADUP,D | 10 | 1000 | Unknown | | 03/21/2019 10:10 | Finished | DUP,0.05>10mL |
| 21 | N034705-001AMS,MS | 11 | 1000 | Unknown | | 03/21/2019 10:20 | Finished | MS (5ppb), IWST-190221B,0.0 |
| 22 | N034708-001A,SAMF | 13 | 1000 | Unknown | | 03/21/2019 10:30 | Finished | SAMP,10mL |
| 23 | N034708-001AMS,MS | 14 | 1000 | Unknown | | 03/21/2019 10:41 | Finished | MS (1ppb), IWST-190221B,10 |
| 24 | N034708-001AMSD,M | 15 | 1000 | Unknown | | 03/21/2019 10:51 | Finished | MSD (1ppb), IWST-190221B,1 |
| 25 | CCV-2,CCV1,1, | 16 | 1000 | Unknown | | 03/21/2019 11:00 | Finished | CCV @10ppb, IWST-190221A |
| 26 | CCB-2,CCB,1, | 17 | 1000 | Unknown | | 03/21/2019 11:10 | Finished | CCB R190211C |
| 27 | CCV-2,CCV1,1, | 16 | 1000 | Unknown | | 03/21/2019 11:27 | Finished | CCV @10ppb, IWST-190221A |
| 28 | CCB-2,CCB,1, | 17 | 1000 | Unknown | | 03/21/2019 11:38 | Finished | CCB R190211C |
| 29 | N034708-002A,SAMF | 18 | 1000 | Unknown | | 03/21/2019 11:48 | Finished | SAMP,10mL |
| 30 | N034708-002AMS,MS | 19 | 1000 | Unknown | | 03/21/2019 11:57 | Finished | MS (1ppb), IWST-190221B,10 |
| 31 | N034708-003A,SAMF | 20 | 1000 | Unknown | | 03/21/2019 12:07 | Finished | SAMP,10mL |
| 32 | N034708-003AMS,MS | 21 | 1000 | Unknown | | 03/21/2019 12:16 | Finished | MS (1ppb), IWST-190221B,10 |
| 33 | N034708-004A,SAMF | 22 | 1000 | Unknown | | 03/21/2019 12:26 | Finished | SAMP,10mL |
| 34 | N034708-004AMS,MS | 23 | 1000 | Unknown | | 03/21/2019 12:35 | Finished | MS (1ppb), IWST-190221B,10 |
| 35 | N034708-005A,SAMF | 24 | 1000 | Unknown | | 03/21/2019 12:45 | Finished | SAMP,10mL |
| 36 | N034708-005AMS,MS | 25 | 1000 | Unknown | | 03/21/2019 12:54 | Finished | MS (1ppb), IWST-190221B,10 |
| 37 | N034708-006A,SAMF | 26 | 1000 | Unknown | | 03/21/2019 13:03 | Finished | SAMP,10mL |
| 38 | N034708-006AMS,MS | 27 | 1000 | Unknown | | 03/21/2019 13:13 | Finished | MS (1ppb), IWST-190221B,10 |
| 39 | CCV-3,CCV,1, | 28 | 1000 | Unknown | | 03/21/2019 13:22 | Finished | CCV @5ppb, IWST-190221A |
| 40 | CCB-3,CCB,1, | 29 | 1000 | Unknown | | 03/21/2019 13:32 | Finished | CCB R190211C |
| 41 | N034708-007A,SAMF | 30 | 1000 | Unknown | | 03/21/2019 13:41 | Finished | SAMP,10mL |
| 42 | N034708-007AMS,MS | 31 | 1000 | Unknown | | 03/21/2019 13:51 | Finished | MS (1ppb), IWST-190221B,10 |
| 43 | N034708-008A,SAMF | 32 | 1000 | Unknown | | 03/21/2019 14:00 | Finished | SAMP,10mL |
| 44 | N034708-008AMS,MS | 33 | 1000 | Unknown | | 03/21/2019 14:10 | Finished | MS (1ppb), IWST-190221B,10 |
| 45 | N034708-009A,SAMF | 34 | 1000 | Unknown | | 03/21/2019 14:19 | Finished | SAMP,10mL |
| 46 | N034708-009AMS,MS | 35 | 1000 | Unknown | | 03/21/2019 14:29 | Finished | MS (1ppb), IWST-190221B,10 |
| 47 | N034708-010A,SAMF | 36 | 1000 | Unknown | | 03/21/2019 14:38 | Finished | SAMP,10mL |
| 48 | N034708-010AMS,MS | 37 | 1000 | Unknown | | 03/21/2019 14:48 | Finished | MS (1ppb), IWST-190221B,10 |
| 49 | N034708-011A,SAMF | 38 | 1000 | Unknown | | 03/21/2019 14:57 | Finished | SAMP,10mL |
| 50 | N034708-011AMS,MS | 39 | 1000 | Unknown | | 03/21/2019 15:06 | Finished | MS (1ppb), IWST-190221B,10 |
| 51 | CCV-4,CCV1,1, | 40 | 1000 | Unknown | | 03/21/2019 15:16 | Finished | CCV @10ppb, IWST-190221A |
| 52 | CCB-4,CCB,1, | 41 | 1000 | Unknown | | 03/21/2019 15:25 | Finished | CCB R190211C |
| 53 | N034708-012A,SAMF | 42 | 1000 | Unknown | | 03/21/2019 15:35 | Finished | SAMP,10mL |
| 54 | N034708-012AMS,MS | 43 | 1000 | Unknown | | 03/21/2019 15:44 | Finished | MS (1ppb), IWST-190221B,10 |
| 55 | N034708-013A,SAMF | 44 | 1000 | Unknown | | 03/21/2019 15:54 | Finished | SAMP,10mL |
| 56 | N034708-013AMS,MS | 45 | 1000 | Unknown | | 03/21/2019 16:03 | Finished | MS (1ppb), IWST-190221B,10 |
| 57 | CCV-5,CCV,1, | 46 | 1000 | Unknown | | 03/21/2019 16:13 | Finished | CCV @5ppb, IWST-190221A |
| 58 | CCB-5,CCB,1, | 47 | 1000 | Unknown | | 03/21/2019 16:22 | Finished | CCB R190211C |
| 59 | SHUTDOWN | 48 | 1000 | Unknown | | 03/21/2019 16:32 | Finished | |
| 60 | Eluent: R190320A | 49 | 1000 | Unknown | | n.a. | Finished | Eluent |

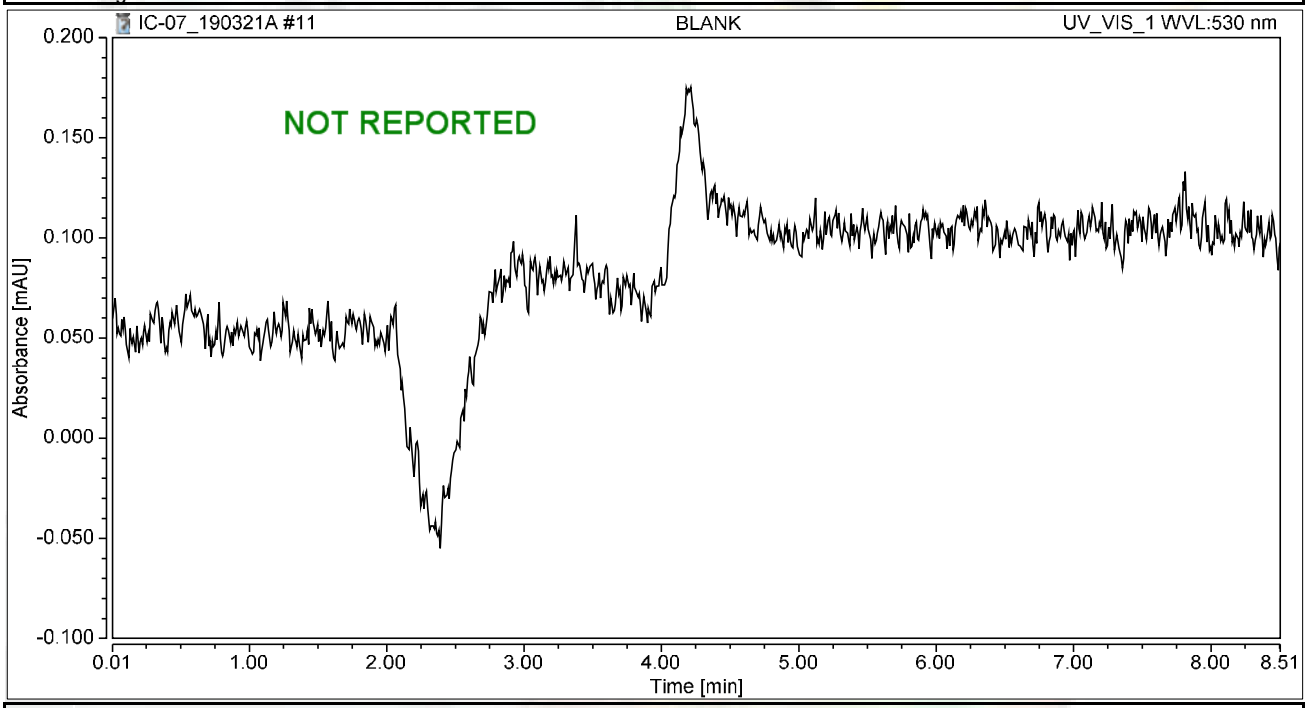
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | PCR: R190320B | 50 | 1000 | Unknown | | n.a. | Finished | Post-Column Reagent |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **BLANK** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **1** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 08:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

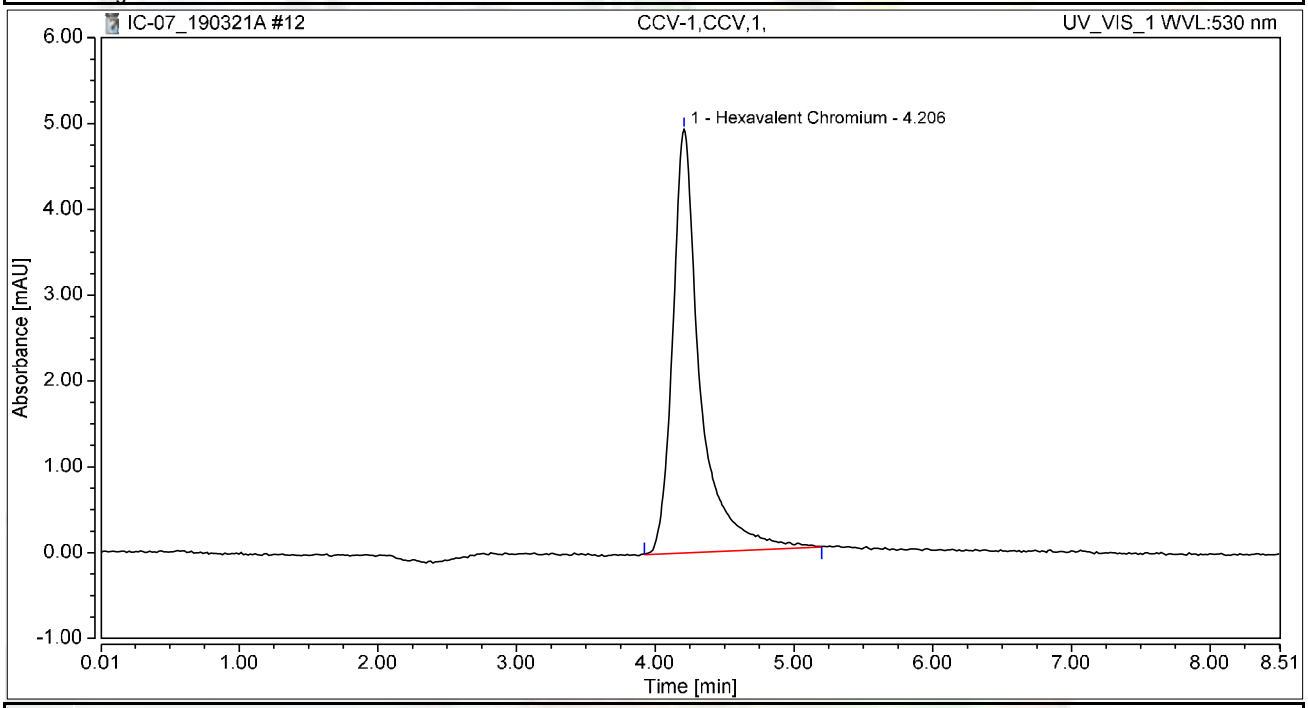
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-1,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **2** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 08:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

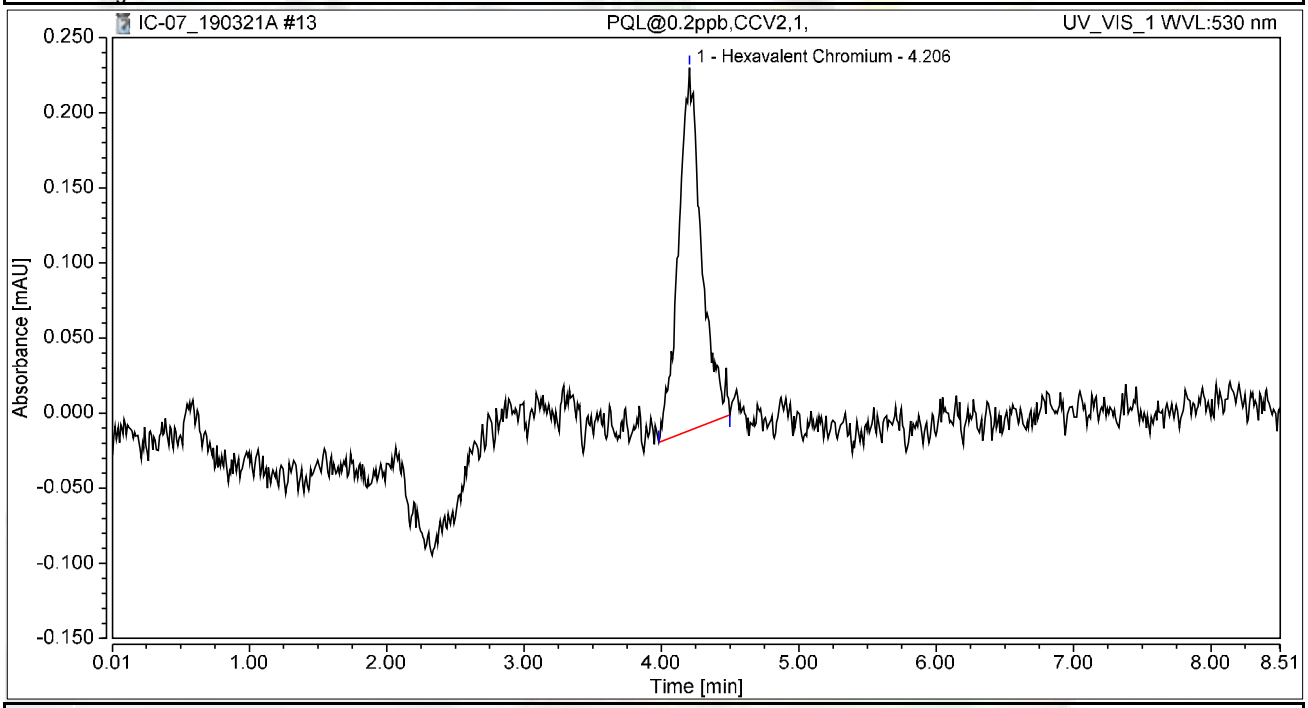
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.131 | 4.933 | 100.00 | 100.00 | 5.1429 |
| **Total:** | | | **1.131** | **4.933** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **PQL@0.2ppb,CCV2,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **3** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 09:04** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

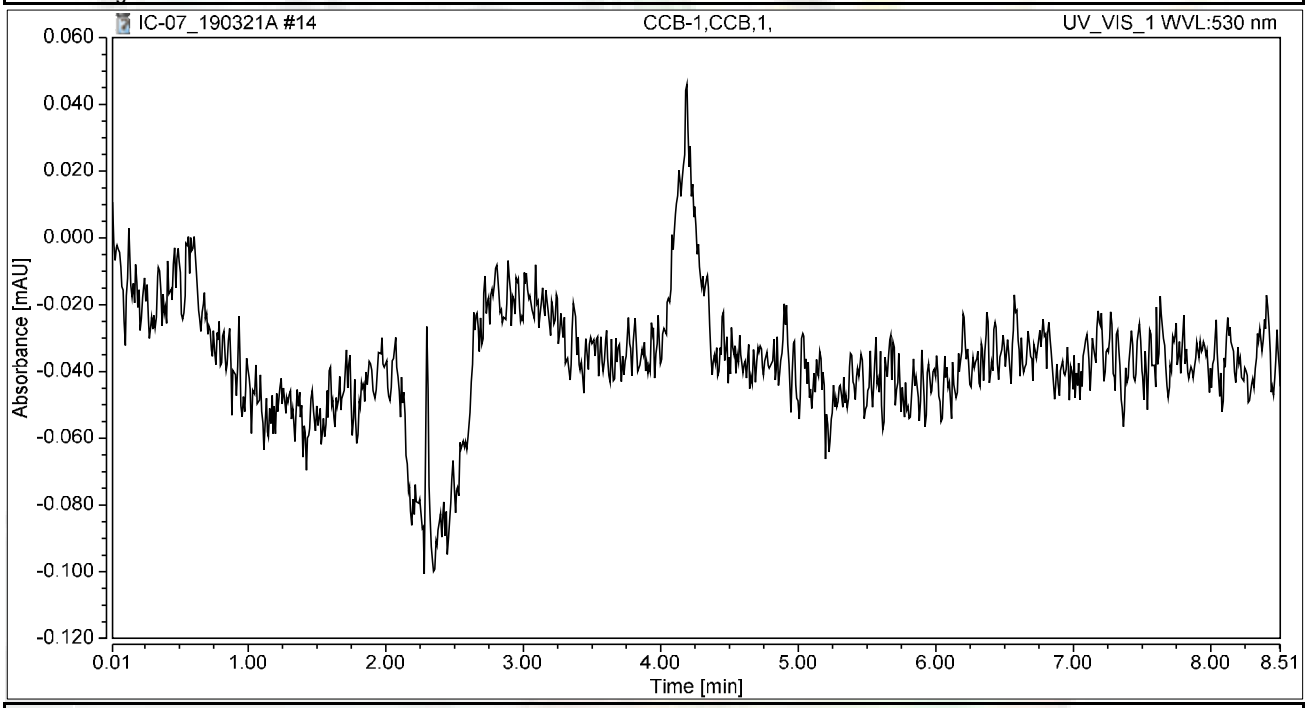
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.047 | 0.242 | 100.00 | 100.00 | 0.2139 |
| **Total:** | | | **0.047** | **0.242** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-1,CCB,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **4** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 09:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

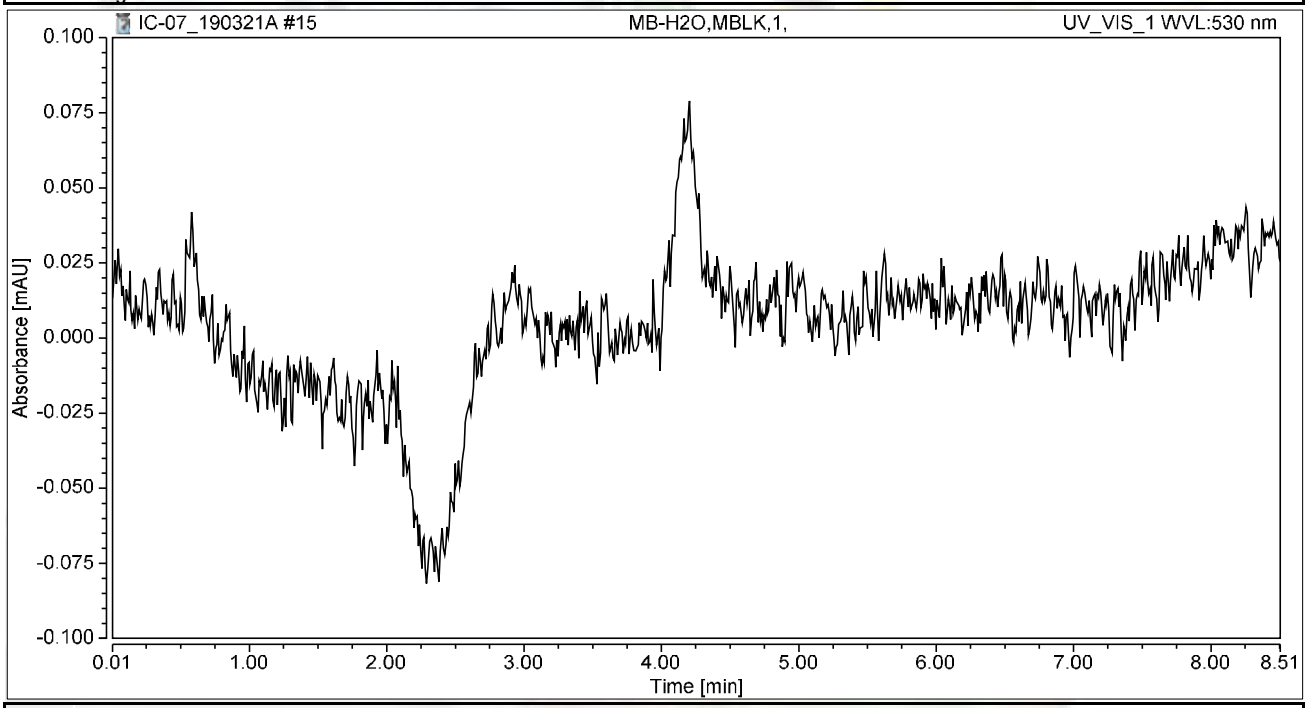
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **MB-H2O,MBLK,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **5** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 09:23** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

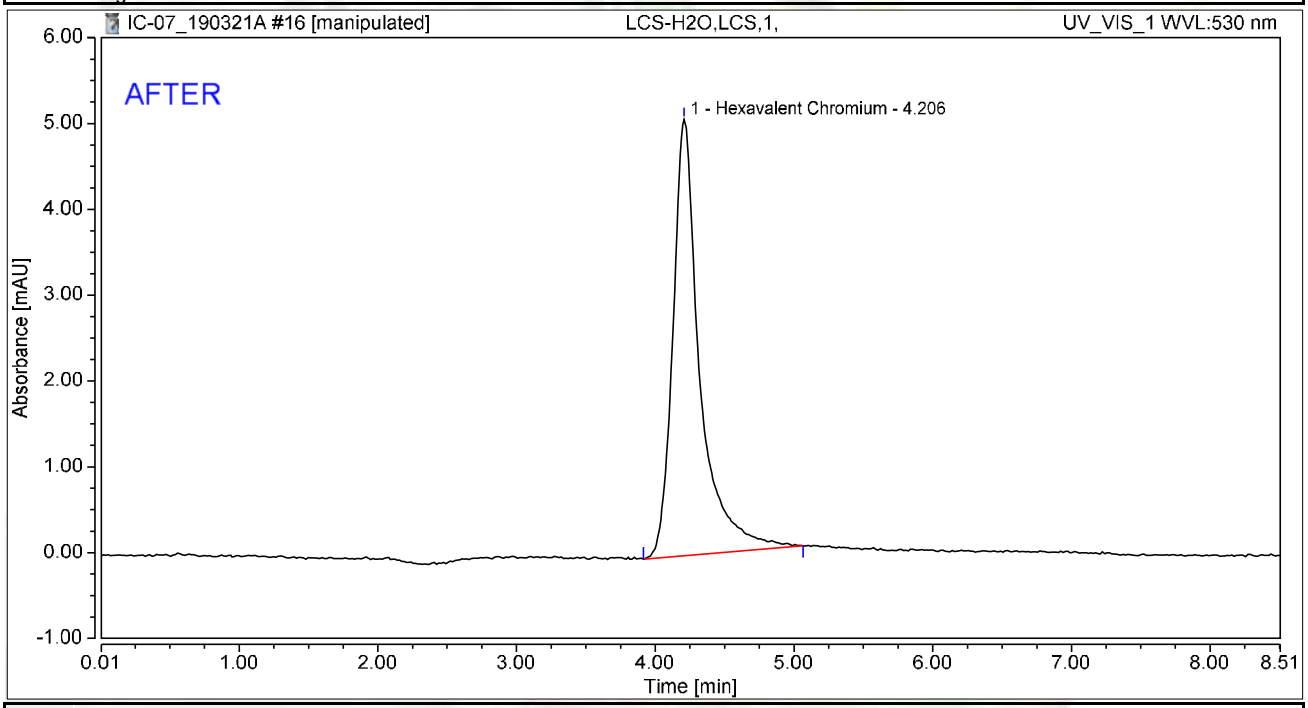
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **LCS-H2O,LCS,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 09:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.143 | 5.082 | 100.00 | 100.00 | 5.1969 |
| **Total:** | | | **1.143** | **5.082** | **100.00** | **100.00** | |

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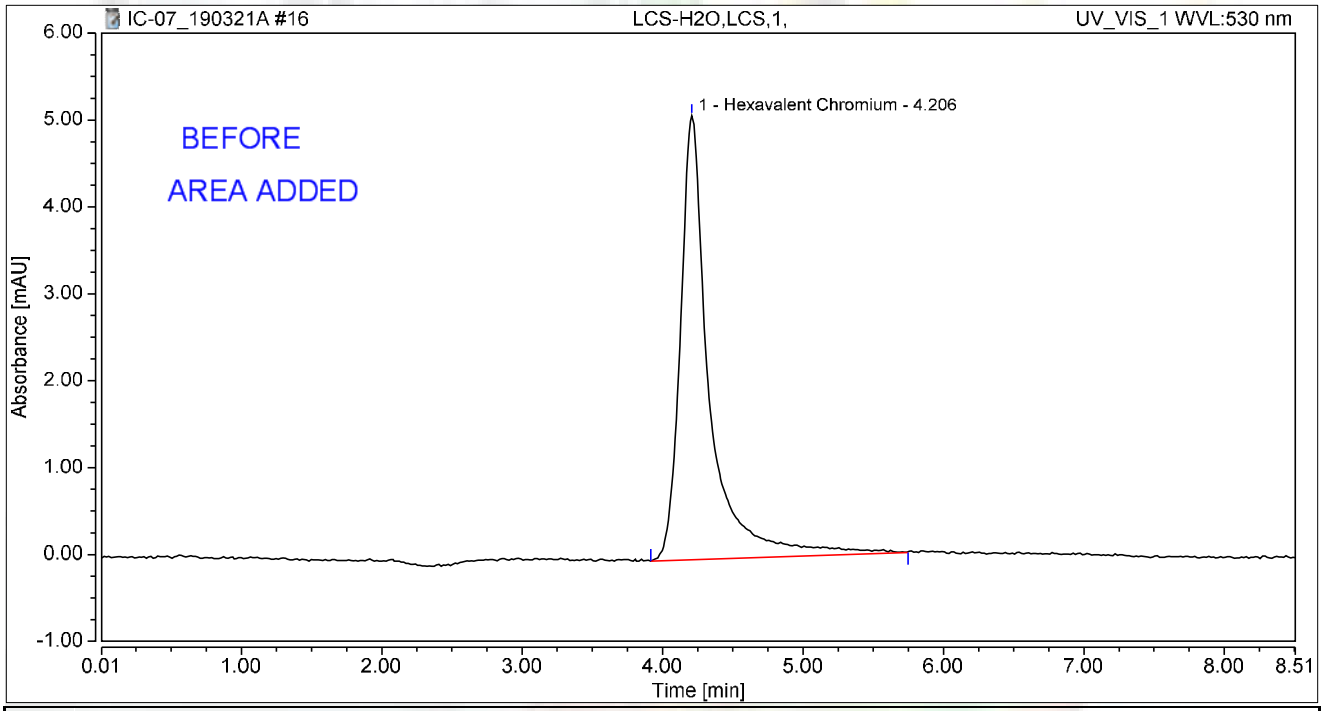
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **LCS-H2O,LCS,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **6** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 09:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.231 | 5.106 | 100.00 | 100.00 | 5.5953 |
| **Total:** | | | **1.231** | **5.106** | **100.00** | **100.00** | |

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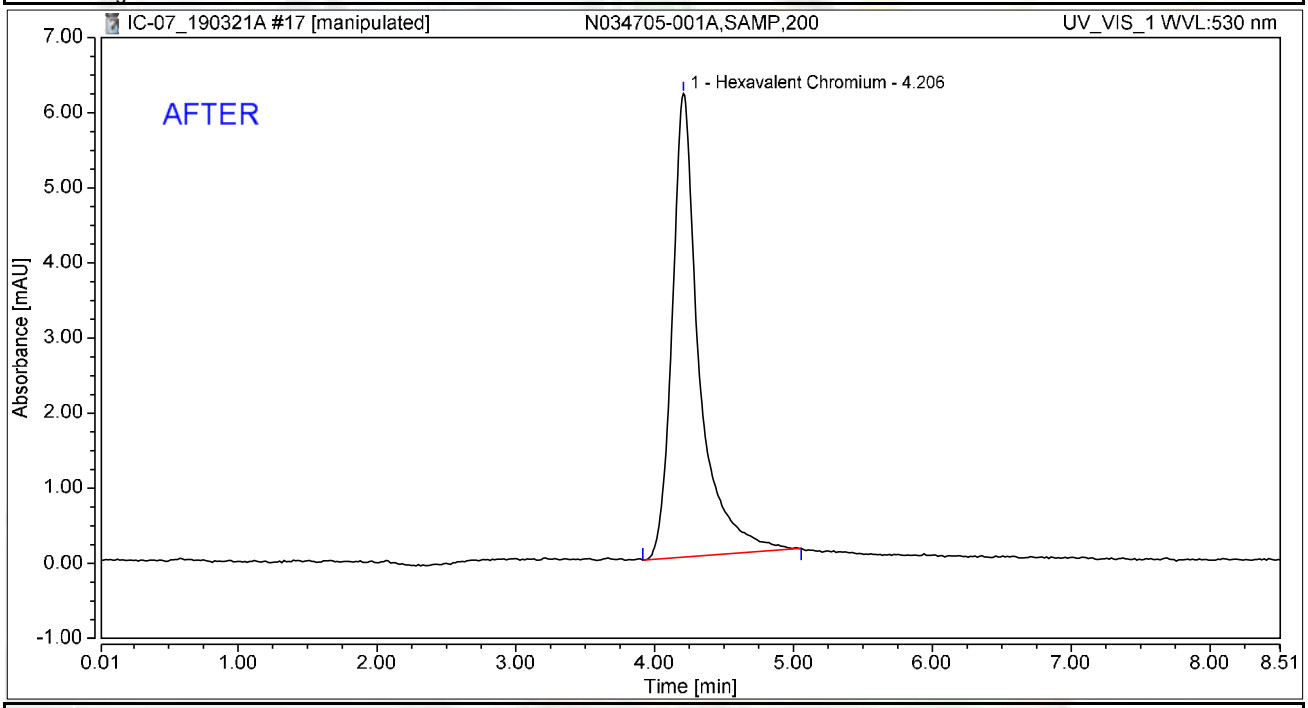
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034705-001A,SAMP,200** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 09:42** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.386 | 6.170 | 100.00 | 100.00 | 6.3029 |
| **Total:** | | | **1.386** | **6.170** | **100.00** | **100.00** | |

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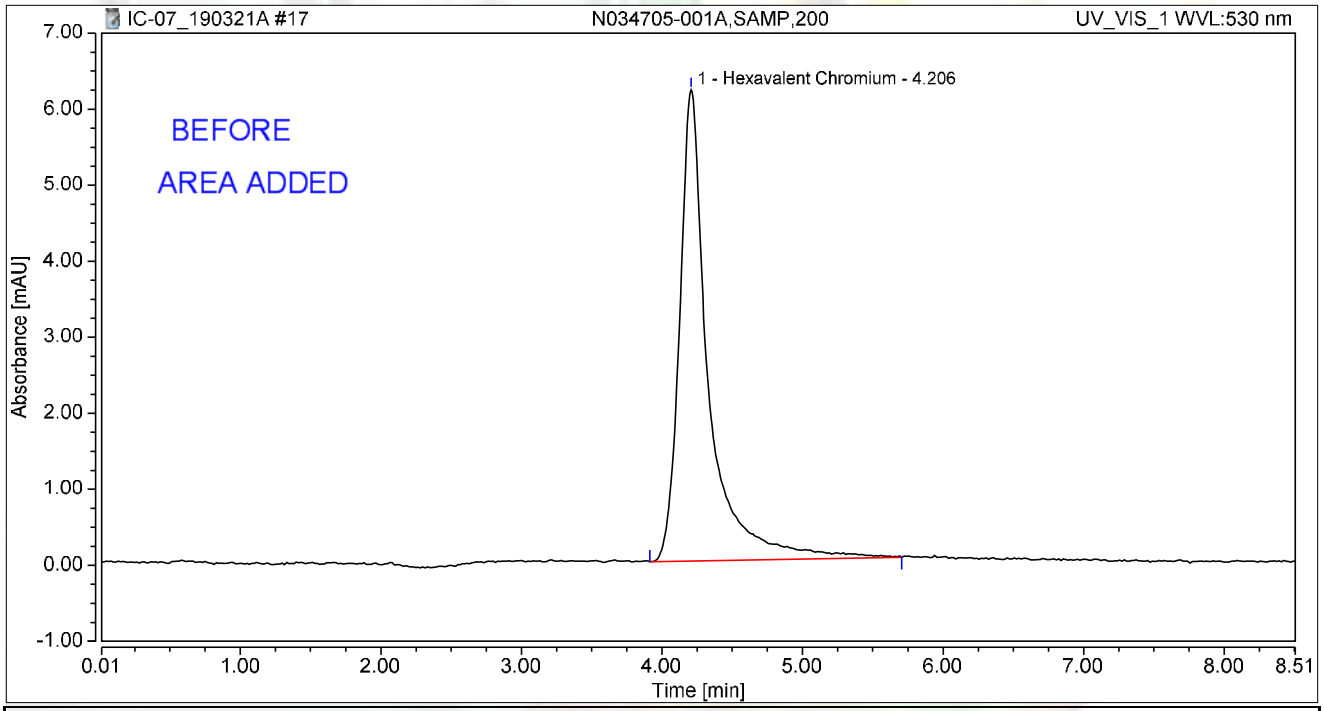
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034705-001A,SAMP,200** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **7** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 09:42** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.486 | 6.200 | 100.00 | 100.00 | 6.7537 |
| **Total:** | | | **1.486** | **6.200** | **100.00** | **100.00** | |

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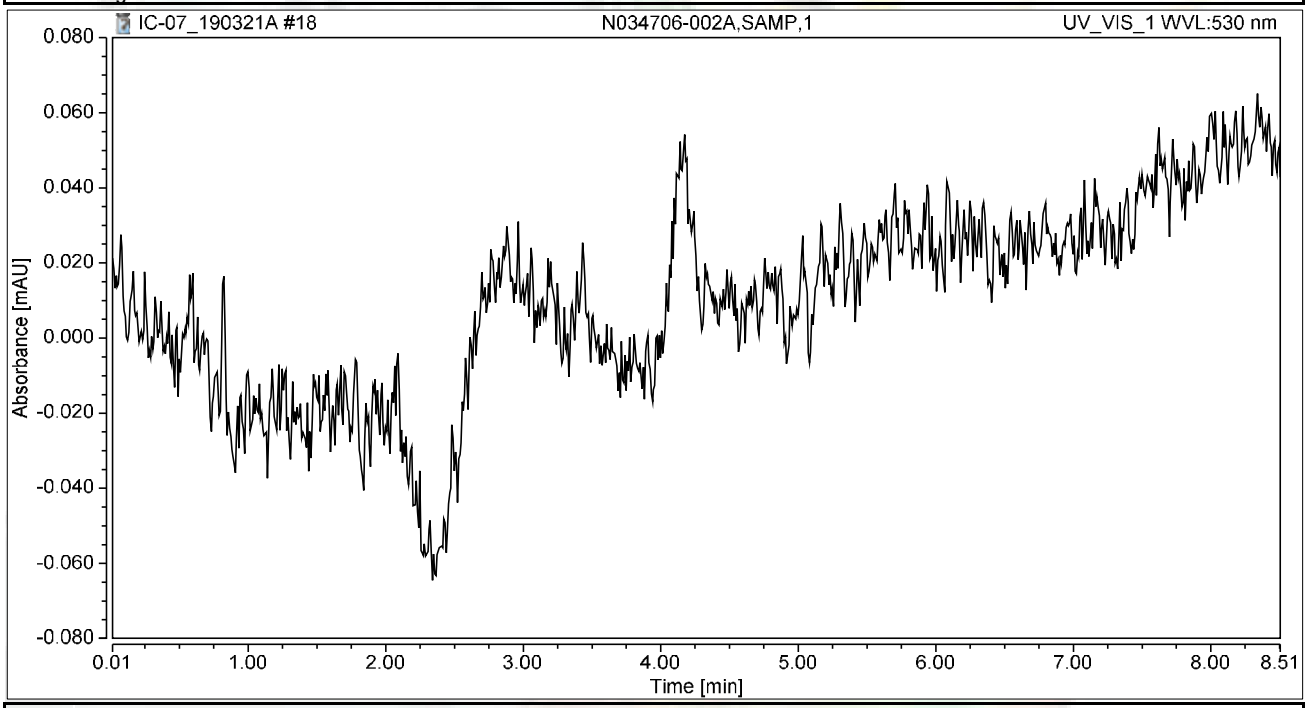
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034706-002A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **8** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 09:51** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

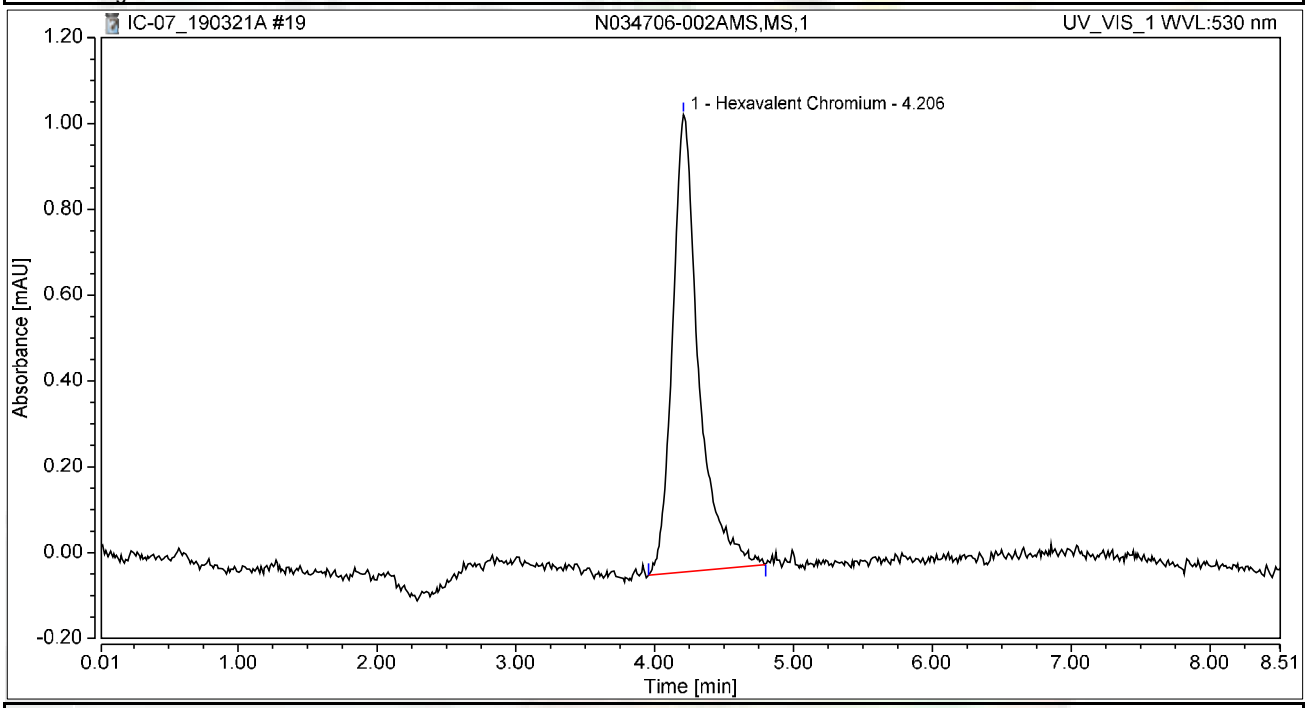
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034706-002AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **9** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 10:01** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

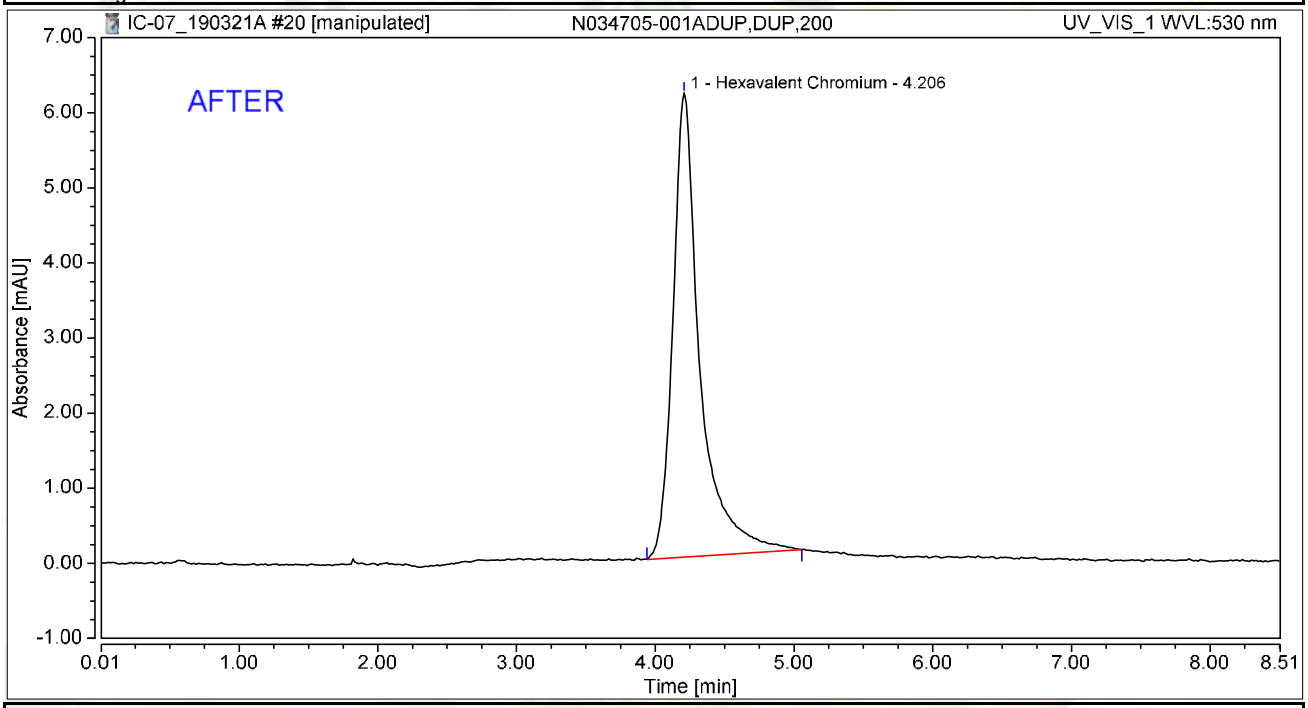
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.233 | 1.066 | 100.00 | 100.00 | 1.0586 |
| **Total:** | | | **0.233** | **1.066** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034705-001ADUP,DUP,200** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 10:10** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.396 | 6.169 | 100.00 | 100.00 | 6.3449 |
| **Total:** | | | **1.396** | **6.169** | **100.00** | **100.00** | |

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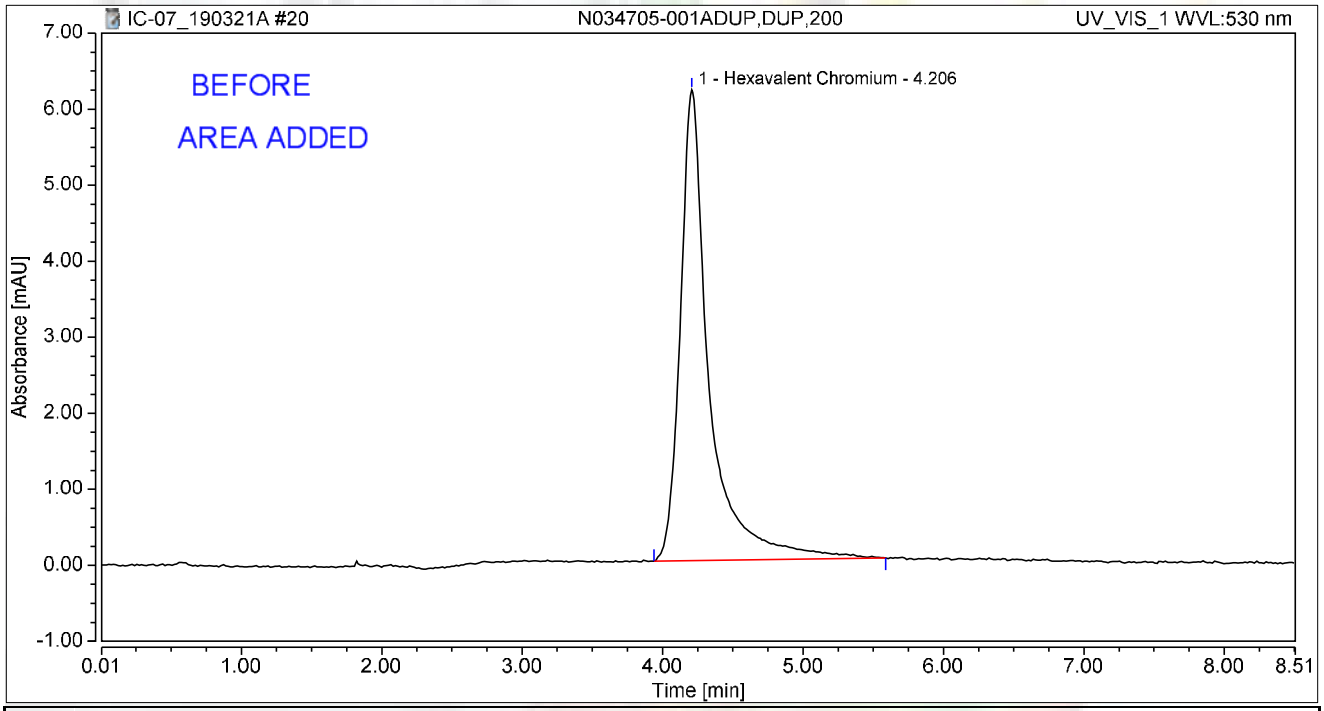
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034705-001ADUP,DUP,200** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **10** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 10:10** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.480 | 6.194 | 100.00 | 100.00 | 6.7264 |
| **Total:** | | | **1.480** | **6.194** | **100.00** | **100.00** | |

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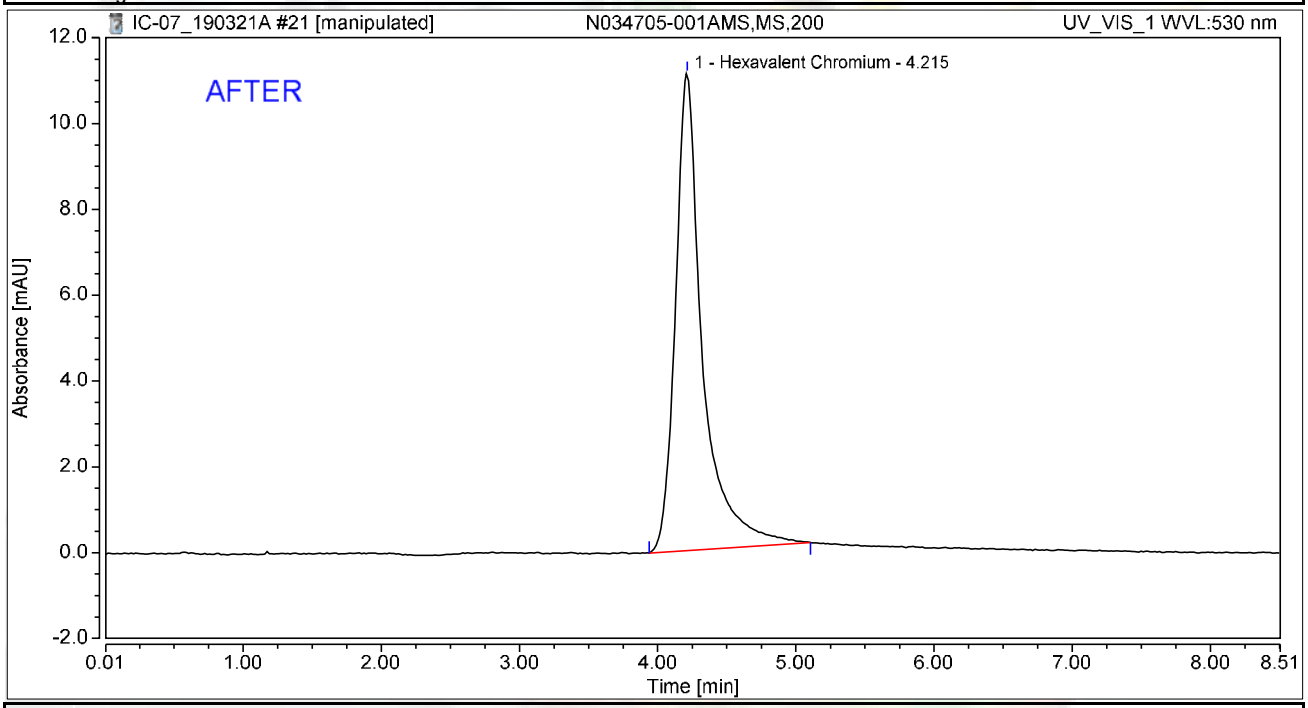
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034705-001AMS,MS,200** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 10:20** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 2.528 | 11.115 | 100.00 | 100.00 | 11.4936 |
| **Total:** | | | **2.528** | **11.115** | **100.00** | **100.00** | |

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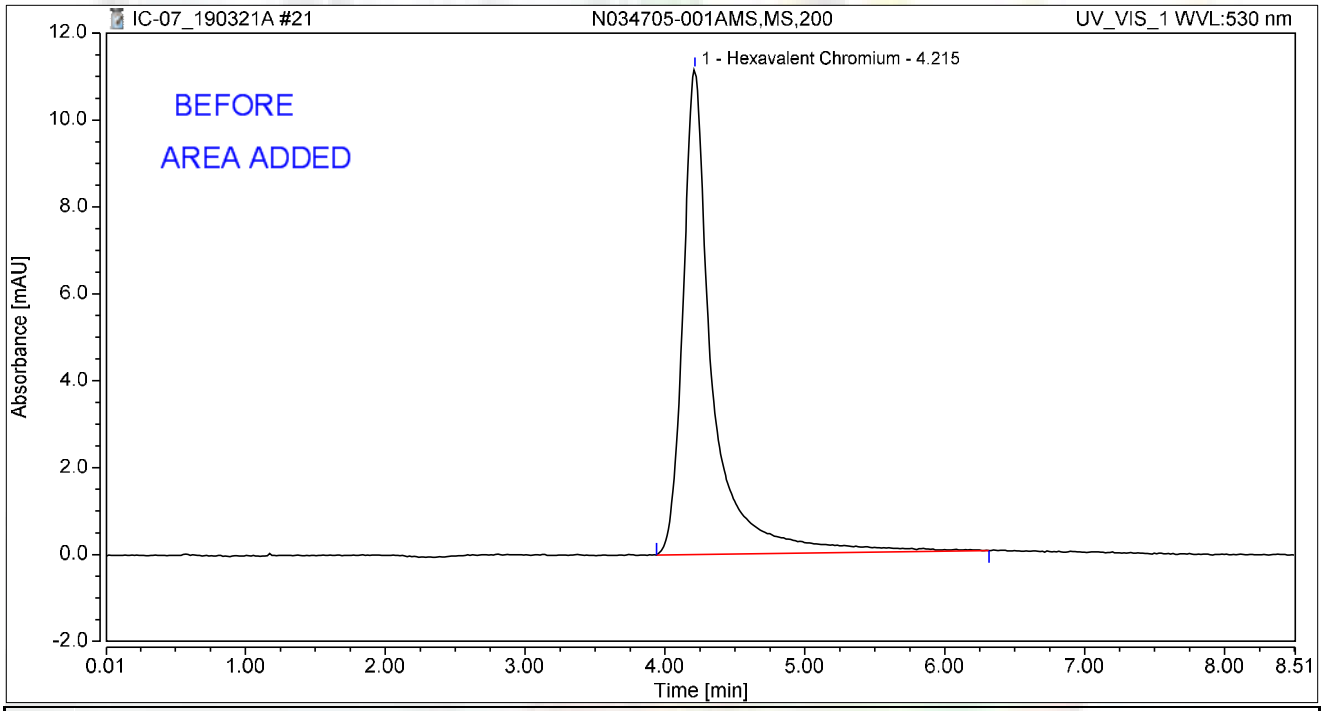
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034705-001AMS,MS,200** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **11** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 10:20** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 2.745 | 11.161 | 100.00 | 100.00 | 12.4774 |
| **Total:** | | | **2.745** | **11.161** | **100.00** | **100.00** | |

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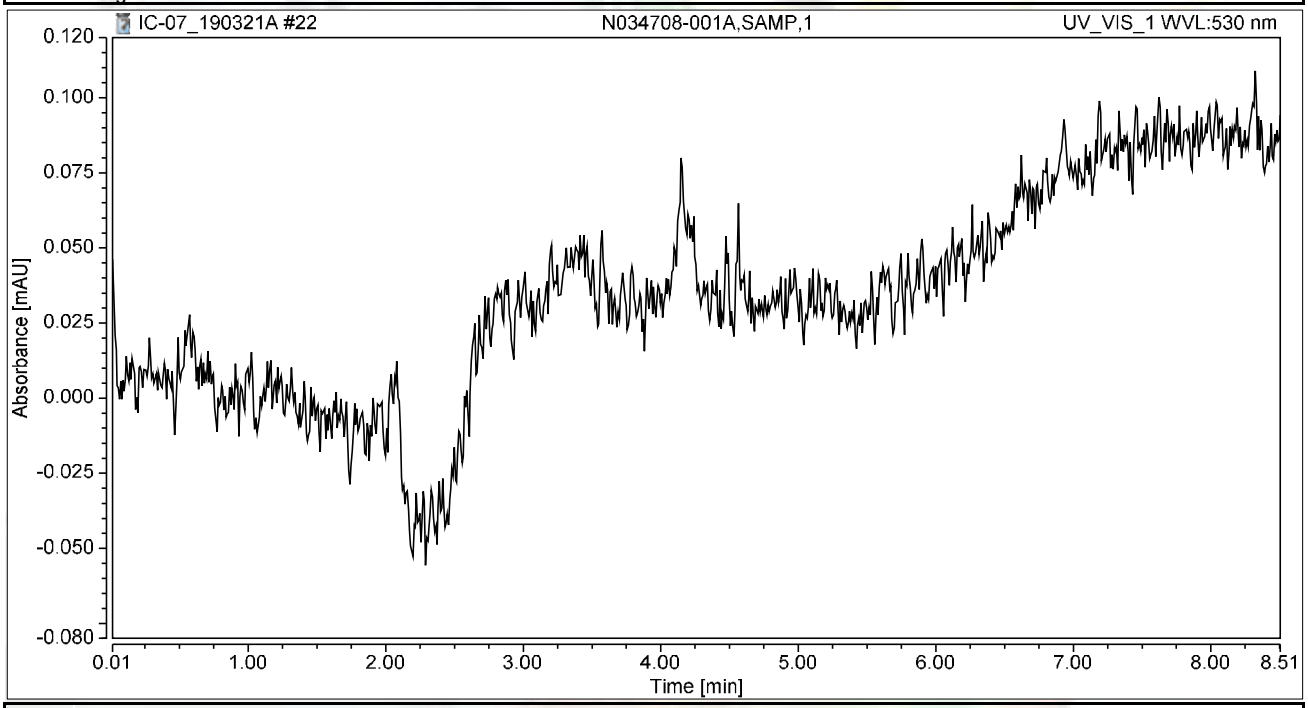
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-001A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **13** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 10:30** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

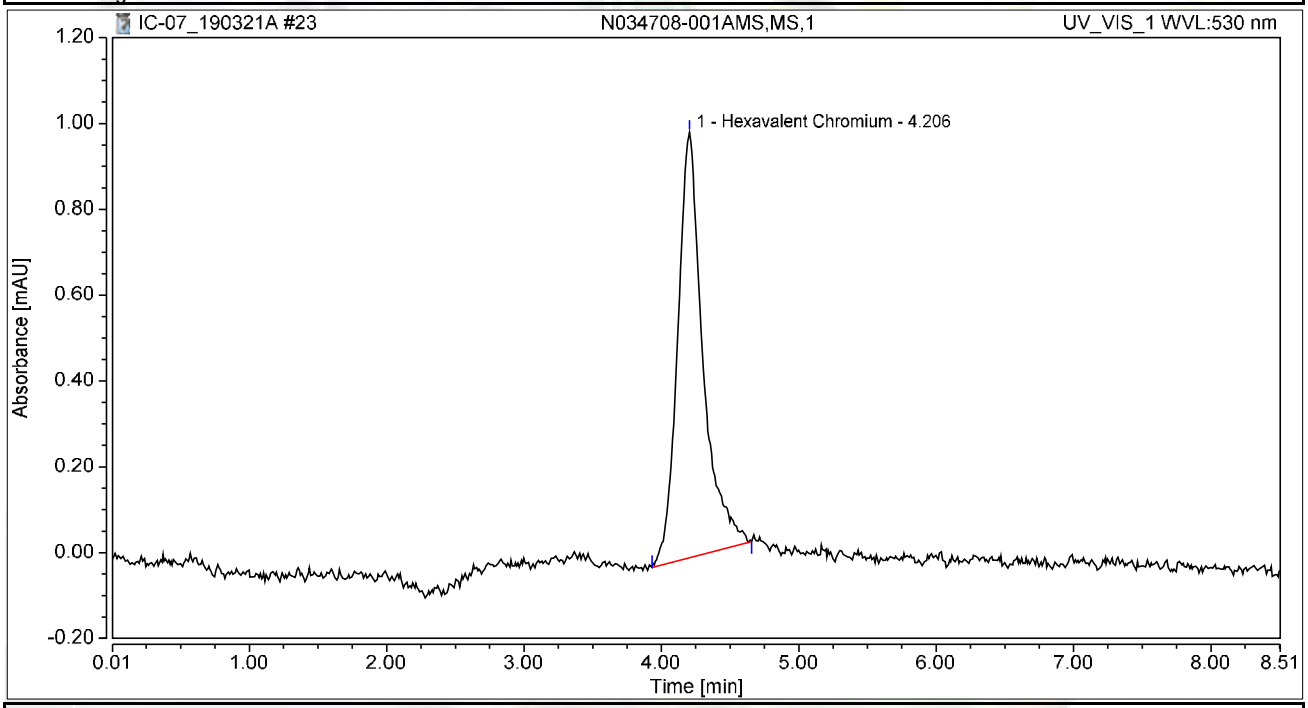
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-001AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **14** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 10:41** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

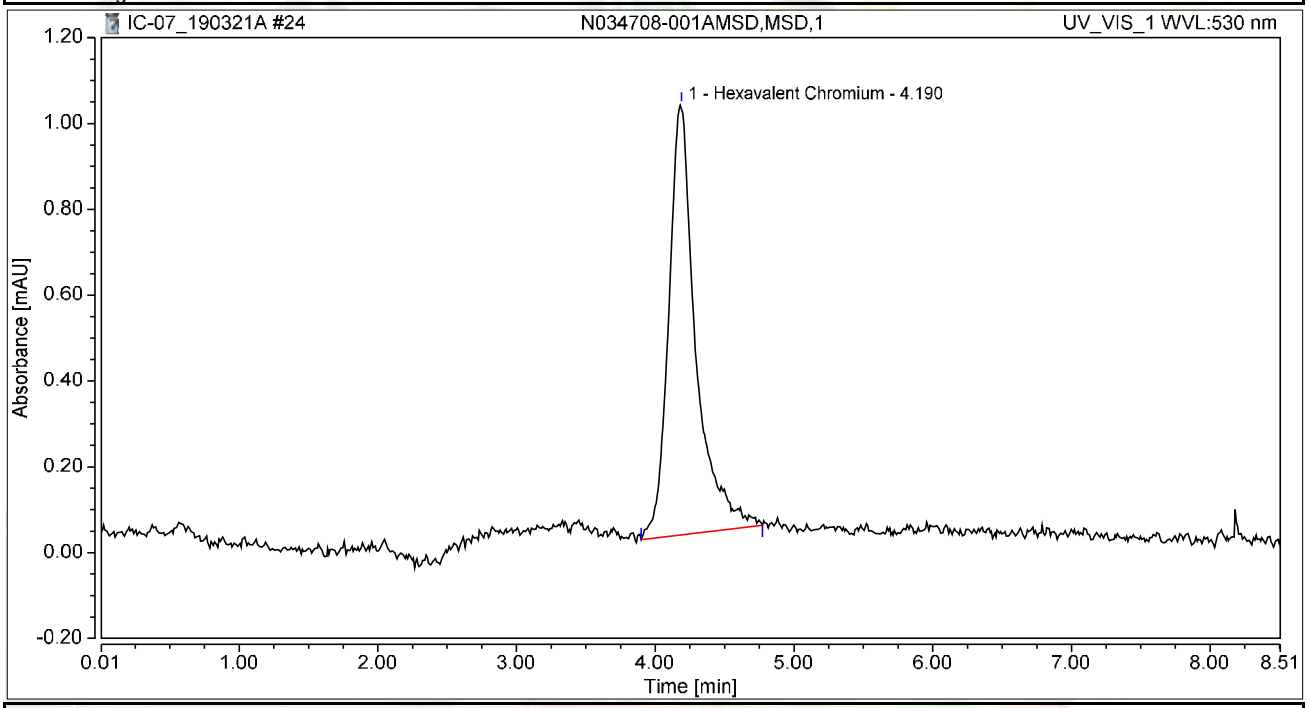
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.211 | 0.991 | 100.00 | 100.00 | 0.9611 |
| **Total:** | | | **0.211** | **0.991** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-001AMSD,MSD,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **15** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 10:51** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

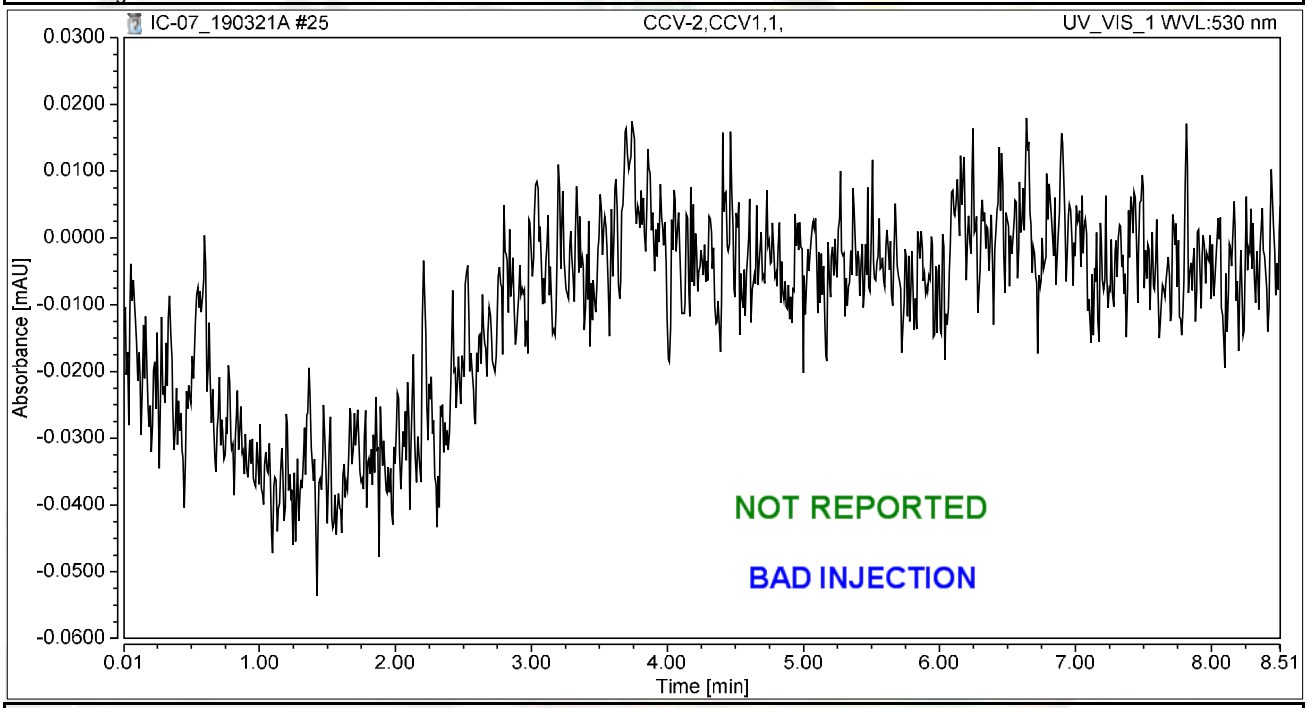
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.190 | 0.227 | 1.003 | 100.00 | 100.00 | 1.0304 |
| **Total:** | | | **0.227** | **1.003** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-2,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 11:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

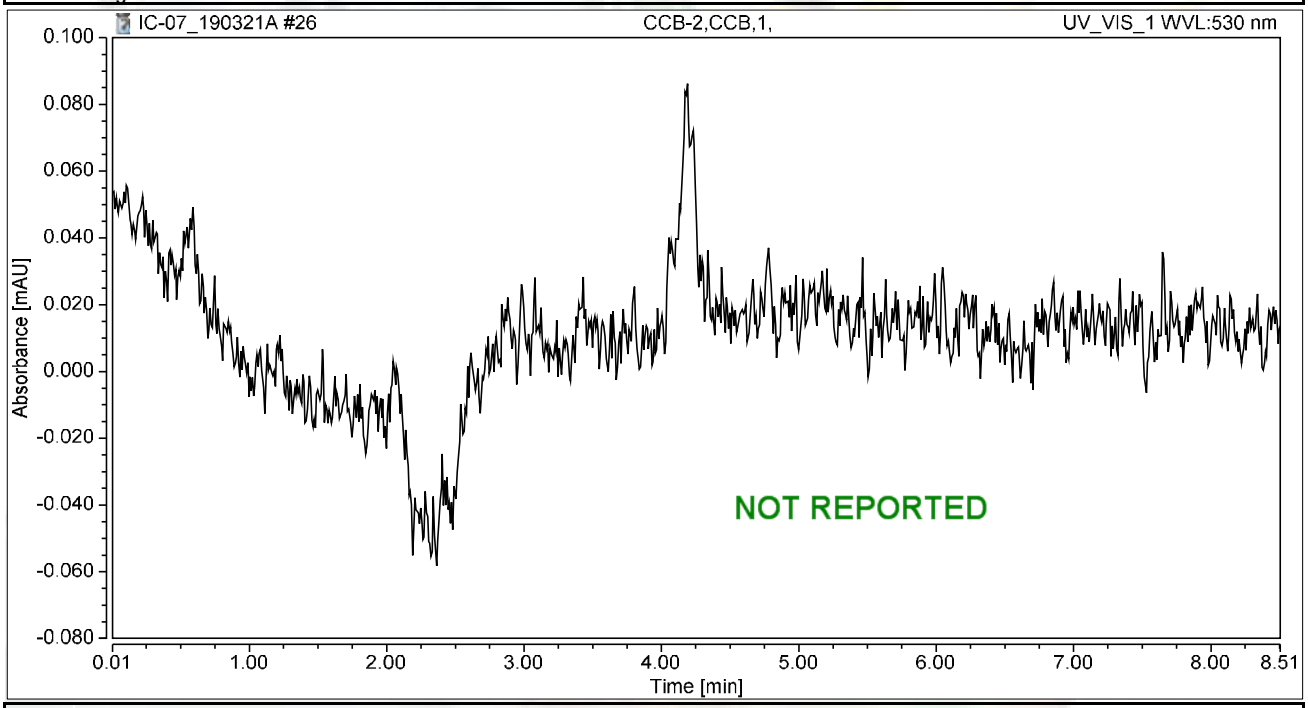
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-2,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 11:10** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

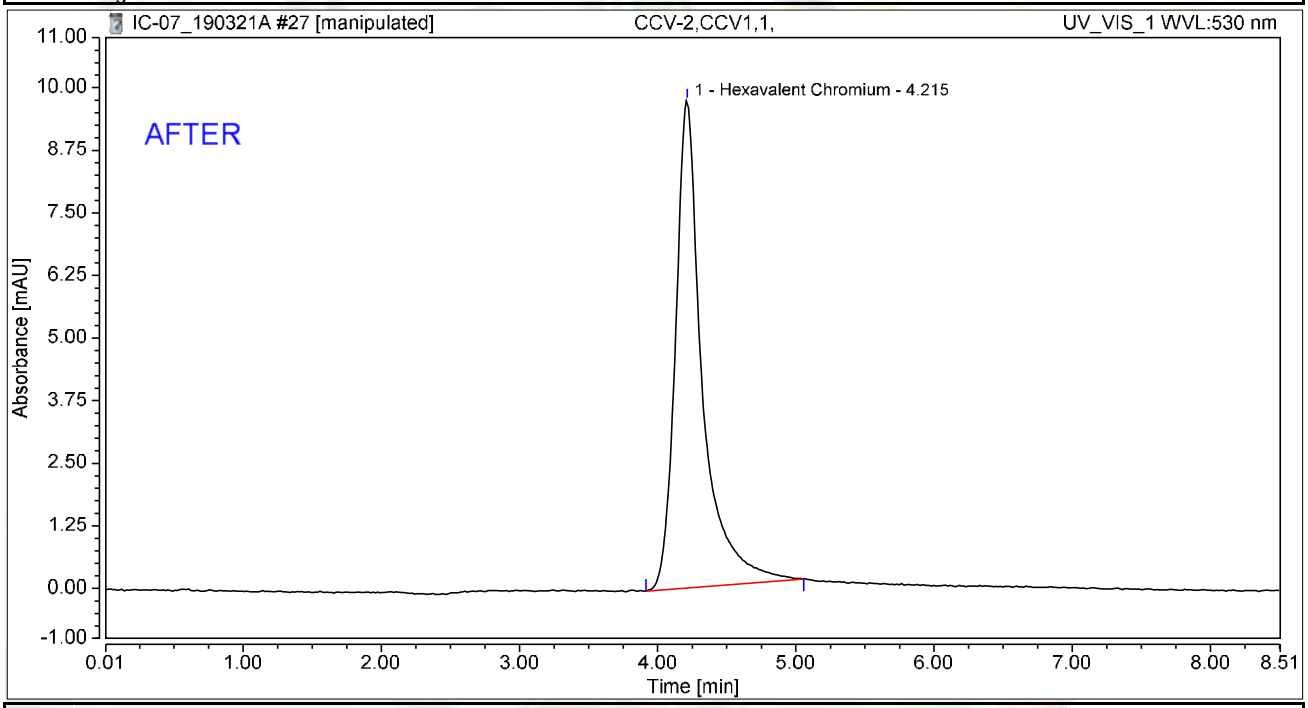
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-2,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 11:27** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 2.194 | 9.726 | 100.00 | 100.00 | 9.9734 |
| **Total:** | | | **2.194** | **9.726** | **100.00** | **100.00** | |

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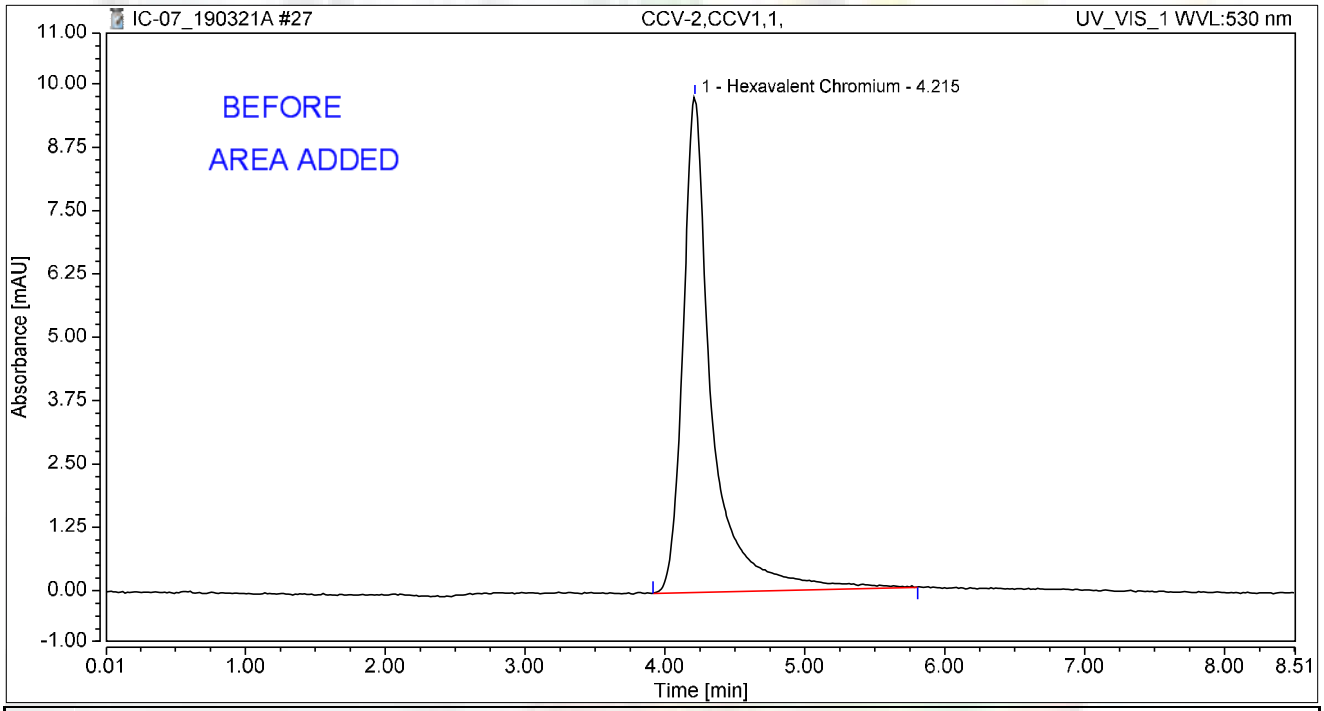
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-2,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **16** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 11:27** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 2.341 | 9.769 | 100.00 | 100.00 | 10.6412 |
| **Total:** | | | **2.341** | **9.769** | **100.00** | **100.00** | |

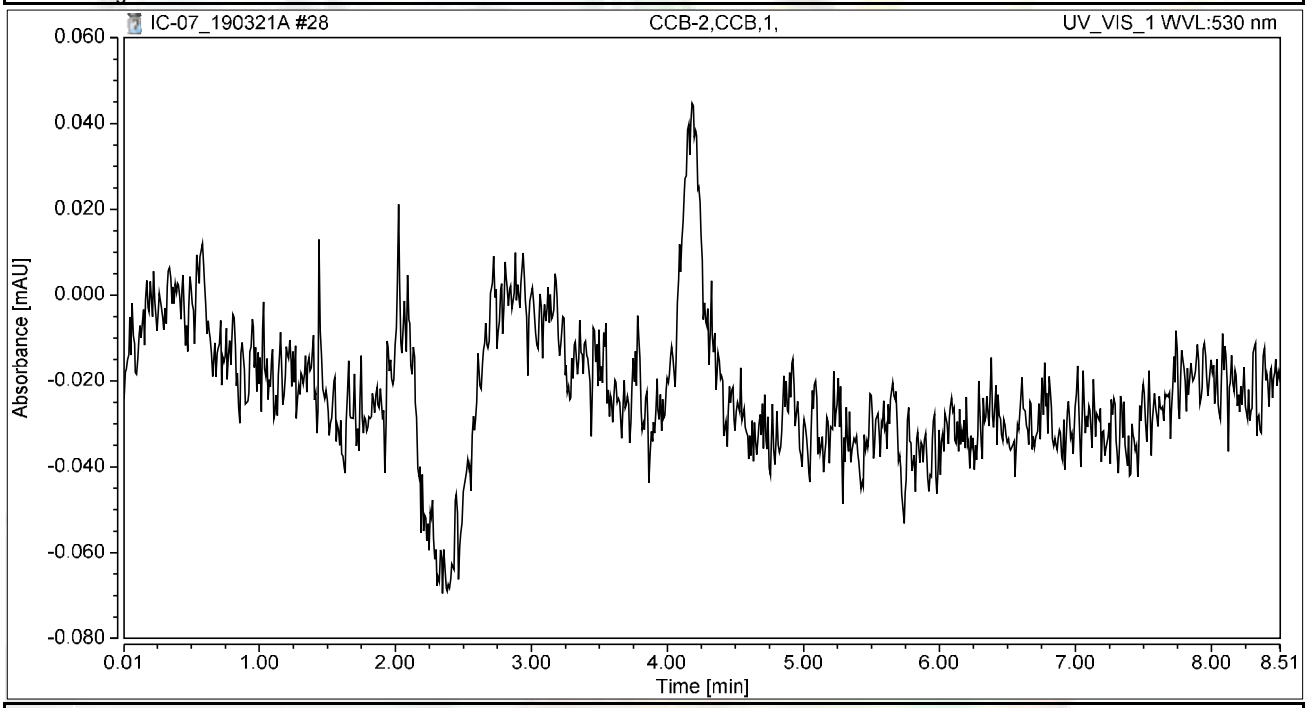
rba 3/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-2,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **17** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 11:38** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

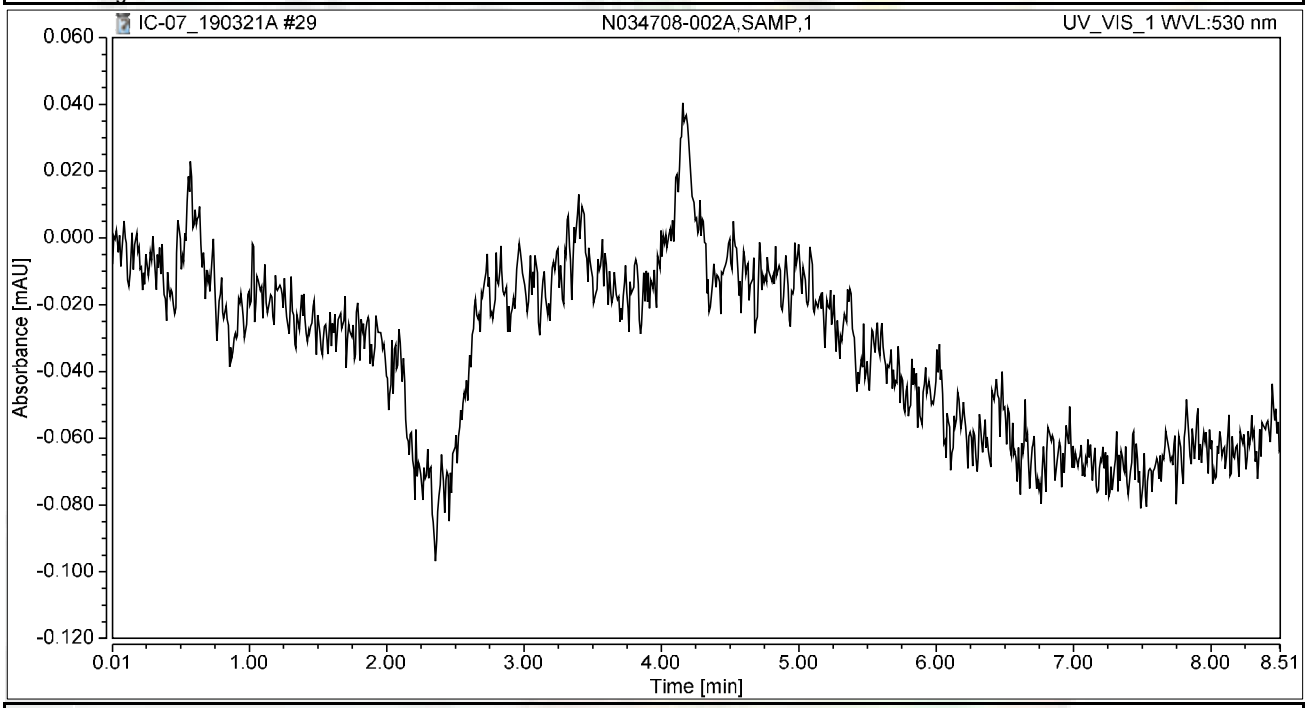
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-002A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **18** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 11:48** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

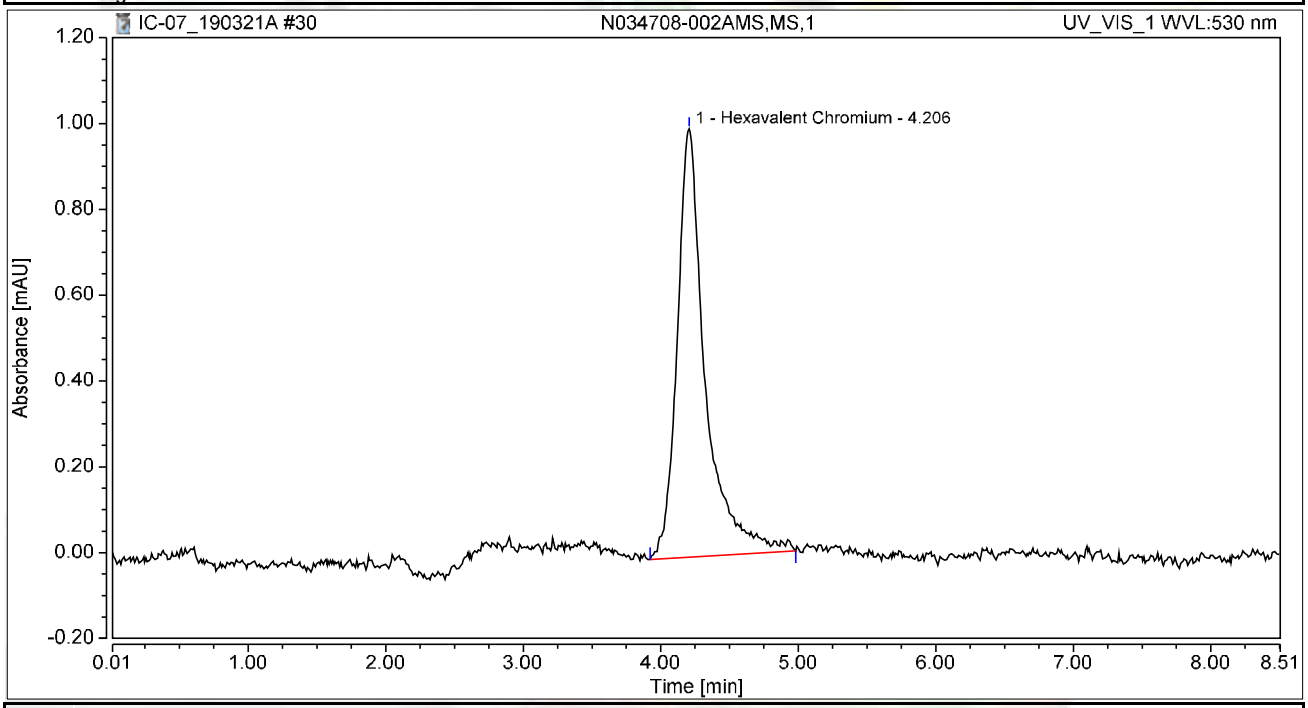
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-002AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **19** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 11:57** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

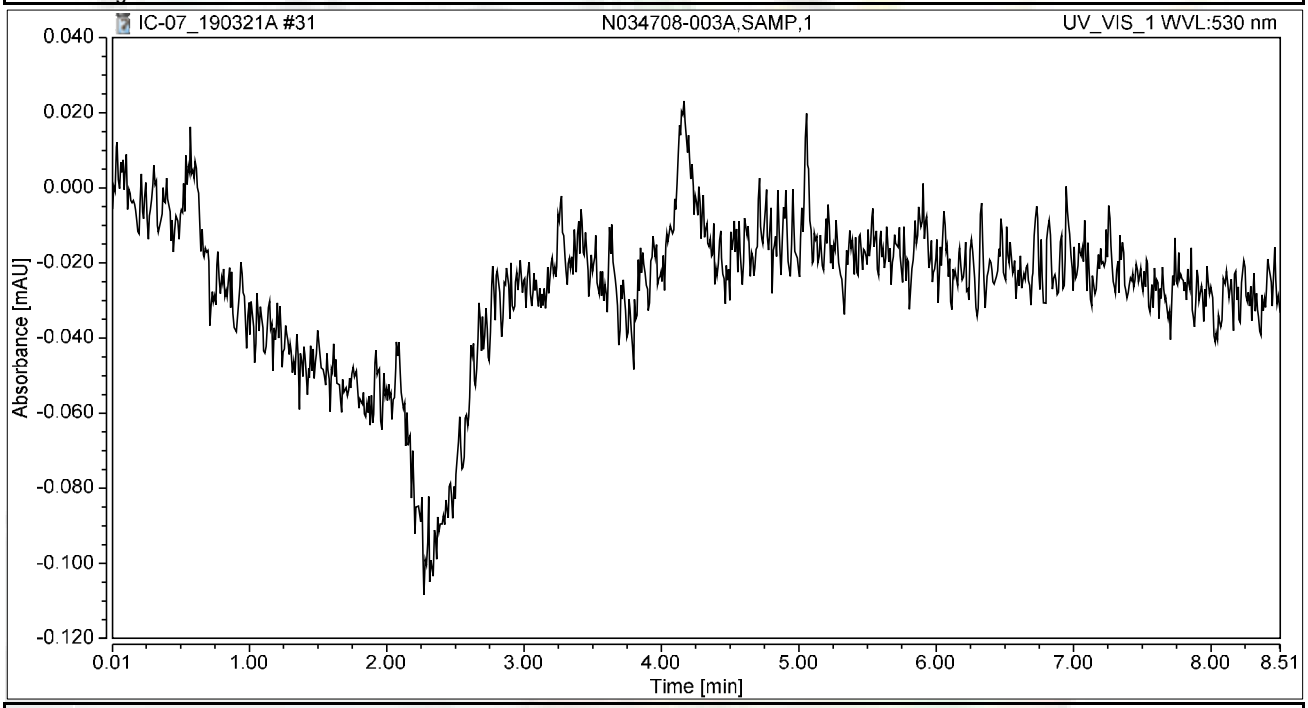
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.236 | 0.997 | 100.00 | 100.00 | 1.0744 |
| **Total:** | | | **0.236** | **0.997** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-003A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **20** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 12:07** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

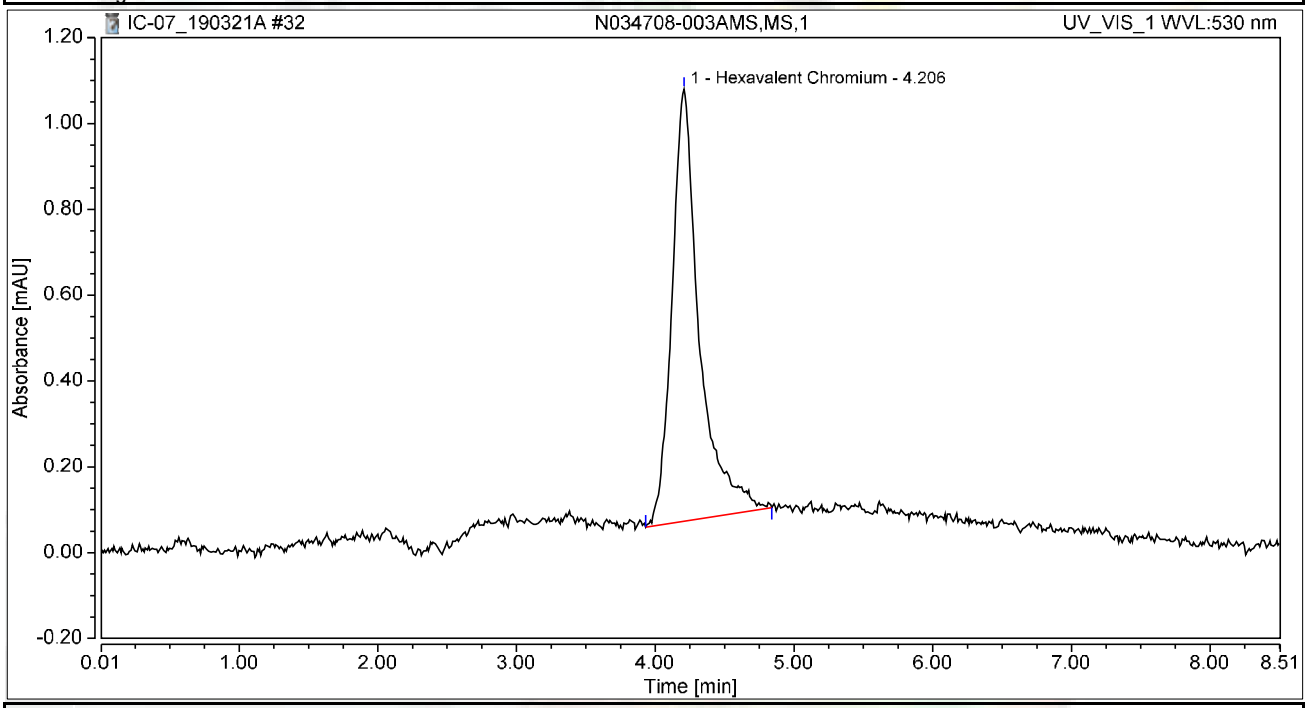
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-003AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 12:16** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

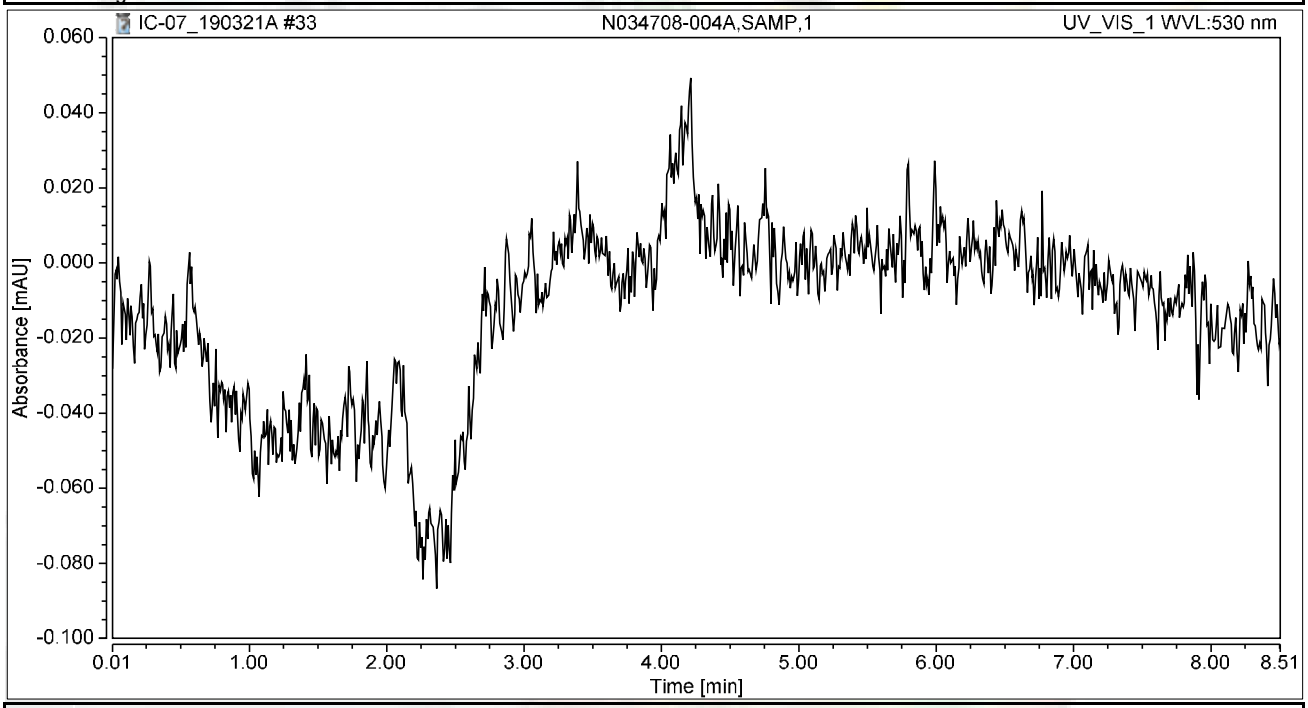
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.230 | 1.007 | 100.00 | 100.00 | 1.0456 |
| **Total:** | | | **0.230** | **1.007** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-004A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 12:26** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

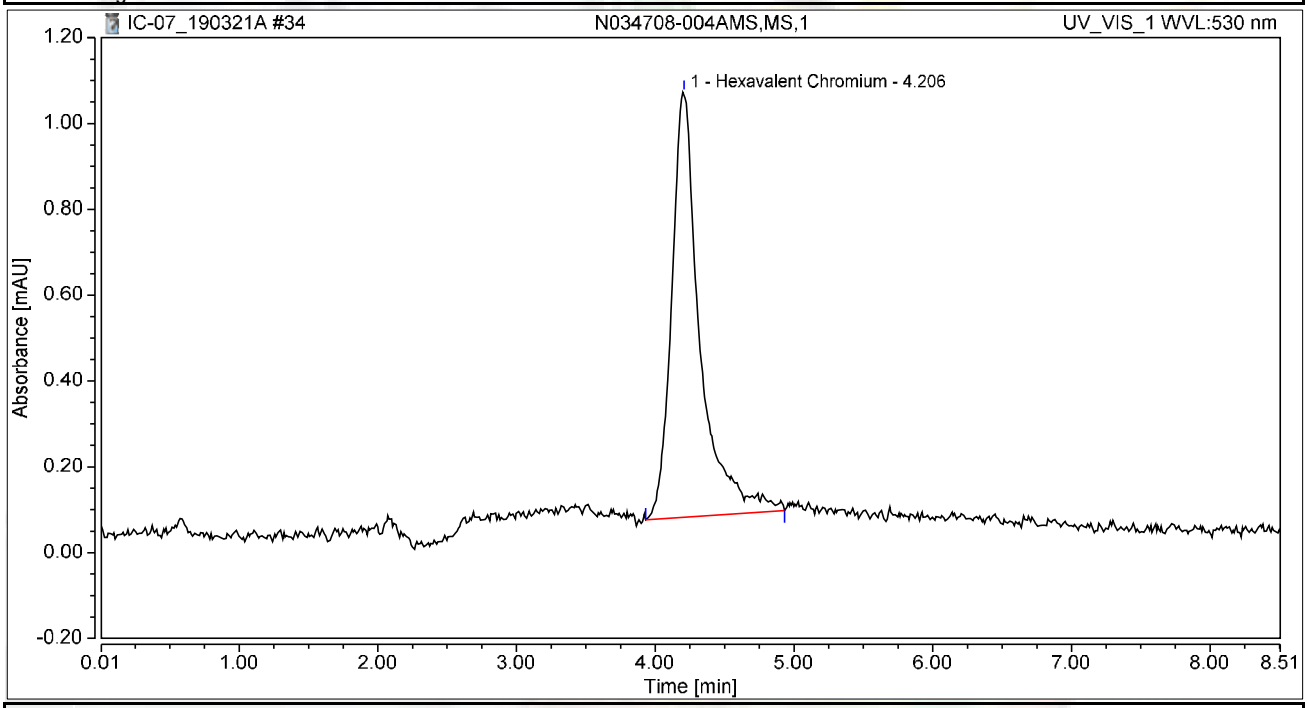
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-004AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **23** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 12:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

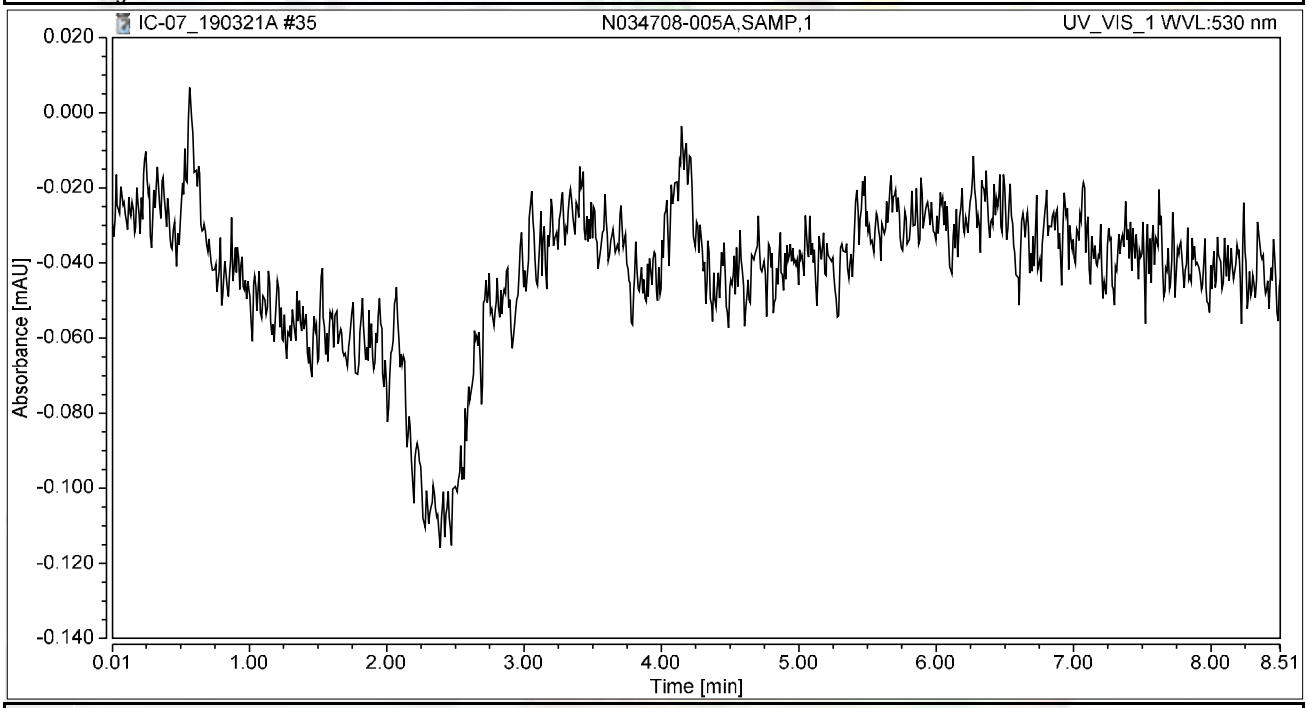
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.234 | 0.990 | 100.00 | 100.00 | 1.0648 |
| **Total:** | | | **0.234** | **0.990** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-005A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **24** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 12:45** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

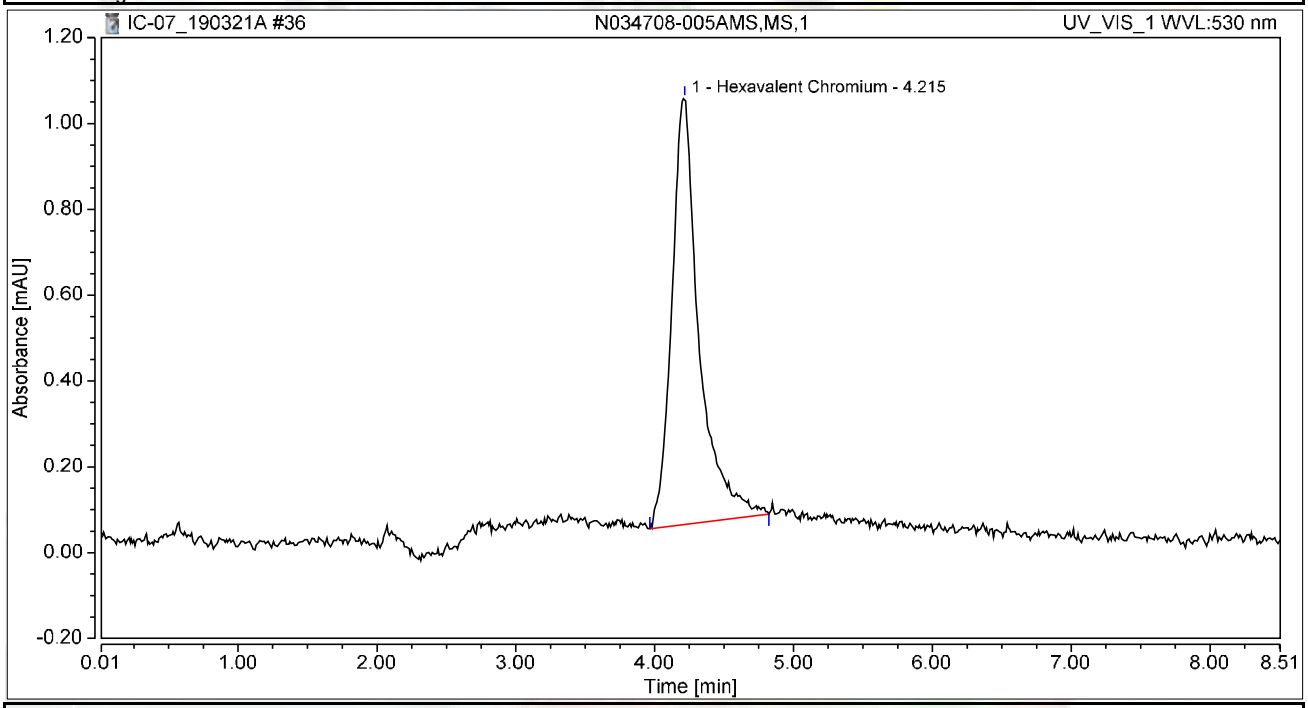
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-005AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **25** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 12:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

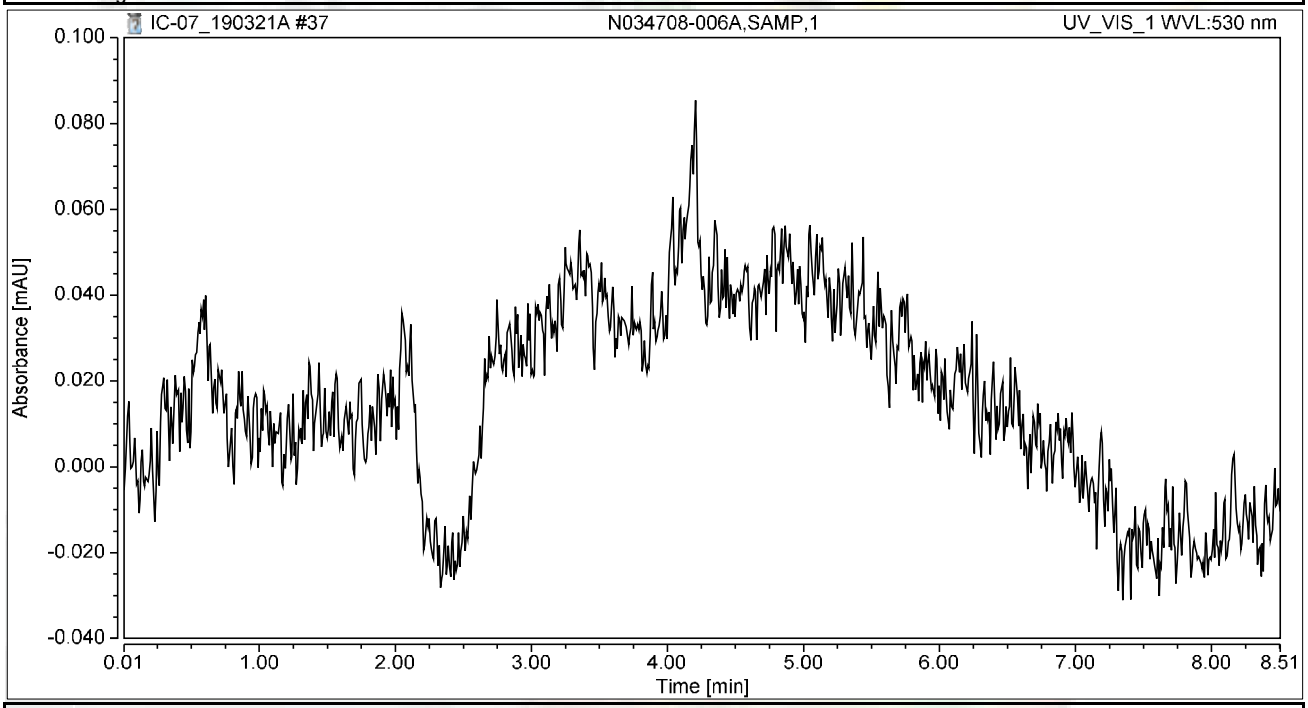
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 0.227 | 0.994 | 100.00 | 100.00 | 1.0303 |
| **Total:** | | | **0.227** | **0.994** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-006A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **26** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 13:03** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

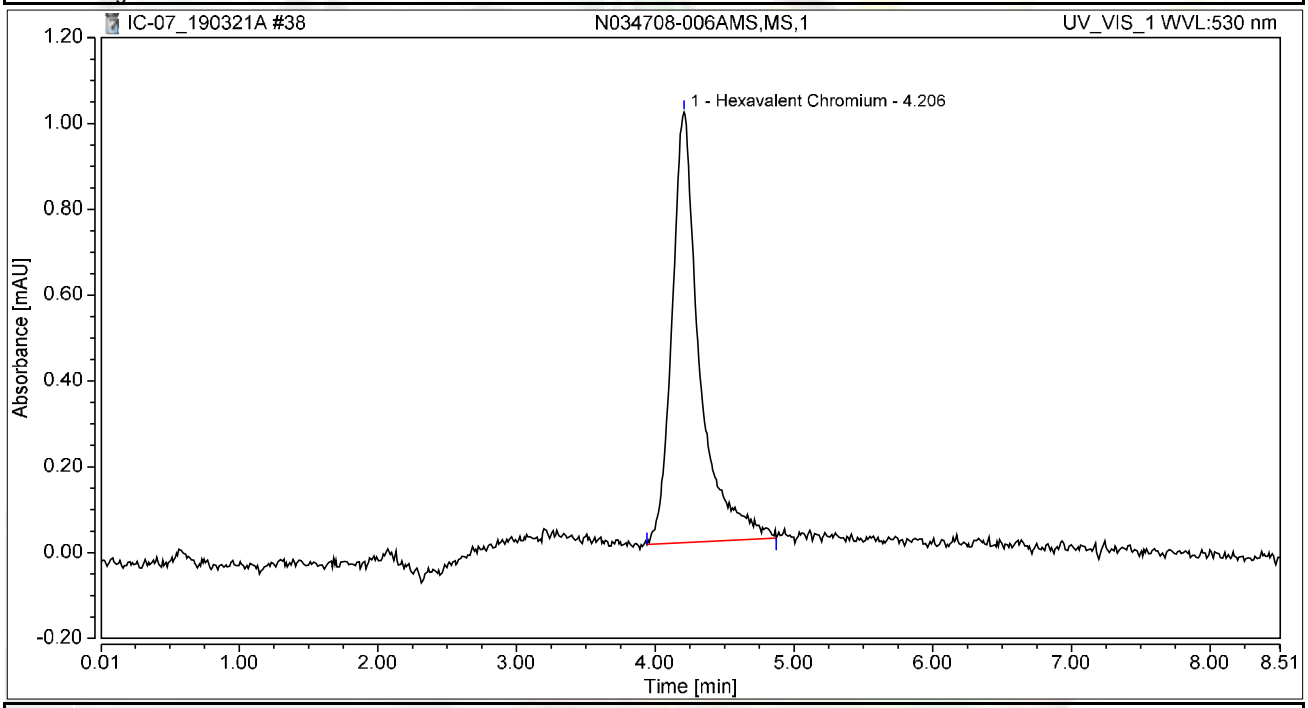
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-006AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **27** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 13:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

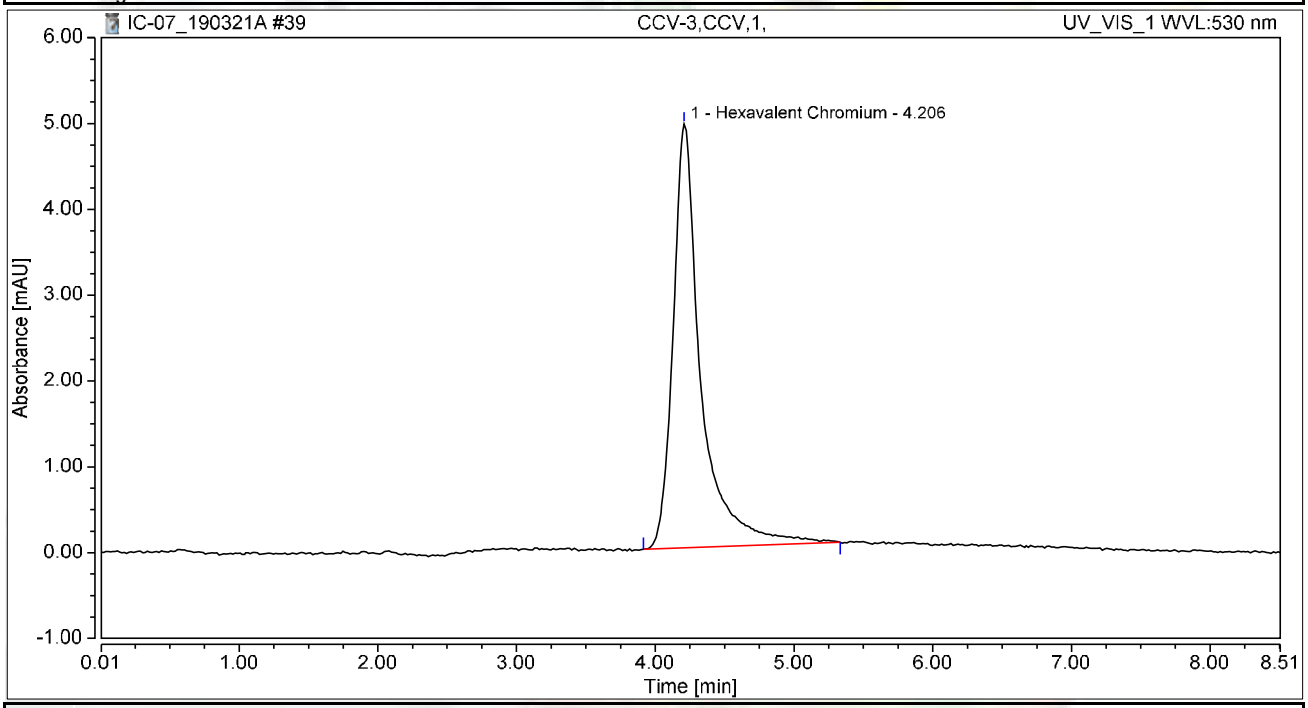
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.231 | 1.003 | 100.00 | 100.00 | 1.0522 |
| **Total:** | | | **0.231** | **1.003** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-3,CCV,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **28** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 13:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

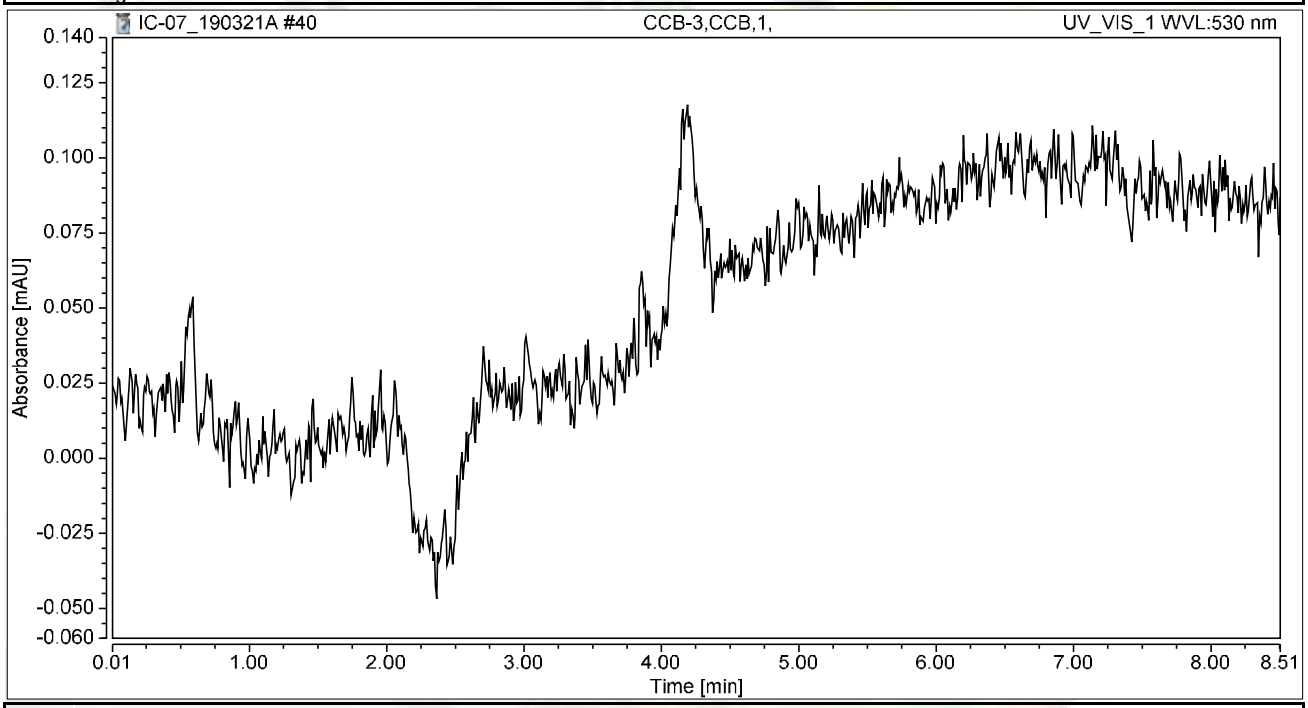
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 1.149 | 4.938 | 100.00 | 100.00 | 5.2225 |
| **Total:** | | | **1.149** | **4.938** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-3,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **29** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 13:32** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

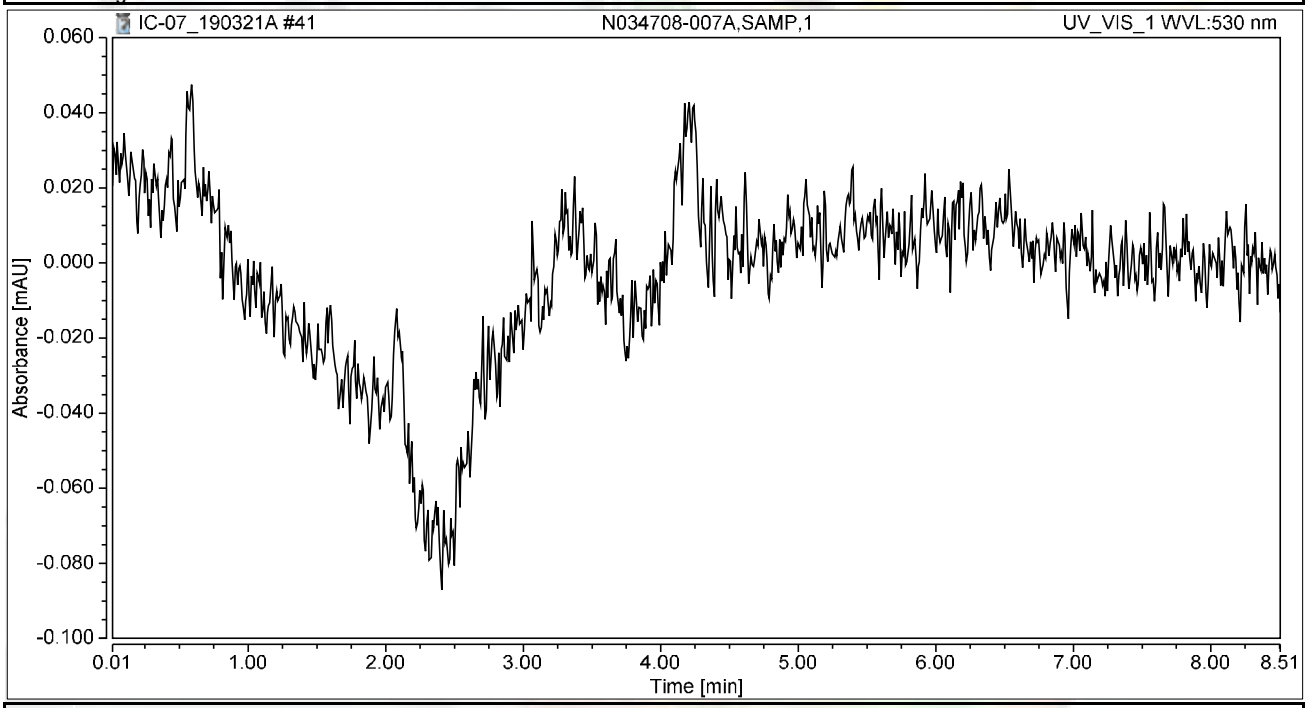
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-007A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **30** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 13:41** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

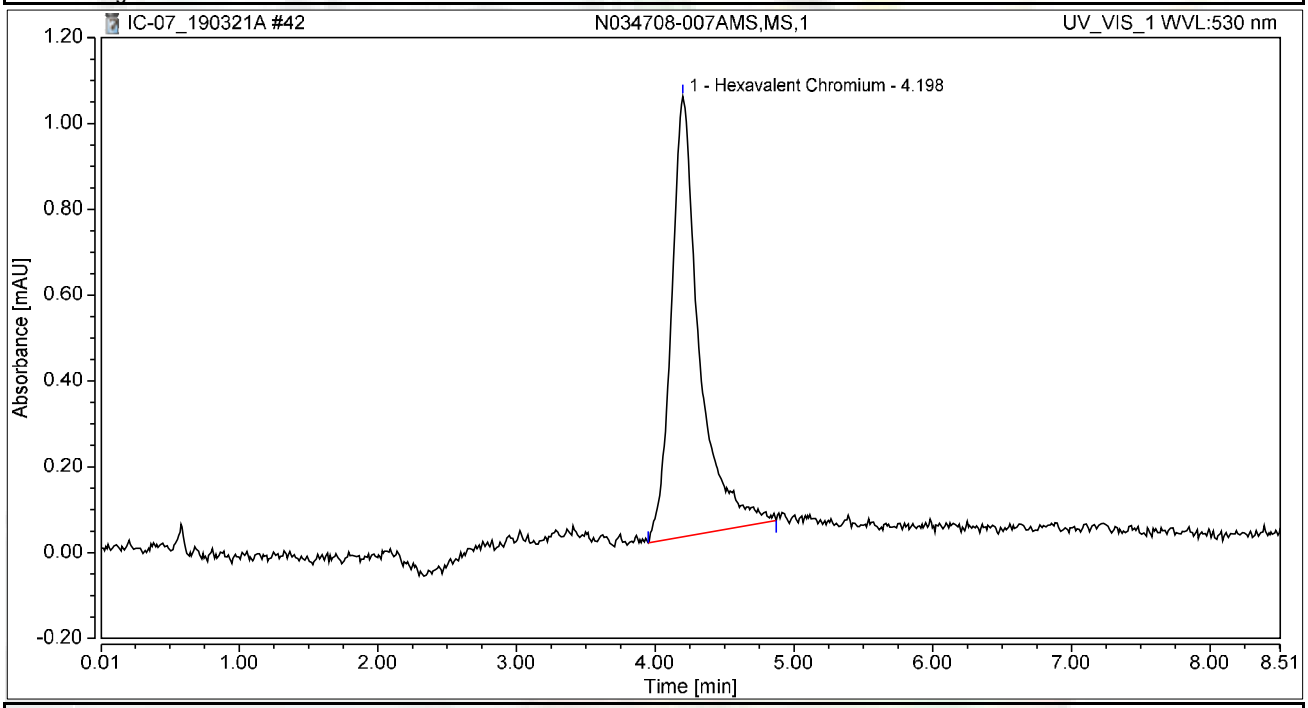
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-007AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **31** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 13:51** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

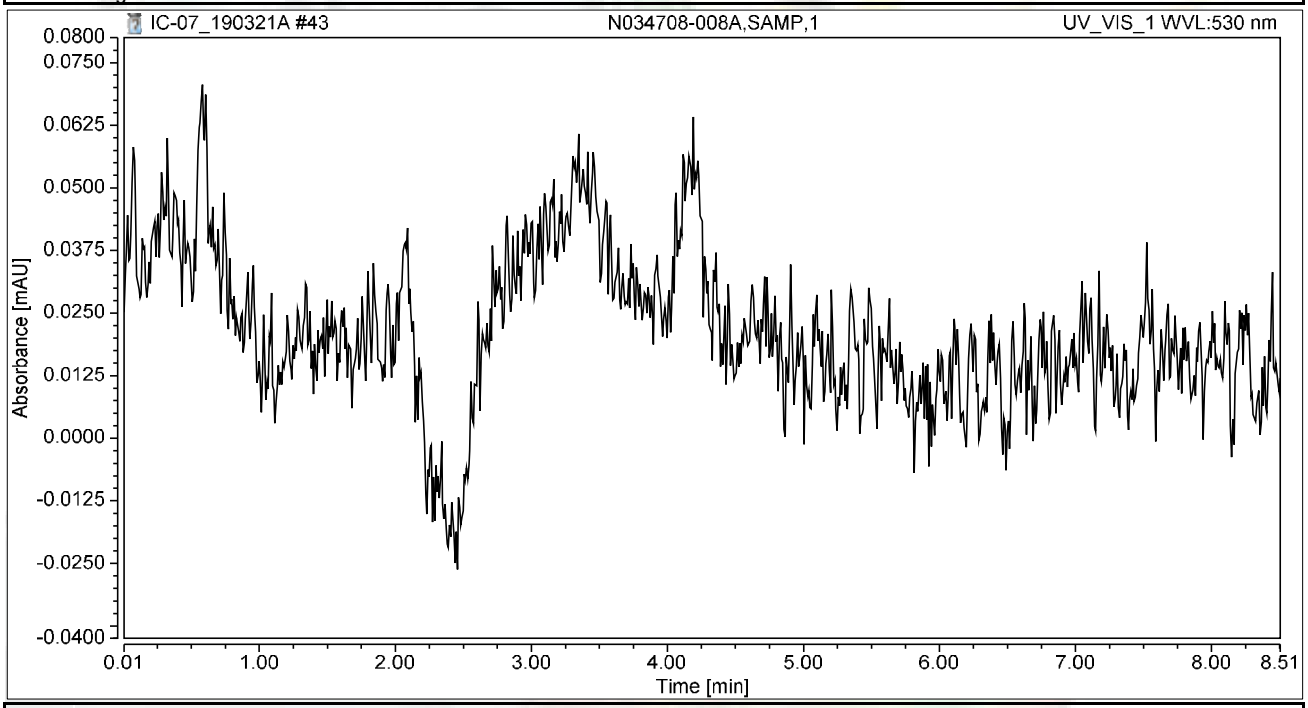
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.239 | 1.026 | 100.00 | 100.00 | 1.0881 |
| **Total:** | | | **0.239** | **1.026** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-008A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **32** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 14:00** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

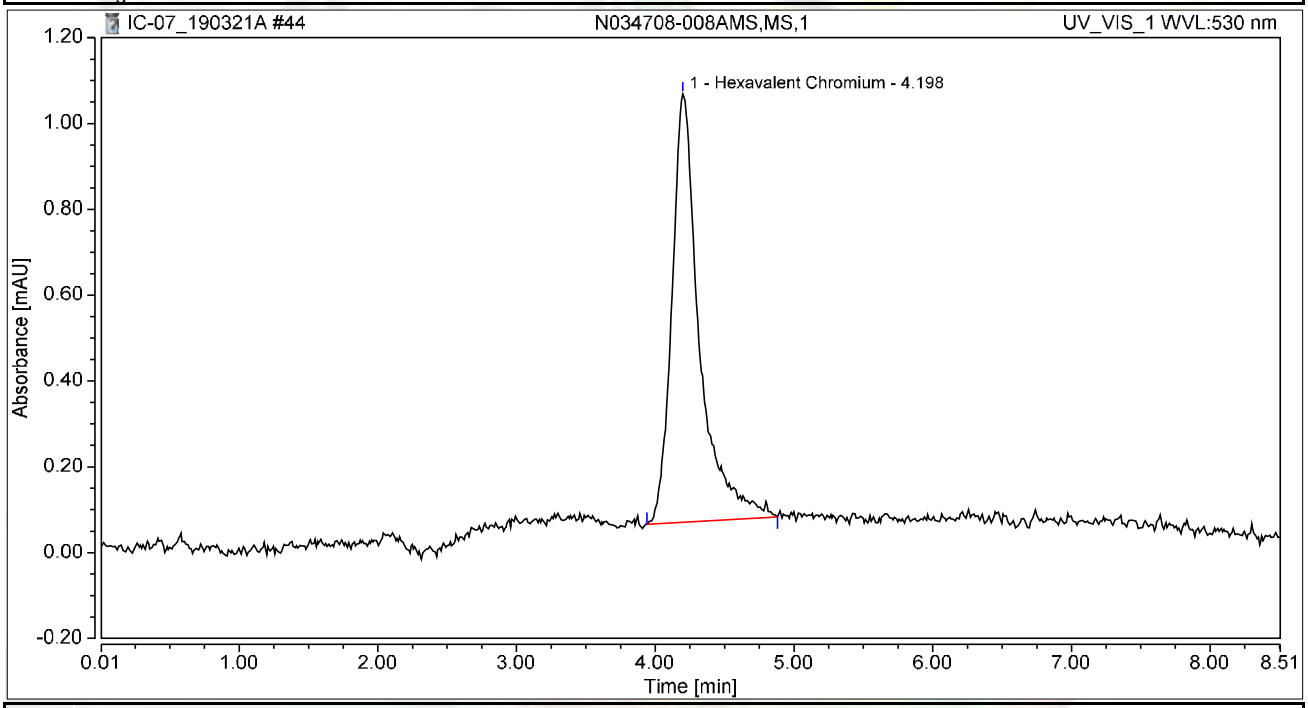
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-008AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **33** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 14:10** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

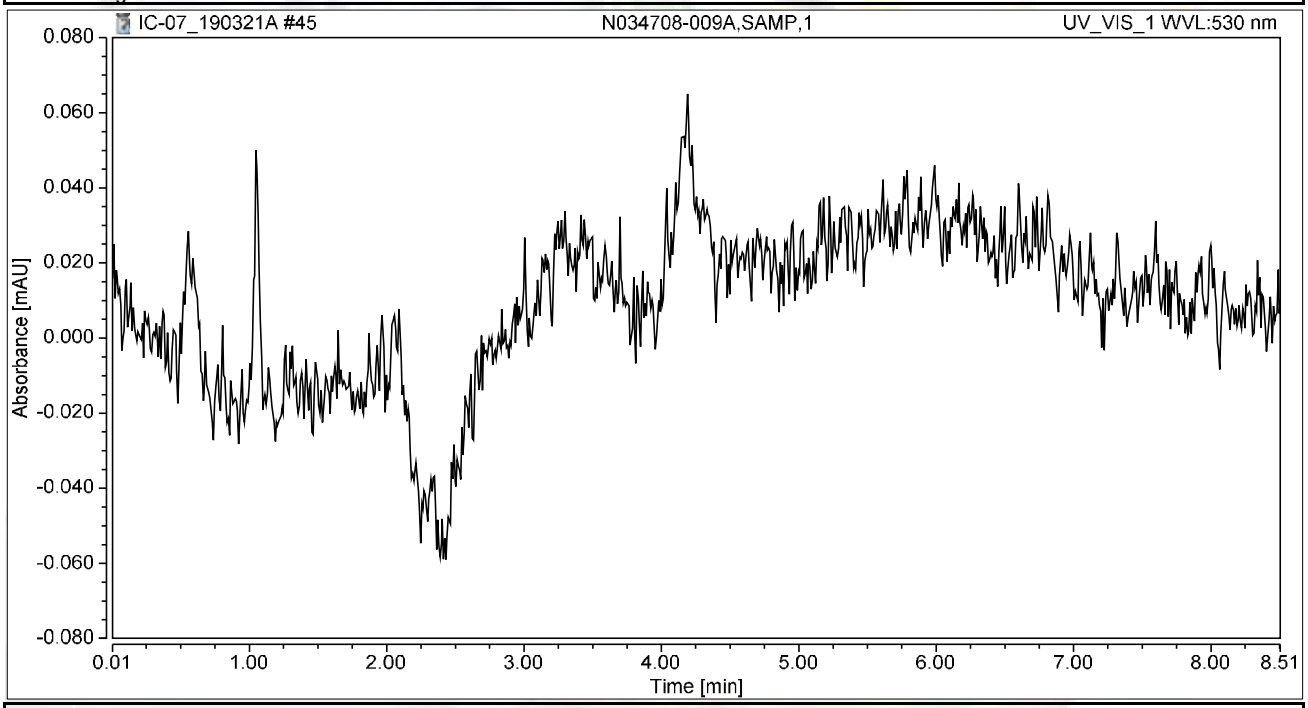
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.230 | 0.999 | 100.00 | 100.00 | 1.0446 |
| **Total:** | | | **0.230** | **0.999** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-009A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **34** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 14:19** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

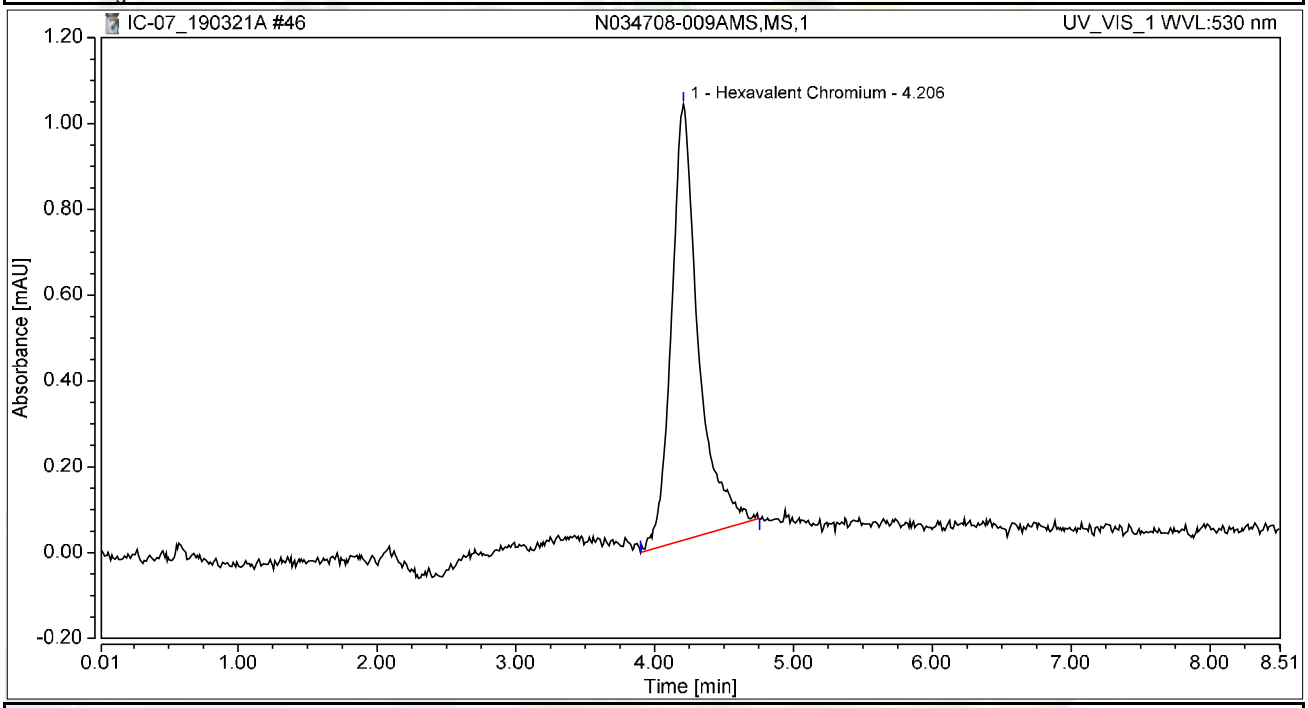
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-009AMS,MS,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **35** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 14:29** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

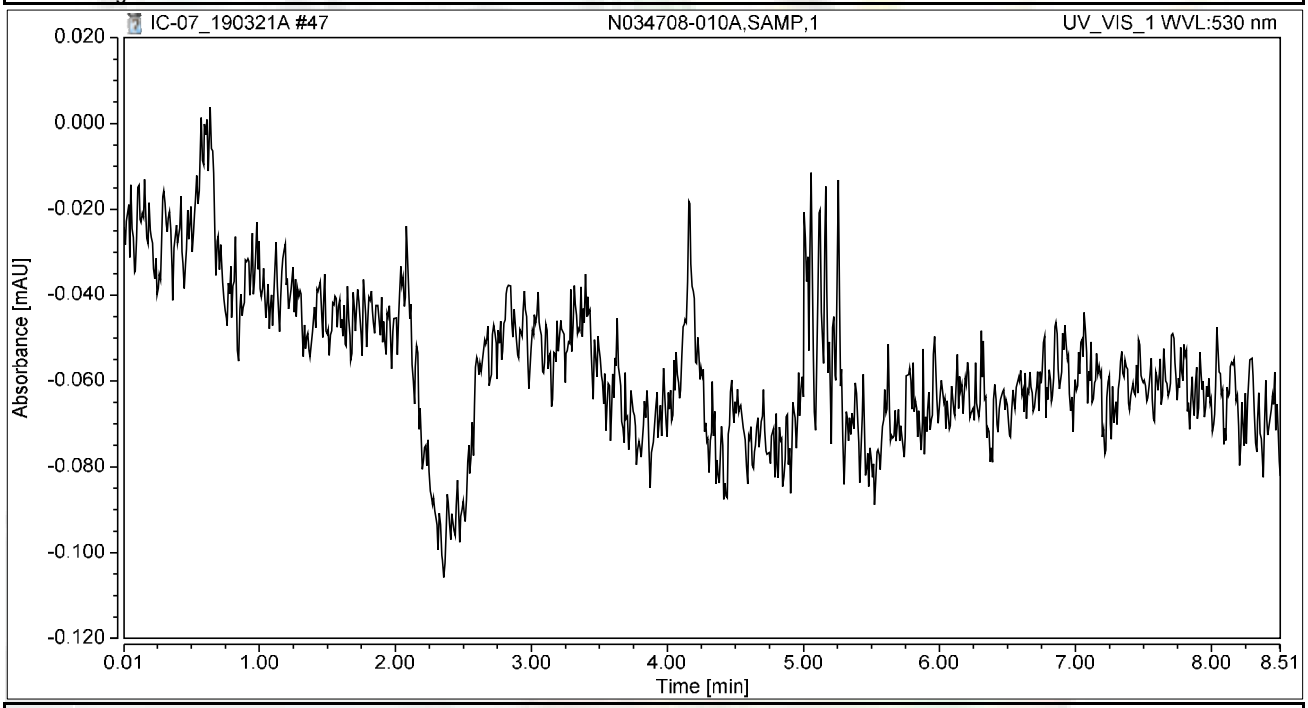
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.228 | 1.016 | 100.00 | 100.00 | 1.0344 |
| **Total:** | | | **0.228** | **1.016** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-010A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **36** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 14:38** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

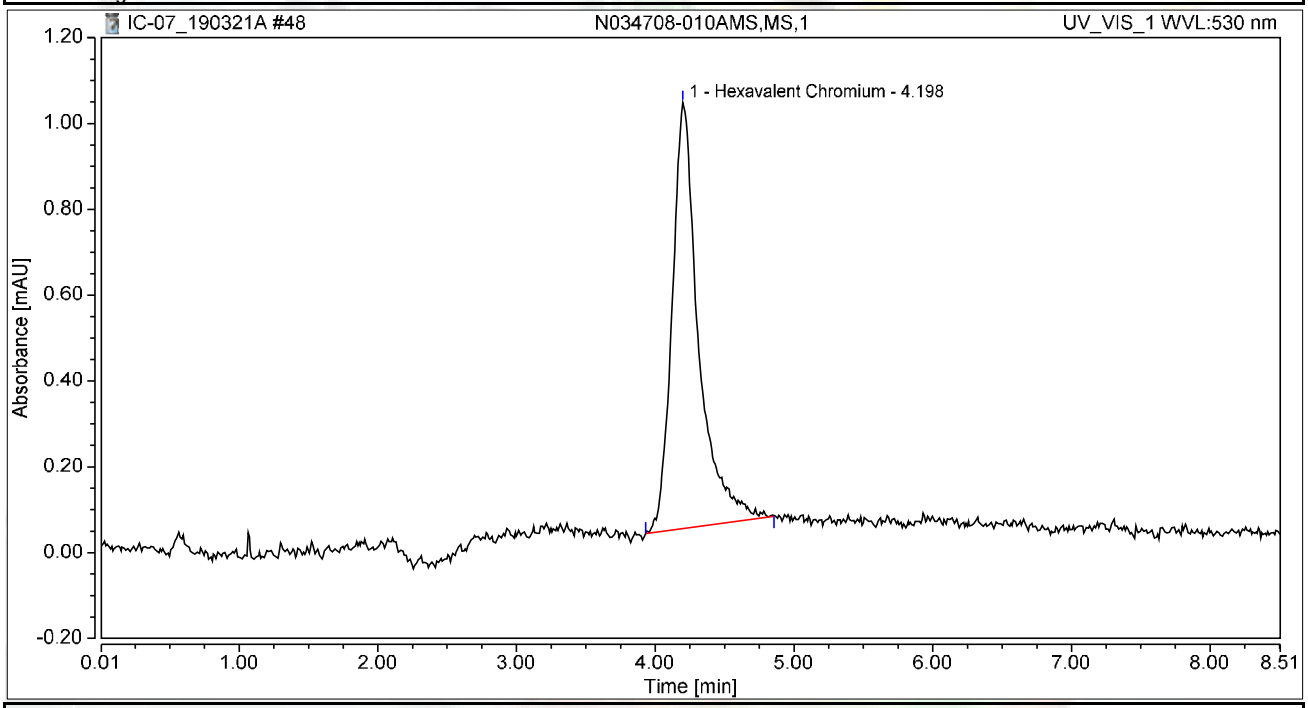
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-010AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **37** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 14:48** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

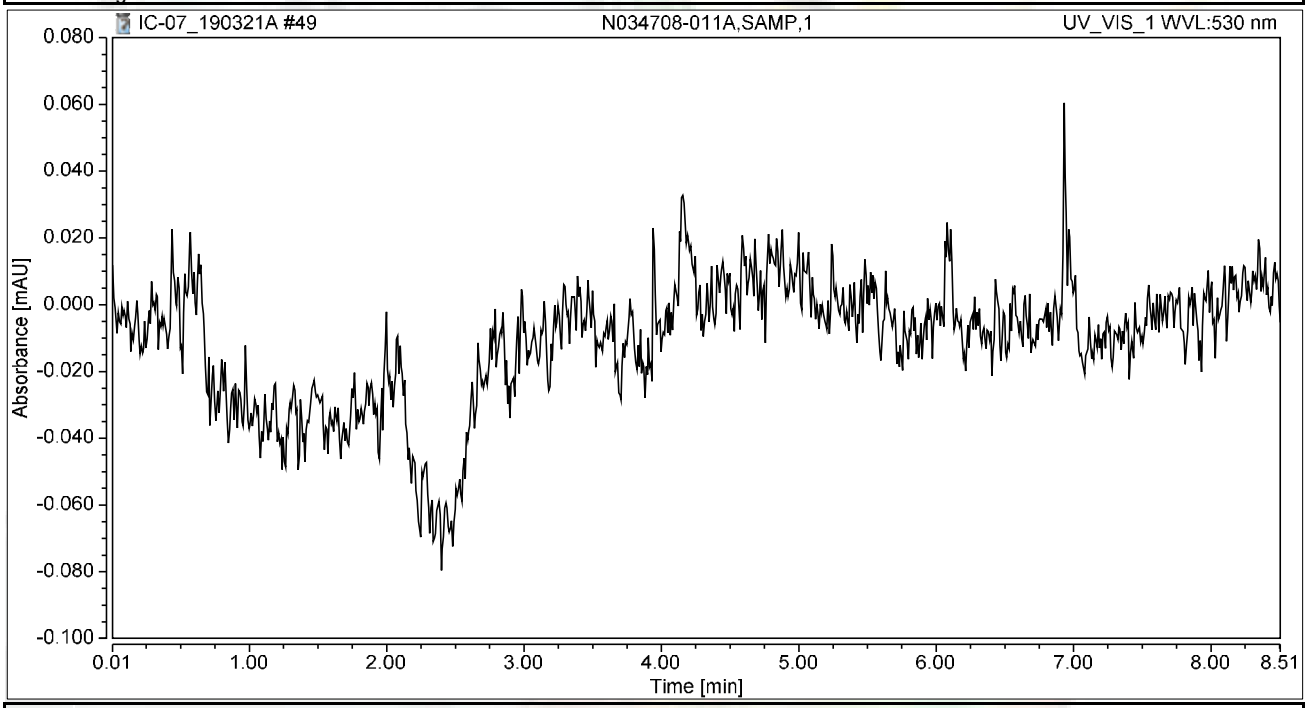
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.220 | 0.993 | 100.00 | 100.00 | 0.9986 |
| **Total:** | | | **0.220** | **0.993** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-011A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **38** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 14:57** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

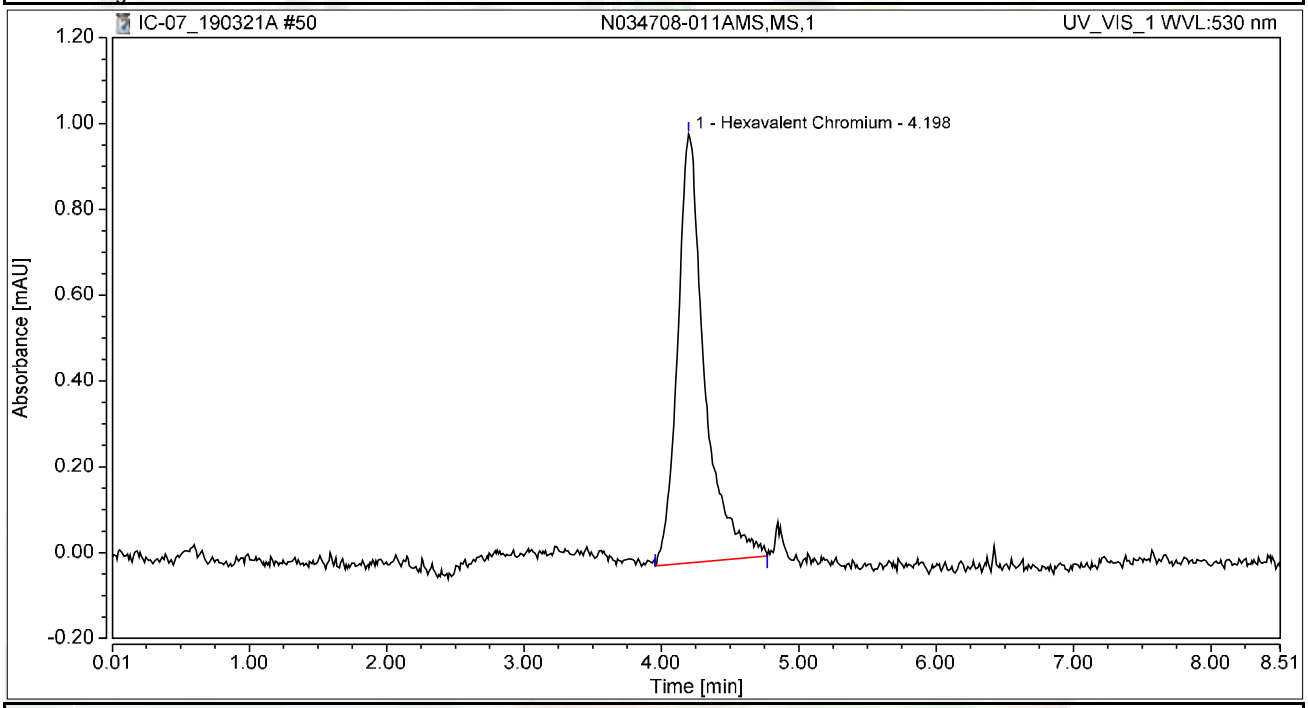
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-011AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **39** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 15:06** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

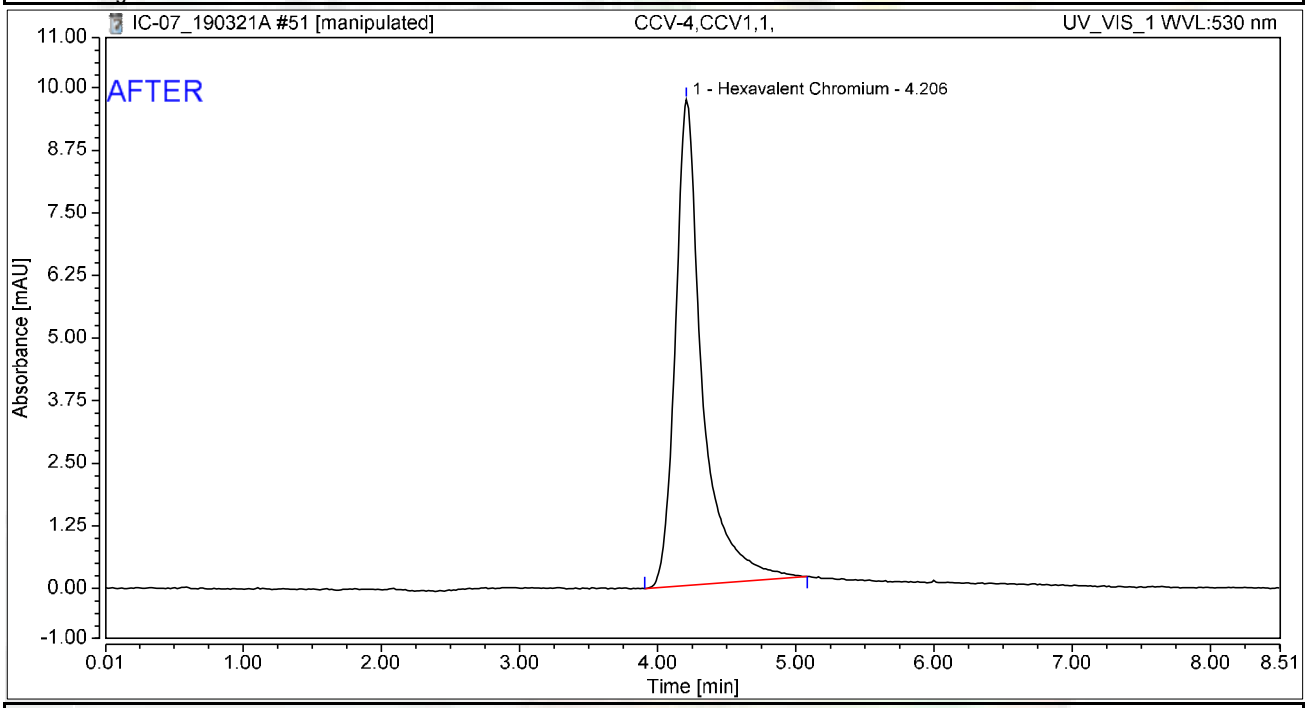
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.198 | 0.228 | 1.000 | 100.00 | 100.00 | 1.0345 |
| **Total:** | | | **0.228** | **1.000** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-4,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **40** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 15:16** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 2.201 | 9.707 | 100.00 | 100.00 | 10.0070 |
| **Total:** | | | **2.201** | **9.707** | **100.00** | **100.00** | |

rba 3/22/2019

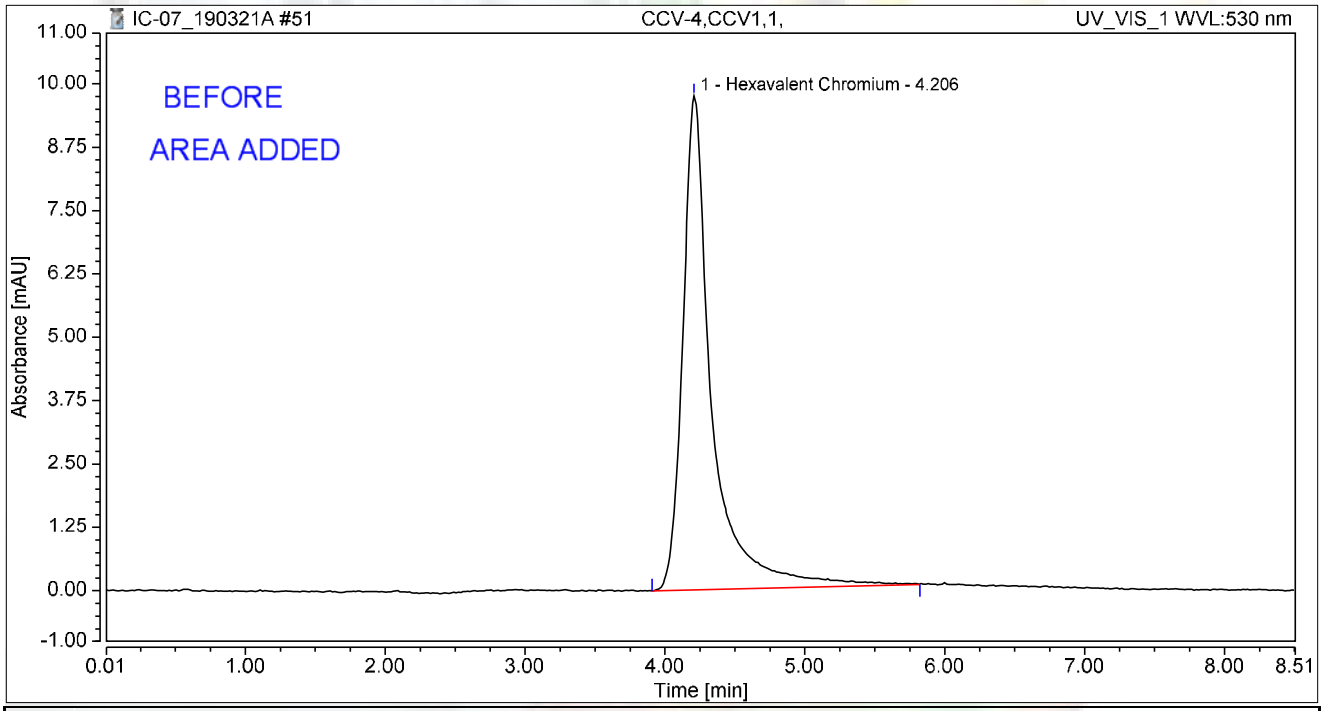
Reviewed by:
Nancy 3/26/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-4,CCV1,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **40** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 15:16** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 2.356 | 9.750 | 100.00 | 100.00 | 10.7110 |
| **Total:** | | | **2.356** | **9.750** | **100.00** | **100.00** | |

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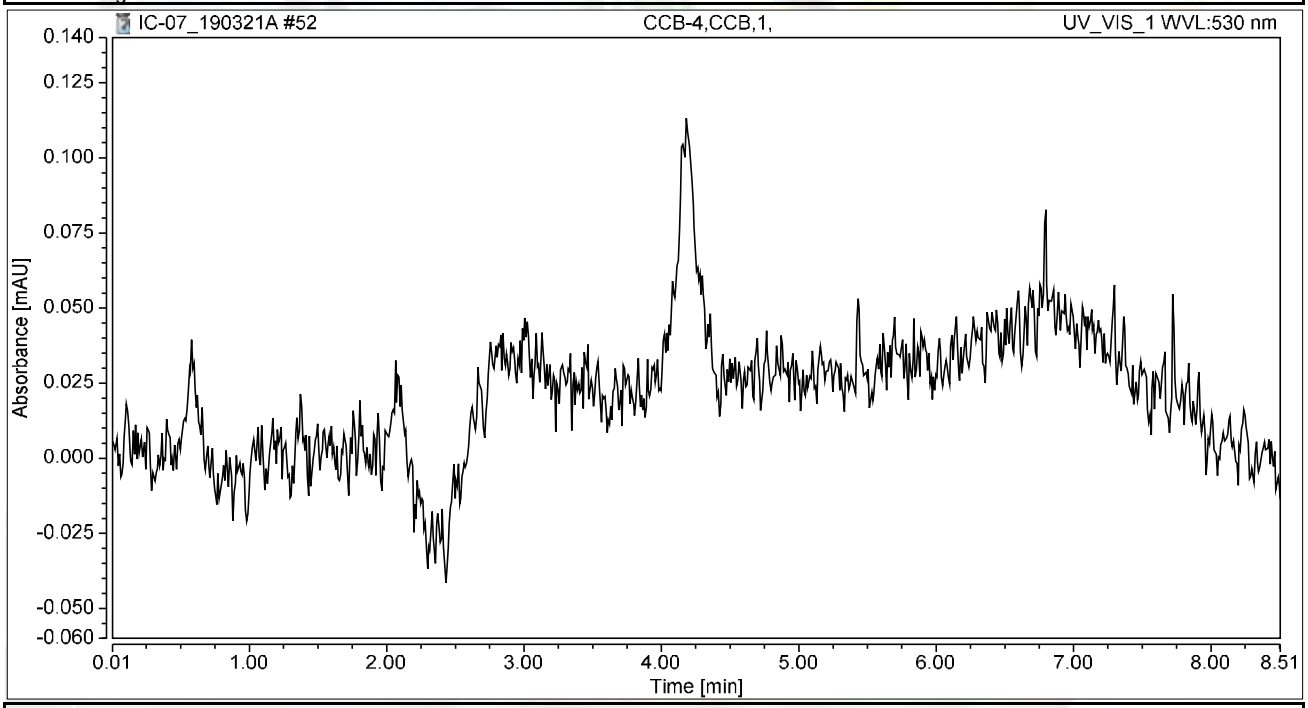
# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-4,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **41** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 15:25** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

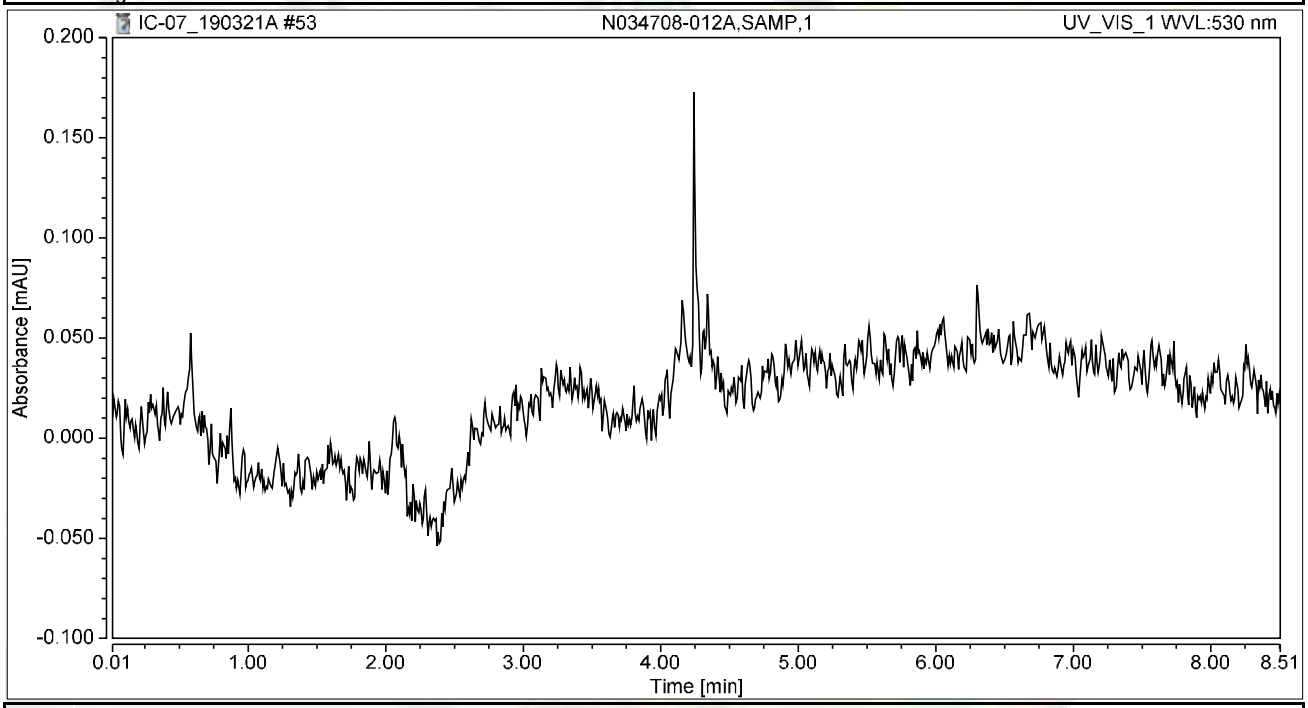
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-012A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **42** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 15:35** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

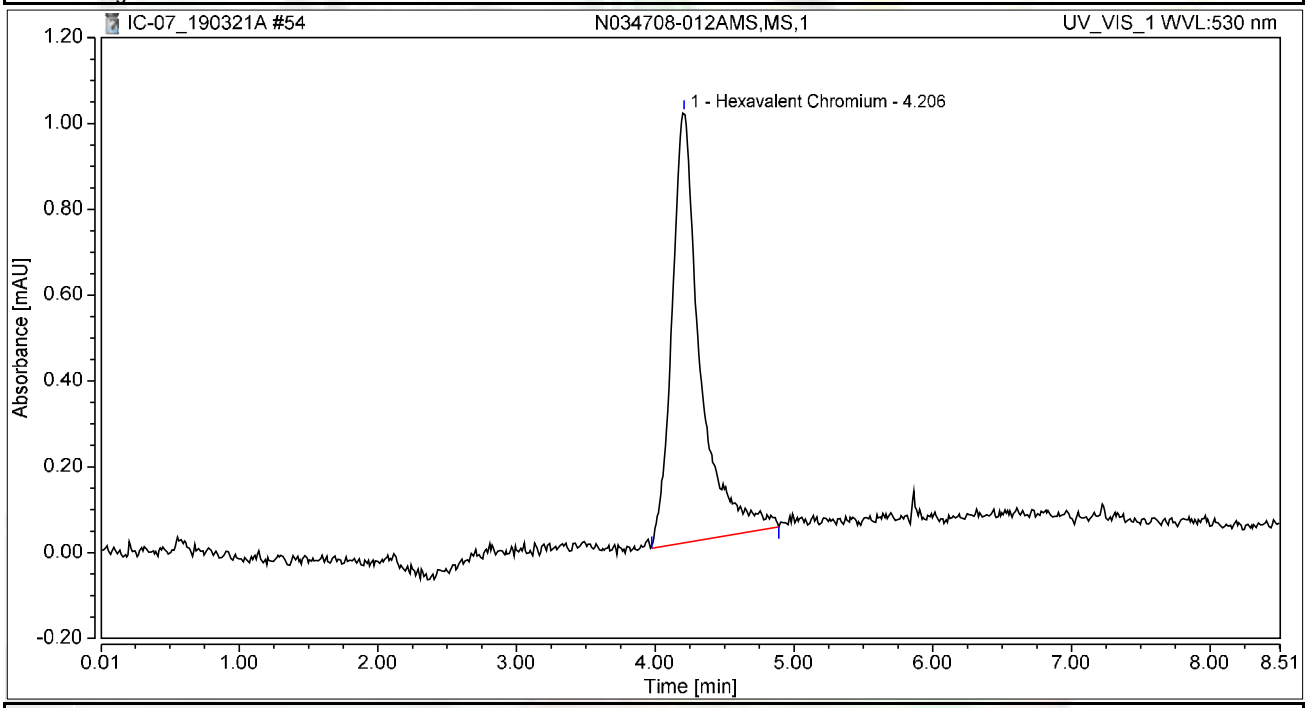
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-012AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **43** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 15:44** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

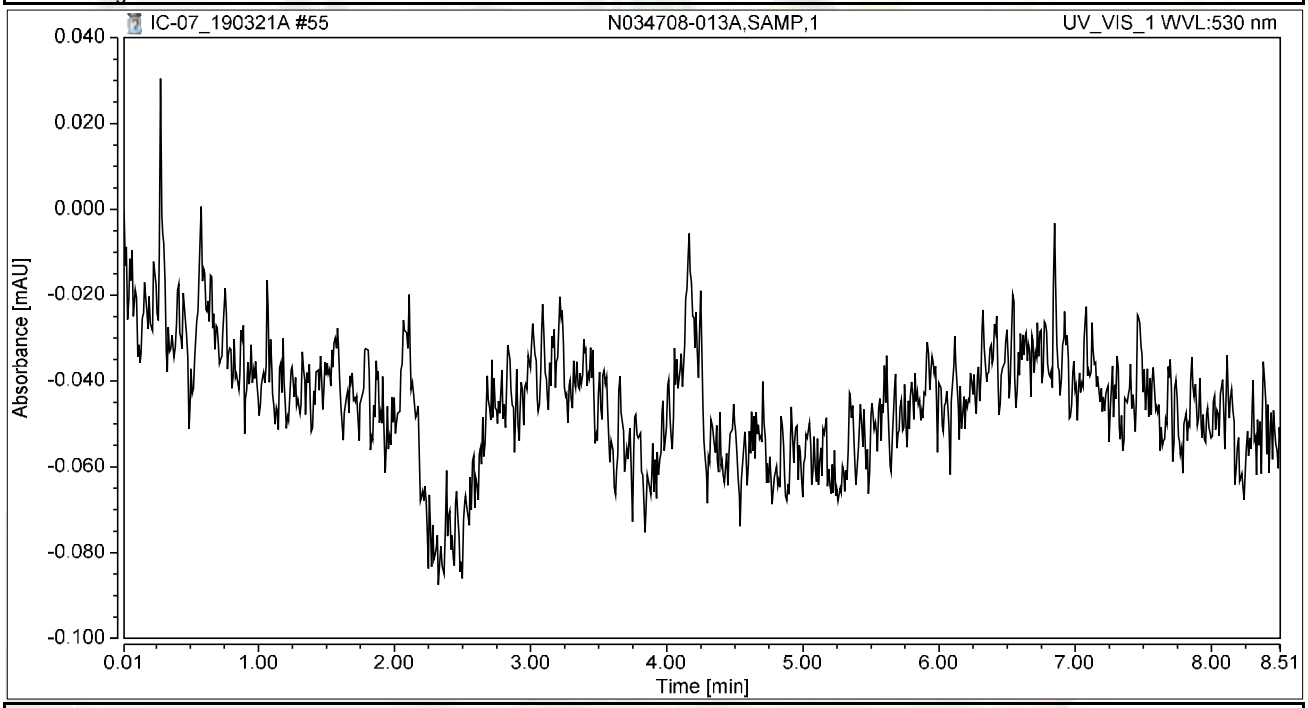
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.206 | 0.236 | 1.003 | 100.00 | 100.00 | 1.0742 |
| **Total:** | | | **0.236** | **1.003** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-013A,SAMP,1** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **44** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 15:54** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

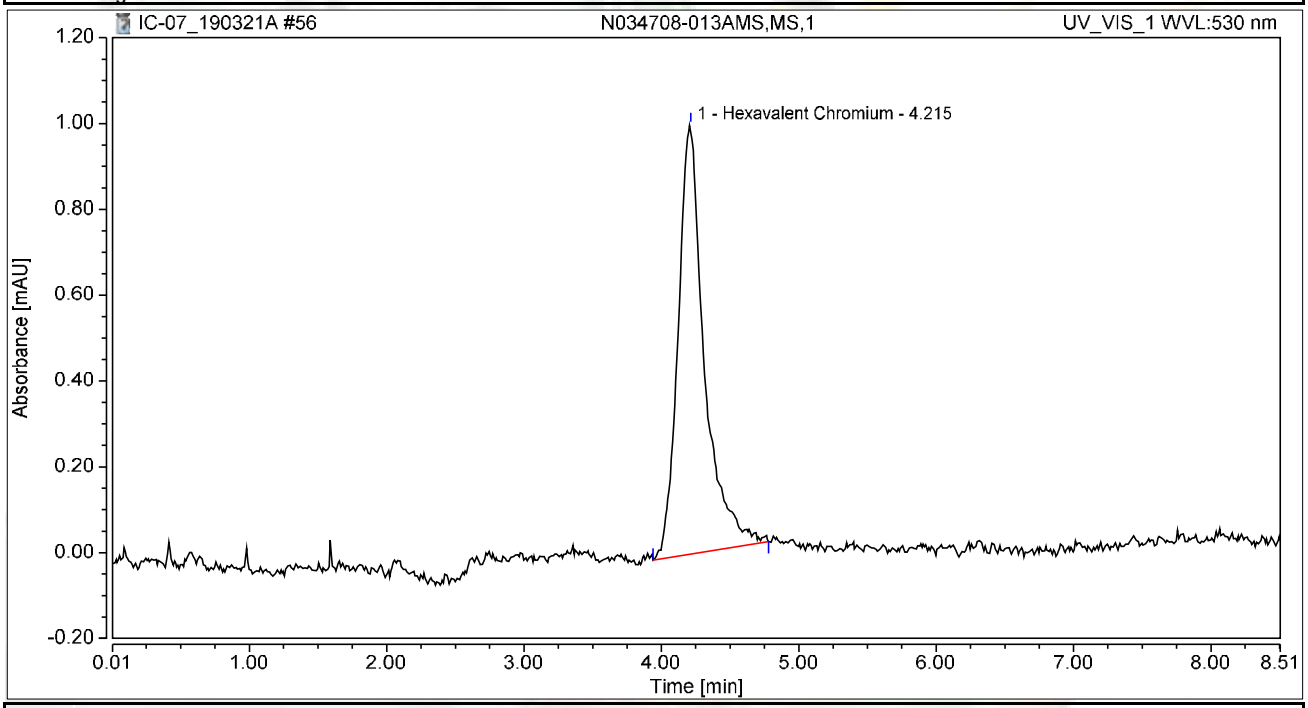
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-013AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **45** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 16:03** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

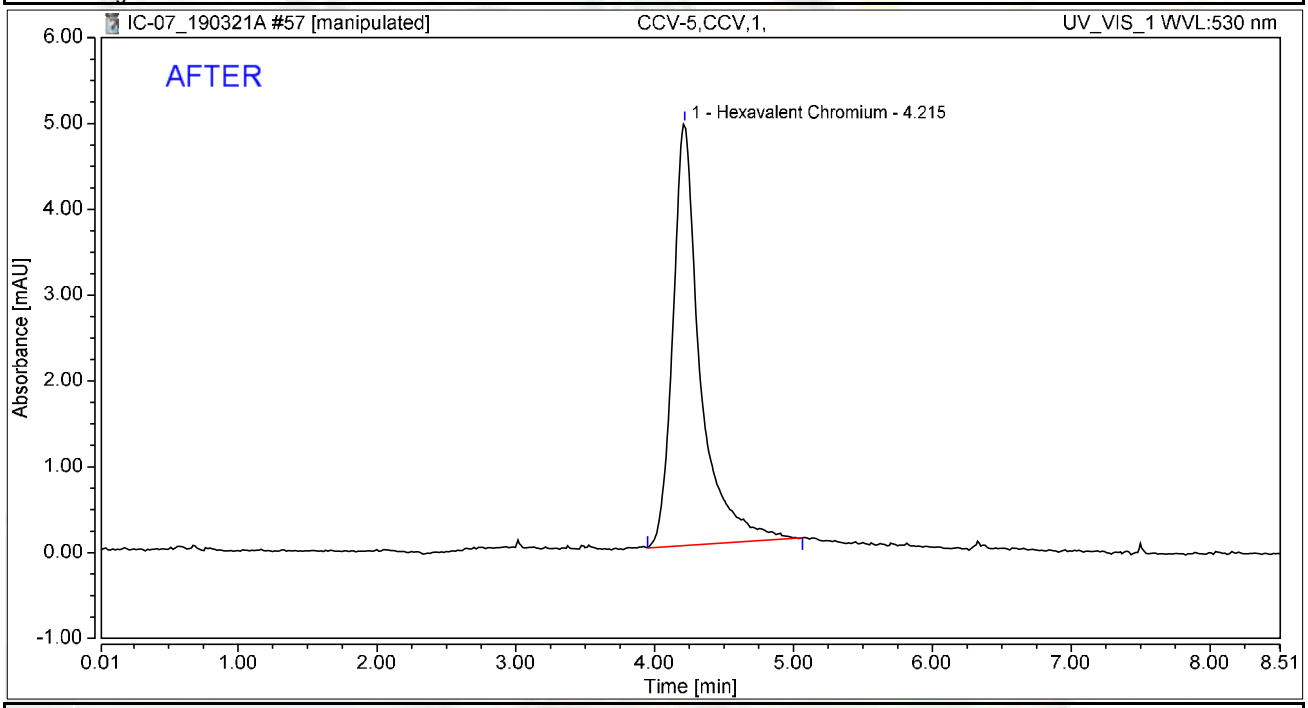
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 0.222 | 1.000 | 100.00 | 100.00 | 1.0086 |
| **Total:** | | | **0.222** | **1.000** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-5,CCV,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **46** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 16:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 1.118 | 4.915 | 100.00 | 100.00 | 5.0849 |
| **Total:** | | | **1.118** | **4.915** | **100.00** | **100.00** | |

rba 3/22/2019

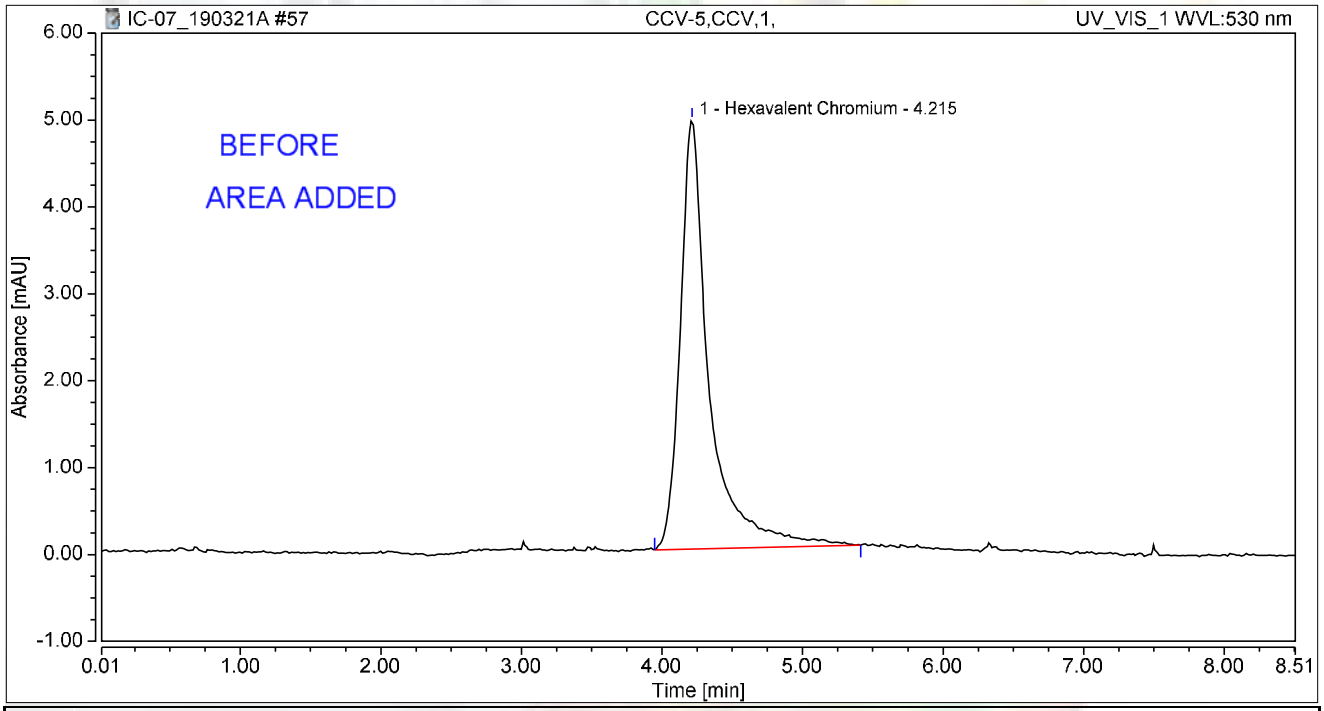
Reviewed by:
Nancy 3/26/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCV-5,CCV,1,** | *Run Time (min):* | **8.49** |
| *Vial Number:* | **46** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 16:13** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.215 | 1.176 | 4.934 | 100.00 | 100.00 | 5.3485 |
| **Total:** | | | **1.176** | **4.934** | **100.00** | **100.00** | |

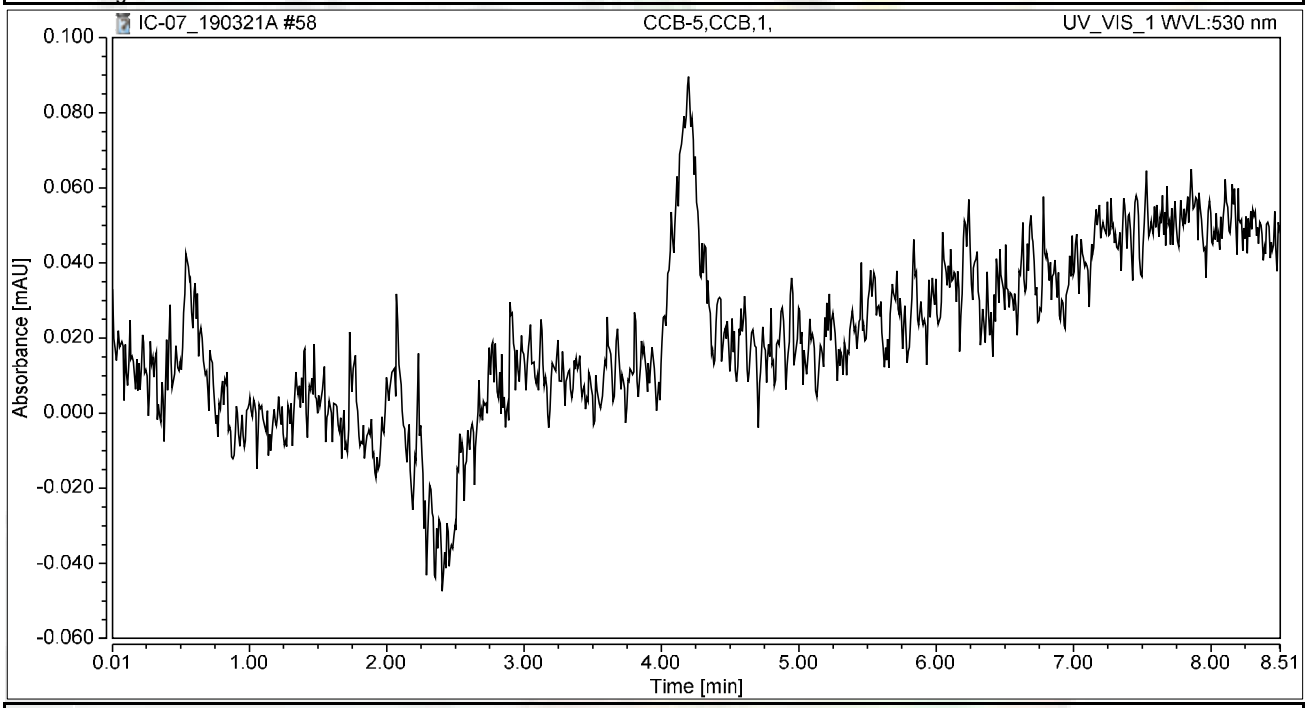
rba 3/22/2019

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **CCB-5,CCB,1,** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **47** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190313_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **21/Mar/19 16:22** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

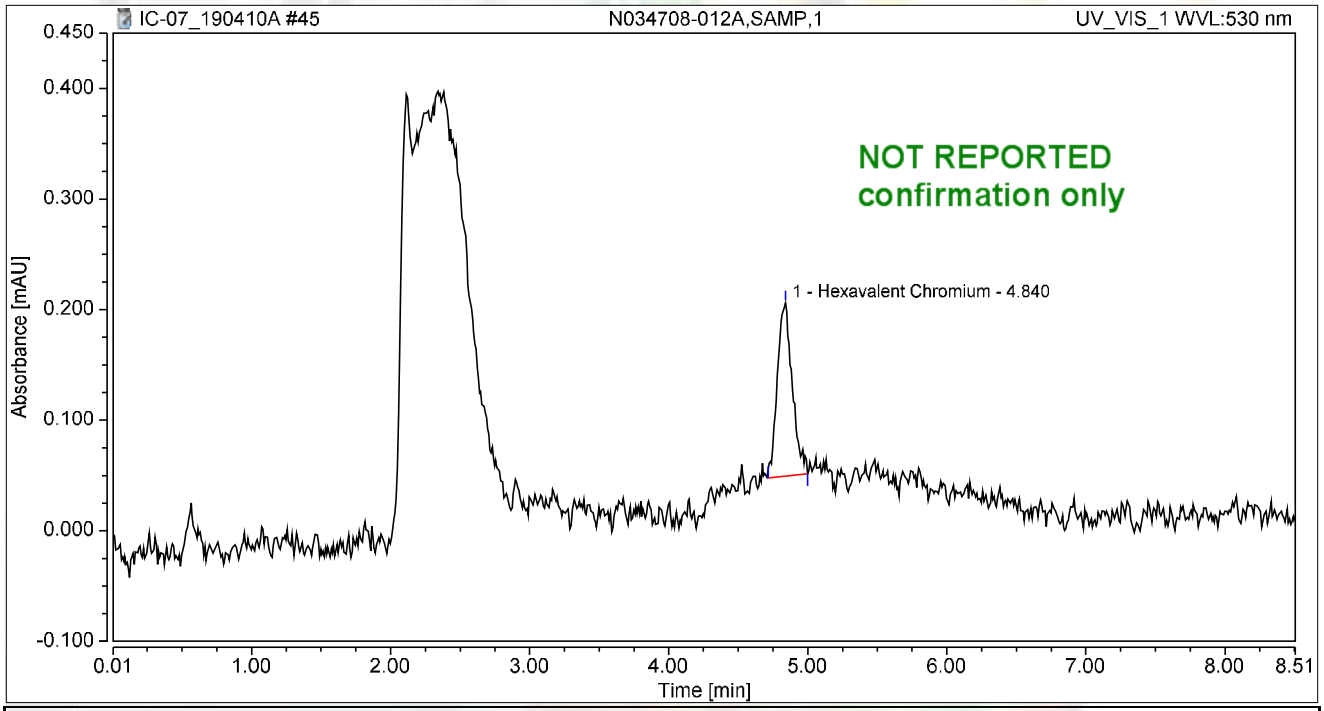
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| n.a. | Hexavalent Chromium | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-012A,SAMP,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **21** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190401_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **10/Apr/19 13:43** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

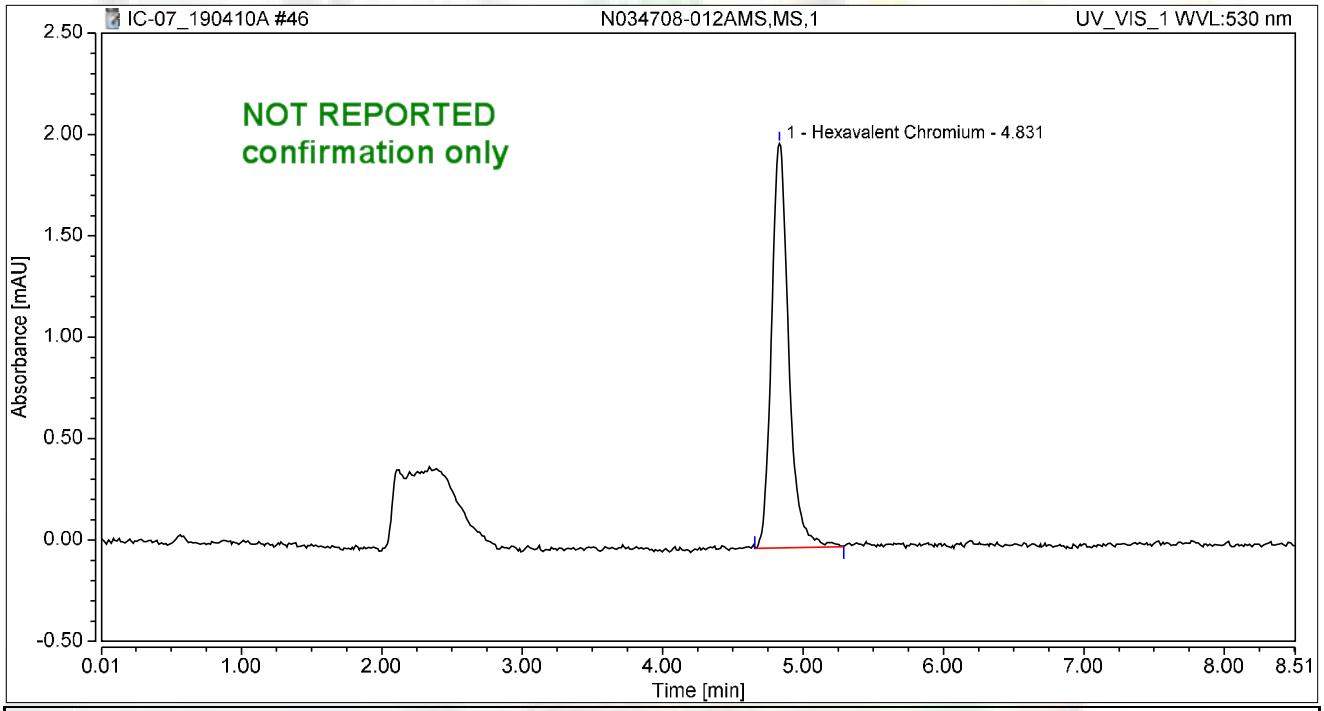
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.840 | 0.019 | 0.157 | 100.00 | 100.00 | 0.0758 |
| **Total:** | | | **0.019** | **0.157** | **100.00** | **100.00** | |

# Chromatogram and Results

## Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **N034708-012AMS,MS,1** | *Run Time (min):* | **8.50** |
| *Vial Number:* | **22** | *Injection Volume:* | **1000.00** |
| *Injection Type:* | **Unknown** | *Channel:* | **UV_VIS_1** |
| *Calibration Level:* | | *Wavelength:* | **530.0** |
| *Instrument Method:* | **Hex Chrom 4 mm** | *Bandwidth:* | **n.a.** |
| *Processing Method:* | **190401_IC-07_Cr6_218_6_HIGH** | *Dilution Factor:* | **1.0000** |
| *Injection Date/Time:* | **10/Apr/19 13:53** | *Sample Weight:* | **1.0000** |

## Chromatogram




## Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ug/L |
|---|---|---|---|---|---|---|---|
| 1 | Hexavalent Chromium | 4.831 | 0.284 | 1.993 | 100.00 | 100.00 | 1.1045 |
| **Total:** | | | **0.284** | **1.993** | **100.00** | **100.00** | |

# SM 4500-NO3F

# Wet Chemistry Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** R132840 **Analyst:** QBM

**ASSET #:** N034708 **Date Analyzed:** 3/28/2019

**Method:** 4500_N03

| Initial Calibration | 1st Level Review Y | N | N/A | 2nd Level Review Y | N | N/A |
|---|---|---|---|---|---|---|
| 1. ICAL before initial sample analysis or every 24 hrs. | X | | | X | | |
| 2. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 3. ICV within ± 15% of expected value. | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 4. CCV after every 10 samples and at the end of analysis sequence. | X | | | X | | |
| 5. CCV within ± 15% of expected value. | X | | | X | | |
| 6. Calibration blanks run after ICV and CCV? | X | | | X | | |
| 7. Do all calibration blanks ( ICB and CCBs) meet criteria? (< PQL) | X | | | X | | |
| **Sample Information** | | | | | | |
| 8. All samples are within linear range. | X | | | X | | |
| 9. Are all samples analyzed within hold time. | X | | | X | | |
| **QC Items** | | | | | | |
| 10. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 11. LCS compounds within control limits. | X | | | X | | |
| 12. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 13. Are Non-Conformances documented | | | X | | | X |
| 14. Runlog complete and included in package. | X | | | X | | |
| 15. Spectrophotometer tape included (Spec work only) | | | X | | | X |
| 16. Digestion log complete and included in package (if applicable) | | | X | | | X |
| **Preliminary Report** | | | | | | |
| 17. Does the raw data match the preliminary report? | X | | | X | | |
| 18. Are analytical results correct? | X | | | X | | |
| 19. Is the QC summary report present and complete? | X | | | X | | |

**Comments:**

**SECOND LEVEL REVIEW:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer QBM Date: 4/3/19

2nd Level Reviewer 4/3/2019 Date: —

# SAMPLE CALCULATION

## Sample Calculation

**METHOD:** EPA 4500N03F
**TEST NAME:** Nitrate/Nitrite-N by Automated Cadmium Reduction
**MATRIX:** Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

**Nitrate/Nitrite-N, mg/L= A * DF**

where:

A = mg/L, instrument calculated concentration
DF = dilution factor BGLE

For: **N034708-001E**

The concentration in mg/L is calculated as follows:

| | | | | |
|---|---|---|---|---|
| **Nitrate/Nitrite-N** | = | 0.4092 | * | 1 |
| | = | 0.4092 | mg/L | |

Reporting result in two significant figures,

**Nitrate/Nitrite-N = 0.41 mg/L**

# INITIAL CALIBRATION DATA SUMMARY

## EPA 353.2 NO3 as N (NO3CD) - Endpoint

### General setup

| | |
|---|---|
| **Measuring unit** | **ppm** |
| **Number of decimals** | 4 |
| **Stabilization time (sec)** | 26 |
| **Measurement time (sec)** | 3 |
| **Sample volume (µl)** | 450 |
| **Filter** | 546 |
| **Reagent prime** | No |
| **CD Reduction** | Yes |

### Limits and dilution

| | |
|---|---|
| **Low level** | **-0.2** |
| **High level** | 4 |
| **Max linearity** | 4 |
| **Blank min** | 0 |
| **Blank max** | 0.049 |
| **Postdilution factor %** | 10 |
| **Factor Calculations** | No |

### Washes

| | |
|---|---|
| **Number of final washes** | 6 |
| **Wash every** | R1, R2 |

### O.D.Corrections

| | |
|---|---|
| **Carry Over** | **No** |
| **Carry Over value** | 0.0000 |
| **Blank** | No |
| **Gain** | No |

### Reagents

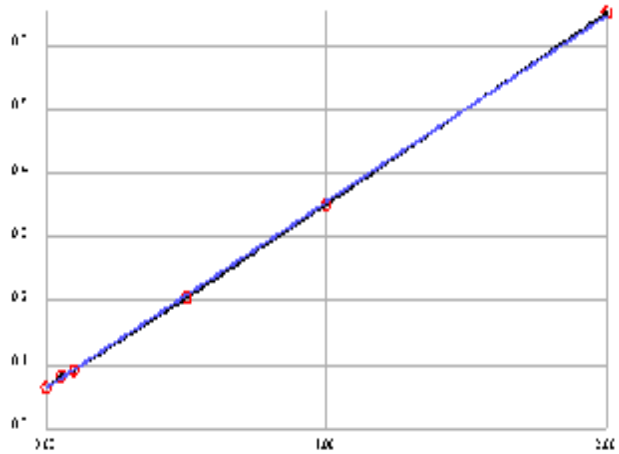
| N. | Volume (µl) | Incubation time (sec) |
|---|---|---|
| **1** | 200 | 102 |
| **2** | 300 | 663 |
| **3** | 0 | 0 |

### QC

| N. | Value | Tolerance |
|---|---|---|
| **1** | 1 | 0.1 |

## Calibration

| | |
|---|---|
| **Curve type** | Linear (Calibrants) |
| **Curve forced to zero** | No |
| **Blank inclusion** | No |



| | |
|---|---|
| **Formula** | y = 0.2924x + 0.0637 |
| **Correlation** | .99988 |

| Calibrant | Energy | Set | Conc |
|---|---|---|---|
| **1** | 0.0646 | 0.0000 | 0.0029 |
| **2** | 0.0825 | 0.0500 | 0.0641 |
| **3** | 0.0930 | 0.1000 | 0.1000 |
| **4** | 0.2067 | 0.5000 | 0.4888 |
| **5** | 0.3513 | 1.0000 | 0.9833 |
| **6** | 0.6518 | 2.0000 | 2.0108 |

**Notes:**

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132840** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132840** | TestNo: **SM4500-NO3** | | Analysis Date: **3/28/2019** | SeqNo: **3332752** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.505 | 0.050 | 0.5000 | 0 | 101 | 90 | 110 | | | | |

| Sample ID **CCV-1** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132840** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132840** | TestNo: **SM4500-NO3** | | Analysis Date: **3/28/2019** | SeqNo: **3332763** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.486 | 0.050 | 0.5000 | 0 | 97.1 | 90 | 110 | | | | |

| Sample ID **CCV-2** | SampType: **CCV** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132840** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132840** | TestNo: **SM4500-NO3** | | Analysis Date: **3/28/2019** | SeqNo: **3332774** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.510 | 0.050 | 0.5000 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132840** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132840** | TestNo: **SM4500-NO3** | | Analysis Date: **3/28/2019** | SeqNo: **3332753** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-1** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132840** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132840** | TestNo: **SM4500-NO3** | | Analysis Date: **3/28/2019** | SeqNo: **3332764** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

| Sample ID **CCB-2** | SampType: **CCB** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | RunNo: **132840** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132840** | TestNo: **SM4500-NO3** | | Analysis Date: **3/28/2019** | SeqNo: **3332775** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | ND | 0.050 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

**Advanced Technology Laboratories, Inc.**

**3151 W. Post Rd.**
**Las Vegas, NV. 89118**
**702-307-2659**
**702-307-2691**
**www.atl-labs.com**

**Time start: 03-28-2019 14:23**
**Time end: 03-28-2019 16:43**

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 1 | <BLANK> | 16:11:45 | 0.0617 | | 0.0818 |
| 2 | <BLANK> | 16:12:46 | 0.0245 | | 0.0709 |
| 3 | <BLANK> | 16:13:40 | 0.0043 | | 0.0650 |
| 4 | <CAL1> | 16:14:35 | 0.0029 | [0] | 0.0646 |
| 5 | <CAL2> | 16:15:37 | 0.0641 | [0.05] | 0.0825 |
| 6 | <CAL3> | 16:16:31 | 0.1000 | [0.1] | 0.0930 |
| 7 | <CAL4> | 16:17:32 | 0.4888 | [0.5] | 0.2067 |
| 8 | <CAL5> | 16:18:28 | 0.9833 | [1] | 0.3513 |
| 9 | <CAL6> | 16:19:23 | 2.0108 | [2] | 0.6518 |
| 10 | ,BLANK,BLANK,1, NOT REPORTED | 16:20:23 | 0.0706 | | 0.0844 |
| 11 | ,ICV,ICV,1, | 16:21:19 | 0.5052 | | 0.2115 |
| 12 | ,ICB,ICB,1, | 16:22:14 | 0.0190 | | 0.0693 |
| 13 | ,MB-H2O,MBLK,1, | 16:23:16 | -0.0025 | | 0.0630 |
| 14 | ,LCS-H2O,LCS,1, | 16:24:10 | 0.4864 | | 0.2060 |
| 15 | ,N034708-001E,SAMP,1, | 16:25:05 | 0.4092 | | 0.1834 |
| 16 | ,N034708-002E,SAMP,1, | 16:26:07 | 0.3962 | | 0.1796 |
| 17 | ,N034708-003E,SAMP,1, | 16:27:01 | 0.4095 | | 0.1835 |
| 18 | ,N034708-003EDUP,DUP,1, | 16:27:45 | 0.4194 | | 0.1864 |
| 19 | ,N034708-004E,SAMP,1, | 16:28:34 | 0.8215 | | 0.3040 |
| 20 | ,N034708-004EMS,MS,1, | 16:29:22 | 1.2852 | | 0.4396 |
| 21 | ,N034708-004EMSD,MSD,1, | 16:30:06 | 1.3536 | | 0.4596 |
| 22 | ,BLANK, NOT REPORTED | 16:30:48 | 0.0529 | | 0.0792 |
| 23 | ,CCV-1,CCV,1, | 16:31:37 | 0.4857 | | 0.2058 |
| 24 | ,CCB-1,CCB,1, | 16:32:19 | 0.0149 | | 0.0681 |
| 25 | ,N034708-005E,SAMP,1, | 16:33:02 | 0.3859 | | 0.1766 |
| 26 | ,N034708-006E,SAMP,1, | 16:33:52 | 0.3866 | | 0.1768 |

| | | | EPA 353.2 NO3 as N | | |
|---|---|---|---|---|---|
| | | | ppm | Flags | OD |
| 27 | ,N034708-007E,SAMP,1, | 16:34:34 | 0.3917 | | 0.1783 |
| 28 | ,N034708-008E,SAMP,1, | 16:35:17 | 0.3955 | | 0.1794 |
| 29 | ,N034708-009E,SAMP,1, | 16:36:05 | 0.3972 | | 0.1799 |
| 30 | ,N034708-010E,SAMP,1, | 16:36:49 | 0.3951 | | 0.1793 |
| 31 | ,N034708-011E,SAMP,1, | 16:37:37 | 0.4037 | | 0.1818 |
| 32 | ,N034708-012E,SAMP,1, | 16:38:20 | 0.4071 | | 0.1828 |
| 33 | ,N034708-013E,SAMP,1, | 16:39:02 | 0.3616 | | 0.1695 |
| 34 | ,BLANK, NOT REPORTED | 16:39:52 | 0.0029 | | 0.0646 |
| 35 | ,CCV-2,CCV,1, | 16:40:35 | 0.5100 | | 0.2129 |
| 36 | ,CCB-2,CCB,1, | 16:41:17 | 0.0029 | | 0.0646 |

**Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog**

## Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 3/28/2019
Time Analyzed: 2:23 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190322D
Color reagent: R190322E
2% Copper Sulfate: R190322C
Ammonium Hydroxide: CINV-190124A

| Sample ID. | Sample Wt./Vol. | Sample pH | Std Code | Spike Amt Added (mL) | Spike Conc.(PPM) | Final Volume (mL) | Dilution (F/I) | Reading & Calculations (mg/L) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| N034708-001E | | 8.36 | | | | | | | |
| N034708-002E | | 8.12 | | | | | | | |
| N034708-003E | | 7.72 | | | | | | | |
| N034708-004E | | 8.48 | | | | | | | |
| N034708-005E | | 7.77 | | | | | | | |
| N034708-006E | | 7.89 | | | | | | | |
| N034708-007E | | 8.39 | | | | | | | |
| N034708-008E | | 8.17 | | | | | | | |
| N034708-009E | | 8.25 | | | | | | | |
| N034708-010E | | 8.46 | | | | | | | |
| N034708-011E | | 8.32 | | | | | | | |
| N034708-012E | | 7.65 | | | | | | | |
| N034708-013E | | 7.27 | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
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| | | | | | | | | | |

Advanced Technology Laboratories, Inc.
Book # 1

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

| Analyte | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Ave | SD | $t_{(n-1)}$ value | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate/Nitrite as N | 0.0573 | 0.0562 | 0.0500 | 0.0730 | 0.0698 | 0.0637 | 0.0564 | 0.0609 | 0.0082 | 3.143 | 0.0259 | 0.05 |
| **Method Blank** | | | | | | | | | | | | |
| Nitrate/Nitrite as N | 0.0160 | 0.0067 | 0.0064 | 0.0204 | 0.0173 | 0.0036 | 0.0083 | 0.0112 | 0.0065 | 3.143 | 0.0317 | 0.05 |

**MDL:** **0.0317** **mg/L**

# EPA 6010B
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 73018
**ASSET #:** N034708
**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 3/28/2019

**Method:**

[X] EPA 6010B / 200.7 DISS
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | X | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | X | | |
| 2. Matrix / units correct | X | | |
| 3. Does batch meet QC requirements? | X | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | X | | |
| 5. Is first level review correct and complete? | X | | |

1st Level Reviewer CEI Date: 4/12/2019

2nd Level Reviewer 4/12/2019 Date: ____

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 73331
**ASSET #:** N034708
**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 4/11/2019

**Method:**

[X] EPA 6010B / 200.7 DISS
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | X | | |
| 2. Matrix / units correct | X | | |
| 3. Does batch meet QC requirements? | X | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | X | | |
| 5. Is first level review correct and complete? | X | | |

1st Level Reviewer CEI Date: 4/12/2019

2nd Level Reviewer 4/12/2019 Date: —

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA 6010B
**TEST NAME:** Heavy Metals by ICP
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N034708-009B** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.02296 * 1 *(25/25) * 1000

Iron , ug/L = 22.96

Reporting results in two significant figures,

**Iron , ug/L = 23**

# % RSD SUMMARY

**RSD SUMMARY: 190328D**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Fe | 0 | 134.51 | 15 | <PQL |
| Standard1 | ICAL | 1 | Fe | 0.02 | 14.88 | 15 | PASS |
| Standard2 | ICAL | 1 | Fe | 0.05 | 1.2 | 15 | PASS |
| Standard3 | ICAL | 1 | Fe | 2 | 0.27 | 15 | PASS |
| Standard4 | ICAL | 1 | Fe | 5 | 0.09 | 15 | PASS |
| Standard5 | ICAL | 1 | Fe | 7.5 | 0.32 | 15 | PASS |
| Standard6 | ICAL | 1 | Fe | 10 | 0.17 | 15 | PASS |
| Standard7 | ICAL | 1 | Fe | 20 | 0.27 | 15 | PASS |
| ICV | ICV | 1 | Fe | 10.22 | 0.25 | 15 | PASS |
| ICB | ICB | 1 | Fe | -0.0042 | 38.79 | 15 | <PQL |
| LLICV1 | CCV1 | 1 | Fe | 0.016 | 7.91 | 20 | PASS |
| ICSA1 | ICSA | 1 | Fe | 182.34 | 0.16 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Fe | 176.88 | 0.092 | 15 | PASS |
| CCV1 | CCV | 1 | Fe | 10.22 | 0.32 | 15 | PASS |
| CCB1 | CCB | 1 | Fe | -0.0064 | 23.2 | 15 | <PQL |
| MB-73018 | MBLK | 1 | Fe | -0.0095 | 13.75 | 15 | PASS |
| CCV2 | CCV | 1 | Fe | 10.21 | 0.4 | 15 | PASS |
| CCB2 | CCB | 1 | Fe | -0.0041 | 27.65 | 15 | <PQL |
| LCS-73018 | LCS | 1 | Fe | 0.098 | 1.18 | 15 | PASS |
| N034708-001B | SAMP | 1 | Fe | 0.0021 | 37.2 | 15 | <PQL |
| N034708-001B | SAMP | 5 | Fe | -0.008 | 6.86 | 15 | PASS |
| N034708-001B-PS | PS | 1 | Fe | 0.099 | 1.6 | 15 | PASS |
| N034708-001B-MS | MS | 1 | Fe | 0.11 | 1.044 | 15 | PASS |
| N034708-001B-MSD | MSD | 1 | Fe | 0.11 | 0.94 | 15 | PASS |
| N034708-002B | SAMP | 1 | Fe | 0.042 | 1.46 | 15 | PASS |
| N034708-003B | SAMP | 1 | Fe | 0.13 | 0.75 | 15 | PASS |
| N034708-004B | SAMP | 1 | Fe | 0.026 | 5.2 | 15 | PASS |
| N034708-005B | SAMP | 1 | Fe | 0.017 | 3.69 | 15 | PASS |
| CCV3 | CCV | 1 | Fe | 10.22 | 0.33 | 15 | PASS |
| CCB3 | CCB | 1 | Fe | -0.0034 | 42.68 | 15 | <PQL |
| N034708-006B | SAMP | 1 | Fe | -0.0027 | 18.44 | 15 | <PQL |
| N034708-007B | SAMP | 1 | Fe | 0.0081 | 7.15 | 15 | PASS |
| N034708-008B | SAMP | 1 | Fe | 0.031 | 6 | 15 | PASS |
| N034708-009B | SAMP | 1 | Fe | 0.042 | 1.76 | 15 | PASS |
| N034708-010B | SAMP | 1 | Fe | 0.0058 | 23.27 | 15 | <PQL |
| N034708-011B | SAMP | 1 | Fe | 0.033 | 3.18 | 15 | PASS |
| N034708-012B | SAMP | 1 | Fe | 0.02 | 1.96 | 15 | PASS |
| N034708-013B | SAMP | 1 | Fe | 0.013 | 6.32 | 15 | PASS |
| CCV4 | CCV | 1 | Fe | 10.25 | 0.42 | 15 | PASS |
| CCB4 | CCB | 1 | Fe | -0.0019 | 21.32 | 15 | <PQL |
| ICSA2 | ICSA | 1 | Fe | 182.14 | 0.033 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Fe | 177.69 | 0.098 | 15 | PASS |

**RSD SUMMARY: 190328D**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CCV5 | CCV | 1 | Fe | 10.23 | 0.34 | 15 | PASS |
| CCB5 | CCB | 1 | Fe | -0.0022 | 83.34 | 15 | <PQL |
| CCV6 | CCV | 1 | Fe | 10.21 | 0.42 | 15 | PASS |
| CCB6 | CCB | 1 | Fe | -0.0043 | 21.58 | 15 | <PQL |
| CCV7 | CCV | 1 | Fe | 10.19 | 0.31 | 15 | PASS |
| CCB7 | CCB | 1 | Fe | -0.0037 | 22.058 | 15 | <PQL |
| CCV8 | CCV | 1 | Fe | 10.22 | 0.47 | 15 | PASS |
| CCB8 | CCB | 1 | Fe | -0.0045 | 9.06 | 15 | PASS |
| ICSA3 | ICSA | 1 | Fe | 182.29 | 0.13 | 15 | PASS |
| ICSAB3 | ICSAB | 1 | Fe | 177.81 | 0.12 | 15 | PASS |

**RSD SUMMARY: 190411A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Fe | 0 | 48.33 | 15 | <PQL |
| Standard1 | ICAL | 1 | Fe | 0.02 | 2.75 | 15 | PASS |
| Standard2 | ICAL | 1 | Fe | 0.05 | 2.43 | 15 | PASS |
| Standard3 | ICAL | 1 | Fe | 2 | 0.33 | 15 | PASS |
| Standard4 | ICAL | 1 | Fe | 5 | 0.43 | 15 | PASS |
| Standard5 | ICAL | 1 | Fe | 7.5 | 0.5 | 15 | PASS |
| Standard6 | ICAL | 1 | Fe | 10 | 0.18 | 15 | PASS |
| Standard7 | ICAL | 1 | Fe | 20 | 0.038 | 15 | PASS |
| ICV | ICV | 1 | Fe | 9.96 | 0.1 | 15 | PASS |
| ICB | ICB | 1 | Fe | -0.0012 | 101.65 | 15 | <PQL |
| LLICV1 | CCV1 | 1 | Fe | 0.021 | 9.57 | 20 | PASS |
| ICSA1 | ICSA | 1 | Fe | 177.71 | 0.22 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Fe | 185.93 | 0.79 | 15 | PASS |
| MB-73331 | MBLK | 1 | Fe | 0.11 | 15.56 | 15 | NR! |
| MB-73331 | MBLK | 1 | Fe | 0.0075 | 31.64 | 15 | <PQL |
| LCS-73331 | LCS | 1 | Fe | 0.11 | 0.7 | 15 | PASS |
| N034708-002B | SAMP | 1 | Fe | 0.0023 | 14.57 | 15 | PASS |
| N034708-002B | SAMP | 5 | Fe | -0.00092 | 55.56 | 15 | <PQL |
| N034708-002B-PS | PS | 1 | Fe | 0.11 | 1.18 | 15 | PASS |
| N034708-002B-MS | MS | 1 | Fe | 0.1 | 0.47 | 15 | PASS |
| N034708-002B-MSD | MSD | 1 | Fe | 0.1 | 0.75 | 15 | PASS |
| N034708-003B | SAMP | 1 | Fe | -0.0026 | 11.78 | 15 | PASS |
| N034708-009B | SAMP | 1 | Fe | 0.023 | 1.89 | 15 | PASS |
| CCV1 | CCV | 1 | Fe | 9.97 | 0.18 | 15 | PASS |
| CCB1 | CCB | 1 | Fe | -0.003 | 5.79 | 15 | PASS |
| N034708-011B | SAMP | 1 | Fe | 0.0058 | 9.49 | 15 | PASS |
| CCV2 | CCV | 1 | Fe | 10.47 | 0.42 | 15 | PASS |
| CCB2 | CCB | 1 | Fe | -0.0029 | 15.086 | 15 | <PQL |
| CCV3 | CCV | 1 | Fe | 10.076 | 0.14 | 15 | PASS |
| CCB3 | CCB | 1 | Fe | -0.0028 | 4.42 | 15 | PASS |
| ICSA2 | ICSA | 1 | Fe | 178.92 | 0.2 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Fe | 185.7 | 0.57 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190328D**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-181001A,0.5<50mL |
| Standard2 | MWST-181001E |
| Standard3 | MWST-181001J,5<50mL |
| Standard4 | MWST-181001J,12.5<50mL |
| Standard5 | MWST-181001J,15<40mL |
| Standard6 | MWST-181001J,25<50mL |
| Standard7 | MWST-181001J |
| ICV | MWST-181001O |
| CCV | MWST-181001J,25<50mL |
| ICSA/ICSAB | MWST-181001R/MWST-180730A |
| Int. Std. (Y) | MSST-180926A/B |
| PS Spike | MWST-180930D/E/F |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CalBlk | IBLK | 1 | 03/28/2019 | 04:48:43 PM |
| 2 | Standard1 | ICAL | 1 | 03/28/2019 | 04:52:32 PM |
| 3 | Standard2 | ICAL | 1 | 03/28/2019 | 04:56:17 PM |
| 4 | Standard3 | ICAL | 1 | 03/28/2019 | 05:00:34 PM |
| 5 | Standard4 | ICAL | 1 | 03/28/2019 | 05:04:52 PM |
| 6 | Standard5 | ICAL | 1 | 03/28/2019 | 05:09:10 PM |
| 7 | Standard6 | ICAL | 1 | 03/28/2019 | 05:13:30 PM |
| 8 | Standard7 | ICAL | 1 | 03/28/2019 | 05:17:49 PM |
| 250 | ICV | ICV | 1 | 03/28/2019 | 05:23:12 PM |
| 1 | ICB | ICB | 1 | 03/28/2019 | 05:28:33 PM |
| 2 | LLICV1 | CCV1 | 1 | 03/28/2019 | 05:32:18 PM |
| 9 | ICSA1 | ICSA | 1 | 03/28/2019 | 05:36:04 PM |
| 10 | ICSAB1 | ICSAB | 1 | 03/28/2019 | 05:41:29 PM |
| 71 | MB-73016 | MBLK | 1 | 03/28/2019 | 05:46:54 PM |
| 72 | LCS-73016 | LCS | 1 | 03/28/2019 | 05:50:40 PM |
| 73 | N034688-001B | SAMP | 1 | 03/28/2019 | 05:54:56 PM |
| 74 | N034688-001B | SAMP | 5 | 03/28/2019 | 05:58:42 PM |
| 75 | N034688-001B-PS | PS | 1 | 03/28/2019 | 06:02:58 PM |
| 76 | N034688-001B-MS | MS | 1 | 03/28/2019 | 06:07:14 PM |
| 77 | N034688-001B-MSD | MSD | 1 | 03/28/2019 | 06:11:31 PM |
| 78 | N034688-002B | SAMP | 1 | 03/28/2019 | 06:15:48 PM |
| 79 | N034688-003B | SAMP | 1 | 03/28/2019 | 06:19:37 PM |
| 80 | N034688-004B | SAMP | 1 | 03/28/2019 | 06:23:25 PM |
| 7 | CCV1 | CCV | 1 | 03/28/2019 | 06:27:12 PM |
| 1 | CCB1 | CCB | 1 | 03/28/2019 | 06:32:32 PM |
| 81 | N034688-005B | SAMP | 1 | 03/28/2019 | 06:36:18 PM |
| 82 | N034688-006B | SAMP | 1 | 03/28/2019 | 06:40:06 PM |
| 83 | N034688-007B | SAMP | 1 | 03/28/2019 | 06:43:54 PM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 84 | N034688-008B | SAMP | 1 | 03/28/2019 | 06:47:41 PM |
| 85 | N034688-009B | SAMP | 1 | 03/28/2019 | 06:51:28 PM |
| 86 | N034688-010B | SAMP | 1 | 03/28/2019 | 06:55:15 PM |
| 87 | N034688-011B | SAMP | 1 | 03/28/2019 | 06:59:03 PM |
| 88 | N034688-012B | SAMP | 1 | 03/28/2019 | 07:02:50 PM |
| 89 | N034688-013B | SAMP | 1 | 03/28/2019 | 07:06:37 PM |
| 90 | MB-73018 | MBLK | 1 | 03/28/2019 | 07:10:24 PM |
| 7 | CCV2 | CCV | 1 | 03/28/2019 | 07:14:12 PM |
| 1 | CCB2 | CCB | 1 | 03/28/2019 | 07:19:33 PM |
| 91 | LCS-73018 | LCS | 1 | 03/28/2019 | 07:23:17 PM |
| 92 | N034708-001B | SAMP | 1 | 03/28/2019 | 07:27:35 PM |
| 93 | N034708-001B | SAMP | 5 | 03/28/2019 | 07:31:51 PM |
| 94 | N034708-001B-PS | PS | 1 | 03/28/2019 | 07:36:10 PM |
| 95 | N034708-001B-MS | MS | 1 | 03/28/2019 | 07:40:29 PM |
| 96 | N034708-001B-MSD | MSD | 1 | 03/28/2019 | 07:44:46 PM |
| 97 | N034708-002B | SAMP | 1 | 03/28/2019 | 07:49:04 PM |
| 98 | N034708-003B | SAMP | 1 | 03/28/2019 | 07:52:51 PM |
| 99 | N034708-004B | SAMP | 1 | 03/28/2019 | 07:56:38 PM |
| 100 | N034708-005B | SAMP | 1 | 03/28/2019 | 08:00:25 PM |
| 7 | CCV3 | CCV | 1 | 03/28/2019 | 08:04:41 PM |
| 1 | CCB3 | CCB | 1 | 03/28/2019 | 08:10:02 PM |
| 101 | N034708-006B | SAMP | 1 | 03/28/2019 | 08:13:46 PM |
| 102 | N034708-007B | SAMP | 1 | 03/28/2019 | 08:17:32 PM |
| 103 | N034708-008B | SAMP | 1 | 03/28/2019 | 08:21:19 PM |
| 104 | N034708-009B | SAMP | 1 | 03/28/2019 | 08:25:06 PM |
| 105 | N034708-010B | SAMP | 1 | 03/28/2019 | 08:28:54 PM |
| 106 | N034708-011B | SAMP | 1 | 03/28/2019 | 08:32:42 PM |
| 107 | N034708-012B | SAMP | 1 | 03/28/2019 | 08:36:31 PM |
| 108 | N034708-013B | SAMP | 1 | 03/28/2019 | 08:40:18 PM |
| 109 | MB-73002 | MBLK | 1 | 03/28/2019 | 08:44:05 PM |
| 110 | LCS-73002 | LCS | 1 | 03/28/2019 | 08:47:51 PM |
| 7 | CCV4 | CCV | 1 | 03/28/2019 | 08:52:09 PM |
| 1 | CCB4 | CCB | 1 | 03/28/2019 | 08:57:29 PM |
| 9 | ICSA2 | ICSA | 1 | 03/28/2019 | 09:01:16 PM |
| 10 | ICSAB2 | ICSAB | 1 | 03/28/2019 | 09:06:41 PM |
| 111 | N034688-001C | SAMP | 1 | 03/28/2019 | 09:12:06 PM |
| 112 | N034688-001C | SAMP | 5 | 03/28/2019 | 09:15:53 PM |
| 113 | N034688-001C-PS | PS | 1 | 03/28/2019 | 09:20:10 PM |
| 114 | N034688-001C-MS | MS | 1 | 03/28/2019 | 09:24:28 PM |
| 115 | N034688-001C-MSD | MSD | 1 | 03/28/2019 | 09:28:45 PM |
| 116 | N034688-002C | SAMP | 1 | 03/28/2019 | 09:33:03 PM |
| 117 | N034688-003C | SAMP | 1 | 03/28/2019 | 09:36:51 PM |
| 118 | N034688-004C | SAMP | 1 | 03/28/2019 | 09:40:39 PM |
| 119 | N034688-005C | SAMP | 1 | 03/28/2019 | 09:44:27 PM |
| 120 | N034688-006C | SAMP | 1 | 03/28/2019 | 09:48:15 PM |
| 7 | CCV5 | CCV | 1 | 03/28/2019 | 09:52:31 PM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CCB5 | CCB | 1 | 03/28/2019 | 09:57:52 PM |
| 121 | N034688-007C | SAMP | 1 | 03/28/2019 | 10:01:37 PM |
| 122 | N034688-008C | SAMP | 1 | 03/28/2019 | 10:05:24 PM |
| 123 | N034688-009C | SAMP | 1 | 03/28/2019 | 10:09:11 PM |
| 124 | N034688-010C | SAMP | 1 | 03/28/2019 | 10:12:58 PM |
| 125 | N034688-011C | SAMP | 1 | 03/28/2019 | 10:16:46 PM |
| 126 | N034688-012C | SAMP | 1 | 03/28/2019 | 10:20:33 PM |
| 127 | N034688-013C | SAMP | 1 | 03/28/2019 | 10:24:21 PM |
| 128 | MB-73024 | MBLK | 1 | 03/28/2019 | 10:28:08 PM |
| 129 | LCS1-73024 | LCS | 1 | 03/28/2019 | 10:31:55 PM |
| 130 | N034708-001C | SAMP | 1 | 03/28/2019 | 10:36:13 PM |
| 7 | CCV6 | CCV | 1 | 03/28/2019 | 10:40:01 PM |
| 1 | CCB6 | CCB | 1 | 03/28/2019 | 10:45:22 PM |
| 131 | N034708-001C | SAMP | 5 | 03/28/2019 | 10:49:08 PM |
| 132 | N034708-001C-PS | PS | 1 | 03/28/2019 | 10:53:25 PM |
| 133 | N034708-001C-MS1 | MS | 1 | 03/28/2019 | 10:57:43 PM |
| 134 | N034708-001C-MSD1 | MSD | 1 | 03/28/2019 | 11:02:01 PM |
| 135 | N034708-002C | SAMP | 1 | 03/28/2019 | 11:06:19 PM |
| 136 | N034708-003C | SAMP | 1 | 03/28/2019 | 11:10:07 PM |
| 137 | N034708-004C | SAMP | 1 | 03/28/2019 | 11:13:55 PM |
| 138 | N034708-005C | SAMP | 1 | 03/28/2019 | 11:17:43 PM |
| 139 | N034708-006C | SAMP | 1 | 03/28/2019 | 11:21:30 PM |
| 140 | N034708-007C | SAMP | 1 | 03/28/2019 | 11:25:17 PM |
| 7 | CCV7 | CCV | 1 | 03/28/2019 | 11:29:05 PM |
| 1 | CCB7 | CCB | 1 | 03/28/2019 | 11:34:24 PM |
| 141 | N034708-008C | SAMP | 1 | 03/28/2019 | 11:38:10 PM |
| 142 | N034708-009C | SAMP | 1 | 03/28/2019 | 11:41:58 PM |
| 143 | N034708-010C | SAMP | 1 | 03/28/2019 | 11:45:46 PM |
| 144 | N034708-011C | SAMP | 1 | 03/28/2019 | 11:49:35 PM |
| 145 | N034708-012C | SAMP | 1 | 03/28/2019 | 11:53:23 PM |
| 146 | N034708-013C | SAMP | 1 | 03/28/2019 | 11:57:12 PM |
| 7 | CCV8 | CCV | 1 | 03/29/2019 | 12:01:01 AM |
| 1 | CCB8 | CCB | 1 | 03/29/2019 | 12:06:21 AM |
| 9 | ICSA3 | ICSA | 1 | 03/29/2019 | 12:10:06 AM |
| 10 | ICSAB3 | ICSAB | 1 | 03/29/2019 | 12:15:32 AM |
| 111 | N034688-001C | SAMP | 1 | 03/29/2019 | 07:51:10 AM |
| 111 | N034688-001C | SAMP | 1 | 03/29/2019 | 08:00:21 AM |
| 7 | CCV9 | CCV | 1 | 03/29/2019 | 08:04:37 AM |
| 1 | CCB9 | CCB | 1 | 03/29/2019 | 08:08:55 AM |
| 9 | ICSA4 | ICSA | 1 | 03/29/2019 | 08:12:41 AM |
| 10 | ICSAB4 | ICSAB | 1 | 03/29/2019 | 08:18:06 AM |

**INJECTION LOG: 190411A**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-190401G,0.5<50mL |
| Standard2 | MWST-190401L |
| Standard3 | MWST-190401Q,5<50mL |
| Standard4 | MWST-190401Q,12.5<50mL |
| Standard5 | MWST-190401Q,15<40mL |
| Standard6 | MWST-190401Q,25<50mL |
| Standard7 | MWST-190401Q |
| ICV | MWST-190401V |
| CCV | MWST-190401Q,25<50mL |
| ICSA/ICSAB | MWST-190401W/X |
| Int. Std. (Y) | MSST-190315A |
| PS Spike | MWST-190401D/E/F |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CalBlk | IBLK | 1 | 04/11/2019 | 10:13:53 AM |
| 2 | Standard1 | ICAL | 1 | 04/11/2019 | 10:17:41 AM |
| 3 | Standard2 | ICAL | 1 | 04/11/2019 | 10:21:56 AM |
| 4 | Standard3 | ICAL | 1 | 04/11/2019 | 10:26:12 AM |
| 5 | Standard4 | ICAL | 1 | 04/11/2019 | 10:30:30 AM |
| 6 | Standard5 | ICAL | 1 | 04/11/2019 | 10:34:48 AM |
| 7 | Standard6 | ICAL | 1 | 04/11/2019 | 10:39:09 AM |
| 8 | Standard7 | ICAL | 1 | 04/11/2019 | 10:43:30 AM |
| 250 | ICV | ICV | 1 | 04/11/2019 | 10:51:50 AM |
| 1 | ICB | ICB | 1 | 04/11/2019 | 10:56:45 AM |
| 2 | LLICV1 | CCV1 | 1 | 04/11/2019 | 11:00:29 AM |
| 9 | ICSA1 | ICSA | 1 | 04/11/2019 | 11:04:46 AM |
| 10 | ICSAB1 | ICSAB | 1 | 04/11/2019 | 11:10:17 AM |
| 191 | MB-73331 | MBLK | 1 | 04/11/2019 | 11:15:49 AM |
| 191 | MB-73331 | MBLK | 1 | 04/11/2019 | 11:20:08 AM |
| 192 | LCS-73331 | LCS | 1 | 04/11/2019 | 11:23:58 AM |
| 193 | N034708-002B | SAMP | 1 | 04/11/2019 | 11:28:18 AM |
| 194 | N034708-002B | SAMP | 5 | 04/11/2019 | 11:32:38 AM |
| 195 | N034708-002B-PS | PS | 1 | 04/11/2019 | 11:36:58 AM |
| 196 | N034708-002B-MS | MS | 1 | 04/11/2019 | 11:41:17 AM |
| 197 | N034708-002B-MSD | MSD | 1 | 04/11/2019 | 11:45:37 AM |
| 198 | N034708-003B | SAMP | 1 | 04/11/2019 | 11:49:58 AM |
| 199 | N034708-009B | SAMP | 1 | 04/11/2019 | 11:54:18 AM |
| 7 | CCV1 | CCV | 1 | 04/11/2019 | 11:58:37 AM |
| 1 | CCB1 | CCB | 1 | 04/11/2019 | 12:03:31 PM |
| 200 | N034708-011B | SAMP | 1 | 04/11/2019 | 12:07:15 PM |
| 201 | MB-73330 | MBLK | 1 | 04/11/2019 | 12:11:36 PM |
| 202 | LCS-73330 | LCS | 1 | 04/11/2019 | 12:15:26 PM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 203 | N034708-002C | SAMP | 1 | 04/11/2019 | 12:19:45 PM |
| 204 | N034708-002C | SAMP | 5 | 04/11/2019 | 12:24:05 PM |
| 205 | N034708-002C-PS | PS | 1 | 04/11/2019 | 12:28:25 PM |
| 206 | N034708-002C-MS | MS | 1 | 04/11/2019 | 12:32:46 PM |
| 207 | N034708-002C-MSD | MSD | 1 | 04/11/2019 | 12:37:05 PM |
| 208 | N034708-003C | SAMP | 1 | 04/11/2019 | 12:41:25 PM |
| 209 | N034708-009C | SAMP | 1 | 04/11/2019 | 12:45:45 PM |
| 7 | CCV2 | CCV | 1 | 04/11/2019 | 12:50:05 PM |
| 1 | CCB2 | CCB | 1 | 04/11/2019 | 12:55:26 PM |
| 210 | N034708-011C | SAMP | 1 | 04/11/2019 | 12:59:10 PM |
| 7 | CCV3 | CCV | 1 | 04/11/2019 | 01:03:13 PM |
| 1 | CCB3 | CCB | 1 | 04/11/2019 | 01:08:34 PM |
| 9 | ICSA2 | ICSA | 1 | 04/11/2019 | 01:12:20 PM |
| 10 | ICSAB2 | ICSAB | 1 | 04/11/2019 | 01:17:51 PM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/21/2019 8:02:39**
Prep End Date: **3/21/2019 3:00:00**
Reviewed/ Date: NS 4/12/2019
Initials/ Date: for
Prep Batch **73018** Prep Code: **3010_W_DISS** Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **Db-2-4** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-73018 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-73018 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-001B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-001B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-003B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-004B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-005B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-006B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-007B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-008B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-009B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-010B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10760 | HYDROCHLORIC ACID |
| 10767 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/21/2019 8:02:39**
Prep End Date: **3/21/2019 3:00:00**
Prep Batch **73018** Prep Code: **3010_W_DISS**

Reviewed/ Date: NS 4/12/2019
Initials/ Date: for
Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **Db-2-4** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-011B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-012B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-013B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10760 | HYDROCHLORIC ACID |
| 10767 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **4/10/2019 1:05:14 P**
Prep End Date: **4/10/2019 4:30:00 P**
Prep Batch **73331** Prep Code: **3010_W_DISS**

Reviewed/ Date: 4/19/2019
Initials/ Date: for
Technician: **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **DB-2-38** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-73331 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-73331 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-002B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-002B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-003B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-009B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-011B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10760 | HYDROCHLORIC ACID |
| 10767 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MWST-190401D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-190401E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-190401F | ICP Solution C | LCS,MS,MSD | 0.5 |

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190328D**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Iron** | | | | | | | | |
| CalBlk | 03/28/2019 | 04:48:43 PM | Fe | 273.953 | 67 | 0.00 | mg/L | |
| Standard1 | 03/28/2019 | 04:52:32 PM | Fe | 273.953 | 178 | 0.0200 | mg/L | |
| Standard2 | 03/28/2019 | 04:56:17 PM | Fe | 273.953 | 748 | 0.050 | mg/L | |
| Standard3 | 03/28/2019 | 05:00:34 PM | Fe | 273.953 | 23999 | 2.000 | mg/L | |
| Standard4 | 03/28/2019 | 05:04:52 PM | Fe | 273.953 | 60687 | 5.000 | mg/L | |
| Standard5 | 03/28/2019 | 05:09:10 PM | Fe | 273.953 | 91560 | 7.500 | mg/L | |
| Standard6 | 03/28/2019 | 05:13:30 PM | Fe | 273.953 | 122457 | 10.000 | mg/L | |
| Standard7 | 03/28/2019 | 05:17:49 PM | Fe | 273.953 | 239398 | 20.000 | mg/L | 1.0000 |

**INITIAL CALIBRATION SUMMARY: 190411A**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Iron** | | | | | | | | |
| CalBlk | 04/11/2019 | 10:13:53 AM | Fe | 273.953 | 35 | 0.00 | mg/L | |
| Standard1 | 04/11/2019 | 10:17:41 AM | Fe | 273.953 | 459 | 0.0200 | mg/L | |
| Standard2 | 04/11/2019 | 10:21:56 AM | Fe | 273.953 | 1566 | 0.050 | mg/L | |
| Standard3 | 04/11/2019 | 10:26:12 AM | Fe | 273.953 | 49852 | 2.000 | mg/L | |
| Standard4 | 04/11/2019 | 10:30:30 AM | Fe | 273.953 | 124294 | 5.000 | mg/L | |
| Standard5 | 04/11/2019 | 10:34:48 AM | Fe | 273.953 | 186869 | 7.500 | mg/L | |
| Standard6 | 04/11/2019 | 10:39:09 AM | Fe | 273.953 | 250191 | 10.000 | mg/L | |
| Standard7 | 04/11/2019 | 10:43:30 AM | Fe | 273.953 | 476657 | 20.000 | mg/L | 0.9998 |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3332982** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10218.118 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **LLICV1** | SampType: **CCV1** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3332984** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 16.058 | 20 | 20.00 | 0 | 80.3 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3332997** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10218.485 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333009** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10214.077 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333021** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10218.513 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333033** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10253.845 | 20 | 10000 | 0 | 103 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133148** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R133148** | TestNo: **EPA 6010B** | | Analysis Date: **4/11/2019** | SeqNo: **3347738** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9964.118 | 20 | 10000 | 0 | 99.6 | 90 | 110 | | | | |

| Sample ID **LLICV1** | SampType: **CCV1** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133148** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R133148** | TestNo: **EPA 6010B** | | Analysis Date: **4/11/2019** | SeqNo: **3347740** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 21.404 | 20 | 20.00 | 0 | 107 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133148** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133148** | TestNo: **EPA 6010B** | | Analysis Date: **4/11/2019** | SeqNo: **3347753** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9969.436 | 20 | 10000 | 0 | 99.7 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133148** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133148** | TestNo: **EPA 6010B** | | Analysis Date: **4/11/2019** | SeqNo: **3347765** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10470.220 | 20 | 10000 | 0 | 105 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133148** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133148** | TestNo: **EPA 6010B** | | Analysis Date: **4/11/2019** | SeqNo: **3347768** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10076.219 | 20 | 10000 | 0 | 101 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3332983** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -4.241535 | 20 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3332998** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -6.431062 | 20 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333010** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -4.113192 | 20 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333022** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -3.355278 | 20 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333034** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -1.866957 | 20 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133148** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R133148** | TestNo: **EPA 6010B** | | Analysis Date: **4/11/2019** | SeqNo: **3347739** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -1.253138 | 20 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133148** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133148** | TestNo: **EPA 6010B** | | Analysis Date: **4/11/2019** | SeqNo: **3347754** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -3.009919 | 20 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133148** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133148** | TestNo: **EPA 6010B** | | Analysis Date: **4/11/2019** | SeqNo: **3347766** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -2.932517 | 20 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133148** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133148** | TestNo: **EPA 6010B** | | Analysis Date: **4/11/2019** | SeqNo: **3347769** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -2.822025 | 20 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **132850**
Client ID: **ICSA** Batch ID: **R132850** TestNo: **EPA 6010B** Analysis Date: **3/28/2019** SeqNo: **3332985**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 499861.155 | 50 | 500000 | 0 | 100 | 80 | 120 | | | | |
| Calcium | 537314.796 | 500 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Iron | 182336.330 | 20 | 200000 | 0 | 91.2 | 80 | 120 | | | | |
| Magnesium | 477379.536 | 100 | 500000 | 0 | 95.5 | 80 | 120 | | | | |

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **132850**
Client ID: **ICSAB** Batch ID: **R132850** TestNo: **EPA 6010B** Analysis Date: **3/28/2019** SeqNo: **3332986**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 524340.042 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |
| Calcium | 557363.709 | 500 | 500000 | 0 | 111 | 80 | 120 | | | | |
| Iron | 176883.529 | 20 | 200000 | 0 | 88.4 | 80 | 120 | | | | |
| Magnesium | 501186.003 | 100 | 500000 | 0 | 100 | 80 | 120 | | | | |

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **132850**
Client ID: **ICSA** Batch ID: **R132850** TestNo: **EPA 6010B** Analysis Date: **3/28/2019** SeqNo: **3333035**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 502294.210 | 50 | 500000 | 0 | 100 | 80 | 120 | | | | |
| Calcium | 534739.635 | 500 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Iron | 182142.031 | 20 | 200000 | 0 | 91.1 | 80 | 120 | | | | |
| Magnesium | 481034.499 | 100 | 500000 | 0 | 96.2 | 80 | 120 | | | | |

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **132850**
Client ID: **ICSAB** Batch ID: **R132850** TestNo: **EPA 6010B** Analysis Date: **3/28/2019** SeqNo: **3333036**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 522600.266 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **132850** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132850** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333036** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 556134.625 | 500 | 500000 | 0 | 111 | 80 | 120 | | | | |
| Iron | 177690.961 | 20 | 200000 | 0 | 88.8 | 80 | 120 | | | | |
| Magnesium | 502305.372 | 100 | 500000 | 0 | 100 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **133148**
Client ID: **ICSA** Batch ID: **R133148** TestNo: **EPA 6010B** Analysis Date: **4/11/2019** SeqNo: **3347741**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 521630.593 | 50 | 500000 | 0 | 104 | 80 | 120 | | | | |
| Calcium | 517618.696 | 500 | 500000 | 0 | 104 | 80 | 120 | | | | |
| Iron | 177707.250 | 20 | 200000 | 0 | 88.9 | 80 | 120 | | | | |
| Magnesium | 475958.240 | 100 | 500000 | 0 | 95.2 | 80 | 120 | | | | |

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **133148**
Client ID: **ICSAB** Batch ID: **R133148** TestNo: **EPA 6010B** Analysis Date: **4/11/2019** SeqNo: **3347742**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 567960.574 | 50 | 500000 | 0 | 114 | 80 | 120 | | | | |
| Calcium | 564392.856 | 500 | 500000 | 0 | 113 | 80 | 120 | | | | |
| Iron | 185934.331 | 20 | 200000 | 0 | 93.0 | 80 | 120 | | | | |
| Magnesium | 517851.242 | 100 | 500000 | 0 | 104 | 80 | 120 | | | | |

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **133148**
Client ID: **ICSA** Batch ID: **R133148** TestNo: **EPA 6010B** Analysis Date: **4/11/2019** SeqNo: **3347770**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 520434.226 | 50 | 500000 | 0 | 104 | 80 | 120 | | | | |
| Calcium | 517536.643 | 500 | 500000 | 0 | 104 | 80 | 120 | | | | |
| Iron | 178917.088 | 20 | 200000 | 0 | 89.5 | 80 | 120 | | | | |
| Magnesium | 480859.292 | 100 | 500000 | 0 | 96.2 | 80 | 120 | | | | |

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **133148**
Client ID: **ICSAB** Batch ID: **R133148** TestNo: **EPA 6010B** Analysis Date: **4/11/2019** SeqNo: **3347771**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 567877.627 | 50 | 500000 | 0 | 114 | 80 | 120 | | | | |
| Calcium | 567326.615 | 500 | 500000 | 0 | 113 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | RunNo: **133148** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R133148** | TestNo: **EPA 6010B** | | Analysis Date: **4/11/2019** | SeqNo: **3347771** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 185704.995 | 20 | 200000 | 0 | 92.9 | 80 | 120 | | | | |
| Magnesium | 519615.113 | 100 | 500000 | 0 | 104 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190328D**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 1.0018 | 100.18 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1 | 99.9 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 1.05 | 105 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 1.039 | 103.93 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 1.03 | 103 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 1 | 99.69 | 65-125 | PASS |
| Standard7 | ICAL | 1 | 0.97 | 97.48 | 65-125 | PASS |
| ICV | ICV | 1 | 0.99 | 99.33 | 65-125 | PASS |
| ICB | ICB | 1 | 1 | 99.92 | 65-125 | PASS |
| LLICV1 | CCV1 | 1 | 1 | 99.98 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 0.96 | 96.32 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 0.91 | 90.86 | 65-125 | PASS |
| CCV1 | CCV | 1 | 1 | 99.93 | 65-125 | PASS |
| CCB1 | CCB | 1 | 1.0042 | 100.42 | 65-125 | PASS |
| MB-73018 | MBLK | 1 | 1.0099 | 100.99 | 65-125 | PASS |
| CCV2 | CCV | 1 | 1 | 99.62 | 65-125 | PASS |
| CCB2 | CCB | 1 | 1.0006 | 100.06 | 65-125 | PASS |
| LCS-73018 | LCS | 1 | 0.93 | 92.67 | 65-125 | PASS |
| N034708-001B | SAMP | 1 | 0.99 | 99.3 | 65-125 | PASS |
| N034708-001B | SAMP | 5 | 1 | 99.64 | 65-125 | PASS |
| N034708-001B-PS | PS | 1 | 1.0053 | 100.53 | 65-125 | PASS |
| N034708-001B-MS | MS | 1 | 1.007 | 100.7 | 65-125 | PASS |
| N034708-001B-MSD | MSD | 1 | 1.0021 | 100.21 | 65-125 | PASS |
| N034708-002B | SAMP | 1 | 1.016 | 101.63 | 65-125 | PASS |
| N034708-003B | SAMP | 1 | 1.019 | 101.92 | 65-125 | PASS |
| N034708-004B | SAMP | 1 | 1.0073 | 100.73 | 65-125 | PASS |
| N034708-005B | SAMP | 1 | 1.021 | 102.11 | 65-125 | PASS |
| CCV3 | CCV | 1 | 1 | 99.99 | 65-125 | PASS |
| CCB3 | CCB | 1 | 1.006 | 100.6 | 65-125 | PASS |
| N034708-006B | SAMP | 1 | 1.002 | 100.2 | 65-125 | PASS |
| N034708-007B | SAMP | 1 | 1.018 | 101.78 | 65-125 | PASS |
| N034708-008B | SAMP | 1 | 1.017 | 101.71 | 65-125 | PASS |
| N034708-009B | SAMP | 1 | 0.99 | 99.097 | 65-125 | PASS |
| N034708-010B | SAMP | 1 | 1.012 | 101.17 | 65-125 | PASS |
| N034708-011B | SAMP | 1 | 0.98 | 98.18 | 65-125 | PASS |
| N034708-012B | SAMP | 1 | 1.0058 | 100.58 | 65-125 | PASS |
| N034708-013B | SAMP | 1 | 1 | 99.7 | 65-125 | PASS |
| CCV4 | CCV | 1 | 0.99 | 99.39 | 65-125 | PASS |
| CCB4 | CCB | 1 | 1.0018 | 100.18 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 0.94 | 93.57 | 65-125 | PASS |

**INTERNAL STANDARD: 190328D**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| ICSAB2 | ICSAB | 1 | 0.89 | 89 | 65-125 | PASS |
| CCV5 | CCV | 1 | 1 | 99.87 | 65-125 | PASS |
| CCB5 | CCB | 1 | 1.0051 | 100.51 | 65-125 | PASS |
| CCV6 | CCV | 1 | 0.99 | 99.44 | 65-125 | PASS |
| CCB6 | CCB | 1 | 1.003 | 100.3 | 65-125 | PASS |
| CCV7 | CCV | 1 | 1.0002 | 100.02 | 65-125 | PASS |
| CCB7 | CCB | 1 | 1.0065 | 100.65 | 65-125 | PASS |
| CCV8 | CCV | 1 | 1 | 99.55 | 65-125 | PASS |
| CCB8 | CCB | 1 | 1.004 | 100.4 | 65-125 | PASS |
| ICSA3 | ICSA | 1 | 0.94 | 93.53 | 65-125 | PASS |
| ICSAB3 | ICSAB | 1 | 0.89 | 89.11 | 65-125 | PASS |

**INTERNAL STANDARD: 190411A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 1.0012 | 100.12 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1.0061 | 100.61 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 1.052 | 105.15 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 1.034 | 103.39 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 1.035 | 103.5 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 1.031 | 103.1 | 65-125 | PASS |
| Standard7 | ICAL | 1 | 1.017 | 101.66 | 65-125 | PASS |
| ICV | ICV | 1 | 1.045 | 104.46 | 65-125 | PASS |
| ICB | ICB | 1 | 1.014 | 101.39 | 65-125 | PASS |
| LLICV1 | CCV1 | 1 | 1.0057 | 100.57 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 0.94 | 94.15 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 0.86 | 86.037 | 65-125 | PASS |
| MB-73331 | MBLK | 1 | 1.0087 | 100.87 | 65-125 | PASS |
| MB-73331 | MBLK | 1 | 0.99 | 99.46 | 65-125 | PASS |
| LCS-73331 | LCS | 1 | 0.95 | 95.47 | 65-125 | PASS |
| N034708-002B | SAMP | 1 | 1.019 | 101.9 | 65-125 | PASS |
| N034708-002B | SAMP | 5 | 1.013 | 101.28 | 65-125 | PASS |
| N034708-002B-PS | PS | 1 | 1.014 | 101.37 | 65-125 | PASS |
| N034708-002B-MS | MS | 1 | 1.012 | 101.21 | 65-125 | PASS |
| N034708-002B-MSD | MSD | 1 | 1.018 | 101.78 | 65-125 | PASS |
| N034708-003B | SAMP | 1 | 1.011 | 101.13 | 65-125 | PASS |
| N034708-009B | SAMP | 1 | 1.029 | 102.92 | 65-125 | PASS |
| CCV1 | CCV | 1 | 1.053 | 105.3 | 65-125 | PASS |
| CCB1 | CCB | 1 | 1.028 | 102.78 | 65-125 | PASS |
| N034708-011B | SAMP | 1 | 1.023 | 102.28 | 65-125 | PASS |
| CCV2 | CCV | 1 | 1.016 | 101.58 | 65-125 | PASS |
| CCB2 | CCB | 1 | 0.99 | 99.003 | 65-125 | PASS |
| CCV3 | CCV | 1 | 1.032 | 103.15 | 65-125 | PASS |
| CCB3 | CCB | 1 | 1.0033 | 100.33 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 0.93 | 93.49 | 65-125 | PASS |
| ICSAB2 | ICSAB | 1 | 0.87 | 86.67 | 65-125 | PASS |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034708
Test Method: EPA 6010B
Analysis Date: 3/28/2019

Matrix: Groundwater
Batch No.: 73018

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

| Sample ID | Analyte | Symbol | Units | Calc Val | Oqual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|---|
| N034708-001B DT 5x | Iron | Fe | ug/L | 0 | NA | 0 | | 10 |

Note: NA - Not Applicable

**ASSET Laboratories**

**ICP-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034708
Test Method: EPA 6010B
Analysis Date: 4/11/2019

Matrix: Groundwater
Batch No.: 73331

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

| Sample ID | Analyte | Symbol | Units | Calc Val | Oqual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|---|
| N034708-002B DT 5x | Iron | Fe | ug/L | 0 | NA | 0 | | 10 |

Note: NA - Not Applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID **N034708-001B-PS** | SampType: **PS** | TestCode: **6010_WDPG** | Units: **ug/L** | Prep Date: | | | RunNo: **132850** | | | | | |
| Client ID: **ZZZZZZ** | Batch ID: **73018** | TestNo: **EPA 6010B** | **EPA 3010A** | Analysis Date: **3/28/2019** | | | SeqNo: **3333014** | | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | |
| Iron | 99.150 | 20 | 100.0 | 0 | 99.1 | 80 | 120 | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WDPGEPPB**

| Sample ID | N034708-002B-PS | SampType: | PS | TestCode: | 6010_WDPG | Units: | ug/L | Prep Date: | | RunNo: | 133148 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73331 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 4/11/2019 | SeqNo: | 3347748 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 105.478 | 20 | 100.0 | 0 | 105 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

**Acceptance Criteria:** MDL < spike < 10XMDL

| Analyte | Wavelength | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Spike Conc., mg/L | SD | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ag | 328.069 | 0.0033 | 0.0031 | 0.0033 | 0.0033 | 0.0031 | 0.0030 | 0.0047 | 0.003 | 0.00061604 | **0.001936** | 0.003 |
| Al | 237.312 | 0.0664 | 0.0603 | 0.0656 | 0.0650 | 0.0658 | 0.0660 | 0.0946 | 0.050 | 0.01254823 | **0.039439** | 0.050 |
| As | 188.983 | 0.0131 | 0.0089 | 0.0120 | 0.0089 | 0.0060 | 0.0102 | 0.0080 | 0.010 | 0.00223806 | **0.007034** | 0.010 |
| B | 249.679 | 0.1491 | 0.1267 | 0.1281 | 0.1467 | 0.1261 | 0.1195 | 0.1015 | 0.100 | 0.01801843 | **0.056632** | 0.100 |
| Ba | 233.529 | 0.0033 | 0.0031 | 0.0033 | 0.0031 | 0.0032 | 0.0030 | 0.0024 | 0.003 | 0.00033070 | **0.001039** | 0.003 |
| Be | 313.104 | 0.0012 | 0.0011 | 0.0012 | 0.0012 | 0.0011 | 0.0011 | 0.0011 | 0.001 | 0.00006873 | **0.000216** | 0.001 |
| Ca | 227.546 | 0.2381 | 0.2231 | 0.2559 | 0.2299 | 0.2194 | 0.2473 | 0.2691 | 0.200 | 0.02202408 | **0.069222** | 0.200 |
| Cd | 214.437 | 0.0031 | 0.0029 | 0.0031 | 0.0032 | 0.0031 | 0.0031 | 0.0025 | 0.003 | 0.00027049 | **0.000850** | 0.003 |
| Co | 228.614 | 0.0030 | 0.0028 | 0.0030 | 0.0031 | 0.0031 | 0.0031 | 0.0027 | 0.003 | 0.00014491 | **0.000455** | 0.003 |
| Cr | 267.719 | 0.0009 | 0.0008 | 0.0009 | 0.0012 | 0.0012 | 0.0013 | 0.0009 | 0.001 | 0.00017120 | **0.000538** | 0.001 |
| Fe | 273.953 | 0.0255 | 0.0226 | 0.0242 | 0.0255 | 0.0252 | 0.0248 | 0.0387 | 0.020 | 0.00552308 | **0.017359** | 0.020 |
| Mg | 279.079 | 0.1124 | 0.1052 | 0.1129 | 0.1315 | 0.1305 | 0.1314 | 0.1435 | 0.100 | 0.01532024 | **0.048152** | 0.100 |
| Mn | 257.607 | 0.0119 | 0.0111 | 0.0120 | 0.0122 | 0.0121 | 0.0122 | 0.0099 | 0.010 | 0.00098403 | **0.003093** | 0.010 |
| Mo | 202.03 | 0.0079 | 0.0068 | 0.0067 | 0.0065 | 0.0065 | 0.0062 | 0.0057 | 0.005 | 0.00083918 | **0.002638** | 0.005 |
| Ni | 231.604 | 0.0061 | 0.0056 | 0.0062 | 0.0060 | 0.0060 | 0.0062 | 0.0045 | 0.005 | 0.00062690 | **0.001970** | 0.005 |
| Pb | 220.351 | 0.0124 | 0.0117 | 0.0127 | 0.0115 | 0.0120 | 0.0118 | 0.0090 | 0.010 | 0.00126325 | **0.003970** | 0.010 |
| Sb | 206.836 | 0.0102 | 0.0095 | 0.0104 | 0.0112 | 0.0117 | 0.0111 | 0.0080 | 0.010 | 0.00117407 | **0.003690** | 0.010 |
| Se | 196.025 | 0.0102 | 0.0087 | 0.0114 | 0.0136 | 0.0144 | 0.0136 | 0.0075 | 0.010 | 0.00251341 | **0.007900** | 0.010 |
| Sn | 189.927 | 0.0095 | 0.0084 | 0.0090 | 0.0124 | 0.0126 | 0.0129 | 0.0099 | 0.010 | 0.00175765 | **0.005524** | 0.010 |
| Ti | 334.943 | 0.0114 | 0.0106 | 0.0115 | 0.0115 | 0.0115 | 0.0115 | 0.0098 | 0.010 | 0.00074093 | **0.002329** | 0.010 |
| Tl | 190.794 | 0.0170 | 0.0150 | 0.0165 | 0.0171 | 0.0180 | 0.0168 | 0.0151 | 0.015 | 0.00116288 | **0.003655** | 0.015 |
| V | 292.404 | 0.0025 | 0.0024 | 0.0025 | 0.0032 | 0.0032 | 0.0032 | 0.0027 | 0.003 | 0.00038496 | **0.001210** | 0.003 |
| Zn | 206.201 | 0.0109 | 0.0100 | 0.0107 | 0.0125 | 0.0124 | 0.0124 | 0.0095 | 0.010 | 0.00123731 | **0.003889** | 0.010 |

## METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

| Analyte | ICP-02 MDL | MDL Blank | Higher MDL | LOD | PQL |
|---|---|---|---|---|---|
| Ag | 0.001936 | 0.002362 | 0.002362 | 0.002 | 0.003 |
| Al | 0.039439 | 0.039859 | 0.039859 | 0.04 | 0.5 |
| As | 0.007034 | 0.007672 | 0.007672 | 0.0075 | 0.01 |
| B | 0.056632 | 0.074419 | 0.074419 | 0.075 | 0.1 |
| Ba | 0.001039 | 0.000433 | 0.001039 | 0.001 | 0.003 |
| Be | 0.000216 | 0.000311 | 0.000311 | 0.0005 | 0.003 |
| Ca | 0.069222 | 0.084832 | 0.084832 | 0.1 | 0.5 |
| Cd | 0.000850 | 0.000592 | 0.000850 | 0.001 | 0.003 |
| Co | 0.000455 | 0.001902 | 0.001902 | 0.001 | 0.003 |
| Cr | 0.000538 | 0.000527 | 0.000538 | 0.001 | 0.003 |
| Fe | 0.017359 | 0.017751 | 0.017751 | 0.018 | 0.1 |
| Mg | 0.048152 | 0.043017 | 0.048152 | 0.05 | 0.1 |
| Mn | 0.003093 | 0.000782 | 0.003093 | 0.005 | 0.5 |
| Mo | 0.002638 | 0.002482 | 0.002638 | 0.0025 | 0.005 |
| Ni | 0.001970 | 0.000822 | 0.001970 | 0.0025 | 0.005 |
| Pb | 0.003970 | 0.002762 | 0.003970 | 0.005 | 0.005 |
| Sb | 0.003690 | 0.004504 | 0.004504 | 0.005 | 0.01 |
| Se | 0.007900 | 0.008549 | 0.008549 | 0.008 | 0.01 |
| Sn | 0.005524 | 0.003415 | 0.005524 | 0.0075 | 0.05 |
| Ti | 0.002329 | 0.001493 | 0.002329 | 0.005 | 0.05 |
| Tl | 0.003655 | 0.005987 | 0.005987 | 0.005 | 0.015 |
| V | 0.001210 | 0.000749 | 0.001210 | 0.002 | 0.003 |
| Zn | 0.003889 | 0.007683 | 0.007683 | 0.008 | 0.01 |

# EPA 6010B

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 73024
**ASSET #:** N034708
**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 3/28/2019

**Method:**

[X] EPA 6010B / 200.7 TOTAL
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | X | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

% Rec of Fe in N034708-001C-PS failed, high bias. However, LCS passed criteria.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | x | | |
| 2. Matrix / units correct | x | | |
| 3. Does batch meet QC requirements? | x | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | x | | |
| 5. Is first level review correct and complete? | x | | |

1st Level Reviewer CEI Date: 4/12/2019

2nd Level Reviewer 4/12/2019 Date: —

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 73330
**ASSET #:** N034708
**Method:**
[X] EPA 6010B / 200.7 TOTAL
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

**Instrument ID:** ICP-02
**Analyst:** CEI
**Date Analyzed:** 4/11/2019

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | | | X | | | X |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | | | |
| 2. Matrix / units correct | | | |
| 3. Does batch meet QC requirements? | | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | | | |
| 5. Is first level review correct and complete? | | | |

1st Level Reviewer CEI Date: 4/12/2019
2nd Level Reviewer 4/12/2019 Date: —

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA 6010B
**TEST NAME:** Heavy Metals by ICP
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N034708-005C** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.15246 * 1 *(25/25) * 1000

Iron , ug/L = 152.46

Reporting results in two significant figures,

**Iron , ug/L = 150**

NS 4/12/2019

# % RSD SUMMARY

**RSD SUMMARY: 190328D**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Fe | 0 | 134.51 | 15 | <PQL |
| Standard1 | ICAL | 1 | Fe | 0.02 | 14.88 | 15 | PASS |
| Standard2 | ICAL | 1 | Fe | 0.05 | 1.2 | 15 | PASS |
| Standard3 | ICAL | 1 | Fe | 2 | 0.27 | 15 | PASS |
| Standard4 | ICAL | 1 | Fe | 5 | 0.09 | 15 | PASS |
| Standard5 | ICAL | 1 | Fe | 7.5 | 0.32 | 15 | PASS |
| Standard6 | ICAL | 1 | Fe | 10 | 0.17 | 15 | PASS |
| Standard7 | ICAL | 1 | Fe | 20 | 0.27 | 15 | PASS |
| ICV | ICV | 1 | Fe | 10.22 | 0.25 | 15 | PASS |
| ICB | ICB | 1 | Fe | -0.0042 | 38.79 | 15 | <PQL |
| LLICV1 | CCV1 | 1 | Fe | 0.016 | 7.91 | 20 | PASS |
| ICSA1 | ICSA | 1 | Fe | 182.34 | 0.16 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Fe | 176.88 | 0.092 | 15 | PASS |
| CCV1 | CCV | 1 | Fe | 10.22 | 0.32 | 15 | PASS |
| CCB1 | CCB | 1 | Fe | -0.0064 | 23.2 | 15 | <PQL |
| CCV2 | CCV | 1 | Fe | 10.21 | 0.4 | 15 | PASS |
| CCB2 | CCB | 1 | Fe | -0.0041 | 27.65 | 15 | <PQL |
| CCV3 | CCV | 1 | Fe | 10.22 | 0.33 | 15 | PASS |
| CCB3 | CCB | 1 | Fe | -0.0034 | 42.68 | 15 | <PQL |
| CCV4 | CCV | 1 | Fe | 10.25 | 0.42 | 15 | PASS |
| CCB4 | CCB | 1 | Fe | -0.0019 | 21.32 | 15 | <PQL |
| ICSA2 | ICSA | 1 | Fe | 182.14 | 0.033 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Fe | 177.69 | 0.098 | 15 | PASS |
| CCV5 | CCV | 1 | Fe | 10.23 | 0.34 | 15 | PASS |
| CCB5 | CCB | 1 | Fe | -0.0022 | 83.34 | 15 | <PQL |
| MB-73024 | MBLK | 1 | Fe | -0.0093 | 3.67 | 15 | PASS |
| LCS1-73024 | LCS | 1 | Fe | 0.096 | 2.41 | 15 | PASS |
| N034708-001C | SAMP | 1 | Fe | 0.043 | 1.27 | 15 | PASS |
| CCV6 | CCV | 1 | Fe | 10.21 | 0.42 | 15 | PASS |
| CCB6 | CCB | 1 | Fe | -0.0043 | 21.58 | 15 | <PQL |
| N034708-001C | SAMP | 5 | Fe | 0.0013 | 38.65 | 15 | <PQL |
| N034708-001C-PS | PS | 1 | Fe | 0.32 | 0.79 | 15 | PASS |
| N034708-001C-MS1 | MS | 1 | Fe | 0.14 | 1.063 | 15 | PASS |
| N034708-001C-MSD1 | MSD | 1 | Fe | 0.14 | 0.53 | 15 | PASS |
| N034708-002C | SAMP | 1 | Fe | 0.025 | 2.25 | 15 | PASS |
| N034708-003C | SAMP | 1 | Fe | 0.023 | 4.77 | 15 | PASS |
| N034708-004C | SAMP | 1 | Fe | 0.1 | 0.57 | 15 | PASS |
| N034708-005C | SAMP | 1 | Fe | 0.15 | 0.73 | 15 | PASS |
| N034708-006C | SAMP | 1 | Fe | 0.034 | 1.57 | 15 | PASS |
| N034708-007C | SAMP | 1 | Fe | 0.11 | 0.15 | 15 | PASS |
| CCV7 | CCV | 1 | Fe | 10.19 | 0.31 | 15 | PASS |
| CCB7 | CCB | 1 | Fe | -0.0037 | 22.058 | 15 | <PQL |

**RSD SUMMARY: 190328D**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| N034708-008C | SAMP | 1 | Fe | 0.039 | 1.99 | 15 | PASS |
| N034708-009C | SAMP | 1 | Fe | 0.024 | 1.5 | 15 | PASS |
| N034708-010C | SAMP | 1 | Fe | 0.033 | 3.11 | 15 | PASS |
| N034708-011C | SAMP | 1 | Fe | 0.013 | 3.49 | 15 | PASS |
| N034708-012C | SAMP | 1 | Fe | 0.058 | 0.35 | 15 | PASS |
| N034708-013C | SAMP | 1 | Fe | 0.044 | 0.62 | 15 | PASS |
| CCV8 | CCV | 1 | Fe | 10.22 | 0.47 | 15 | PASS |
| CCB8 | CCB | 1 | Fe | -0.0045 | 9.06 | 15 | PASS |
| ICSA3 | ICSA | 1 | Fe | 182.29 | 0.13 | 15 | PASS |
| ICSAB3 | ICSAB | 1 | Fe | 177.81 | 0.12 | 15 | PASS |

**RSD SUMMARY: 190411A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Analyte | Reported Conc | RSD | Criteria | Comment |
|---|---|---|---|---|---|---|---|
| CalBlk | IBLK | 1 | Fe | 0 | 48.33 | 15 | <PQL |
| Standard1 | ICAL | 1 | Fe | 0.02 | 2.75 | 15 | PASS |
| Standard2 | ICAL | 1 | Fe | 0.05 | 2.43 | 15 | PASS |
| Standard3 | ICAL | 1 | Fe | 2 | 0.33 | 15 | PASS |
| Standard4 | ICAL | 1 | Fe | 5 | 0.43 | 15 | PASS |
| Standard5 | ICAL | 1 | Fe | 7.5 | 0.5 | 15 | PASS |
| Standard6 | ICAL | 1 | Fe | 10 | 0.18 | 15 | PASS |
| Standard7 | ICAL | 1 | Fe | 20 | 0.038 | 15 | PASS |
| ICV | ICV | 1 | Fe | 9.96 | 0.1 | 15 | PASS |
| ICB | ICB | 1 | Fe | -0.0012 | 101.65 | 15 | <PQL |
| LLICV1 | CCV1 | 1 | Fe | 0.021 | 9.57 | 20 | PASS |
| ICSA1 | ICSA | 1 | Fe | 177.71 | 0.22 | 15 | PASS |
| ICSAB1 | ICSAB | 1 | Fe | 185.93 | 0.79 | 15 | PASS |
| CCV1 | CCV | 1 | Fe | 9.97 | 0.18 | 15 | PASS |
| CCB1 | CCB | 1 | Fe | -0.003 | 5.79 | 15 | PASS |
| MB-73330 | MBLK | 1 | Fe | -0.0058 | 5.64 | 15 | PASS |
| LCS-73330 | LCS | 1 | Fe | 0.1 | 2.04 | 15 | PASS |
| N034708-002C | SAMP | 1 | Fe | 0.067 | 3.22 | 15 | PASS |
| N034708-002C | SAMP | 5 | Fe | 0.0082 | 4.49 | 15 | PASS |
| N034708-002C-PS | PS | 1 | Fe | 0.17 | 0.55 | 15 | PASS |
| N034708-002C-MS | MS | 1 | Fe | 0.17 | 0.9 | 15 | PASS |
| N034708-002C-MSD | MSD | 1 | Fe | 0.17 | 0.69 | 15 | PASS |
| N034708-003C | SAMP | 1 | Fe | 0.055 | 0.89 | 15 | PASS |
| N034708-009C | SAMP | 1 | Fe | 0.026 | 0.81 | 15 | PASS |
| CCV2 | CCV | 1 | Fe | 10.47 | 0.42 | 15 | PASS |
| CCB2 | CCB | 1 | Fe | -0.0029 | 15.086 | 15 | <PQL |
| N034708-011C | SAMP | 1 | Fe | 0.026 | 2.1 | 15 | PASS |
| CCV3 | CCV | 1 | Fe | 10.076 | 0.14 | 15 | PASS |
| CCB3 | CCB | 1 | Fe | -0.0028 | 4.42 | 15 | PASS |
| ICSA2 | ICSA | 1 | Fe | 178.92 | 0.2 | 15 | PASS |
| ICSAB2 | ICSAB | 1 | Fe | 185.7 | 0.57 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190328D**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-181001A,0.5<50mL |
| Standard2 | MWST-181001E |
| Standard3 | MWST-181001J,5<50mL |
| Standard4 | MWST-181001J,12.5<50mL |
| Standard5 | MWST-181001J,15<40mL |
| Standard6 | MWST-181001J,25<50mL |
| Standard7 | MWST-181001J |
| ICV | MWST-181001O |
| CCV | MWST-181001J,25<50mL |
| ICSA/ICSAB | MWST-181001R/MWST-180730A |
| Int. Std. (Y) | MSST-180926A/B |
| PS Spike | MWST-180930D/E/F |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CalBlk | IBLK | 1 | 03/28/2019 | 04:48:43 PM |
| 2 | Standard1 | ICAL | 1 | 03/28/2019 | 04:52:32 PM |
| 3 | Standard2 | ICAL | 1 | 03/28/2019 | 04:56:17 PM |
| 4 | Standard3 | ICAL | 1 | 03/28/2019 | 05:00:34 PM |
| 5 | Standard4 | ICAL | 1 | 03/28/2019 | 05:04:52 PM |
| 6 | Standard5 | ICAL | 1 | 03/28/2019 | 05:09:10 PM |
| 7 | Standard6 | ICAL | 1 | 03/28/2019 | 05:13:30 PM |
| 8 | Standard7 | ICAL | 1 | 03/28/2019 | 05:17:49 PM |
| 250 | ICV | ICV | 1 | 03/28/2019 | 05:23:12 PM |
| 1 | ICB | ICB | 1 | 03/28/2019 | 05:28:33 PM |
| 2 | LLICV1 | CCV1 | 1 | 03/28/2019 | 05:32:18 PM |
| 9 | ICSA1 | ICSA | 1 | 03/28/2019 | 05:36:04 PM |
| 10 | ICSAB1 | ICSAB | 1 | 03/28/2019 | 05:41:29 PM |
| 71 | MB-73016 | MBLK | 1 | 03/28/2019 | 05:46:54 PM |
| 72 | LCS-73016 | LCS | 1 | 03/28/2019 | 05:50:40 PM |
| 73 | N034688-001B | SAMP | 1 | 03/28/2019 | 05:54:56 PM |
| 74 | N034688-001B | SAMP | 5 | 03/28/2019 | 05:58:42 PM |
| 75 | N034688-001B-PS | PS | 1 | 03/28/2019 | 06:02:58 PM |
| 76 | N034688-001B-MS | MS | 1 | 03/28/2019 | 06:07:14 PM |
| 77 | N034688-001B-MSD | MSD | 1 | 03/28/2019 | 06:11:31 PM |
| 78 | N034688-002B | SAMP | 1 | 03/28/2019 | 06:15:48 PM |
| 79 | N034688-003B | SAMP | 1 | 03/28/2019 | 06:19:37 PM |
| 80 | N034688-004B | SAMP | 1 | 03/28/2019 | 06:23:25 PM |
| 7 | CCV1 | CCV | 1 | 03/28/2019 | 06:27:12 PM |
| 1 | CCB1 | CCB | 1 | 03/28/2019 | 06:32:32 PM |
| 81 | N034688-005B | SAMP | 1 | 03/28/2019 | 06:36:18 PM |
| 82 | N034688-006B | SAMP | 1 | 03/28/2019 | 06:40:06 PM |
| 83 | N034688-007B | SAMP | 1 | 03/28/2019 | 06:43:54 PM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 84 | N034688-008B | SAMP | 1 | 03/28/2019 | 06:47:41 PM |
| 85 | N034688-009B | SAMP | 1 | 03/28/2019 | 06:51:28 PM |
| 86 | N034688-010B | SAMP | 1 | 03/28/2019 | 06:55:15 PM |
| 87 | N034688-011B | SAMP | 1 | 03/28/2019 | 06:59:03 PM |
| 88 | N034688-012B | SAMP | 1 | 03/28/2019 | 07:02:50 PM |
| 89 | N034688-013B | SAMP | 1 | 03/28/2019 | 07:06:37 PM |
| 90 | MB-73018 | MBLK | 1 | 03/28/2019 | 07:10:24 PM |
| 7 | CCV2 | CCV | 1 | 03/28/2019 | 07:14:12 PM |
| 1 | CCB2 | CCB | 1 | 03/28/2019 | 07:19:33 PM |
| 91 | LCS-73018 | LCS | 1 | 03/28/2019 | 07:23:17 PM |
| 92 | N034708-001B | SAMP | 1 | 03/28/2019 | 07:27:35 PM |
| 93 | N034708-001B | SAMP | 5 | 03/28/2019 | 07:31:51 PM |
| 94 | N034708-001B-PS | PS | 1 | 03/28/2019 | 07:36:10 PM |
| 95 | N034708-001B-MS | MS | 1 | 03/28/2019 | 07:40:29 PM |
| 96 | N034708-001B-MSD | MSD | 1 | 03/28/2019 | 07:44:46 PM |
| 97 | N034708-002B | SAMP | 1 | 03/28/2019 | 07:49:04 PM |
| 98 | N034708-003B | SAMP | 1 | 03/28/2019 | 07:52:51 PM |
| 99 | N034708-004B | SAMP | 1 | 03/28/2019 | 07:56:38 PM |
| 100 | N034708-005B | SAMP | 1 | 03/28/2019 | 08:00:25 PM |
| 7 | CCV3 | CCV | 1 | 03/28/2019 | 08:04:41 PM |
| 1 | CCB3 | CCB | 1 | 03/28/2019 | 08:10:02 PM |
| 101 | N034708-006B | SAMP | 1 | 03/28/2019 | 08:13:46 PM |
| 102 | N034708-007B | SAMP | 1 | 03/28/2019 | 08:17:32 PM |
| 103 | N034708-008B | SAMP | 1 | 03/28/2019 | 08:21:19 PM |
| 104 | N034708-009B | SAMP | 1 | 03/28/2019 | 08:25:06 PM |
| 105 | N034708-010B | SAMP | 1 | 03/28/2019 | 08:28:54 PM |
| 106 | N034708-011B | SAMP | 1 | 03/28/2019 | 08:32:42 PM |
| 107 | N034708-012B | SAMP | 1 | 03/28/2019 | 08:36:31 PM |
| 108 | N034708-013B | SAMP | 1 | 03/28/2019 | 08:40:18 PM |
| 109 | MB-73002 | MBLK | 1 | 03/28/2019 | 08:44:05 PM |
| 110 | LCS-73002 | LCS | 1 | 03/28/2019 | 08:47:51 PM |
| 7 | CCV4 | CCV | 1 | 03/28/2019 | 08:52:09 PM |
| 1 | CCB4 | CCB | 1 | 03/28/2019 | 08:57:29 PM |
| 9 | ICSA2 | ICSA | 1 | 03/28/2019 | 09:01:16 PM |
| 10 | ICSAB2 | ICSAB | 1 | 03/28/2019 | 09:06:41 PM |
| 111 | N034688-001C | SAMP | 1 | 03/28/2019 | 09:12:06 PM |
| 112 | N034688-001C | SAMP | 5 | 03/28/2019 | 09:15:53 PM |
| 113 | N034688-001C-PS | PS | 1 | 03/28/2019 | 09:20:10 PM |
| 114 | N034688-001C-MS | MS | 1 | 03/28/2019 | 09:24:28 PM |
| 115 | N034688-001C-MSD | MSD | 1 | 03/28/2019 | 09:28:45 PM |
| 116 | N034688-002C | SAMP | 1 | 03/28/2019 | 09:33:03 PM |
| 117 | N034688-003C | SAMP | 1 | 03/28/2019 | 09:36:51 PM |
| 118 | N034688-004C | SAMP | 1 | 03/28/2019 | 09:40:39 PM |
| 119 | N034688-005C | SAMP | 1 | 03/28/2019 | 09:44:27 PM |
| 120 | N034688-006C | SAMP | 1 | 03/28/2019 | 09:48:15 PM |
| 7 | CCV5 | CCV | 1 | 03/28/2019 | 09:52:31 PM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CCB5 | CCB | 1 | 03/28/2019 | 09:57:52 PM |
| 121 | N034688-007C | SAMP | 1 | 03/28/2019 | 10:01:37 PM |
| 122 | N034688-008C | SAMP | 1 | 03/28/2019 | 10:05:24 PM |
| 123 | N034688-009C | SAMP | 1 | 03/28/2019 | 10:09:11 PM |
| 124 | N034688-010C | SAMP | 1 | 03/28/2019 | 10:12:58 PM |
| 125 | N034688-011C | SAMP | 1 | 03/28/2019 | 10:16:46 PM |
| 126 | N034688-012C | SAMP | 1 | 03/28/2019 | 10:20:33 PM |
| 127 | N034688-013C | SAMP | 1 | 03/28/2019 | 10:24:21 PM |
| 128 | MB-73024 | MBLK | 1 | 03/28/2019 | 10:28:08 PM |
| 129 | LCS1-73024 | LCS | 1 | 03/28/2019 | 10:31:55 PM |
| 130 | N034708-001C | SAMP | 1 | 03/28/2019 | 10:36:13 PM |
| 7 | CCV6 | CCV | 1 | 03/28/2019 | 10:40:01 PM |
| 1 | CCB6 | CCB | 1 | 03/28/2019 | 10:45:22 PM |
| 131 | N034708-001C | SAMP | 5 | 03/28/2019 | 10:49:08 PM |
| 132 | N034708-001C-PS | PS | 1 | 03/28/2019 | 10:53:25 PM |
| 133 | N034708-001C-MS1 | MS | 1 | 03/28/2019 | 10:57:43 PM |
| 134 | N034708-001C-MSD1 | MSD | 1 | 03/28/2019 | 11:02:01 PM |
| 135 | N034708-002C | SAMP | 1 | 03/28/2019 | 11:06:19 PM |
| 136 | N034708-003C | SAMP | 1 | 03/28/2019 | 11:10:07 PM |
| 137 | N034708-004C | SAMP | 1 | 03/28/2019 | 11:13:55 PM |
| 138 | N034708-005C | SAMP | 1 | 03/28/2019 | 11:17:43 PM |
| 139 | N034708-006C | SAMP | 1 | 03/28/2019 | 11:21:30 PM |
| 140 | N034708-007C | SAMP | 1 | 03/28/2019 | 11:25:17 PM |
| 7 | CCV7 | CCV | 1 | 03/28/2019 | 11:29:05 PM |
| 1 | CCB7 | CCB | 1 | 03/28/2019 | 11:34:24 PM |
| 141 | N034708-008C | SAMP | 1 | 03/28/2019 | 11:38:10 PM |
| 142 | N034708-009C | SAMP | 1 | 03/28/2019 | 11:41:58 PM |
| 143 | N034708-010C | SAMP | 1 | 03/28/2019 | 11:45:46 PM |
| 144 | N034708-011C | SAMP | 1 | 03/28/2019 | 11:49:35 PM |
| 145 | N034708-012C | SAMP | 1 | 03/28/2019 | 11:53:23 PM |
| 146 | N034708-013C | SAMP | 1 | 03/28/2019 | 11:57:12 PM |
| 7 | CCV8 | CCV | 1 | 03/29/2019 | 12:01:01 AM |
| 1 | CCB8 | CCB | 1 | 03/29/2019 | 12:06:21 AM |
| 9 | ICSA3 | ICSA | 1 | 03/29/2019 | 12:10:06 AM |
| 10 | ICSAB3 | ICSAB | 1 | 03/29/2019 | 12:15:32 AM |
| 111 | N034688-001C | SAMP | 1 | 03/29/2019 | 07:51:10 AM |
| 111 | N034688-001C | SAMP | 1 | 03/29/2019 | 08:00:21 AM |
| 7 | CCV9 | CCV | 1 | 03/29/2019 | 08:04:37 AM |
| 1 | CCB9 | CCB | 1 | 03/29/2019 | 08:08:55 AM |
| 9 | ICSA4 | ICSA | 1 | 03/29/2019 | 08:12:41 AM |
| 10 | ICSAB4 | ICSAB | 1 | 03/29/2019 | 08:18:06 AM |

**INJECTION LOG: 190411A**

**Instrument ID: ICP-02**

| STANDARD CODE | |
|---|---|
| Standard1 | MWST-190401G,0.5<50mL |
| Standard2 | MWST-190401L |
| Standard3 | MWST-190401Q,5<50mL |
| Standard4 | MWST-190401Q,12.5<50mL |
| Standard5 | MWST-190401Q,15<40mL |
| Standard6 | MWST-190401Q,25<50mL |
| Standard7 | MWST-190401Q |
| ICV | MWST-190401V |
| CCV | MWST-190401Q,25<50mL |
| ICSA/ICSAB | MWST-190401W/X |
| Int. Std. (Y) | MSST-190315A |
| PS Spike | MWST-190401D/E/F |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 1 | CalBlk | IBLK | 1 | 04/11/2019 | 10:13:53 AM |
| 2 | Standard1 | ICAL | 1 | 04/11/2019 | 10:17:41 AM |
| 3 | Standard2 | ICAL | 1 | 04/11/2019 | 10:21:56 AM |
| 4 | Standard3 | ICAL | 1 | 04/11/2019 | 10:26:12 AM |
| 5 | Standard4 | ICAL | 1 | 04/11/2019 | 10:30:30 AM |
| 6 | Standard5 | ICAL | 1 | 04/11/2019 | 10:34:48 AM |
| 7 | Standard6 | ICAL | 1 | 04/11/2019 | 10:39:09 AM |
| 8 | Standard7 | ICAL | 1 | 04/11/2019 | 10:43:30 AM |
| 250 | ICV | ICV | 1 | 04/11/2019 | 10:51:50 AM |
| 1 | ICB | ICB | 1 | 04/11/2019 | 10:56:45 AM |
| 2 | LLICV1 | CCV1 | 1 | 04/11/2019 | 11:00:29 AM |
| 9 | ICSA1 | ICSA | 1 | 04/11/2019 | 11:04:46 AM |
| 10 | ICSAB1 | ICSAB | 1 | 04/11/2019 | 11:10:17 AM |
| 191 | MB-73331 | MBLK | 1 | 04/11/2019 | 11:15:49 AM |
| 191 | MB-73331 | MBLK | 1 | 04/11/2019 | 11:20:08 AM |
| 192 | LCS-73331 | LCS | 1 | 04/11/2019 | 11:23:58 AM |
| 193 | N034708-002B | SAMP | 1 | 04/11/2019 | 11:28:18 AM |
| 194 | N034708-002B | SAMP | 5 | 04/11/2019 | 11:32:38 AM |
| 195 | N034708-002B-PS | PS | 1 | 04/11/2019 | 11:36:58 AM |
| 196 | N034708-002B-MS | MS | 1 | 04/11/2019 | 11:41:17 AM |
| 197 | N034708-002B-MSD | MSD | 1 | 04/11/2019 | 11:45:37 AM |
| 198 | N034708-003B | SAMP | 1 | 04/11/2019 | 11:49:58 AM |
| 199 | N034708-009B | SAMP | 1 | 04/11/2019 | 11:54:18 AM |
| 7 | CCV1 | CCV | 1 | 04/11/2019 | 11:58:37 AM |
| 1 | CCB1 | CCB | 1 | 04/11/2019 | 12:03:31 PM |
| 200 | N034708-011B | SAMP | 1 | 04/11/2019 | 12:07:15 PM |
| 201 | MB-73330 | MBLK | 1 | 04/11/2019 | 12:11:36 PM |
| 202 | LCS-73330 | LCS | 1 | 04/11/2019 | 12:15:26 PM |

| A/S Loc | Sample Name | Type | DF | Acq Date | Acq Time |
|---|---|---|---|---|---|
| 203 | N034708-002C | SAMP | 1 | 04/11/2019 | 12:19:45 PM |
| 204 | N034708-002C | SAMP | 5 | 04/11/2019 | 12:24:05 PM |
| 205 | N034708-002C-PS | PS | 1 | 04/11/2019 | 12:28:25 PM |
| 206 | N034708-002C-MS | MS | 1 | 04/11/2019 | 12:32:46 PM |
| 207 | N034708-002C-MSD | MSD | 1 | 04/11/2019 | 12:37:05 PM |
| 208 | N034708-003C | SAMP | 1 | 04/11/2019 | 12:41:25 PM |
| 209 | N034708-009C | SAMP | 1 | 04/11/2019 | 12:45:45 PM |
| 7 | CCV2 | CCV | 1 | 04/11/2019 | 12:50:05 PM |
| 1 | CCB2 | CCB | 1 | 04/11/2019 | 12:55:26 PM |
| 210 | N034708-011C | SAMP | 1 | 04/11/2019 | 12:59:10 PM |
| 7 | CCV3 | CCV | 1 | 04/11/2019 | 01:03:13 PM |
| 1 | CCB3 | CCB | 1 | 04/11/2019 | 01:08:34 PM |
| 9 | ICSA2 | ICSA | 1 | 04/11/2019 | 01:12:20 PM |
| 10 | ICSAB2 | ICSAB | 1 | 04/11/2019 | 01:17:51 PM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/21/2019 11:31:46**
Prep End Date: **3/21/2019 4:00:00**
Prep Batch **73024** Prep Code: **3010_W**

Reviewed/ Date: NS 4/12/2019
Initials/ Date: for
Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **Db-2-5** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS1-73024 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| LCS2-73024 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-73024 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-001C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-001C-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-001C-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-002C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-003C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-004C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-005C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-006C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-007C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-008C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-009C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10760 | HYDROCHLORIC ACID |
| 10767 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MSST-140120B | Sodium | LCS,MS,MSD | 0.05 |
| MSST-180608A | Strontium | LCS,MS,MSD | 0.125 |
| MSST-180608B | Potassium | LCS,MS,MSD | 0.05 |
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/21/2019 11:31:46**
Prep End Date: **3/21/2019 4:00:00**
Prep Batch **73024** Prep Code: **3010_W**

Reviewed/ Date: NS 4/12/2019
Initials/ Date: for
Technician **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **Db-2-5** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-010C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-011C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-012C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-013C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034709-002A | Water | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034709-002A-MS | Water | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034709-002A-MS | Water | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10760 | HYDROCHLORIC ACID |
| 10767 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MSST-140120B | Sodium | LCS,MS,MSD | 0.05 |
| MSST-180608A | Strontium | LCS,MS,MSD | 0.125 |
| MSST-180608B | Potassium | LCS,MS,MSD | 0.05 |
| MWST-180930D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-180930E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-180930F | ICP Solution C | LCS,MS,MSD | 0.5 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **4/10/2019 1:04:02 P**
Prep End Date: **4/10/2019 4:30:00 P**
Prep Batch **73330** Prep Code: **3010_W**

Reviewed/ Date: 4/19/2019
Initials/ Date: for
Technician: **Mark Gesmundo**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **95** | **DB-2-37** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-73330 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-73330 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-002C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-002C-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-002C-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-003C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-009C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-011C | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10760 | HYDROCHLORIC ACID |
| 10767 | NITRIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| MWST-190401D | ICP Solution A | LCS,MS,MSD | 0.5 |
| MWST-190401E | ICP Solution B | LCS,MS,MSD | 0.5 |
| MWST-190401F | ICP Solution C | LCS,MS,MSD | 0.5 |

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190328D**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Iron** | | | | | | | | |
| CalBlk | 03/28/2019 | 04:48:43 PM | Fe | 273.953 | 67 | 0.00 | mg/L | |
| Standard1 | 03/28/2019 | 04:52:32 PM | Fe | 273.953 | 178 | 0.0200 | mg/L | |
| Standard2 | 03/28/2019 | 04:56:17 PM | Fe | 273.953 | 748 | 0.050 | mg/L | |
| Standard3 | 03/28/2019 | 05:00:34 PM | Fe | 273.953 | 23999 | 2.000 | mg/L | |
| Standard4 | 03/28/2019 | 05:04:52 PM | Fe | 273.953 | 60687 | 5.000 | mg/L | |
| Standard5 | 03/28/2019 | 05:09:10 PM | Fe | 273.953 | 91560 | 7.500 | mg/L | |
| Standard6 | 03/28/2019 | 05:13:30 PM | Fe | 273.953 | 122457 | 10.000 | mg/L | |
| Standard7 | 03/28/2019 | 05:17:49 PM | Fe | 273.953 | 239398 | 20.000 | mg/L | 1.0000 |

**INITIAL CALIBRATION SUMMARY: 190411A**

**Instrument ID: ICP-02**

| Sample ID | Date | Time | Elem | Wavelength | Corrected Intensity | Concentration | Units | R |
|---|---|---|---|---|---|---|---|---|
| **Iron** | | | | | | | | |
| CalBlk | 04/11/2019 | 10:13:53 AM | Fe | 273.953 | 35 | 0.00 | mg/L | |
| Standard1 | 04/11/2019 | 10:17:41 AM | Fe | 273.953 | 459 | 0.0200 | mg/L | |
| Standard2 | 04/11/2019 | 10:21:56 AM | Fe | 273.953 | 1566 | 0.050 | mg/L | |
| Standard3 | 04/11/2019 | 10:26:12 AM | Fe | 273.953 | 49852 | 2.000 | mg/L | |
| Standard4 | 04/11/2019 | 10:30:30 AM | Fe | 273.953 | 124294 | 5.000 | mg/L | |
| Standard5 | 04/11/2019 | 10:34:48 AM | Fe | 273.953 | 186869 | 7.500 | mg/L | |
| Standard6 | 04/11/2019 | 10:39:09 AM | Fe | 273.953 | 250191 | 10.000 | mg/L | |
| Standard7 | 04/11/2019 | 10:43:30 AM | Fe | 273.953 | 476657 | 20.000 | mg/L | 0.9998 |

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333138** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10218.118 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **LLICV1** | SampType: **CCV1** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333140** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 16.058 | 20 | 20.00 | 0 | 80.3 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333153** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10218.485 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333165** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10214.077 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333177** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10218.513 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333189** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10253.845 | 20 | 10000 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333203** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10229.465 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333215** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10211.431 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333227** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10193.124 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV8** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/29/2019** | SeqNo: **3333235** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10223.051 | 20 | 10000 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **CCV9** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/29/2019** | SeqNo: **3333986** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9956.014 | 20 | 10000 | 0 | 99.6 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **133148** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R133148** | TestNo: **EPA 6010B** | | Analysis Date: **4/11/2019** | SeqNo: **3347774** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9964.118 | 20 | 10000 | 0 | 99.6 | 90 | 110 | | | | |

| Sample ID **LLICV1** | SampType: **CCV1** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **133148** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R133148** | TestNo: **EPA 6010B** | | Analysis Date: **4/11/2019** | SeqNo: **3347776** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 21.404 | 20 | 20.00 | 0 | 107 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **133148** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133148** | TestNo: **EPA 6010B** | | Analysis Date: **4/11/2019** | SeqNo: **3347789** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 9969.436 | 20 | 10000 | 0 | 99.7 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **133148** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133148** | TestNo: **EPA 6010B** | | Analysis Date: **4/11/2019** | SeqNo: **3347801** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10470.220 | 20 | 10000 | 0 | 105 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **133148** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133148** | TestNo: **EPA 6010B** | | Analysis Date: **4/11/2019** | SeqNo: **3347804** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 10076.219 | 20 | 10000 | 0 | 101 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333139** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -4.241535 | 20 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333154** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -6.431062 | 20 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333166** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -4.113192 | 20 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333178** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -3.355278 | 20 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333190** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -1.866957 | 20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333204** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -2.234725 | 20 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333216** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -4.265975 | 20 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/28/2019** | SeqNo: **3333228** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -3.704445 | 20 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/29/2019** | SeqNo: **3333236** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -4.486754 | 20 | | | | | | | | | |

| Sample ID **CCB9** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/29/2019** | SeqNo: **3333987** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -4.337912 | 20 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **133148** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R133148** | TestNo: **EPA 6010B** | | Analysis Date: **4/11/2019** | SeqNo: **3347775** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -1.253138 | 20 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **133148** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133148** | TestNo: **EPA 6010B** | | Analysis Date: **4/11/2019** | SeqNo: **3347790** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -3.009919 | 20 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **133148** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133148** | TestNo: **EPA 6010B** | | Analysis Date: **4/11/2019** | SeqNo: **3347802** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -2.932517 | 20 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **133148** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133148** | TestNo: **EPA 6010B** | | Analysis Date: **4/11/2019** | SeqNo: **3347805** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | -2.822025 | 20 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132851**
Client ID: **ICSA** Batch ID: **R132851** TestNo: **EPA 6010B** Analysis Date: **3/28/2019** SeqNo: **3333141**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 499861.155 | 50 | 500000 | 0 | 100 | 80 | 120 | | | | |
| Calcium | 537314.796 | 500 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Iron | 182336.330 | 20 | 200000 | 0 | 91.2 | 80 | 120 | | | | |
| Magnesium | 477379.536 | 100 | 500000 | 0 | 95.5 | 80 | 120 | | | | |

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132851**
Client ID: **ICSAB** Batch ID: **R132851** TestNo: **EPA 6010B** Analysis Date: **3/28/2019** SeqNo: **3333142**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 524340.042 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |
| Calcium | 557363.709 | 500 | 500000 | 0 | 111 | 80 | 120 | | | | |
| Iron | 176883.529 | 20 | 200000 | 0 | 88.4 | 80 | 120 | | | | |
| Magnesium | 501186.003 | 100 | 500000 | 0 | 100 | 80 | 120 | | | | |

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132851**
Client ID: **ICSA** Batch ID: **R132851** TestNo: **EPA 6010B** Analysis Date: **3/28/2019** SeqNo: **3333191**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 502294.210 | 50 | 500000 | 0 | 100 | 80 | 120 | | | | |
| Calcium | 534739.635 | 500 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Iron | 182142.031 | 20 | 200000 | 0 | 91.1 | 80 | 120 | | | | |
| Magnesium | 481034.499 | 100 | 500000 | 0 | 96.2 | 80 | 120 | | | | |

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132851**
Client ID: **ICSAB** Batch ID: **R132851** TestNo: **EPA 6010B** Analysis Date: **3/28/2019** SeqNo: **3333192**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 522600.266 | 50 | 500000 | 0 | 105 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132851**
Client ID: **ICSAB** Batch ID: **R132851** TestNo: **EPA 6010B** Analysis Date: **3/28/2019** SeqNo: **3333192**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 556134.625 | 500 | 500000 | 0 | 111 | 80 | 120 | | | | |
| Iron | 177690.961 | 20 | 200000 | 0 | 88.8 | 80 | 120 | | | | |
| Magnesium | 502305.372 | 100 | 500000 | 0 | 100 | 80 | 120 | | | | |

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132851**
Client ID: **ICSA** Batch ID: **R132851** TestNo: **EPA 6010B** Analysis Date: **3/29/2019** SeqNo: **3333237**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 500434.660 | 50 | 500000 | 0 | 100 | 80 | 120 | | | | |
| Calcium | 533101.231 | 500 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Iron | 182292.085 | 20 | 200000 | 0 | 91.1 | 80 | 120 | | | | |
| Magnesium | 485435.745 | 100 | 500000 | 0 | 97.1 | 80 | 120 | | | | |

Sample ID **ICSAB3** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132851**
Client ID: **ICSAB** Batch ID: **R132851** TestNo: **EPA 6010B** Analysis Date: **3/29/2019** SeqNo: **3333238**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 520864.268 | 50 | 500000 | 0 | 104 | 80 | 120 | | | | |
| Calcium | 549680.773 | 500 | 500000 | 0 | 110 | 80 | 120 | | | | |
| Iron | 177809.980 | 20 | 200000 | 0 | 88.9 | 80 | 120 | | | | |
| Magnesium | 506212.181 | 100 | 500000 | 0 | 101 | 80 | 120 | | | | |

Sample ID **ICSA4** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **132851**
Client ID: **ICSA** Batch ID: **R132851** TestNo: **EPA 6010B** Analysis Date: **3/29/2019** SeqNo: **3333988**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 487689.516 | 50 | 500000 | 0 | 97.5 | 80 | 120 | | | | |
| Calcium | 514090.500 | 500 | 500000 | 0 | 103 | 80 | 120 | | | | |
| Iron | 184718.816 | 20 | 200000 | 0 | 92.4 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **ICSA4** | SampType: **ICSA** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/29/2019** | SeqNo: **3333988** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Magnesium | 504274.160 | 100 | 500000 | 0 | 101 | 80 | 120 | | | | |

| Sample ID **ICSAB4** | SampType: **ICSAB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **132851** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132851** | TestNo: **EPA 6010B** | | Analysis Date: **3/29/2019** | SeqNo: **3333989** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 508147.429 | 50 | 500000 | 0 | 102 | 80 | 120 | | | | |
| Calcium | 534214.654 | 500 | 500000 | 0 | 107 | 80 | 120 | | | | |
| Iron | 179776.010 | 20 | 200000 | 0 | 89.9 | 80 | 120 | | | | |
| Magnesium | 524670.921 | 100 | 500000 | 0 | 105 | 80 | 120 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **133148**
Client ID: **ICSA** Batch ID: **R133148** TestNo: **EPA 6010B** Analysis Date: **4/11/2019** SeqNo: **3347777**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 521630.593 | 50 | 500000 | 0 | 104 | 80 | 120 | | | | |
| Calcium | 517618.696 | 500 | 500000 | 0 | 104 | 80 | 120 | | | | |
| Iron | 177707.250 | 20 | 200000 | 0 | 88.9 | 80 | 120 | | | | |
| Magnesium | 475958.240 | 100 | 500000 | 0 | 95.2 | 80 | 120 | | | | |

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **133148**
Client ID: **ICSAB** Batch ID: **R133148** TestNo: **EPA 6010B** Analysis Date: **4/11/2019** SeqNo: **3347778**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 567960.574 | 50 | 500000 | 0 | 114 | 80 | 120 | | | | |
| Calcium | 564392.856 | 500 | 500000 | 0 | 113 | 80 | 120 | | | | |
| Iron | 185934.331 | 20 | 200000 | 0 | 93.0 | 80 | 120 | | | | |
| Magnesium | 517851.242 | 100 | 500000 | 0 | 104 | 80 | 120 | | | | |

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **133148**
Client ID: **ICSA** Batch ID: **R133148** TestNo: **EPA 6010B** Analysis Date: **4/11/2019** SeqNo: **3347806**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 520434.226 | 50 | 500000 | 0 | 104 | 80 | 120 | | | | |
| Calcium | 517536.643 | 500 | 500000 | 0 | 104 | 80 | 120 | | | | |
| Iron | 178917.088 | 20 | 200000 | 0 | 89.5 | 80 | 120 | | | | |
| Magnesium | 480859.292 | 100 | 500000 | 0 | 96.2 | 80 | 120 | | | | |

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **133148**
Client ID: **ICSAB** Batch ID: **R133148** TestNo: **EPA 6010B** Analysis Date: **4/11/2019** SeqNo: **3347807**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 567877.627 | 50 | 500000 | 0 | 114 | 80 | 120 | | | | |
| Calcium | 567326.615 | 500 | 500000 | 0 | 113 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6010_WPGE** | Units: **ug/L** | Prep Date: | RunNo: **133148** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R133148** | TestNo: **EPA 6010B** | | Analysis Date: **4/11/2019** | SeqNo: **3347807** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 185704.995 | 20 | 200000 | 0 | 92.9 | 80 | 120 | | | | |
| Magnesium | 519615.113 | 100 | 500000 | 0 | 104 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190328D**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 1.0018 | 100.18 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1 | 99.9 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 1.05 | 105 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 1.039 | 103.93 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 1.03 | 103 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 1 | 99.69 | 65-125 | PASS |
| Standard7 | ICAL | 1 | 0.97 | 97.48 | 65-125 | PASS |
| ICV | ICV | 1 | 0.99 | 99.33 | 65-125 | PASS |
| ICB | ICB | 1 | 1 | 99.92 | 65-125 | PASS |
| LLICV1 | CCV1 | 1 | 1 | 99.98 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 0.96 | 96.32 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 0.91 | 90.86 | 65-125 | PASS |
| CCV1 | CCV | 1 | 1 | 99.93 | 65-125 | PASS |
| CCB1 | CCB | 1 | 1.0042 | 100.42 | 65-125 | PASS |
| CCV2 | CCV | 1 | 1 | 99.62 | 65-125 | PASS |
| CCB2 | CCB | 1 | 1.0006 | 100.06 | 65-125 | PASS |
| CCV3 | CCV | 1 | 1 | 99.99 | 65-125 | PASS |
| CCB3 | CCB | 1 | 1.006 | 100.6 | 65-125 | PASS |
| CCV4 | CCV | 1 | 0.99 | 99.39 | 65-125 | PASS |
| CCB4 | CCB | 1 | 1.0018 | 100.18 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 0.94 | 93.57 | 65-125 | PASS |
| ICSAB2 | ICSAB | 1 | 0.89 | 89 | 65-125 | PASS |
| CCV5 | CCV | 1 | 1 | 99.87 | 65-125 | PASS |
| CCB5 | CCB | 1 | 1.0051 | 100.51 | 65-125 | PASS |
| MB-73024 | MBLK | 1 | 1.0054 | 100.54 | 65-125 | PASS |
| LCS1-73024 | LCS | 1 | 0.93 | 92.85 | 65-125 | PASS |
| N034708-001C | SAMP | 1 | 0.99 | 99.21 | 65-125 | PASS |
| CCV6 | CCV | 1 | 0.99 | 99.44 | 65-125 | PASS |
| CCB6 | CCB | 1 | 1.003 | 100.3 | 65-125 | PASS |
| N034708-001C | SAMP | 5 | 0.99 | 98.92 | 65-125 | PASS |
| N034708-001C-PS | PS | 1 | 1.015 | 101.46 | 65-125 | PASS |
| N034708-001C-MS1 | MS | 1 | 1.019 | 101.94 | 65-125 | PASS |
| N034708-001C-MSD1 | MSD | 1 | 1.016 | 101.62 | 65-125 | PASS |
| N034708-002C | SAMP | 1 | 1.019 | 101.94 | 65-125 | PASS |
| N034708-003C | SAMP | 1 | 1.059 | 105.88 | 65-125 | PASS |
| N034708-004C | SAMP | 1 | 1.023 | 102.3 | 65-125 | PASS |
| N034708-005C | SAMP | 1 | 1.032 | 103.2 | 65-125 | PASS |
| N034708-006C | SAMP | 1 | 1 | 99.95 | 65-125 | PASS |
| N034708-007C | SAMP | 1 | 1.0041 | 100.41 | 65-125 | PASS |
| CCV7 | CCV | 1 | 1.0002 | 100.02 | 65-125 | PASS |

**INTERNAL STANDARD: 190328D**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CCB7 | CCB | 1 | 1.0065 | 100.65 | 65-125 | PASS |
| N034708-008C | SAMP | 1 | 1.011 | 101.13 | 65-125 | PASS |
| N034708-009C | SAMP | 1 | 1.018 | 101.75 | 65-125 | PASS |
| N034708-010C | SAMP | 1 | 1.0039 | 100.39 | 65-125 | PASS |
| N034708-011C | SAMP | 1 | 1.018 | 101.78 | 65-125 | PASS |
| N034708-012C | SAMP | 1 | 1.002 | 100.2 | 65-125 | PASS |
| N034708-013C | SAMP | 1 | 1.0037 | 100.37 | 65-125 | PASS |
| CCV8 | CCV | 1 | 1 | 99.55 | 65-125 | PASS |
| CCB8 | CCB | 1 | 1.004 | 100.4 | 65-125 | PASS |
| ICSA3 | ICSA | 1 | 0.94 | 93.53 | 65-125 | PASS |
| ICSAB3 | ICSAB | 1 | 0.89 | 89.11 | 65-125 | PASS |

**INTERNAL STANDARD: 190411A**

**Instrument ID: ICP-02**

| Sample Name | Type | DF | Yttrium, 1.0 mg/L | | | |
|---|---|---|---|---|---|---|
| | | | Reported Conc | %REC | Criteria | Comment |
| CalBlk | IBLK | 1 | 1 | 100 | 65-125 | PASS |
| Standard1 | ICAL | 1 | 1.0012 | 100.12 | 65-125 | PASS |
| Standard2 | ICAL | 1 | 1.0061 | 100.61 | 65-125 | PASS |
| Standard3 | ICAL | 1 | 1.052 | 105.15 | 65-125 | PASS |
| Standard4 | ICAL | 1 | 1.034 | 103.39 | 65-125 | PASS |
| Standard5 | ICAL | 1 | 1.035 | 103.5 | 65-125 | PASS |
| Standard6 | ICAL | 1 | 1.031 | 103.1 | 65-125 | PASS |
| Standard7 | ICAL | 1 | 1.017 | 101.66 | 65-125 | PASS |
| ICV | ICV | 1 | 1.045 | 104.46 | 65-125 | PASS |
| ICB | ICB | 1 | 1.014 | 101.39 | 65-125 | PASS |
| LLICV1 | CCV1 | 1 | 1.0057 | 100.57 | 65-125 | PASS |
| ICSA1 | ICSA | 1 | 0.94 | 94.15 | 65-125 | PASS |
| ICSAB1 | ICSAB | 1 | 0.86 | 86.037 | 65-125 | PASS |
| CCV1 | CCV | 1 | 1.053 | 105.3 | 65-125 | PASS |
| CCB1 | CCB | 1 | 1.028 | 102.78 | 65-125 | PASS |
| MB-73330 | MBLK | 1 | 1.048 | 104.84 | 65-125 | PASS |
| LCS-73330 | LCS | 1 | 0.99 | 98.77 | 65-125 | PASS |
| N034708-002C | SAMP | 1 | 1.047 | 104.68 | 65-125 | PASS |
| N034708-002C | SAMP | 5 | 1.031 | 103.07 | 65-125 | PASS |
| N034708-002C-PS | PS | 1 | 1.022 | 102.25 | 65-125 | PASS |
| N034708-002C-MS | MS | 1 | 1.039 | 103.89 | 65-125 | PASS |
| N034708-002C-MSD | MSD | 1 | 1.026 | 102.64 | 65-125 | PASS |
| N034708-003C | SAMP | 1 | 1.0064 | 100.64 | 65-125 | PASS |
| N034708-009C | SAMP | 1 | 1.019 | 101.92 | 65-125 | PASS |
| CCV2 | CCV | 1 | 1.016 | 101.58 | 65-125 | PASS |
| CCB2 | CCB | 1 | 0.99 | 99.003 | 65-125 | PASS |
| N034708-011C | SAMP | 1 | 0.98 | 98.15 | 65-125 | PASS |
| CCV3 | CCV | 1 | 1.032 | 103.15 | 65-125 | PASS |
| CCB3 | CCB | 1 | 1.0033 | 100.33 | 65-125 | PASS |
| ICSA2 | ICSA | 1 | 0.93 | 93.49 | 65-125 | PASS |
| ICSAB2 | ICSAB | 1 | 0.87 | 86.67 | 65-125 | PASS |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034708
Test Method: EPA 6010B
Analysis Date: 3/28/2019

Matrix: Groundwater
Batch No.: 73024

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

| Sample ID | Analyte | Symbol | Units | Calc Val | Oqual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|---|
| N034708-001C DT 5x | Iron | Fe | ug/L | 0 | NA | 42.65488 | 100.00% | 10 |

Note: NA - Not Applicable

**ASSET Laboratories**

**ICP-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034708
Test Method: EPA 6010B
Analysis Date: 4/11/2019

Matrix: Groundwater
Batch No.: 73330

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

| Sample ID | Analyte | Symbol | Units | Calc Val | Oqual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|---|
| N034708-002C DT 5x | Iron | Fe | ug/L | 0 | NA | 66.99308 | 100.00% | 10 |

Note: NA - Not Applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID | N034708-001C-PS | SampType: | PS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | | RunNo: | 132851 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73024 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 3/28/2019 | SeqNo: | 3333218 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 324.800 | 20 | 100.0 | 42.65 | 282 | 80 | 120 | | | | S |

not reported

| Sample ID | N034709-002A-PS | SampType: | PS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | | RunNo: | 132901 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73024 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 4/1/2019 | SeqNo: | 3335918 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | 20583.263 | 500 | 20000 | 0 | 103 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

4/18/2019

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_WPGEPPB**

| Sample ID | N034708-002C-PS | SampType: | PS | TestCode: | 6010_WPGE | Units: | ug/L | Prep Date: | | RunNo: | 133148 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 73330 | TestNo: | EPA 6010B | EPA 3010A | | Analysis Date: | 4/11/2019 | SeqNo: | 3347796 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 169.351 | 20 | 100.0 | 66.99 | 102 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

# METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

**Acceptance Criteria:** MDL < spike < 10XMDL

| Analyte | Wavelength | #1 | #2 | #3 | #4 | #5 | #6 | #7 | Spike Conc., mg/L | SD | MDL | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ag | 328.069 | 0.0033 | 0.0031 | 0.0033 | 0.0033 | 0.0031 | 0.0030 | 0.0047 | 0.003 | 0.00061604 | **0.001936** | 0.003 |
| Al | 237.312 | 0.0664 | 0.0603 | 0.0656 | 0.0650 | 0.0658 | 0.0660 | 0.0946 | 0.050 | 0.01254823 | **0.039439** | 0.050 |
| As | 188.983 | 0.0131 | 0.0089 | 0.0120 | 0.0089 | 0.0060 | 0.0102 | 0.0080 | 0.010 | 0.00223806 | **0.007034** | 0.010 |
| B | 249.679 | 0.1491 | 0.1267 | 0.1281 | 0.1467 | 0.1261 | 0.1195 | 0.1015 | 0.100 | 0.01801843 | **0.056632** | 0.100 |
| Ba | 233.529 | 0.0033 | 0.0031 | 0.0033 | 0.0031 | 0.0032 | 0.0030 | 0.0024 | 0.003 | 0.00033070 | **0.001039** | 0.003 |
| Be | 313.104 | 0.0012 | 0.0011 | 0.0012 | 0.0012 | 0.0011 | 0.0011 | 0.0011 | 0.001 | 0.00006873 | **0.000216** | 0.001 |
| Ca | 227.546 | 0.2381 | 0.2231 | 0.2559 | 0.2299 | 0.2194 | 0.2473 | 0.2691 | 0.200 | 0.02202408 | **0.069222** | 0.200 |
| Cd | 214.437 | 0.0031 | 0.0029 | 0.0031 | 0.0032 | 0.0031 | 0.0031 | 0.0025 | 0.003 | 0.00027049 | **0.000850** | 0.003 |
| Co | 228.614 | 0.0030 | 0.0028 | 0.0030 | 0.0031 | 0.0031 | 0.0031 | 0.0027 | 0.003 | 0.00014491 | **0.000455** | 0.003 |
| Cr | 267.719 | 0.0009 | 0.0008 | 0.0009 | 0.0012 | 0.0012 | 0.0013 | 0.0009 | 0.001 | 0.00017120 | **0.000538** | 0.001 |
| Fe | 273.953 | 0.0255 | 0.0226 | 0.0242 | 0.0255 | 0.0252 | 0.0248 | 0.0387 | 0.020 | 0.00552308 | **0.017359** | 0.020 |
| Mg | 279.079 | 0.1124 | 0.1052 | 0.1129 | 0.1315 | 0.1305 | 0.1314 | 0.1435 | 0.100 | 0.01532024 | **0.048152** | 0.100 |
| Mn | 257.607 | 0.0119 | 0.0111 | 0.0120 | 0.0122 | 0.0121 | 0.0122 | 0.0099 | 0.010 | 0.00098403 | **0.003093** | 0.010 |
| Mo | 202.03 | 0.0079 | 0.0068 | 0.0067 | 0.0065 | 0.0065 | 0.0062 | 0.0057 | 0.005 | 0.00083918 | **0.002638** | 0.005 |
| Ni | 231.604 | 0.0061 | 0.0056 | 0.0062 | 0.0060 | 0.0060 | 0.0062 | 0.0045 | 0.005 | 0.00062690 | **0.001970** | 0.005 |
| Pb | 220.351 | 0.0124 | 0.0117 | 0.0127 | 0.0115 | 0.0120 | 0.0118 | 0.0090 | 0.010 | 0.00126325 | **0.003970** | 0.010 |
| Sb | 206.836 | 0.0102 | 0.0095 | 0.0104 | 0.0112 | 0.0117 | 0.0111 | 0.0080 | 0.010 | 0.00117407 | **0.003690** | 0.010 |
| Se | 196.025 | 0.0102 | 0.0087 | 0.0114 | 0.0136 | 0.0144 | 0.0136 | 0.0075 | 0.010 | 0.00251341 | **0.007900** | 0.010 |
| Sn | 189.927 | 0.0095 | 0.0084 | 0.0090 | 0.0124 | 0.0126 | 0.0129 | 0.0099 | 0.010 | 0.00175765 | **0.005524** | 0.010 |
| Ti | 334.943 | 0.0114 | 0.0106 | 0.0115 | 0.0115 | 0.0115 | 0.0115 | 0.0098 | 0.010 | 0.00074093 | **0.002329** | 0.010 |
| Tl | 190.794 | 0.0170 | 0.0150 | 0.0165 | 0.0171 | 0.0180 | 0.0168 | 0.0151 | 0.015 | 0.00116288 | **0.003655** | 0.015 |
| V | 292.404 | 0.0025 | 0.0024 | 0.0025 | 0.0032 | 0.0032 | 0.0032 | 0.0027 | 0.003 | 0.00038496 | **0.001210** | 0.003 |
| Zn | 206.201 | 0.0109 | 0.0100 | 0.0107 | 0.0125 | 0.0124 | 0.0124 | 0.0095 | 0.010 | 0.00123731 | **0.003889** | 0.010 |

## METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

| Analyte | ICP-02 MDL | MDL Blank | Higher MDL | LOD | PQL |
|---|---|---|---|---|---|
| Ag | 0.001936 | 0.002362 | 0.002362 | 0.002 | 0.003 |
| Al | 0.039439 | 0.039859 | 0.039859 | 0.04 | 0.5 |
| As | 0.007034 | 0.007672 | 0.007672 | 0.0075 | 0.01 |
| B | 0.056632 | 0.074419 | 0.074419 | 0.075 | 0.1 |
| Ba | 0.001039 | 0.000433 | 0.001039 | 0.001 | 0.003 |
| Be | 0.000216 | 0.000311 | 0.000311 | 0.0005 | 0.003 |
| Ca | 0.069222 | 0.084832 | 0.084832 | 0.1 | 0.5 |
| Cd | 0.000850 | 0.000592 | 0.000850 | 0.001 | 0.003 |
| Co | 0.000455 | 0.001902 | 0.001902 | 0.001 | 0.003 |
| Cr | 0.000538 | 0.000527 | 0.000538 | 0.001 | 0.003 |
| Fe | 0.017359 | 0.017751 | 0.017751 | 0.018 | 0.1 |
| Mg | 0.048152 | 0.043017 | 0.048152 | 0.05 | 0.1 |
| Mn | 0.003093 | 0.000782 | 0.003093 | 0.005 | 0.5 |
| Mo | 0.002638 | 0.002482 | 0.002638 | 0.0025 | 0.005 |
| Ni | 0.001970 | 0.000822 | 0.001970 | 0.0025 | 0.005 |
| Pb | 0.003970 | 0.002762 | 0.003970 | 0.005 | 0.005 |
| Sb | 0.003690 | 0.004504 | 0.004504 | 0.005 | 0.01 |
| Se | 0.007900 | 0.008549 | 0.008549 | 0.008 | 0.01 |
| Sn | 0.005524 | 0.003415 | 0.005524 | 0.0075 | 0.05 |
| Ti | 0.002329 | 0.001493 | 0.002329 | 0.005 | 0.05 |
| Tl | 0.003655 | 0.005987 | 0.005987 | 0.005 | 0.015 |
| V | 0.001210 | 0.000749 | 0.001210 | 0.002 | 0.003 |
| Zn | 0.003889 | 0.007683 | 0.007683 | 0.008 | 0.01 |

# EPA 6020
# Dissolved

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 73032
**ASSET #:** N034708
**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 4/3/2019

**Method:**

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | X | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | X | | | X | | |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | | X | | | X | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

% RSD of Se in ICV failed. Sampls affected are for rerun.
% Rec of Ba in N034708-001B PS/MS/MSD failed, low bias. However, LCS passed criteria.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | X | | |
| 2. Matrix / units correct | X | | |
| 3. Does batch meet QC requirements? | X | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | X | | |
| 5. Is first level review correct and complete? | X | | |

1st Level Reviewer CEI Date: 4/11/2019

2nd Level Reviewer 4/11/2019 Date: ——

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 73032
**ASSET #:** N034708
**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 4/4/2019

**Method:**

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | | X | | | X | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | |
| 24. LCS compounds within control limits. | X | | | X | | |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

Se rerun.
% RSD of Se in N034708-001A/002B/003B/005B/006B/008B/009B/010B/012B/013B failed. For rerun.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | X | | |
| 2. Matrix / units correct | X | | |
| 3. Does batch meet QC requirements? | X | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | X | | |
| 5. Is first level review correct and complete? | X | | |

1st Level Reviewer CEI Date: 4/11/2019

2nd Level Reviewer 4/11/2019 Date: —

# Metals Technical Batch Review Checklist (ARCUS02)

## ASSET LABORATORIES - LAS VEGAS

**FIRST LEVEL REVIEW:**

**QC Batch Number:** 73032
**ASSET #:** N034708
**Instrument ID:** ICPMS-02
**Analyst:** CEI
**Date Analyzed:** 4/9/2019

**Method:**

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

| Initial Calibration and Initial Calibration Verification | 1st Level Review | | | 2nd Level Review | | |
|---|---|---|---|---|---|---|
| | Y | N | N/A | Y | N | N/A |
| 1. Does correlation coefficient,r, meet criteria ?( r = 0.995) | X | | | X | | |
| 2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7) | X | | | X | | |
| 3. Does the ICP/MS meet tune criteria? (ICP/MS only) | X | | | X | | |
| 4. % RSD calculated from 3 injections? | X | | | X | | |
| 5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Interference Check** | | | | | | |
| 6. ICS A and AB at the start and end of sequence or twice during an 8-hr period. | X | | | X | | |
| 7. Are ICSA and AB within ± 20% of expected value? | X | | | X | | |
| **Continuing Calibration** | | | | | | |
| 8. CCV after every 10 samples and end of analysis sequence. | X | | | X | | |
| 9. For CCV, all analytes within ± 10% of expected value? | X | | | X | | |
| 10. Calibration blank after ICVand CCV analysis. | X | | | X | | |
| 11. Do all calibration blanks ( ICB and CCBs) meet criteria? (< 1/2 PQL) | X | | | X | | |
| 12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only) | X | | | X | | |
| **Sample Information** | | | | | | |
| 13. All samples are within linear dynamic range. | X | | | X | | |
| 14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only) | X | | | X | | |
| 15. Are all samples analyzed/digested within hold time. | X | | | X | | |
| 16. Dilution test performed and within ± 10% of undiluted sample. | X | | | X | | X |
| 17. When dilution test fails, post digestion spike recovery within 80-120% of expected value. | | | X | | | X |
| 18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb? | | | X | | | X |
| 19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%? | | | X | | | X |
| 20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation? | | | X | | | X |
| 21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration? | | | X | | | X |
| **QC Items** | | | | | | |
| 22. IS are within control limits (70-125% for ICPMS). | X | | | X | | |
| 23. Method blank values are below 1/2 the reporting limit. | X | | | X | | X |
| 24. LCS compounds within control limits. | X | | | X | | X |
| 25. MS/MSD, RPD's are within control limits | X | | | X | | X |
| **Raw Data and Miscellaneous Information** | | | | | | |
| 26. Are Non-Conformances documented | | | X | | | X |
| 27. Runlog complete and included in package. | X | | | X | | |
| 28. Digestion log complete and included in package (if applicable) | X | | | X | | |
| 29. All sample raw data present in package. | X | | | X | | |
| **Preliminary Report** | | | | | | |
| 30. Does the raw data match the preliminary report? | X | | | X | | |
| 31. Are analytical results correct?(Ex. dilutions, calculations.etc.) | X | | | X | | |
| 32. Are special instructions met? | X | | | X | | |

**Comments:**

Se rerun.

| | Yes | No | N/A |
|---|---|---|---|
| 1. All assigned sample(s) analyzed | X | | |
| 2. Matrix / units correct | X | | |
| 3. Does batch meet QC requirements? | X | | |
| 4. Are analytical results correct? (Ex. dilutions, calculations.etc.) | X | | |
| 5. Is first level review correct and complete? | X | | |

1st Level Reviewer CEI Date: 4/11/2019

2nd Level Reviewer 4/11/2019 Date: ____

# SAMPLE CALCULATION

## SAMPLE CALCULATION

**METHOD:** EPA 6020
**TEST NAME:** Heavy Metals by ICP-MS
**MATRIX:** Groundwater

**FORMULA:**

Calculate the Barium concentration, in ug/L , in the original sample as follows:

Barium , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N034708-001B** , the concentration in ug/L is calculated as follows:

Barium , ug/L = 107.84 * 1

Barium , ug/L = 107.84

Reporting results in two significant figures,

**Barium , ug/L = 110**

NS 4/11/2019

# % RSD SUMMARY

**PERCENT RSD SUMMARY: 190403B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 137 Ba [3] | | | | 52 Cr [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.13 | 29.92 | 15 | <PQL | 0.035 | 103.95 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.61 | 8.086 | 15 | PASS | 0.51 | 19.16 | 15 | <PQL |
| Std3-5/50 ppb | ICAL | 1 | 5.26 | 2.076 | 15 | PASS | 5.34 | 0.65 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.1 | 1.43 | 15 | PASS | 10.065 | 1.46 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.64 | 1.77 | 15 | PASS | 20.86 | 1.65 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.48 | 0.77 | 15 | PASS | 41.045 | 3.45 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.3 | 0.63 | 15 | PASS | 100.46 | 1.44 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.68 | 0.21 | 15 | PASS | 199.46 | 0.53 | 15 | PASS |
| ICV | ICV | 1 | 10.2 | 3.36 | 15 | PASS | 10.046 | 3.26 | 15 | PASS |
| ICB | ICB | 1 | 0.14 | 8.53 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| LLICV | CCV1 | 1 | 1.27 | 5.42 | 20 | PASS | 0.88 | 2.047 | 20 | PASS |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 23.48 | 0.45 | 15 | PASS | 18.21 | 2.27 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.76 | 6.17 | 20 | PASS | 0.49 | 10.93 | 20 | PASS |
| CCV1 | CCV | 1 | 20.55 | 0.72 | 15 | PASS | 20.035 | 1.23 | 15 | PASS |
| CCB1 | CCB | 1 | 0.0021 | 431.062 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV2 | CCV | 1 | 21.1 | 0.94 | 15 | PASS | 20.44 | 2.96 | 15 | PASS |
| CCB2 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV3 | CCV | 1 | 20.79 | 0.33 | 15 | PASS | 20.4 | 0.85 | 15 | PASS |
| CCB3 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 23.08 | 1.34 | 15 | PASS | 18.44 | 3.1 | 15 | PASS |
| MB-73032 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| LCS-73032 | LCS | 1 | 10.46 | 1.5 | 15 | PASS | 9.93 | 2.81 | 15 | PASS |
| N034708-001B | SAMP | 1 | 107.84 | 0.51 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034708-001B | SAMP | 5 | 21.92 | 1.023 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034708-001B-PS | PS | 1 | 112.2 | 2.42 | 15 | PASS | 9.56 | 2.74 | 15 | PASS |
| N034708-001B-MS | MS | 1 | 108.52 | 0.61 | 15 | PASS | 9.41 | 1.52 | 15 | PASS |
| N034708-001B-MSD | MSD | 1 | 111.19 | 0.96 | 15 | PASS | 9.37 | 1.56 | 15 | PASS |
| N034708-002B | SAMP | 1 | 107.5 | 1.77 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034708-003B | SAMP | 1 | 103.12 | 0.28 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034708-004B | SAMP | 1 | 106.061 | 1.78 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV4 | CCV | 1 | 21.35 | 0.14 | 15 | PASS | 20.32 | 0.42 | 15 | PASS |
| CCB4 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034708-005B | SAMP | 1 | 99.72 | 0.52 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034708-006B | SAMP | 1 | 105.47 | 0.55 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034708-007B | SAMP | 1 | 105.88 | 0.42 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034708-008B | SAMP | 1 | 104.36 | 0.79 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034708-009B | SAMP | 1 | 105.86 | 1.068 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034708-010B | SAMP | 1 | 102.27 | 0.75 | 15 | PASS | <0.000 | N/A | 15 | <PQL |

**PERCENT RSD SUMMARY: 190403B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 137 Ba [3] | | | | 52 Cr [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034708-011B | SAMP | 1 | 104.27 | 0.56 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| N034708-012B | SAMP | 1 | 104.053 | 0.68 | 15 | PASS | 1.68 | 2.52 | 15 | PASS |
| N034708-013B | SAMP | 1 | 99.94 | 0.63 | 15 | PASS | <0.000 | N/A | 15 | <PQL |
| CCV5 | CCV | 1 | 21.43 | 1.66 | 15 | PASS | 20.3 | 0.86 | 15 | PASS |
| CCB5 | CCB | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 23.29 | 2.15 | 15 | PASS | 18.42 | 1.92 | 15 | PASS |

**PERCENT RSD SUMMARY: 190403B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 55 Mn [2] | | | | 75 As [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.093 | 21.93 | 15 | <PQL | 0.11 | 20.45 | 15 | NR! |
| Std2-0.5/5 ppb | ICAL | 1 | 0.52 | 7.48 | 15 | PASS | 0.5 | 8.16 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 5.31 | 2.49 | 15 | PASS | 5.26 | 3.21 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 10.29 | 2.33 | 15 | PASS | 10.021 | 2.44 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.88 | 2.55 | 15 | PASS | 19.93 | 3.23 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 41.46 | 3.89 | 15 | PASS | 40.37 | 1.022 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.028 | 1.86 | 15 | PASS | 99.85 | 2.11 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 199.58 | 0.41 | 15 | PASS | 197.91 | 0.16 | 15 | PASS |
| ICV | ICV | 1 | 108.76 | 1.022 | 15 | PASS | 9.52 | 6.22 | 15 | PASS |
| ICB | ICB | 1 | <0.000 | N/A | 15 | <PQL | 0.015 | 309.22 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.47 | 25.37 | 20 | <PQL | 0.15 | 25.1 | 20 | NR! |
| ICSA1 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 17.95 | 2.38 | 15 | PASS | 18.52 | 5.51 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.29 | 4.67 | 20 | PASS | 0.1 | 69.26 | 20 | NR! |
| CCV1 | CCV | 1 | 20.48 | 1.24 | 15 | PASS | 19.95 | 1.79 | 15 | PASS |
| CCB1 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.041 | 17.16 | 15 | <PQL |
| CCV2 | CCV | 1 | 21.22 | 3.53 | 15 | PASS | 20.41 | 2.59 | 15 | PASS |
| CCB2 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.018 | 87.1 | 15 | <PQL |
| CCV3 | CCV | 1 | 20.36 | 1.2 | 15 | PASS | 19.54 | 3.003 | 15 | PASS |
| CCB3 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.049 | 90.14 | 15 | <PQL |
| ICSA2 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 18.22 | 2.6 | 15 | PASS | 18.12 | 4.051 | 15 | PASS |
| MB-73032 | MBLK | 1 | <0.000 | N/A | 15 | <PQL | 0.058 | 32.52 | 15 | <PQL |
| LCS-73032 | LCS | 1 | 104.81 | 0.89 | 15 | PASS | 9.84 | 1.26 | 15 | PASS |
| N034708-001B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.45 | 4.56 | 15 | PASS |
| N034708-001B | SAMP | 5 | <0.000 | N/A | 15 | <PQL | 0.55 | 9.33 | 15 | PASS |
| N034708-001B-PS | PS | 1 | 100.058 | 1.91 | 15 | PASS | 12.053 | 5.4 | 15 | PASS |
| N034708-001B-MS | MS | 1 | 99.59 | 0.8 | 15 | PASS | 11.67 | 6.35 | 15 | PASS |
| N034708-001B-MSD | MSD | 1 | 99.57 | 1.52 | 15 | PASS | 11.67 | 6.6 | 15 | PASS |
| N034708-002B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.34 | 9.84 | 15 | PASS |
| N034708-003B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.099 | 7.67 | 15 | PASS |
| N034708-004B | SAMP | 1 | 0.26 | 41.6 | 15 | <PQL | 2.23 | 9.25 | 15 | PASS |
| CCV4 | CCV | 1 | 20.76 | 1.73 | 15 | PASS | 20.41 | 1.8 | 15 | PASS |
| CCB4 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.044 | 56.18 | 15 | <PQL |
| N034708-005B | SAMP | 1 | 0.1 | 91.5 | 15 | <PQL | 2.19 | 10.18 | 15 | PASS |
| N034708-006B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.0011 | 8.43 | 15 | PASS |
| N034708-007B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.079 | 4.94 | 15 | PASS |
| N034708-008B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.063 | 0.58 | 15 | PASS |
| N034708-009B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.19 | 3.29 | 15 | PASS |
| N034708-010B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.11 | 4.014 | 15 | PASS |

**PERCENT RSD SUMMARY: 190403B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 55 Mn [2] | | | | 75 As [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034708-011B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.26 | 7.54 | 15 | PASS |
| N034708-012B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.32 | 3.15 | 15 | PASS |
| N034708-013B | SAMP | 1 | <0.000 | N/A | 15 | <PQL | 2.21 | 0.71 | 15 | PASS |
| CCV5 | CCV | 1 | 20.53 | 1.67 | 15 | PASS | 20.42 | 3.64 | 15 | PASS |
| CCB5 | CCB | 1 | <0.000 | N/A | 15 | <PQL | 0.036 | 89.84 | 15 | <PQL |
| ICSA3 | ICSA | 1 | <0.000 | N/A | 15 | <PQL | 0.018 | 448.79 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 17.48 | 3.22 | 15 | PASS | 18.23 | 1.99 | 15 | PASS |

**PERCENT RSD SUMMARY: 190403B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.081 | 86.66 | 15 | <PQL | 0.1 | 11.72 | 15 | PASS |
| Std2-0.5/5 ppb | ICAL | 1 | 0.4 | 94.98 | 15 | <PQL | 0.47 | 9.41 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 5.11 | 17.96 | 15 | NR! | 4.87 | 0.78 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 11.24 | 18.62 | 15 | NR! | 9.54 | 2.61 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.48 | 11.034 | 15 | PASS | 19.52 | 2.49 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 41.49 | 1.4 | 15 | PASS | 40.37 | 0.13 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 99.18 | 1.56 | 15 | PASS | 102.97 | 0.26 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 206.18 | 3.69 | 15 | PASS | 209.62 | 1.27 | 15 | PASS |
| ICV | ICV | 1 | 9.14 | 22.51 | 15 | NR! | 9.66 | 1.84 | 15 | PASS |
| ICB | ICB | 1 | 0 | N/A | 15 | <PQL | 0.12 | 20.39 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.62 | 40.63 | 20 | NR! | 0.47 | 5.92 | 20 | PASS |
| ICSA1 | ICSA | 1 | 0 | N/A | 15 | <PQL | 0.024 | 147.56 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 18.39 | 3.86 | 15 | PASS | 18.72 | 3.57 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.39 | 46.87 | 20 | <PQL | 0.22 | 23.78 | 20 | <PQL |
| CCV1 | CCV | 1 | 19.92 | 6.96 | 15 | PASS | 19.87 | 2.049 | 15 | PASS |
| CCB1 | CCB | 1 | 0 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV2 | CCV | 1 | 22.54 | 5.12 | 15 | PASS | 21.12 | 0.67 | 15 | PASS |
| CCB2 | CCB | 1 | 0.079 | 173.21 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| CCV3 | CCV | 1 | 19.46 | 13.63 | 15 | PASS | 19.66 | 0.84 | 15 | PASS |
| CCB3 | CCB | 1 | 0.078 | 86.64 | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0.045 | 173.21 | 15 | <PQL | 0.24 | 16.65 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 19.058 | 7.23 | 15 | PASS | 18.63 | 1.89 | 15 | PASS |
| MB-73032 | MBLK | 1 | 0 | N/A | 15 | <PQL | 0.37 | 11.94 | 15 | PASS |
| LCS-73032 | LCS | 1 | 9.86 | 6.068 | 15 | PASS | 9.71 | 0.35 | 15 | PASS |
| N034708-001B | SAMP | 1 | 1.37 | 35.27 | 15 | NR! | 5.13 | 4 | 15 | PASS |
| N034708-001B | SAMP | 5 | 0.54 | 43.76 | 15 | NR! | 1.084 | 9.17 | 15 | PASS |
| N034708-001B-PS | PS | 1 | 11.49 | 1.71 | 15 | PASS | 15.51 | 3.021 | 15 | PASS |
| N034708-001B-MS | MS | 1 | 12.18 | 11.24 | 15 | PASS | 16.016 | 2.57 | 15 | PASS |
| N034708-001B-MSD | MSD | 1 | 12.24 | 6.37 | 15 | PASS | 16.019 | 1.79 | 15 | PASS |
| N034708-002B | SAMP | 1 | 1.61 | 17.5 | 15 | NR! | 4.9 | 4.24 | 15 | PASS |
| N034708-003B | SAMP | 1 | 1.64 | 3.32 | 15 | PASS | 4.93 | 1.55 | 15 | PASS |
| N034708-004B | SAMP | 1 | 1.64 | 16.47 | 15 | NR! | 5.049 | 4.68 | 15 | PASS |
| CCV4 | CCV | 1 | 18.76 | 9.81 | 15 | PASS | 19.82 | 2.16 | 15 | PASS |
| CCB4 | CCB | 1 | 0 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| N034708-005B | SAMP | 1 | 1.68 | 29.9 | 15 | NR! | 4.52 | 2.64 | 15 | PASS |
| N034708-006B | SAMP | 1 | 1.73 | 49.19 | 15 | NR! | 4.6 | 1.96 | 15 | PASS |
| N034708-007B | SAMP | 1 | 2.026 | 15.24 | 15 | NR! | 4.71 | 4.84 | 15 | PASS |
| N034708-008B | SAMP | 1 | 1.48 | 16.17 | 15 | NR! | 4.68 | 5.14 | 15 | PASS |
| N034708-009B | SAMP | 1 | 1.58 | 16.62 | 15 | NR! | 4.83 | 2.057 | 15 | PASS |
| N034708-010B | SAMP | 1 | 1.71 | 8.44 | 15 | PASS | 4.54 | 0.7 | 15 | PASS |

**PERCENT RSD SUMMARY: 190403B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | | 95 Mo [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment | Conc. [ppb] | RSD | Criteria | Comment |
| N034708-011B | SAMP | 1 | 1.71 | 23.22 | 15 | NR! | 4.68 | 2.91 | 15 | PASS |
| N034708-012B | SAMP | 1 | 1.38 | 19.1 | 15 | NR! | 4.73 | 3.74 | 15 | PASS |
| N034708-013B | SAMP | 1 | 1.75 | 31.58 | 15 | NR! | 4.42 | 4.86 | 15 | PASS |
| CCV5 | CCV | 1 | 20.18 | 4.92 | 15 | PASS | 19.33 | 0.66 | 15 | PASS |
| CCB5 | CCB | 1 | 0 | N/A | 15 | <PQL | <0.000 | N/A | 15 | <PQL |
| ICSA3 | ICSA | 1 | 0.085 | 86.67 | 15 | <PQL | 0.2 | 48.3 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 17.67 | 5.17 | 15 | PASS | 18.2 | 0.51 | 15 | PASS |

**PERCENT RSD SUMMARY: 190404A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.12 | 1.53 | 15 | PASS |
| Std2-0.5/5 ppb | ICAL | 1 | 0.65 | 25.71 | 15 | NR! |
| Std3-5/50 ppb | ICAL | 1 | 4.95 | 16.69 | 15 | NR! |
| Std4-10/100 ppb | ICAL | 1 | 10.53 | 6.27 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 19.032 | 12.72 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 37.96 | 0.84 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 100.37 | 3.93 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 200.3 | 2.93 | 15 | PASS |
| ICV | ICV | 1 | 11 | 6.43 | 15 | PASS |
| ICB | ICB | 1 | 0 | N/A | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.47 | 68.84 | 20 | <PQL |
| ICSA1 | ICSA | 1 | 0.16 | 112.56 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 20.38 | 7.25 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.66 | 53.009 | 20 | NR! |
| CCV1 | CCV | 1 | 21.42 | 4.11 | 15 | PASS |
| CCB1 | CCB | 1 | 0.051 | 173.21 | 15 | <PQL |
| CCV2 | CCV | 1 | 20.74 | 7.6 | 15 | PASS |
| CCB2 | CCB | 1 | 0.1 | 86.62 | 15 | <PQL |
| MB-73032 | MBLK | 1 | 0.045 | 173.21 | 15 | <PQL |
| LCS-73032 | LCS | 1 | 10.81 | 7.71 | 15 | PASS |
| N034708-001B | SAMP | 1 | 2.027 | 28.13 | 15 | NR! |
| N034708-001B | SAMP | 5 | 0.26 | 85.58 | 15 | <PQL |
| N034708-001B-PS | PS | 1 | 11.89 | 11.89 | 15 | PASS |
| N034708-001B-MS | MS | 1 | 11.59 | 12.98 | 15 | PASS |
| N034708-001B-MSD | MSD | 1 | 10.52 | 12.57 | 15 | PASS |
| N034708-002B | SAMP | 1 | 1.11 | 48.35 | 15 | NR! |
| N034708-003B | SAMP | 1 | 1.86 | 25.47 | 15 | NR! |
| CCV3 | CCV | 1 | 19.91 | 8.12 | 15 | PASS |
| CCB3 | CCB | 1 | 0.11 | 86.68 | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0 | N/A | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 22.53 | 4.88 | 15 | PASS |
| N034708-004B | SAMP | 1 | 1.94 | 7.81 | 15 | PASS |
| N034708-005B | SAMP | 1 | 1.83 | 57.15 | 15 | NR! |
| N034708-006B | SAMP | 1 | 1.5 | 28.26 | 15 | NR! |
| N034708-007B | SAMP | 1 | 2.32 | 8.36 | 15 | PASS |
| N034708-008B | SAMP | 1 | 1.43 | 22.23 | 15 | NR! |
| N034708-009B | SAMP | 1 | 1.57 | 27.052 | 15 | NR! |
| N034708-010B | SAMP | 1 | 1.36 | 36.68 | 15 | NR! |
| N034708-011B | SAMP | 1 | 1.6 | 13.81 | 15 | PASS |
| N034708-012B | SAMP | 1 | 1.54 | 23.95 | 15 | NR! |

**PERCENT RSD SUMMARY: 190404A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| N034708-013B | SAMP | 1 | 1.81 | 34.46 | 15 | NR! |
| CCV4 | CCV | 1 | 21.53 | 1.93 | 15 | PASS |
| CCB4 | CCB | 1 | 0 | N/A | 15 | <PQL |
| N034708-001B | SAMP | 1 | 1.91 | 15.25 | 15 | NR! |
| CCV5 | CCV | 1 | 20.6 | 8.82 | 15 | PASS |
| CCB5 | CCB | 1 | 0 | N/A | 15 | <PQL |
| ICSA3 | ICSA | 1 | 0.042 | 173.21 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 20.71 | 4.77 | 15 | PASS |

**PERCENT RSD SUMMARY: 190409B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| Cal Blank | IBLK | 1 | 0 | N/A | 15 | <PQL |
| Std1-0.1/1 ppb | ICAL | 1 | 0.1 | 65.39 | 15 | <PQL |
| Std2-0.5/5 ppb | ICAL | 1 | 0.53 | 9.94 | 15 | PASS |
| Std3-5/50 ppb | ICAL | 1 | 4.7 | 13.092 | 15 | PASS |
| Std4-10/100 ppb | ICAL | 1 | 9 | 4.37 | 15 | PASS |
| Std5-20/200 ppb | ICAL | 1 | 20.35 | 4.48 | 15 | PASS |
| Std6-40/400 ppb | ICAL | 1 | 40.45 | 2.33 | 15 | PASS |
| Std7-100/1000 ppb | ICAL | 1 | 99.86 | 0.64 | 15 | PASS |
| Std8-200/2000 ppb | ICAL | 1 | 204.57 | 0.93 | 15 | PASS |
| ICV | ICV | 1 | 10.15 | 8.12 | 15 | PASS |
| ICB | ICB | 1 | 0.18 | 41.72 | 15 | <PQL |
| LLICV | CCV1 | 1 | 0.44 | 23.68 | 20 | <PQL |
| ICSA1 | ICSA | 1 | 0.032 | 86.61 | 15 | <PQL |
| ICSAB1 | ICSAB | 1 | 19.18 | 3.95 | 15 | PASS |
| LLICV | CCV1 | 1 | 0.69 | 25.62 | 20 | NR! |
| CCV1 | CCV | 1 | 20.44 | 8.43 | 15 | PASS |
| CCB1 | CCB | 1 | 0.2 | 93.99 | 15 | <PQL |
| CCV2 | CCV | 1 | 20.62 | 5.51 | 15 | PASS |
| CCB2 | CCB | 1 | 0.081 | 35.42 | 15 | <PQL |
| CCV3 | CCV | 1 | 20.082 | 4.63 | 15 | PASS |
| CCB3 | CCB | 1 | 0.11 | 48.13 | 15 | <PQL |
| CCV4 | CCV | 1 | 18.51 | 8.77 | 15 | PASS |
| CCB4 | CCB | 1 | 0.063 | 113.66 | 15 | <PQL |
| ICSA2 | ICSA | 1 | 0.047 | 99.98 | 15 | <PQL |
| ICSAB2 | ICSAB | 1 | 16.82 | 6.43 | 15 | PASS |
| CCV5 | CCV | 1 | 18.59 | 2.067 | 15 | PASS |
| CCB5 | CCB | 1 | 0.12 | 24.69 | 15 | <PQL |
| N034708-002B | SAMP | 1 | 1.59 | 9.53 | 15 | PASS |
| N034708-003B | SAMP | 1 | 1.59 | 8.27 | 15 | PASS |
| CCV6 | CCV | 1 | 19.53 | 4.69 | 15 | PASS |
| CCB6 | CCB | 1 | 0.11 | 65.21 | 15 | <PQL |
| N034708-005B | SAMP | 1 | 1.73 | 11.73 | 15 | PASS |
| N034708-006B | SAMP | 1 | 1.61 | 30.42 | 15 | NR! |
| N034708-008B | SAMP | 1 | 1.36 | 8.91 | 15 | PASS |
| N034708-009B | SAMP | 1 | 1.45 | 13.32 | 15 | PASS |
| N034708-010B | SAMP | 1 | 1.32 | 17.61 | 15 | NR! |
| N034708-012B | SAMP | 1 | 1.8 | 26.39 | 15 | NR! |
| N034708-013B | SAMP | 1 | 1.44 | 8.62 | 15 | PASS |
| N034708-006B | SAMP | 1 | 1.69 | 11.61 | 15 | PASS |
| N034708-010B | SAMP | 1 | 1.69 | 17.35 | 15 | NR! |
| N034708-012B | SAMP | 1 | 1.47 | 20.31 | 15 | NR! |

**PERCENT RSD SUMMARY: 190409B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 78 Se [1] | | | |
|---|---|---|---|---|---|---|
| | | | Conc. [ppb] | RSD | Criteria | Comment |
| CCV7 | CCV | 1 | 18.11 | 8.083 | 15 | PASS |
| CCB7 | CCB | 1 | 0.12 | 24.56 | 15 | <PQL |
| N034708-010B | SAMP | 1 | 1.58 | 5.93 | 15 | PASS |
| N034708-010B | SAMP | 1 | 1.37 | 25.44 | 15 | NR! |
| N034708-012B | SAMP | 1 | 1.81 | 11.1 | 15 | PASS |
| N034708-012B | SAMP | 1 | 1.4 | 25.93 | 15 | NR! |
| CCV8 | CCV | 1 | 18.95 | 6.8 | 15 | PASS |
| CCB8 | CCB | 1 | 0.17 | 62.31 | 15 | <PQL |
| ICSA3 | ICSA | 1 | 0.054 | 100.25 | 15 | <PQL |
| ICSAB3 | ICSAB | 1 | 18.99 | 1.18 | 15 | PASS |
| CCV9 | CCV | 1 | 19.26 | 5.35 | 15 | PASS |
| CCB9 | CCB | 1 | 0.083 | 124.87 | 15 | <PQL |
| CCV10 | CCV | 1 | 18.96 | 4.31 | 15 | PASS |
| CCB10 | CCB | 1 | 0.11 | 66.64 | 15 | <PQL |
| CCV11 | CCV | 1 | 19.24 | 3.11 | 15 | PASS |
| CCB11 | CCB | 1 | 0.077 | 173.21 | 15 | <PQL |
| ICSA4 | ICSA | 1 | 0.02 | 173.21 | 15 | <PQL |
| ICSAB4 | ICSAB | 1 | 17.45 | 1.38 | 15 | PASS |
| CCV12 | CCV | 1 | 17.37 | 4.1 | 15 | PASS |
| CCB12 | CCB | 1 | 0.019 | 173.21 | 15 | <PQL |
| CCV13 | CCV | 1 | 18.62 | 7.47 | 15 | PASS |
| CCB13 | CCB | 1 | 0.079 | 115.79 | 15 | <PQL |
| ICSA5 | ICSA | 1 | 0.13 | 50.53 | 15 | <PQL |
| ICSAB5 | ICSAB | 1 | 17.13 | 2.62 | 15 | PASS |

# ANALYSIS RUN LOG

**INJECTION LOG: 190403B**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| B0403001.D | RINSE | RINSE | 1 | 04/03/19 10:52 PM |
| B0403002.D | Cal Blank | IBLK | 1 | 04/03/19 10:58 PM |
| B0403003.D | Std1-0.1/1 ppb | ICAL | 1 | 04/03/19 11:04 PM |
| B0403004.D | Std2-0.5/5 ppb | ICAL | 1 | 04/03/19 11:10 PM |
| B0403005.D | Std3-5/50 ppb | ICAL | 1 | 04/03/19 11:16 PM |
| B0403006.D | Std4-10/100 ppb | ICAL | 1 | 04/03/19 11:22 PM |
| B0403007.D | Std5-20/200 ppb | ICAL | 1 | 04/03/19 11:28 PM |
| B0403008.D | Std6-40/400 ppb | ICAL | 1 | 04/03/19 11:34 PM |
| B0403009.D | Std7-100/1000 ppb | ICAL | 1 | 04/03/19 11:40 PM |
| B0403010.D | Std8-200/2000 ppb | ICAL | 1 | 04/03/19 11:46 PM |
| B0403011.D | ICV | ICV | 1 | 04/03/19 11:52 PM |
| B0403012.D | ICB | ICB | 1 | 04/03/19 11:57 PM |
| B0403013.D | LLICV | CCV1 | 1 | 04/04/19 12:03 AM |
| B0403014.D | ICSA1 | ICSA | 1 | 04/04/19 12:09 AM |
| B0403015.D | ICSAB1 | ICSAB | 1 | 04/04/19 12:15 AM |
| A0403016.D | LLICV | CCV1 | 1 | 04/04/19 12:21 AM |
| A0403017.D | N034689-004A | SAMP | 1 | 04/04/19 12:27 AM |
| A0403018.D | N034689-004E | SAMP | 1 | 04/04/19 12:33 AM |
| A0403019.D | MB-1 | MBLK | 1 | 04/04/19 12:39 AM |
| A0403020.D | MB-STLC DI | MBLK | 1 | 04/04/19 12:45 AM |
| A0403021.D | LCS-1 | LCS | 1 | 04/04/19 12:51 AM |
| A0403022.D | N034686-002B | SAMP | 1 | 04/04/19 12:57 AM |
| A0403023.D | N034686-006B | SAMP | 1 | 04/04/19 1:02 AM |
| A0403024.D | N034686-002B | SAMP | 5 | 04/04/19 1:08 AM |
| A0403025.D | N034686-002B-MS | MS | 1 | 04/04/19 1:14 AM |
| B0403026.D | N034686-002B-MSD | MSD | 1 | 04/04/19 1:20 AM |
| B0403027.D | CCV1 | CCV | 1 | 04/04/19 1:26 AM |
| B0403028.D | CCB1 | CCB | 1 | 04/04/19 1:33 AM |
| B0403029.D | MB-73205 | MBLK | 1 | 04/04/19 1:38 AM |
| B0403030.D | LCS-73205 | LCS | 1 | 04/04/19 1:44 AM |
| B0403031.D | N034919-001A | SAMP | 1 | 04/04/19 1:50 AM |
| B0403032.D | N034919-001A | SAMP | 5 | 04/04/19 1:56 AM |
| B0403033.D | N034919-001A | SAMP | 25 | 04/04/19 2:02 AM |
| B0403034.D | N034919-001A-PS | PS | 1 | 04/04/19 2:08 AM |
| B0403035.D | N034919-001A-PS | PS | 5 | 04/04/19 2:14 AM |
| B0403036.D | N034919-001A-MS | MS | 1 | 04/04/19 2:19 AM |
| B0403037.D | N034919-001A-MS | MS | 5 | 04/04/19 2:25 AM |
| B0403038.D | N034919-001A-MSD | MSD | 1 | 04/04/19 2:31 AM |
| B0403039.D | CCV2 | CCV | 1 | 04/04/19 2:37 AM |
| B0403040.D | CCB2 | CCB | 1 | 04/04/19 2:44 AM |
| B0403041.D | N034919-001A-MSD | MSD | 5 | 04/04/19 2:49 AM |
| B0403042.D | N034880-001E | SAMP | 1 | 04/04/19 2:55 AM |

**INJECTION LOG: 190403B**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| B0403043.D | N034880-001E | SAMP | 5 | 04/04/19 3:01 AM |
| B0403044.D | N034880-002E | SAMP | 1 | 04/04/19 3:07 AM |
| B0403045.D | N034880-002E | SAMP | 5 | 04/04/19 3:13 AM |
| B0403046.D | N034880-003C | SAMP | 1 | 04/04/19 3:19 AM |
| B0403047.D | N034880-003C | SAMP | 5 | 04/04/19 3:25 AM |
| B0403048.D | N034880-003C | SAMP | 25 | 04/04/19 3:31 AM |
| B0403049.D | N034889-003C | SAMP | 1 | 04/04/19 3:36 AM |
| B0403050.D | CCV3 | CCV | 1 | 04/04/19 3:42 AM |
| B0403051.D | CCB3 | CCB | 1 | 04/04/19 3:48 AM |
| B0403052.D | ICSA2 | ICSA | 1 | 04/04/19 3:54 AM |
| B0403053.D | ICSAB2 | ICSAB | 1 | 04/04/19 4:00 AM |
| B0403054.D | MB-73032 | MBLK | 1 | 04/04/19 4:06 AM |
| B0403055.D | LCS-73032 | LCS | 1 | 04/04/19 4:12 AM |
| B0403056.D | N034708-001B | SAMP | 1 | 04/04/19 4:18 AM |
| B0403057.D | N034708-001B | SAMP | 5 | 04/04/19 4:24 AM |
| B0403058.D | N034708-001B-PS | PS | 1 | 04/04/19 4:30 AM |
| B0403059.D | N034708-001B-MS | MS | 1 | 04/04/19 4:36 AM |
| B0403060.D | N034708-001B-MSD | MSD | 1 | 04/04/19 4:41 AM |
| B0403061.D | N034708-002B | SAMP | 1 | 04/04/19 4:47 AM |
| B0403062.D | N034708-003B | SAMP | 1 | 04/04/19 4:53 AM |
| B0403063.D | N034708-004B | SAMP | 1 | 04/04/19 4:59 AM |
| B0403064.D | CCV4 | CCV | 1 | 04/04/19 5:05 AM |
| B0403065.D | CCB4 | CCB | 1 | 04/04/19 5:12 AM |
| B0403066.D | N034708-005B | SAMP | 1 | 04/04/19 5:17 AM |
| B0403067.D | N034708-006B | SAMP | 1 | 04/04/19 5:23 AM |
| B0403068.D | N034708-007B | SAMP | 1 | 04/04/19 5:29 AM |
| B0403069.D | N034708-008B | SAMP | 1 | 04/04/19 5:35 AM |
| B0403070.D | N034708-009B | SAMP | 1 | 04/04/19 5:41 AM |
| B0403071.D | N034708-010B | SAMP | 1 | 04/04/19 5:47 AM |
| B0403072.D | N034708-011B | SAMP | 1 | 04/04/19 5:53 AM |
| B0403073.D | N034708-012B | SAMP | 1 | 04/04/19 5:58 AM |
| B0403074.D | N034708-013B | SAMP | 1 | 04/04/19 6:04 AM |
| B0403075.D | CCV5 | CCV | 1 | 04/04/19 6:10 AM |
| B0403076.D | CCB5 | CCB | 1 | 04/04/19 6:16 AM |
| B0403077.D | ICSA3 | ICSA | 1 | 04/04/19 6:22 AM |
| B0403078.D | ICSAB3 | ICSAB | 1 | 04/04/19 6:28 AM |
| B0403079.D | N034688-002B | SAMP | 1 | 04/04/19 6:34 AM |
| B0403080.D | N034688-003B | SAMP | 1 | 04/04/19 6:40 AM |
| B0403081.D | N034688-005B | SAMP | 1 | 04/04/19 6:46 AM |
| B0403082.D | N034688-006B | SAMP | 1 | 04/04/19 6:52 AM |
| B0403083.D | N034688-009B | SAMP | 1 | 04/04/19 6:58 AM |
| B0403084.D | N034688-011B | SAMP | 1 | 04/04/19 7:04 AM |

NR



**INJECTION LOG: 190403B**

**Instrument ID: ICPMS-02**

| | Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|---|
| NR | B0403085.D | N034688-012B | SAMP | 1 | 04/04/19 7:10 AM |
| | B0403086.D | N034688-013B | SAMP | 1 | 04/04/19 7:15 AM |
| | B0403087.D | N034689-004E | SAMP | 1 | 04/04/19 7:22 AM |

**INJECTION LOG: 190404A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0404001.D | RINSE | RINSE | 1 | 04/04/19 1:59 PM |
| A0404002.D | Cal Blank | IBLK | 1 | 04/04/19 2:05 PM |
| A0404003.D | Std1-0.1/1 ppb | ICAL | 1 | 04/04/19 2:11 PM |
| A0404004.D | Std2-0.5/5 ppb | ICAL | 1 | 04/04/19 2:17 PM |
| A0404005.D | Std3-5/50 ppb | ICAL | 1 | 04/04/19 2:23 PM |
| A0404006.D | Std4-10/100 ppb | ICAL | 1 | 04/04/19 2:29 PM |
| A0404007.D | Std5-20/200 ppb | ICAL | 1 | 04/04/19 2:35 PM |
| A0404008.D | Std6-40/400 ppb | ICAL | 1 | 04/04/19 2:41 PM |
| A0404009.D | Std7-100/1000 ppb | ICAL | 1 | 04/04/19 2:47 PM |
| A0404010.D | Std8-200/2000 ppb | ICAL | 1 | 04/04/19 2:53 PM |
| A0404011.D | ICV | ICV | 1 | 04/04/19 2:59 PM |
| A0404012.D | ICB | ICB | 1 | 04/04/19 3:05 PM |
| A0404013.D | LLICV | CCV1 | 1 | 04/04/19 3:11 PM |
| A0404014.D | ICSA1 | ICSA | 1 | 04/04/19 3:17 PM |
| A0404015.D | ICSAB1 | ICSAB | 1 | 04/04/19 3:24 PM |
| A0404016.D | LLICV | CCV1 | 1 | 04/04/19 3:31 PM |
| A0404017.D | MB-73205 | MBLK | 1 | 04/04/19 3:54 PM |
| A0404018.D | LCS-73205 | LCS | 1 | 04/04/19 4:00 PM |
| A0404019.D | N034919-001A | SAMP | 1 | 04/04/19 4:06 PM |
| A0404020.D | N034919-001A | SAMP | 5 | 04/04/19 4:12 PM |
| A0404021.D | N034919-001A | SAMP | 1 | 04/04/19 4:18 PM |
| A0404022.D | N034919-001A-PS | PS | 1 | 04/04/19 4:24 PM |
| A0404023.D | N034919-001A-MS | MS | 1 | 04/04/19 4:31 PM |
| A0404024.D | N034919-001A-MSD | MSD | 1 | 04/04/19 4:36 PM |
| A0404025.D | N034919-001A | SAMP | 1 | 04/04/19 4:43 PM |
| A0404026.D | N034880-001E | SAMP | 1 | 04/04/19 4:49 PM |
| A0404027.D | CCV1 | CCV | 1 | 04/04/19 4:55 PM |
| A0404028.D | CCB1 | CCB | 1 | 04/04/19 5:01 PM |
| A0404029.D | N034880-002E | SAMP | 1 | 04/04/19 5:07 PM |
| A0404030.D | N034880-003C | SAMP | 1 | 04/04/19 5:13 PM |
| A0404031.D | N034889-003C | SAMP | 1 | 04/04/19 5:18 PM |
| A0404032.D | N034688-002B | SAMP | 1 | 04/04/19 5:24 PM |
| A0404033.D | N034688-003B | SAMP | 1 | 04/04/19 5:30 PM |
| A0404034.D | N034688-005B | SAMP | 1 | 04/04/19 5:36 PM |
| A0404035.D | N034688-006B | SAMP | 1 | 04/04/19 5:42 PM |
| A0404036.D | N034688-009B | SAMP | 1 | 04/04/19 5:48 PM |
| A0404037.D | N034688-011B | SAMP | 1 | 04/04/19 5:54 PM |
| A0404038.D | N034688-012B | SAMP | 1 | 04/04/19 6:00 PM |
| A0404039.D | CCV2 | CCV | 1 | 04/04/19 6:06 PM |
| A0404040.D | CCB2 | CCB | 1 | 04/04/19 6:19 PM |
| A0404041.D | N034688-013B | SAMP | 1 | 04/04/19 6:25 PM |
| A0404042.D | MB-73032 | MBLK | 1 | 04/04/19 6:31 PM |

**INJECTION LOG: 190404A**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| A0404043.D | LCS-73032 | LCS | 1 | 04/04/19 6:37 PM |
| A0404044.D | N034708-001B | SAMP | 1 | 04/04/19 6:43 PM |
| A0404045.D | N034708-001B | SAMP | 5 | 04/04/19 6:49 PM |
| A0404046.D | N034708-001B-PS | PS | 1 | 04/04/19 6:54 PM |
| A0404047.D | N034708-001B-MS | MS | 1 | 04/04/19 7:00 PM |
| A0404048.D | N034708-001B-MSD | MSD | 1 | 04/04/19 7:07 PM |
| A0404049.D | N034708-002B | SAMP | 1 | 04/04/19 7:12 PM |
| A0404050.D | N034708-003B | SAMP | 1 | 04/04/19 7:18 PM |
| A0404051.D | CCV3 | CCV | 1 | 04/04/19 7:24 PM |
| A0404052.D | CCB3 | CCB | 1 | 04/04/19 7:30 PM |
| A0404053.D | ICSA2 | ICSA | 1 | 04/04/19 7:36 PM |
| A0404054.D | ICSAB2 | ICSAB | 1 | 04/04/19 7:42 PM |
| A0404055.D | N034708-004B | SAMP | 1 | 04/04/19 7:48 PM |
| A0404056.D | N034708-005B | SAMP | 1 | 04/04/19 7:55 PM |
| A0404057.D | N034708-006B | SAMP | 1 | 04/04/19 8:01 PM |
| A0404058.D | N034708-007B | SAMP | 1 | 04/04/19 8:07 PM |
| A0404059.D | N034708-008B | SAMP | 1 | 04/04/19 8:14 PM |
| A0404060.D | N034708-009B | SAMP | 1 | 04/04/19 8:20 PM |
| A0404061.D | N034708-010B | SAMP | 1 | 04/04/19 8:26 PM |
| A0404062.D | N034708-011B | SAMP | 1 | 04/04/19 8:29 PM |
| A0404063.D | N034708-012B | SAMP | 1 | 04/04/19 8:36 PM |
| A0404064.D | N034708-013B | SAMP | 1 | 04/04/19 8:42 PM |
| A0404065.D | CCV4 | CCV | 1 | 04/04/19 8:47 PM |
| A0404066.D | CCB4 | CCB | 1 | 04/04/19 8:52 PM |
| A0404067.D | N034880-003C | SAMP | 1 | 04/04/19 8:59 PM |
| A0404068.D | N034889-003C | SAMP | 1 | 04/04/19 9:05 PM |
| A0404069.D | N034688-002B | SAMP | 1 | 04/04/19 9:10 PM |
| A0404070.D | N034688-003B | SAMP | 1 | 04/04/19 9:17 PM |
| A0404071.D | N034688-006B | SAMP | 1 | 04/04/19 9:22 PM |
| A0404072.D | N034688-009B | SAMP | 1 | 04/04/19 9:27 PM |
| A0404073.D | N034688-011B | SAMP | 1 | 04/04/19 9:35 PM |
| A0404074.D | N034688-012B | SAMP | 1 | 04/04/19 9:43 PM |
| A0404075.D | N034688-013B | SAMP | 1 | 04/04/19 9:47 PM |
| A0404076.D | N034708-001B | SAMP | 1 | 04/04/19 9:53 PM |
| A0404077.D | CCV5 | CCV | 1 | 04/04/19 9:58 PM |
| A0404078.D | CCB5 | CCB | 1 | 04/04/19 10:04 PM |
| A0404079.D | ICSA3 | ICSA | 1 | 04/04/19 10:10 PM |
| A0404080.D | ICSAB3 | ICSAB | 1 | 04/04/19 10:16 PM |

**INJECTION LOG: 190409B**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| B0409001.D | RINSE | RINSE | 1 | 04/09/19 4:03 PM |
| B0409002.D | Cal Blank | IBLK | 1 | 04/09/19 4:09 PM |
| B0409003.D | Std1-0.1/1 ppb | ICAL | 1 | 04/09/19 4:14 PM |
| B0409004.D | Std2-0.5/5 ppb | ICAL | 1 | 04/09/19 4:20 PM |
| B0409005.D | Std3-5/50 ppb | ICAL | 1 | 04/09/19 4:26 PM |
| B0409006.D | Std4-10/100 ppb | ICAL | 1 | 04/09/19 4:32 PM |
| B0409007.D | Std5-20/200 ppb | ICAL | 1 | 04/09/19 4:38 PM |
| B0409008.D | Std6-40/400 ppb | ICAL | 1 | 04/09/19 4:44 PM |
| B0409009.D | Std7-100/1000 ppb | ICAL | 1 | 04/09/19 4:50 PM |
| B0409010.D | Std8-200/2000 ppb | ICAL | 1 | 04/09/19 4:57 PM |
| B0409011.D | ICV | ICV | 1 | 04/09/19 5:03 PM |
| B0409012.D | ICB | ICB | 1 | 04/09/19 5:09 PM |
| B0409013.D | LLICV | CCV1 | 1 | 04/09/19 5:15 PM |
| B0409014.D | ICSA1 | ICSA | 1 | 04/09/19 5:21 PM |
| B0409015.D | ICSAB1 | ICSAB | 1 | 04/09/19 5:27 PM |
| B0409016.D | LLICV | CCV1 | 1 | 04/09/19 5:33 PM |
| B0409017.D | MB-73177 | MBLK | 1 | 04/09/19 5:39 PM |
| B0409018.D | LCS-73177 | LCS | 1 | 04/09/19 5:45 PM |
| B0409019.D | N034893-001B | SAMP | 1 | 04/09/19 5:50 PM |
| B0409020.D | N034893-001B | SAMP | 5 | 04/09/19 5:56 PM |
| B0409021.D | N034893-001B-PS | PS | 1 | 04/09/19 6:03 PM |
| B0409022.D | N034893-001B-MS | MS | 1 | 04/09/19 6:09 PM |
| B0409023.D | N034893-001B-MSD | MSD | 1 | 04/09/19 6:15 PM |
| B0409024.D | N034893-002B | SAMP | 1 | 04/09/19 6:21 PM |
| B0409025.D | N034893-003B | SAMP | 1 | 04/09/19 6:27 PM |
| B0409026.D | N034893-004B | SAMP | 1 | 04/09/19 6:33 PM |
| B0409027.D | CCV1 | CCV | 1 | 04/09/19 6:39 PM |
| B0409028.D | CCB1 | CCB | 1 | 04/09/19 6:45 PM |
| B0409029.D | N034893-005B | SAMP | 1 | 04/09/19 6:51 PM |
| B0409030.D | N034893-006B | SAMP | 1 | 04/09/19 6:57 PM |
| B0409031.D | N034893-007B | SAMP | 1 | 04/09/19 7:03 PM |
| B0409032.D | N034921-001B | SAMP | 1 | 04/09/19 7:08 PM |
| B0409033.D | N034921-002B | SAMP | 1 | 04/09/19 7:14 PM |
| B0409034.D | N034921-003B | SAMP | 1 | 04/09/19 7:20 PM |
| B0409035.D | N034921-004B | SAMP | 1 | 04/09/19 7:26 PM |
| B0409036.D | N034921-005B | SAMP | 1 | 04/09/19 7:32 PM |
| B0409037.D | N034921-006B | SAMP | 1 | 04/09/19 7:38 PM |
| B0409038.D | N034921-007B | SAMP | 1 | 04/09/19 7:44 PM |
| B0409039.D | CCV2 | CCV | 1 | 04/09/19 7:50 PM |
| B0409040.D | CCB2 | CCB | 1 | 04/09/19 7:56 PM |
| B0409041.D | N034921-008B | SAMP | 1 | 04/09/19 8:01 PM |
| B0409042.D | N034921-009B | SAMP | 1 | 04/09/19 8:07 PM |

**INJECTION LOG: 190409B**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| B0409043.D | MB-73250 | MBLK | 1 | 04/09/19 8:13 PM |
| B0409044.D | LCS-73250 | LCS | 1 | 04/09/19 8:19 PM |
| B0409045.D | N034941-001B | SAMP | 1 | 04/09/19 8:25 PM |
| B0409046.D | N034941-001B | SAMP | 5 | 04/09/19 8:31 PM |
| B0409047.D | N034941-001B-PS | PS | 1 | 04/09/19 8:37 PM |
| B0409048.D | N034941-001B-MS | MS | 1 | 04/09/19 8:43 PM |
| B0409049.D | N034941-001B-MSD | MSD | 1 | 04/09/19 8:49 PM |
| B0409050.D | N034941-002B | SAMP | 1 | 04/09/19 8:54 PM |
| B0409051.D | CCV3 | CCV | 1 | 04/09/19 9:00 PM |
| B0409052.D | CCB3 | CCB | 1 | 04/09/19 9:06 PM |
| B0409053.D | N034941-003B | SAMP | 1 | 04/09/19 9:12 PM |
| B0409054.D | N034941-004B | SAMP | 1 | 04/09/19 9:18 PM |
| B0409055.D | N034941-005B | SAMP | 1 | 04/09/19 9:24 PM |
| B0409056.D | N034961-001B | SAMP | 1 | 04/09/19 9:30 PM |
| B0409057.D | N034961-002B | SAMP | 1 | 04/09/19 9:36 PM |
| B0409058.D | N034961-003B | SAMP | 1 | 04/09/19 9:42 PM |
| B0409059.D | N034961-004B | SAMP | 1 | 04/09/19 9:48 PM |
| B0409060.D | N034961-005B | SAMP | 1 | 04/09/19 9:53 PM |
| B0409061.D | N034961-006B | SAMP | 1 | 04/09/19 9:59 PM |
| B0409062.D | N034961-007B | SAMP | 1 | 04/09/19 10:05 PM |
| B0409063.D | CCV4 | CCV | 1 | 04/09/19 10:11 PM |
| B0409064.D | CCB4 | CCB | 1 | 04/09/19 10:17 PM |
| B0409065.D | ICSA2 | ICSA | 1 | 04/09/19 10:23 PM |
| B0409066.D | ICSAB2 | ICSAB | 1 | 04/09/19 10:29 PM |
| B0409067.D | N034961-008B | SAMP | 1 | 04/09/19 10:35 PM |
| B0409068.D | N034973-001B | SAMP | 1 | 04/09/19 10:41 PM |
| B0409069.D | N034973-002B | SAMP | 1 | 04/09/19 10:46 PM |
| B0409070.D | N034973-003B | SAMP | 1 | 04/09/19 10:52 PM |
| B0409071.D | N034973-004B | SAMP | 1 | 04/09/19 10:58 PM |
| B0409072.D | N034973-005B | SAMP | 1 | 04/09/19 11:06 PM |
| B0409073.D | N034973-006B | SAMP | 1 | 04/09/19 11:11 PM |
| B0409074.D | N034973-007B | SAMP | 1 | 04/09/19 11:17 PM |
| B0409075.D | MB-73306 | MBLK | 1 | 04/09/19 11:23 PM |
| B0409076.D | LCS-73306 | LCS | 1 | 04/09/19 11:29 PM |
| B0409077.D | CCV5 | CCV | 1 | 04/09/19 11:35 PM |
| B0409078.D | CCB5 | CCB | 1 | 04/09/19 11:41 PM |
| B0409079.D | N035008-001D | SAMP | 1 | 04/09/19 11:47 PM |
| B0409080.D | N035008-001D | SAMP | 5 | 04/09/19 11:53 PM |
| B0409081.D | N035008-001D-DUP | DUP | 1 | 04/09/19 11:59 PM |
| B0409082.D | N035008-001D-PS | PS | 1 | 04/10/19 12:05 AM |
| B0409083.D | N035008-001D-MS | MS | 1 | 04/10/19 12:11 AM |
| B0409084.D | N035008-001D-MSD | MSD | 1 | 04/10/19 12:17 AM |

**INJECTION LOG: 190409B**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| B0409085.D | N034983-001E | SAMP | 1 | 04/10/19 12:23 AM |
| B0409086.D | N034983-001E | SAMP | 5 | 04/10/19 12:28 AM |
| B0409087.D | N034708-002B | SAMP | 1 | 04/10/19 12:34 AM |
| B0409088.D | N034708-003B | SAMP | 1 | 04/10/19 12:40 AM |
| B0409089.D | CCV6 | CCV | 1 | 04/10/19 12:46 AM |
| B0409090.D | CCB6 | CCB | 1 | 04/10/19 12:52 AM |
| B0409091.D | N034708-005B | SAMP | 1 | 04/10/19 12:58 AM |
| B0409092.D | N034708-006B | SAMP | 1 | 04/10/19 1:04 AM |
| B0409093.D | N034708-008B | SAMP | 1 | 04/10/19 1:10 AM |
| B0409094.D | N034708-009B | SAMP | 1 | 04/10/19 1:16 AM |
| B0409095.D | N034708-010B | SAMP | 1 | 04/10/19 1:22 AM |
| B0409096.D | N034708-012B | SAMP | 1 | 04/10/19 1:28 AM |
| B0409097.D | N034708-013B | SAMP | 1 | 04/10/19 1:34 AM |
| B0409098.D | N034708-006B | SAMP | 1 | 04/10/19 1:41 AM |
| B0409099.D | N034708-010B | SAMP | 1 | 04/10/19 1:47 AM |
| B0409100.D | N034708-012B | SAMP | 1 | 04/10/19 1:53 AM |
| B0409101.D | CCV7 | CCV | 1 | 04/10/19 2:00 AM |
| B0409102.D | CCB7 | CCB | 1 | 04/10/19 2:06 AM |
| B0409103.D | N034708-010B | SAMP | 1 | 04/10/19 2:12 AM |
| B0409104.D | N034708-010B | SAMP | 1 | 04/10/19 2:18 AM |
| B0409105.D | N034708-012B | SAMP | 1 | 04/10/19 2:24 AM |
| B0409106.D | N034708-012B | SAMP | 1 | 04/10/19 2:30 AM |
| B0409107.D | MB-73260 | MBLK | 1 | 04/10/19 2:36 AM |
| B0409108.D | LCS-73260 | LCS | 1 | 04/10/19 2:42 AM |
| B0409109.D | N034961-001B | SAMP | 1 | 04/10/19 2:48 AM |
| B0409110.D | N034895-001A | SAMP | 1 | 04/10/19 2:54 AM |
| B0409111.D | N034895-001A | SAMP | 5 | 04/10/19 3:00 AM |
| B0409112.D | N034895-001A-PS | PS | 1 | 04/10/19 3:06 AM |
| B0409113.D | CCV8 | CCV | 1 | 04/10/19 3:12 AM |
| B0409114.D | CCB8 | CCB | 1 | 04/10/19 3:17 AM |
| B0409115.D | ICSA3 | ICSA | 1 | 04/10/19 3:23 AM |
| B0409116.D | ICSAB3 | ICSAB | 1 | 04/10/19 3:29 AM |
| B0409117.D | N034895-001A-MS | MS | 1 | 04/10/19 3:35 AM |
| B0409118.D | N034895-001A-MSD | MSD | 1 | 04/10/19 3:41 AM |
| B0409119.D | N034895-002B | SAMP | 1 | 04/10/19 3:47 AM |
| B0409120.D | N034895-003B | SAMP | 1 | 04/10/19 3:53 AM |
| B0409121.D | N034895-004B | SAMP | 1 | 04/10/19 3:59 AM |
| B0409122.D | N034895-005B | SAMP | 1 | 04/10/19 4:05 AM |
| B0409123.D | N034895-006B | SAMP | 1 | 04/10/19 4:11 AM |
| B0409124.D | N034924-002B | SAMP | 1 | 04/10/19 4:17 AM |
| B0409125.D | N034924-003B | SAMP | 1 | 04/10/19 4:23 AM |
| B0409126.D | N034924-007B | SAMP | 1 | 04/10/19 4:29 AM |

**INJECTION LOG: 190409B**

**Instrument ID: ICPMS-02**

| Data File | Sample Name | Type | DF | Acq. Date-Time |
|---|---|---|---|---|
| B0409127.D | CCV9 | CCV | 1 | 04/10/19 4:35 AM |
| B0409128.D | CCB9 | CCB | 1 | 04/10/19 4:41 AM |
| B0409129.D | N034942-001B | SAMP | 1 | 04/10/19 4:47 AM |
| B0409130.D | N034942-002B | SAMP | 1 | 04/10/19 4:53 AM |
| B0409131.D | N034942-002B-MS | MS | 1 | 04/10/19 4:59 AM |
| B0409132.D | N034942-003B | SAMP | 1 | 04/10/19 5:04 AM |
| B0409133.D | N034942-004B | SAMP | 1 | 04/10/19 5:10 AM |
| B0409134.D | N034942-005B | SAMP | 1 | 04/10/19 5:16 AM |
| B0409135.D | N034942-006B | SAMP | 1 | 04/10/19 5:22 AM |
| B0409136.D | N034942-007B | SAMP | 1 | 04/10/19 5:28 AM |
| B0409137.D | N034942-008B | SAMP | 1 | 04/10/19 5:34 AM |
| B0409138.D | N034961-001B | SAMP | 1 | 04/10/19 5:51 AM |
| B0409139.D | CCV10 | CCV | 1 | 04/10/19 5:57 AM |
| B0409140.D | CCB10 | CCB | 1 | 04/10/19 6:03 AM |
| B0409141.D | N034895-003B | SAMP | 1 | 04/10/19 6:09 AM |
| B0409142.D | N034924-002B | SAMP | 1 | 04/10/19 6:15 AM |
| B0409143.D | N034942-002B | SAMP | 1 | 04/10/19 6:21 AM |
| B0409144.D | CCV11 | CCV | 1 | 04/10/19 6:27 AM |
| B0409145.D | CCB11 | CCB | 1 | 04/10/19 6:33 AM |
| B0409146.D | ICSA4 | ICSA | 1 | 04/10/19 6:40 AM |
| B0409147.D | ICSAB4 | ICSAB | 1 | 04/10/19 6:46 AM |
| B0409148.D | N034895-001A | SAMP | 25 | 04/10/19 7:28 AM |
| B0409149.D | N034895-001A-PS | PS | 5 | 04/10/19 7:35 AM |
| B0409150.D | N034895-001A-MS | MS | 5 | 04/10/19 7:41 AM |
| B0409151.D | N034895-001A-MSD | MSD | 5 | 04/10/19 7:47 AM |
| B0409152.D | N034961-001B | SAMP | 5 | 04/10/19 7:53 AM |
| B0409153.D | N034895-003B | SAMP | 5 | 04/10/19 7:59 AM |
| B0409154.D | N034924-002B | SAMP | 5 | 04/10/19 8:05 AM |
| B0409155.D | N034942-002B | SAMP | 5 | 04/10/19 8:11 AM |
| B0409156.D | N034942-002B-MS | MS | 5 | 04/10/19 8:17 AM |
| B0409157.D | N034942-003B | SAMP | 5 | 04/10/19 8:23 AM |
| B0409158.D | CCV12 | CCV | 1 | 04/10/19 8:29 AM |
| B0409159.D | CCB12 | CCB | 1 | 04/10/19 8:35 AM |
| B0409160.D | N034942-004B | SAMP | 5 | 04/10/19 8:41 AM |
| B0409161.D | N034942-005B | SAMP | 5 | 04/10/19 8:47 AM |
| B0409162.D | N034942-008B | SAMP | 5 | 04/10/19 8:52 AM |
| B0409163.D | CCV13 | CCV | 1 | 04/10/19 8:58 AM |
| B0409164.D | CCB13 | CCB | 1 | 04/10/19 9:04 AM |
| B0409165.D | ICSA5 | ICSA | 1 | 04/10/19 9:25 AM |
| B0409166.D | ICSAB5 | ICSAB | 1 | 04/10/19 9:31 AM |

# SAMPLE PREPARATION LOG

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/22/2019 8:00:00**
Prep End Date: **3/22/2019 1:00:00**
Reviewed/ Date: NS 4/11/2019
Initials/ Date: for

Prep Batch **73032** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.6** | **01-13** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS-73032 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| MB-73032 | Aqueous | | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-001B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-001B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-001B-MS | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-002B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-003B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-004B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-005B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-006B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-007B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-008B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-009B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-010B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10549 | NITRIC ACID |
| 10553 | HYDROCHLORIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

**ASSET Laboratories**

# PREP BATCH REPORT



Prep Start Date: **3/22/2019 8:00:00**
Prep End Date: **3/22/2019 1:00:00**
Reviewed/ Date: NS 4/11/2019
Initials/ Date: for
Prep Batch **73032** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

| Prep Factor Units | Temp. (°C): | Location: |
|---|---|---|
| **mL / mL** | **94.6** | **01-13** |

| Sample ID | Matrix | pH | SampAmt | 3 Replicates | Sol Added | Sol Recov | Fin Vol | factor | Clean Up Code | TURB Check |
|---|---|---|---|---|---|---|---|---|---|---|
| N034708-011B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-012B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |
| N034708-013B | Groundwater | <2 | 25 | ☐ | 0 | 0 | 25 | 1.000 | | |

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

| Number | Reagent Name |
|---|---|
| 10549 | NITRIC ACID |
| 10553 | HYDROCHLORIC ACID |

| Spk ID | Spike Name | SampType | AmtAdd |
|---|---|---|---|
| 2MWST-181001 | ICV/MS/MSD/LCS/LCSD Solution A | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution D | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution B | | 0.25 |
| 2MWST-181126 | ICV/MS/MSD/LCS/LCSD Solution C | | 0.25 |

# INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 3 Apr 2019 08:37:56 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 144524.00 | 0.00 | |
| 24 Mg | 276444.00 | 0.00 | |
| 25 Mg | 35703.70 | 0.00 | |
| 26 Mg | 43632.10 | 0.00 | |
| 59 Co | 128386.00 | 0.00 | |
| 115 In | 124800.00 | 0.00 | |
| 206 Pb | 41811.80 | 0.00 | |
| 207 Pb | 37640.60 | 0.00 | |
| 208 Pb | 92065.40 | 0.00 | |

RSD (%)

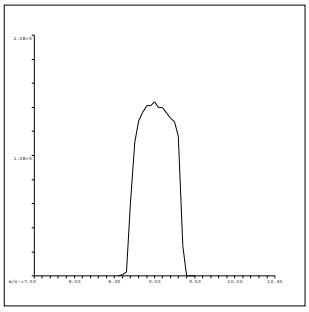
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 1.59 | 5.00 | |
| 24 Mg | 1.03 | 5.00 | |
| 25 Mg | 1.42 | 5.00 | |
| 26 Mg | 1.13 | 5.00 | |
| 59 Co | 0.32 | 5.00 | |
| 115 In | 1.54 | 5.00 | |
| 206 Pb | 2.20 | 5.00 | |
| 207 Pb | 0.75 | 5.00 | |
| 208 Pb | 0.85 | 5.00 | |

Ion Ratio

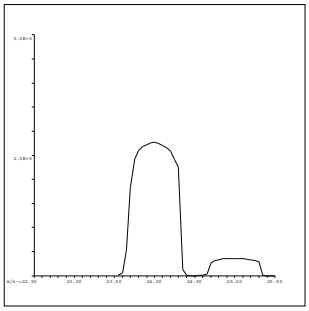
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | | | |
| 24 Mg | | | |
| 25 Mg | | | |
| 26 Mg | | | |
| 59 Co | | | |
| 115 In | | | |
| 206 Pb | | | |
| 207 Pb | | | |
| 208 Pb | | | |

Maximum Bkg. Count(CPS)

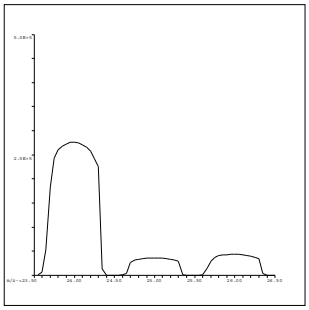
| Element | Actual | Required | Flag |
|---|---|---|---|



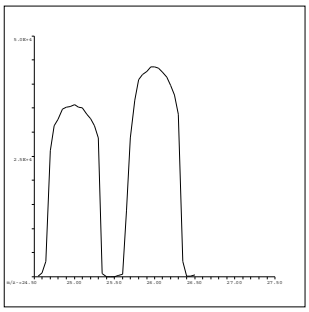
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



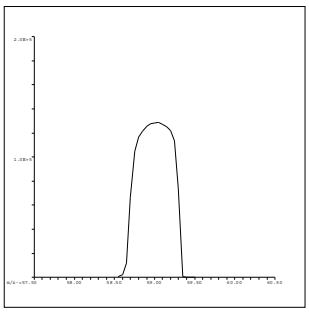
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



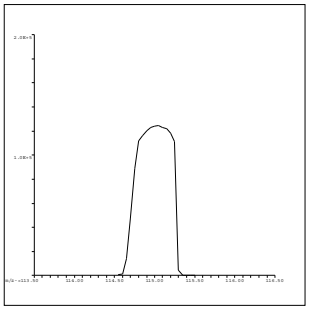
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



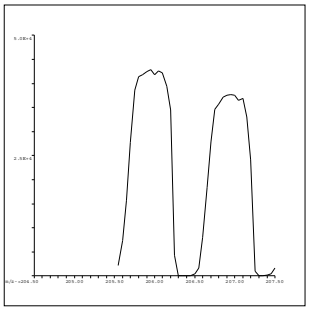
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



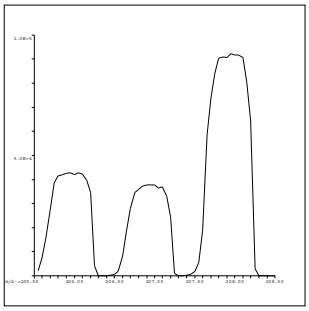
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



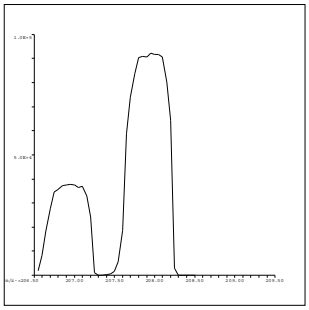
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 4 Apr 2019 12:22:21 pm
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 97427.00 | 0.00 | |
| 24 Mg | 241382.00 | 0.00 | |
| 25 Mg | 30802.10 | 0.00 | |
| 26 Mg | 34760.70 | 0.00 | |
| 59 Co | 119304.00 | 0.00 | |
| 115 In | 144326.00 | 0.00 | |
| 206 Pb | 51660.40 | 0.00 | |
| 207 Pb | 44523.60 | 0.00 | |
| 208 Pb | 111558.00 | 0.00 | |

RSD (%)

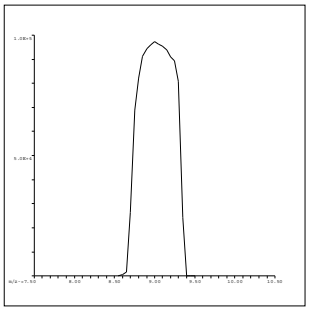
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | 1.11 | 5.00 | |
| 24 Mg | 2.26 | 5.00 | |
| 25 Mg | 1.12 | 5.00 | |
| 26 Mg | 1.89 | 5.00 | |
| 59 Co | 1.01 | 5.00 | |
| 115 In | 1.16 | 5.00 | |
| 206 Pb | 0.62 | 5.00 | |
| 207 Pb | 0.49 | 5.00 | |
| 208 Pb | 1.00 | 5.00 | |

Ion Ratio

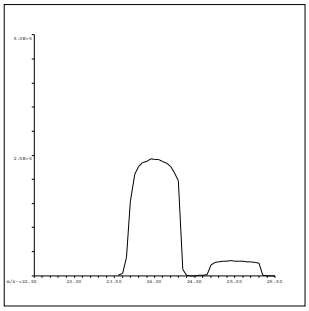
| Element | Actual | Required | Flag |
|---|---|---|---|
| 9 Be | | | |
| 24 Mg | | | |
| 25 Mg | | | |
| 26 Mg | | | |
| 59 Co | | | |
| 115 In | | | |
| 206 Pb | | | |
| 207 Pb | | | |
| 208 Pb | | | |

Maximum Bkg. Count(CPS)

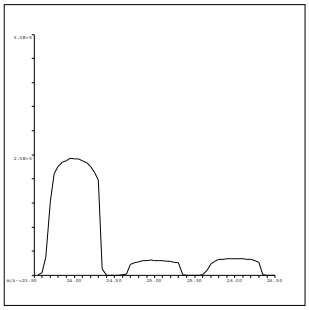
| Element | Actual | Required | Flag |
|---|---|---|---|



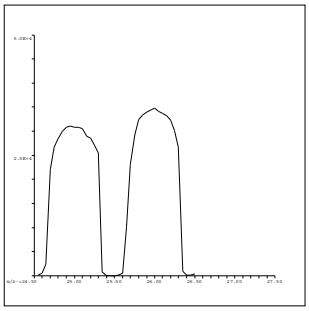
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



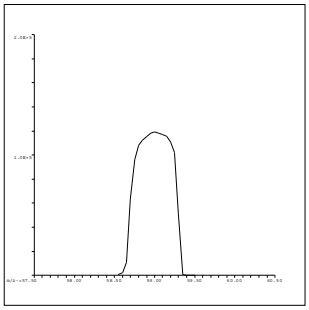
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



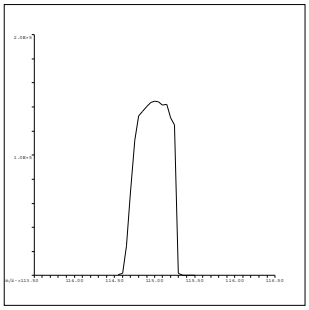
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



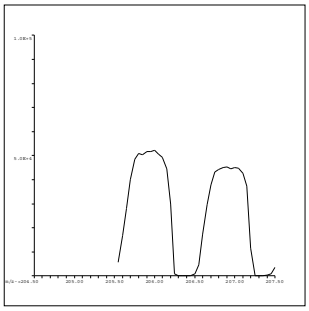
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



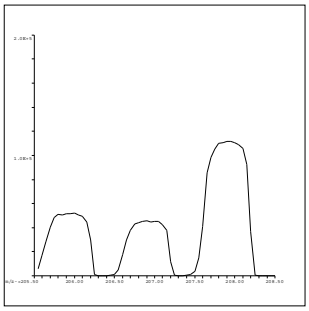
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



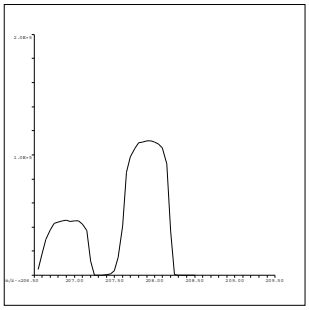
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 205.90
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.90
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 9 Apr 2019 10:06:35 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

| Element | | Actual | Required | Flag |
|---|---|---|---|---|
| 9 | Be | 169929.00 | 0.00 | |
| 24 | Mg | 334076.00 | 0.00 | |
| 25 | Mg | 43011.50 | 0.00 | |
| 26 | Mg | 49355.70 | 0.00 | |
| 59 | Co | 216566.00 | 0.00 | |
| 115 | In | 245686.00 | 0.00 | |
| 206 | Pb | 89943.20 | 0.00 | |
| 207 | Pb | 78752.90 | 0.00 | |
| 208 | Pb | 194663.00 | 0.00 | |

RSD (%)

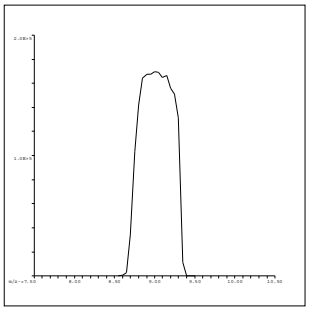
| Element | | Actual | Required | Flag |
|---|---|---|---|---|
| 9 | Be | 2.01 | 5.00 | |
| 24 | Mg | 0.55 | 5.00 | |
| 25 | Mg | 0.88 | 5.00 | |
| 26 | Mg | 0.21 | 5.00 | |
| 59 | Co | 0.39 | 5.00 | |
| 115 | In | 0.89 | 5.00 | |
| 206 | Pb | 1.06 | 5.00 | |
| 207 | Pb | 0.22 | 5.00 | |
| 208 | Pb | 1.16 | 5.00 | |

Ion Ratio

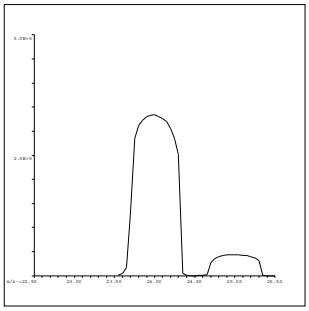
| Element | | Actual | Required | Flag |
|---|---|---|---|---|
| 9 | Be | | | |
| 24 | Mg | | | |
| 25 | Mg | | | |
| 26 | Mg | | | |
| 59 | Co | | | |
| 115 | In | | | |
| 206 | Pb | | | |
| 207 | Pb | | | |
| 208 | Pb | | | |

Maximum Bkg. Count(CPS)

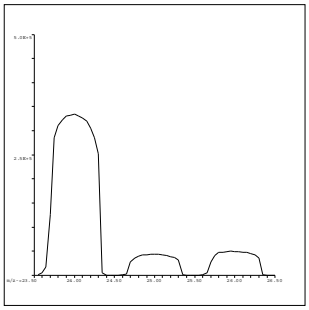
| Element | | Actual | Required | Flag |
|---|---|---|---|---|



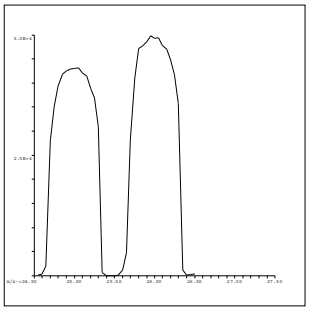
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



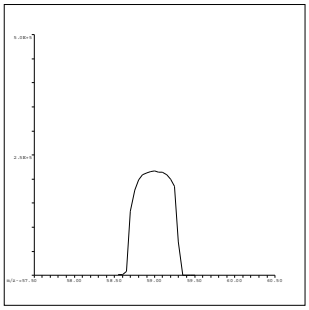
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



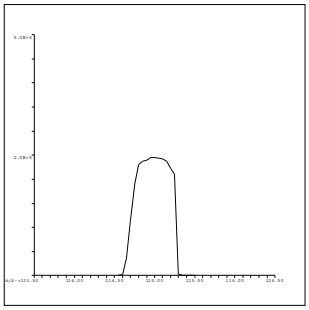
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



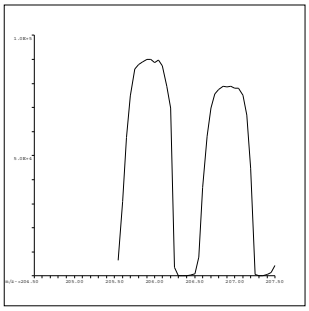
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



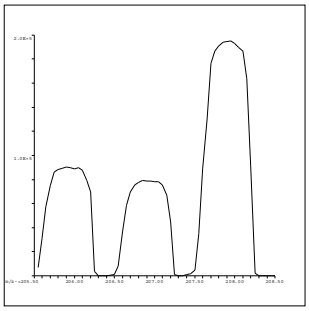
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



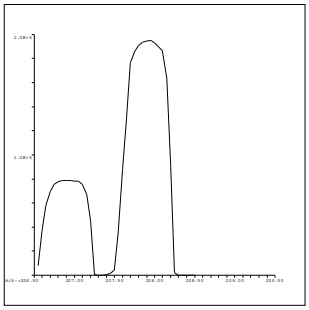
115 In
Mass Calib.
Actual: 115.00
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 205.95
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.90
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

# INITIAL CALIBRATION DATA SUMMARY

**INITIAL CALIBRATION SUMMARY: 190403B**

**Instrument ID: ICPMS-02**

| Analyte | Data File | B0403002.D | B0403003.D | B0403004.D | B0403005.D | B0403006.D | B0403007.D | B0403008.D | B0403009.D | B0403010.D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 04/03/2019 10:58 PM | 04/03/2019 11:04 PM | 04/03/2019 11:10 PM | 04/03/2019 11:16 PM | 04/03/2019 11:22 PM | 04/03/2019 11:28 PM | 04/03/2019 11:34 PM | 04/03/2019 11:40 PM | 04/03/2019 11:46 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std1-0.1/1 ppb | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.1/1 ug/L | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 45 Sc ( ISTD ) [ 2 ] | CPS | 23255.7 | | 24319.5 | 25048.3 | 24404 | 24346.2 | 24696.8 | 24586.5 | 24554.3 | |
| 55 Mn [ 2 ] | CPS | 90 | | 485.9 | 4238.3 | 7907.5 | 15911 | 31938.3 | 76631.3 | 152644.4 | 1.0000 |
| 52 Cr [ 2 ] | CPS | 772.2 | | 1625.6 | 9654 | 17008.7 | 34284.1 | 67602.9 | 163657.7 | 323773.5 | 1.0000 |
| 72 Ge ( ISTD ) [ 1 ] | CPS | 7603.1 | | 8022.2 | 8001.1 | 7981.1 | 8251.2 | 8045.6 | 7933.3 | 7965.5 | |
| 78 Se [ 1 ] | CPS | 0 | | 11.1 | 138.9 | 304.5 | 573.4 | 1133.4 | 2671.4 | 5574.5 | 0.9998 |
| 72 Ge ( ISTD ) [ 2 ] | CPS | 9785.5 | 10459.2 | 10420.3 | 10509.2 | 10258 | 10438.1 | 10513.7 | 10304.7 | 10470.4 | |
| 75 As [ 2 ] | CPS | 8.9 | 24.9 | 79.6 | 753.4 | 1392.1 | 2807.4 | 5719.7 | 13849.4 | 27888.9 | 1.0000 |
| 103 Rh ( ISTD ) [ 2 ] | CPS | 243252.8 | | 257456.2 | 255646.4 | 254733 | 255913.2 | 256728.7 | 249545.3 | 249778.8 | |
| 95 Mo [ 2 ] | CPS | 56.7 | | 325.6 | 2807 | 5416.7 | 11079.7 | 22918 | 56729.5 | 115530.6 | 0.9998 |
| 159 Tb ( ISTD ) [ 3 ] | CPS | 775600.2 | | 806169.1 | 802188.9 | 818844.5 | 804172 | 817293.2 | 799540.6 | 807592.1 | |
| 137 Ba [ 3 ] | CPS | -17.7 | | 665.1 | 5865.9 | 11519.8 | 23138.1 | 46138.1 | 111861.2 | 224940.6 | 1.0000 |

| Standard Code |
|---|
| ICAL: 2MSST-180608B |
| ICAL: 2MSST-180205B |
| ICAL: 2MWST-181001C |
| IS Mix: 2MWST-181126B |

Calibration Acceptance Criteria: > 0.995 Correlation

**INITIAL CALIBRATION SUMMARY: 190404A**

**Instrument ID: ICPMS-02**

| Analyte | Data File | A0404002.D | A0404004.D | A0404005.D | A0404006.D | A0404007.D | A0404008.D | A0404009.D | A0404010.D | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 04/04/2019 02:05 PM | 04/04/2019 02:17 PM | 04/04/2019 02:23 PM | 04/04/2019 02:29 PM | 04/04/2019 02:35 PM | 04/04/2019 02:41 PM | 04/04/2019 02:47 PM | 04/04/2019 02:53 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 72 Ge ( ISTD ) [ 1 ] | CPS | 8124.5 | 8578.1 | 8526.9 | 8440.2 | 8505.8 | 8530.3 | 8175.6 | 7887.7 | |
| 78 Se [ 1 ] | CPS | 0 | 18.9 | 143.3 | 302.2 | 548.9 | 1100.1 | 2787 | 5368.8 | 0.9999 |

| Standard Code |
|---|
| ICAL: 2MSST-180608B |
| ICAL: 2MSST-180205B |
| ICAL: 2MWST-181001C |
| IS Mix: 2MWST-181126B |

Calibration Acceptance Criteria: > 0.995 Correlation

**INITIAL CALIBRATION SUMMARY: 190409B**

**Instrument ID: ICPMS-02**

| Analyte | Data File | B0409002.D | B0409004.D | B0409005.D | B0409006.D | B0409007.D | B0409008.D | B0409009.D | B0409010.D | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Acq. Date-Time | 04/09/2019 04:09 PM | 04/09/2019 04:20 PM | 04/09/2019 04:26 PM | 04/09/2019 04:32 PM | 04/09/2019 04:38 PM | 04/09/2019 04:44 PM | 04/09/2019 04:50 PM | 04/09/2019 04:57 PM | |
| | Type | CalBlk | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | CalStd | |
| | Level | 1 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | Sample Name | Cal Blank | Std2-0.5/5 ppb | Std3-5/50 ppb | Std4-10/100 ppb | Std5-20/200 ppb | Std6-40/400 ppb | Std7-100/1000 ppb | Std8-200/2000 ppb | |
| | Concentration | 0.00 | 0.5/5 ug/L | 5/50 ug/L | 10/100 ug/L | 20/200 ug/L | 40/400 ug/L | 100/1000 ug/L | 200/2000 ug/L | R |
| 72 Ge ( ISTD ) [ 1 ] | CPS | 21758.4 | 22978.9 | 22830.9 | 22611.8 | 22565 | 22273.5 | 21364.5 | 21673.8 | |
| 78 Se [ 1 ] | CPS | 0 | 41.1 | 360 | 682.3 | 1540.1 | 3022.6 | 7156.2 | 14870.5 | 0.9999 |

| Standard Code |
|---|
| ICAL: 2MSST-180608B |
| ICAL: 2MSST-180205B |
| ICAL: 2MWST-181001C |
| IS Mix: 2MWST-181126B |

Calibration Acceptance Criteria: > 0.995 Correlation

# INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132982**
Client ID: **ICV** Batch ID: **R132982** TestNo: **EPA 6020** Analysis Date: **4/3/2019** SeqNo: **3340396**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.516 | 0.10 | 10.00 | 0 | 95.2 | 90 | 110 | | | | |
| Barium | 10.198 | 1.0 | 10.00 | 0 | 102 | 90 | 110 | | | | |
| Manganese | 108.758 | 0.50 | 100.0 | 0 | 109 | 90 | 110 | | | | |
| Molybdenum | 9.661 | 0.50 | 10.00 | 0 | 96.6 | 90 | 110 | | | | |

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132982**
Client ID: **ZZZZZZ** Batch ID: **R132982** TestNo: **EPA 6020** Analysis Date: **4/4/2019** SeqNo: **3340398**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 1.271 | 1.0 | 1.000 | 0 | 127 | 80 | 120 | | | | S |
| Manganese | 0.467 | 0.50 | 0.5000 | 0 | 93.5 | 80 | 120 | | | | |
| Molybdenum | 0.467 | 0.50 | 0.5000 | 0 | 93.4 | 80 | 120 | | | | |

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132982**
Client ID: **ZZZZZZ** Batch ID: **R132982** TestNo: **EPA 6020** Analysis Date: **4/4/2019** SeqNo: **3340401**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.103 | 0.10 | 0.1000 | 0 | 103 | 80 | 120 | | | | |

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132982**
Client ID: **CCV** Batch ID: **R132982** TestNo: **EPA 6020** Analysis Date: **4/4/2019** SeqNo: **3340412**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.955 | 0.10 | 20.00 | 0 | 99.8 | 90 | 110 | | | | |
| Barium | 20.549 | 1.0 | 20.00 | 0 | 103 | 90 | 110 | | | | |
| Manganese | 20.482 | 0.50 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Molybdenum | 19.873 | 0.50 | 20.00 | 0 | 99.4 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

%Rec of Ba in LLICV failed, biased high. However, N034708 sample concentrations are greater than the regular CCV concentration which passed QC criteria. NS 4/10/2019

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132982**
Client ID: **CCV** Batch ID: **R132982** TestNo: **EPA 6020** Analysis Date: **4/4/2019** SeqNo: **3340424**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.409 | 0.10 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Barium | 21.103 | 1.0 | 20.00 | 0 | 106 | 90 | 110 | | | | |
| Manganese | 21.224 | 0.50 | 20.00 | 0 | 106 | 90 | 110 | | | | |
| Molybdenum | 21.122 | 0.50 | 20.00 | 0 | 106 | 90 | 110 | | | | |

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132982**
Client ID: **CCV** Batch ID: **R132982** TestNo: **EPA 6020** Analysis Date: **4/4/2019** SeqNo: **3340435**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 19.540 | 0.10 | 20.00 | 0 | 97.7 | 90 | 110 | | | | |
| Barium | 20.786 | 1.0 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Manganese | 20.364 | 0.50 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Molybdenum | 19.656 | 0.50 | 20.00 | 0 | 98.3 | 90 | 110 | | | | |

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132982**
Client ID: **CCV** Batch ID: **R132982** TestNo: **EPA 6020** Analysis Date: **4/4/2019** SeqNo: **3340449**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.410 | 0.10 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Barium | 21.349 | 1.0 | 20.00 | 0 | 107 | 90 | 110 | | | | |
| Manganese | 20.764 | 0.50 | 20.00 | 0 | 104 | 90 | 110 | | | | |
| Molybdenum | 19.825 | 0.50 | 20.00 | 0 | 99.1 | 90 | 110 | | | | |

Sample ID **CCV5** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132982**
Client ID: **CCV** Batch ID: **R132982** TestNo: **EPA 6020** Analysis Date: **4/4/2019** SeqNo: **3340460**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 20.419 | 0.10 | 20.00 | 0 | 102 | 90 | 110 | | | | |
| Barium | 21.425 | 1.0 | 20.00 | 0 | 107 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340460** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 20.531 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |
| Molybdenum | 19.335 | 0.50 | 20.00 | 0 | 96.7 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341625** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 10.996 | 0.50 | 10.00 | 0 | 110 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341627** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 0.467 | 0.50 | 0.5000 | 0 | 93.4 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341641** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 21.424 | 0.50 | 20.00 | 0 | 107 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341653** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 20.745 | 0.50 | 20.00 | 0 | 104 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341665** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 19.913 | 0.50 | 20.00 | 0 | 99.6 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341679** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 21.530 | 0.50 | 20.00 | 0 | 108 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341691** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 20.597 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/9/2019** | SeqNo: **3345208** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 10.152 | 0.50 | 10.00 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/9/2019** | SeqNo: **3345210** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 0.441 | 0.50 | 0.5000 | 0 | 88.2 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/9/2019** | SeqNo: **3345224** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 20.440 | 0.50 | 20.00 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/9/2019** | SeqNo: **3345236** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 20.620 | 0.50 | 20.00 | 0 | 103 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/9/2019** | SeqNo: **3345248** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 20.082 | 0.50 | 20.00 | 0 | 100 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/9/2019** | SeqNo: **3345260** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 18.506 | 0.50 | 20.00 | 0 | 92.5 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/9/2019** | SeqNo: **3345274** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 18.590 | 0.50 | 20.00 | 0 | 93.0 | 90 | 110 | | | | |

| Sample ID **CCV6** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/10/2019** | SeqNo: **3345286** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 19.531 | 0.50 | 20.00 | 0 | 97.7 | 90 | 110 | | | | |

| Sample ID **CCV7** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/10/2019** | SeqNo: **3345298** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 18.114 | 0.50 | 20.00 | 0 | 90.6 | 90 | 110 | | | | |

| Sample ID **CCV8** | SampType: **CCV** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/10/2019** | SeqNo: **3345310** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 18.950 | 0.50 | 20.00 | 0 | 94.7 | 90 | 110 | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICV** | SampType: **ICV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **ICV** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/3/2019** | SeqNo: **3340328** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.046 | 1.0 | 10.00 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **LLICV** | SampType: **CCV1** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340330** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 0.880 | 1.0 | 1.000 | 0 | 88.0 | 80 | 120 | | | | |

| Sample ID **CCV1** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340344** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.035 | 1.0 | 20.00 | 0 | 100 | 90 | 110 | | | | |

| Sample ID **CCV2** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340356** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.438 | 1.0 | 20.00 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV3** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340367** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.402 | 1.0 | 20.00 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCV4** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340381** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.322 | 1.0 | 20.00 | 0 | 102 | 90 | 110 | | | | |

| Sample ID **CCV5** | SampType: **CCV** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340392** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 20.301 | 1.0 | 20.00 | 0 | 102 | 90 | 110 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT BLANKS

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/3/2019** | SeqNo: **3340397** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340413** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340425** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340436** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340436** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340450** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340461** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341626** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341642** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341654** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341666** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341680** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341692** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/9/2019** | SeqNo: **3345209** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/9/2019** | SeqNo: **3345225** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/9/2019** | SeqNo: **3345237** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/9/2019** | SeqNo: **3345249** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/9/2019** | SeqNo: **3345261** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/9/2019** | SeqNo: **3345275** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB6** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/10/2019** | SeqNo: **3345287** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB7** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/10/2019** | SeqNo: **3345299** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **CCB8** | SampType: **CCB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/10/2019** | SeqNo: **3345311** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICB** | SampType: **ICB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **ICB** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/3/2019** | SeqNo: **3340329** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB1** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340345** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB2** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340357** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB3** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340368** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **CCB4** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340382** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **CCB5** | SampType: **CCB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340393** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132982**
Client ID: **ICSA** Batch ID: **R132982** TestNo: **EPA 6020** Analysis Date: **4/4/2019** SeqNo: **3340399**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132982**
Client ID: **ICSAB** Batch ID: **R132982** TestNo: **EPA 6020** Analysis Date: **4/4/2019** SeqNo: **3340400**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 18.524 | 0.10 | 20.00 | 0 | 92.6 | 80 | 120 | | | | |
| Barium | 23.481 | 1.0 | 20.00 | 0 | 117 | 80 | 120 | | | | |
| Manganese | 17.949 | 0.50 | 20.00 | 0 | 89.7 | 80 | 120 | | | | |
| Molybdenum | 18.723 | 0.50 | 20.00 | 0 | 93.6 | 80 | 120 | | | | |

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132982**
Client ID: **ICSA** Batch ID: **R132982** TestNo: **EPA 6020** Analysis Date: **4/4/2019** SeqNo: **3340437**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | 0.238 | 0.50 | | | | | | | | | |

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **132982**
Client ID: **ICSAB** Batch ID: **R132982** TestNo: **EPA 6020** Analysis Date: **4/4/2019** SeqNo: **3340438**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 18.124 | 0.10 | 20.00 | 0 | 90.6 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340438** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 23.080 | 1.0 | 20.00 | 0 | 115 | 80 | 120 | | | | |
| Manganese | 18.221 | 0.50 | 20.00 | 0 | 91.1 | 80 | 120 | | | | |
| Molybdenum | 18.632 | 0.50 | 20.00 | 0 | 93.2 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340462** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340463** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 18.235 | 0.10 | 20.00 | 0 | 91.2 | 80 | 120 | | | | |
| Barium | 23.289 | 1.0 | 20.00 | 0 | 116 | 80 | 120 | | | | |
| Manganese | 17.476 | 0.50 | 20.00 | 0 | 87.4 | 80 | 120 | | | | |
| Molybdenum | 18.198 | 0.50 | 20.00 | 0 | 91.0 | 80 | 120 | | | | |

**Qualifiers:**

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341628** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341629** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 20.376 | 0.50 | 20.00 | 0 | 102 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341667** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341668** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 22.529 | 0.50 | 20.00 | 0 | 113 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341693** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R133012** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3341694** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 20.709 | 0.50 | 20.00 | 0 | 104 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/9/2019** | SeqNo: **3345211** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/9/2019** | SeqNo: **3345212** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 19.178 | 0.50 | 20.00 | 0 | 95.9 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/9/2019** | SeqNo: **3345262** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/9/2019** | SeqNo: **3345263** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 16.818 | 0.50 | 20.00 | 0 | 84.1 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/10/2019** | SeqNo: **3345312** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.50 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133101** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R133101** | TestNo: **EPA 6020** | | Analysis Date: **4/10/2019** | SeqNo: **3345313** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 18.994 | 0.50 | 20.00 | 0 | 95.0 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICSA1** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340331** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB1** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340332** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 18.212 | 1.0 | 20.00 | 0 | 91.1 | 80 | 120 | | | | |

| Sample ID **ICSA2** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340369** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID **ICSAB2** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340370** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 18.445 | 1.0 | 20.00 | 0 | 92.2 | 80 | 120 | | | | |

| Sample ID **ICSA3** | SampType: **ICSA** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **ICSA** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340394** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID **ICSAB3** | SampType: **ICSAB** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **ICSAB** | Batch ID: **R132982** | TestNo: **EPA 6020** | | Analysis Date: **4/4/2019** | SeqNo: **3340395** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 18.416 | 1.0 | 20.00 | 0 | 92.1 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# INTERNAL STANDARD SUMMARY

**INTERNAL STANDARD: 190403B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 159 Tb ( ISTD ) [ 3 ] | | | | | 45 Sc ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 775600.2 | 775600.2 | 100 | PASS | 70-125 | 23255.7 | 23255.7 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 812690 | 775600.2 | 104.78 | PASS | 70-125 | 24677.7 | 23255.7 | 106.11 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 806169.1 | 775600.2 | 103.94 | PASS | 70-125 | 24319.5 | 23255.7 | 104.57 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 802188.9 | 775600.2 | 103.43 | PASS | 70-125 | 25048.3 | 23255.7 | 107.71 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 818844.5 | 775600.2 | 105.58 | PASS | 70-125 | 24404 | 23255.7 | 104.94 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 804172 | 775600.2 | 103.68 | PASS | 70-125 | 24346.2 | 23255.7 | 104.69 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 817293.2 | 775600.2 | 105.38 | PASS | 70-125 | 24696.8 | 23255.7 | 106.2 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 799540.6 | 775600.2 | 103.09 | PASS | 70-125 | 24586.5 | 23255.7 | 105.72 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 807592.1 | 775600.2 | 104.12 | PASS | 70-125 | 24554.3 | 23255.7 | 105.58 | PASS | 70-125 |
| ICV | ICV | 1 | 853149.3 | 775600.2 | 110 | PASS | 70-125 | 20174.9 | 23255.7 | 86.75 | PASS | 70-125 |
| ICB | ICB | 1 | 825989.2 | 775600.2 | 106.5 | PASS | 70-125 | 21560 | 23255.7 | 92.71 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 912418.9 | 775600.2 | 117.64 | PASS | 70-125 | 24481.9 | 23255.7 | 105.27 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 839315.4 | 775600.2 | 108.21 | PASS | 70-125 | 22520.4 | 23255.7 | 96.84 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 751893.2 | 775600.2 | 96.94 | PASS | 70-125 | 18969.1 | 23255.7 | 81.57 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 900662.9 | 775600.2 | 116.12 | PASS | 70-125 | 24147 | 23255.7 | 103.83 | PASS | 70-125 |
| CCV1 | CCV | 1 | 814048.4 | 775600.2 | 104.96 | PASS | 70-125 | 24872.5 | 23255.7 | 106.95 | PASS | 70-125 |
| CCB1 | CCB | 1 | 932146.5 | 775600.2 | 120.18 | PASS | 70-125 | 23958.9 | 23255.7 | 103.02 | PASS | 70-125 |
| CCV2 | CCV | 1 | 904358.2 | 775600.2 | 116.6 | PASS | 70-125 | 27652.5 | 23255.7 | 118.91 | PASS | 70-125 |
| CCB2 | CCB | 1 | 923154.5 | 775600.2 | 119.03 | PASS | 70-125 | 24034.6 | 23255.7 | 103.35 | PASS | 70-125 |
| CCV3 | CCV | 1 | 860447.8 | 775600.2 | 110.94 | PASS | 70-125 | 24941.5 | 23255.7 | 107.25 | PASS | 70-125 |
| CCB3 | CCB | 1 | 919573.8 | 775600.2 | 118.56 | PASS | 70-125 | 23642.9 | 23255.7 | 101.66 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 759289.9 | 775600.2 | 97.9 | PASS | 70-125 | 21985.1 | 23255.7 | 94.54 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 746966 | 775600.2 | 96.31 | PASS | 70-125 | 18763.2 | 23255.7 | 80.68 | PASS | 70-125 |
| MB-73032 | MBLK | 1 | 860765.6 | 775600.2 | 110.98 | PASS | 70-125 | 25278.7 | 23255.7 | 108.7 | PASS | 70-125 |
| LCS-73032 | LCS | 1 | 909559.7 | 775600.2 | 117.27 | PASS | 70-125 | 26823.3 | 23255.7 | 115.34 | PASS | 70-125 |
| N034708-001B | SAMP | 1 | 844516.9 | 775600.2 | 108.89 | PASS | 70-125 | 24155.9 | 23255.7 | 103.87 | PASS | 70-125 |
| N034708-001B | SAMP | 5 | 871153.7 | 775600.2 | 112.32 | PASS | 70-125 | 25315.4 | 23255.7 | 108.86 | PASS | 70-125 |
| N034708-001B-PS | PS | 1 | 825878.9 | 775600.2 | 106.48 | PASS | 70-125 | 25402.2 | 23255.7 | 109.23 | PASS | 70-125 |
| N034708-001B-MS | MS | 1 | 891560.4 | 775600.2 | 114.95 | PASS | 70-125 | 25676 | 23255.7 | 110.41 | PASS | 70-125 |
| N034708-001B-MSD | MSD | 1 | 843569 | 775600.2 | 108.76 | PASS | 70-125 | 25752.8 | 23255.7 | 110.74 | PASS | 70-125 |
| N034708-002B | SAMP | 1 | 828059.2 | 775600.2 | 106.76 | PASS | 70-125 | 25494.6 | 23255.7 | 109.63 | PASS | 70-125 |
| N034708-003B | SAMP | 1 | 914136.5 | 775600.2 | 117.86 | PASS | 70-125 | 26747.6 | 23255.7 | 115.02 | PASS | 70-125 |
| N034708-004B | SAMP | 1 | 886446.7 | 775600.2 | 114.29 | PASS | 70-125 | 26452.8 | 23255.7 | 113.75 | PASS | 70-125 |
| CCV4 | CCV | 1 | 912164.4 | 775600.2 | 117.61 | PASS | 70-125 | 26400.4 | 23255.7 | 113.52 | PASS | 70-125 |
| CCB4 | CCB | 1 | 909593.4 | 775600.2 | 117.28 | PASS | 70-125 | 23363.7 | 23255.7 | 100.46 | PASS | 70-125 |
| N034708-005B | SAMP | 1 | 903583 | 775600.2 | 116.5 | PASS | 70-125 | 25070.6 | 23255.7 | 107.8 | PASS | 70-125 |
| N034708-006B | SAMP | 1 | 889959.9 | 775600.2 | 114.74 | PASS | 70-125 | 25054.9 | 23255.7 | 107.74 | PASS | 70-125 |
| N034708-007B | SAMP | 1 | 899871 | 775600.2 | 116.02 | PASS | 70-125 | 25634.7 | 23255.7 | 110.23 | PASS | 70-125 |
| N034708-008B | SAMP | 1 | 894327.7 | 775600.2 | 115.31 | PASS | 70-125 | 25413.3 | 23255.7 | 109.28 | PASS | 70-125 |
| N034708-009B | SAMP | 1 | 882343.8 | 775600.2 | 113.76 | PASS | 70-125 | 24932.6 | 23255.7 | 107.21 | PASS | 70-125 |
| N034708-010B | SAMP | 1 | 918307.9 | 775600.2 | 118.4 | PASS | 70-125 | 26088.9 | 23255.7 | 112.18 | PASS | 70-125 |

**INTERNAL STANDARD: 190403B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 159 Tb ( ISTD ) [ 3 ] | | | | | 45 Sc ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| N034708-011B | SAMP | 1 | 906354.2 | 775600.2 | 116.86 | PASS | 70-125 | 26527.3 | 23255.7 | 114.07 | PASS | 70-125 |
| N034708-012B | SAMP | 1 | 836306.2 | 775600.2 | 107.83 | PASS | 70-125 | 25290.9 | 23255.7 | 108.75 | PASS | 70-125 |
| N034708-013B | SAMP | 1 | 908133.2 | 775600.2 | 117.09 | PASS | 70-125 | 26091.1 | 23255.7 | 112.19 | PASS | 70-125 |
| CCV5 | CCV | 1 | 887837 | 775600.2 | 114.47 | PASS | 70-125 | 25753.9 | 23255.7 | 110.74 | PASS | 70-125 |
| CCB5 | CCB | 1 | 920986.4 | 775600.2 | 118.74 | PASS | 70-125 | 23196.7 | 23255.7 | 99.75 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 766156.2 | 775600.2 | 98.78 | PASS | 70-125 | 22145.3 | 23255.7 | 95.23 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 752159.8 | 775600.2 | 96.98 | PASS | 70-125 | 18540.8 | 23255.7 | 79.73 | PASS | 70-125 |

**INTERNAL STANDARD: 190403B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 9785.5 | 9785.5 | 100 | PASS | 70-125 | 7603.1 | 7603.1 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 10459.2 | 9785.5 | 106.88 | PASS | 70-125 | 8095.6 | 7603.1 | 106.48 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 10420.3 | 9785.5 | 106.49 | PASS | 70-125 | 8022.2 | 7603.1 | 105.51 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 10509.2 | 9785.5 | 107.4 | PASS | 70-125 | 8001.1 | 7603.1 | 105.23 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 10258 | 9785.5 | 104.83 | PASS | 70-125 | 7981.1 | 7603.1 | 104.97 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 10438.1 | 9785.5 | 106.67 | PASS | 70-125 | 8251.2 | 7603.1 | 108.52 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 10513.7 | 9785.5 | 107.44 | PASS | 70-125 | 8045.6 | 7603.1 | 105.82 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 10304.7 | 9785.5 | 105.31 | PASS | 70-125 | 7933.3 | 7603.1 | 104.34 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 10470.4 | 9785.5 | 107 | PASS | 70-125 | 7965.5 | 7603.1 | 104.77 | PASS | 70-125 |
| ICV | ICV | 1 | 9460.8 | 9785.5 | 96.68 | PASS | 70-125 | 7438.6 | 7603.1 | 97.84 | PASS | 70-125 |
| ICB | ICB | 1 | 9694.3 | 9785.5 | 99.068 | PASS | 70-125 | 7389.7 | 7603.1 | 97.19 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 11303.1 | 9785.5 | 115.51 | PASS | 70-125 | 8953.9 | 7603.1 | 117.77 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 9904.4 | 9785.5 | 101.22 | PASS | 70-125 | 7101.8 | 7603.1 | 93.41 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 8573.6 | 9785.5 | 87.62 | PASS | 70-125 | 6743.8 | 7603.1 | 88.7 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 10868.4 | 9785.5 | 111.07 | PASS | 70-125 | 8359.1 | 7603.1 | 109.94 | PASS | 70-125 |
| CCV1 | CCV | 1 | 10538.1 | 9785.5 | 107.69 | PASS | 70-125 | 8350.2 | 7603.1 | 109.83 | PASS | 70-125 |
| CCB1 | CCB | 1 | 10936.2 | 9785.5 | 111.76 | PASS | 70-125 | 8212.3 | 7603.1 | 108.01 | PASS | 70-125 |
| CCV2 | CCV | 1 | 11794.6 | 9785.5 | 120.53 | PASS | 70-125 | 9486.4 | 7603.1 | 124.77 | PASS | 70-125 |
| CCB2 | CCB | 1 | 10891.7 | 9785.5 | 111.3 | PASS | 70-125 | 8243.5 | 7603.1 | 108.42 | PASS | 70-125 |
| CCV3 | CCV | 1 | 11094.1 | 9785.5 | 113.37 | PASS | 70-125 | 8688.1 | 7603.1 | 114.27 | PASS | 70-125 |
| CCB3 | CCB | 1 | 10841.7 | 9785.5 | 110.79 | PASS | 70-125 | 8232.3 | 7603.1 | 108.28 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 9663.2 | 9785.5 | 98.75 | PASS | 70-125 | 7311.9 | 7603.1 | 96.17 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 8371.3 | 9785.5 | 85.55 | PASS | 70-125 | 6729.4 | 7603.1 | 88.51 | PASS | 70-125 |
| MB-73032 | MBLK | 1 | 11085.2 | 9785.5 | 113.28 | PASS | 70-125 | 8882.7 | 7603.1 | 116.83 | PASS | 70-125 |
| LCS-73032 | LCS | 1 | 12010.3 | 9785.5 | 122.74 | PASS | 70-125 | 9059.4 | 7603.1 | 119.15 | PASS | 70-125 |
| N034708-001B | SAMP | 1 | 10391.4 | 9785.5 | 106.19 | PASS | 70-125 | 8323.5 | 7603.1 | 109.48 | PASS | 70-125 |
| N034708-001B | SAMP | 5 | 11219.7 | 9785.5 | 114.66 | PASS | 70-125 | 8506.9 | 7603.1 | 111.89 | PASS | 70-125 |
| N034708-001B-PS | PS | 1 | 10994 | 9785.5 | 112.35 | PASS | 70-125 | 8655.9 | 7603.1 | 113.85 | PASS | 70-125 |
| N034708-001B-MS | MS | 1 | 11458.8 | 9785.5 | 117.1 | PASS | 70-125 | 8720.4 | 7603.1 | 114.7 | PASS | 70-125 |
| N034708-001B-MSD | MSD | 1 | 11379.9 | 9785.5 | 116.29 | PASS | 70-125 | 8898.3 | 7603.1 | 117.04 | PASS | 70-125 |
| N034708-002B | SAMP | 1 | 11147.5 | 9785.5 | 113.92 | PASS | 70-125 | 8947.2 | 7603.1 | 117.68 | PASS | 70-125 |
| N034708-003B | SAMP | 1 | 11448.8 | 9785.5 | 117 | PASS | 70-125 | 9355.2 | 7603.1 | 123.05 | PASS | 70-125 |
| N034708-004B | SAMP | 1 | 11789.1 | 9785.5 | 120.48 | PASS | 70-125 | 9199.5 | 7603.1 | 121 | PASS | 70-125 |
| CCV4 | CCV | 1 | 11622.3 | 9785.5 | 118.77 | PASS | 70-125 | 9330.7 | 7603.1 | 122.72 | PASS | 70-125 |
| CCB4 | CCB | 1 | 10704.9 | 9785.5 | 109.4 | PASS | 70-125 | 7985.5 | 7603.1 | 105.03 | PASS | 70-125 |
| N034708-005B | SAMP | 1 | 11038.5 | 9785.5 | 112.8 | PASS | 70-125 | 8980.5 | 7603.1 | 118.12 | PASS | 70-125 |
| N034708-006B | SAMP | 1 | 11041.8 | 9785.5 | 112.84 | PASS | 70-125 | 8946.1 | 7603.1 | 117.66 | PASS | 70-125 |
| N034708-007B | SAMP | 1 | 11393.2 | 9785.5 | 116.43 | PASS | 70-125 | 8894.9 | 7603.1 | 116.99 | PASS | 70-125 |
| N034708-008B | SAMP | 1 | 11144.1 | 9785.5 | 113.88 | PASS | 70-125 | 8872.7 | 7603.1 | 116.7 | PASS | 70-125 |
| N034708-009B | SAMP | 1 | 11202 | 9785.5 | 114.48 | PASS | 70-125 | 8901.6 | 7603.1 | 117.08 | PASS | 70-125 |
| N034708-010B | SAMP | 1 | 11642.3 | 9785.5 | 118.98 | PASS | 70-125 | 8998.3 | 7603.1 | 118.35 | PASS | 70-125 |

**INTERNAL STANDARD: 190403B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 2 ] | | | | | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria | CPS | REF | %REC | Comment | Criteria |
| N034708-011B | SAMP | 1 | 11605.6 | 9785.5 | 118.6 | PASS | 70-125 | 9199.5 | 7603.1 | 121 | PASS | 70-125 |
| N034708-012B | SAMP | 1 | 11208.7 | 9785.5 | 114.54 | PASS | 70-125 | 9016.1 | 7603.1 | 118.58 | PASS | 70-125 |
| N034708-013B | SAMP | 1 | 11364.3 | 9785.5 | 116.13 | PASS | 70-125 | 9196.2 | 7603.1 | 120.95 | PASS | 70-125 |
| CCV5 | CCV | 1 | 11435.5 | 9785.5 | 116.86 | PASS | 70-125 | 9140.7 | 7603.1 | 120.22 | PASS | 70-125 |
| CCB5 | CCB | 1 | 10539.3 | 9785.5 | 107.7 | PASS | 70-125 | 7872.1 | 7603.1 | 103.54 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 9599.8 | 9785.5 | 98.1 | PASS | 70-125 | 7624.2 | 7603.1 | 100.28 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 8498.1 | 9785.5 | 86.84 | PASS | 70-125 | 6632.7 | 7603.1 | 87.24 | PASS | 70-125 |

**INTERNAL STANDARD: 190403B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 243252.8 | 243252.8 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 255244.2 | 243252.8 | 104.93 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 257456.2 | 243252.8 | 105.84 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 255646.4 | 243252.8 | 105.1 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 254733 | 243252.8 | 104.72 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 255913.2 | 243252.8 | 105.2 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 256728.7 | 243252.8 | 105.54 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 249545.3 | 243252.8 | 102.59 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 249778.8 | 243252.8 | 102.68 | PASS | 70-125 |
| ICV | ICV | 1 | 236803.1 | 243252.8 | 97.35 | PASS | 70-125 |
| ICB | ICB | 1 | 244453.6 | 243252.8 | 100.49 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 270930.9 | 243252.8 | 111.38 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 223832.6 | 243252.8 | 92.016 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 200059 | 243252.8 | 82.24 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 272857.3 | 243252.8 | 112.17 | PASS | 70-125 |
| CCV1 | CCV | 1 | 257147.3 | 243252.8 | 105.71 | PASS | 70-125 |
| CCB1 | CCB | 1 | 273331.1 | 243252.8 | 112.37 | PASS | 70-125 |
| CCV2 | CCV | 1 | 287640.2 | 243252.8 | 118.25 | PASS | 70-125 |
| CCB2 | CCB | 1 | 272668.9 | 243252.8 | 112.09 | PASS | 70-125 |
| CCV3 | CCV | 1 | 268300.7 | 243252.8 | 110.3 | PASS | 70-125 |
| CCB3 | CCB | 1 | 269559.2 | 243252.8 | 110.81 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 219764.1 | 243252.8 | 90.34 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 199652.2 | 243252.8 | 82.076 | PASS | 70-125 |
| MB-73032 | MBLK | 1 | 272062.6 | 243252.8 | 111.84 | PASS | 70-125 |
| LCS-73032 | LCS | 1 | 288814 | 243252.8 | 118.73 | PASS | 70-125 |
| N034708-001B | SAMP | 1 | 239100.2 | 243252.8 | 98.29 | PASS | 70-125 |
| N034708-001B | SAMP | 5 | 259628.8 | 243252.8 | 106.73 | PASS | 70-125 |
| N034708-001B-PS | PS | 1 | 250001.6 | 243252.8 | 102.77 | PASS | 70-125 |
| N034708-001B-MS | MS | 1 | 252894.4 | 243252.8 | 103.96 | PASS | 70-125 |
| N034708-001B-MSD | MSD | 1 | 252402.2 | 243252.8 | 103.76 | PASS | 70-125 |
| N034708-002B | SAMP | 1 | 251799.8 | 243252.8 | 103.51 | PASS | 70-125 |
| N034708-003B | SAMP | 1 | 260276.6 | 243252.8 | 107 | PASS | 70-125 |
| N034708-004B | SAMP | 1 | 260895.8 | 243252.8 | 107.25 | PASS | 70-125 |
| CCV4 | CCV | 1 | 280267.6 | 243252.8 | 115.22 | PASS | 70-125 |
| CCB4 | CCB | 1 | 268005.2 | 243252.8 | 110.18 | PASS | 70-125 |
| N034708-005B | SAMP | 1 | 250241.9 | 243252.8 | 102.87 | PASS | 70-125 |
| N034708-006B | SAMP | 1 | 249204 | 243252.8 | 102.45 | PASS | 70-125 |
| N034708-007B | SAMP | 1 | 252869.8 | 243252.8 | 103.95 | PASS | 70-125 |
| N034708-008B | SAMP | 1 | 250909.6 | 243252.8 | 103.15 | PASS | 70-125 |
| N034708-009B | SAMP | 1 | 248750.6 | 243252.8 | 102.26 | PASS | 70-125 |
| N034708-010B | SAMP | 1 | 257348.7 | 243252.8 | 105.79 | PASS | 70-125 |

**INTERNAL STANDARD: 190403B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 103 Rh ( ISTD ) [ 2 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| N034708-011B | SAMP | 1 | 259025.7 | 243252.8 | 106.48 | PASS | 70-125 |
| N034708-012B | SAMP | 1 | 250980.3 | 243252.8 | 103.18 | PASS | 70-125 |
| N034708-013B | SAMP | 1 | 258621.8 | 243252.8 | 106.32 | PASS | 70-125 |
| CCV5 | CCV | 1 | 275634.6 | 243252.8 | 113.31 | PASS | 70-125 |
| CCB5 | CCB | 1 | 265479.5 | 243252.8 | 109.14 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 219622.2 | 243252.8 | 90.29 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 196952.9 | 243252.8 | 80.97 | PASS | 70-125 |

**INTERNAL STANDARD: 190404A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 8124.5 | 8124.5 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 8353.5 | 8124.5 | 102.82 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 8578.1 | 8124.5 | 105.58 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 8526.9 | 8124.5 | 104.95 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 8440.2 | 8124.5 | 103.89 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 8505.8 | 8124.5 | 104.69 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 8530.3 | 8124.5 | 104.99 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 8175.6 | 8124.5 | 100.63 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 7887.7 | 8124.5 | 97.085 | PASS | 70-125 |
| ICV | ICV | 1 | 7525.3 | 8124.5 | 92.62 | PASS | 70-125 |
| ICB | ICB | 1 | 7451.9 | 8124.5 | 91.72 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 7680.9 | 8124.5 | 94.54 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 8269 | 8124.5 | 101.78 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 8281.3 | 8124.5 | 101.93 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 7381.9 | 8124.5 | 90.86 | PASS | 70-125 |
| CCV1 | CCV | 1 | 8274.6 | 8124.5 | 101.85 | PASS | 70-125 |
| CCB1 | CCB | 1 | 6327 | 8124.5 | 77.88 | PASS | 70-125 |
| CCV2 | CCV | 1 | 7634.3 | 8124.5 | 93.97 | PASS | 70-125 |
| CCB2 | CCB | 1 | 6188 | 8124.5 | 76.16 | PASS | 70-125 |
| MB-73032 | MBLK | 1 | 7230.7 | 8124.5 | 89 | PASS | 70-125 |
| LCS-73032 | LCS | 1 | 7380.8 | 8124.5 | 90.85 | PASS | 70-125 |
| N034708-001B | SAMP | 1 | 7109.5 | 8124.5 | 87.51 | PASS | 70-125 |
| N034708-001B | SAMP | 5 | 7600.9 | 8124.5 | 93.56 | PASS | 70-125 |
| N034708-001B-PS | PS | 1 | 7572 | 8124.5 | 93.2 | PASS | 70-125 |
| N034708-001B-MS | MS | 1 | 7603.1 | 8124.5 | 93.58 | PASS | 70-125 |
| N034708-001B-MSD | MSD | 1 | 6759.4 | 8124.5 | 83.2 | PASS | 70-125 |
| N034708-002B | SAMP | 1 | 6504.9 | 8124.5 | 80.065 | PASS | 70-125 |
| N034708-003B | SAMP | 1 | 7389.7 | 8124.5 | 90.96 | PASS | 70-125 |
| CCV3 | CCV | 1 | 7218.5 | 8124.5 | 88.85 | PASS | 70-125 |
| CCB3 | CCB | 1 | 6148 | 8124.5 | 75.67 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 7172.9 | 8124.5 | 88.29 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 6720.5 | 8124.5 | 82.72 | PASS | 70-125 |
| N034708-004B | SAMP | 1 | 7906.6 | 8124.5 | 97.32 | PASS | 70-125 |
| N034708-005B | SAMP | 1 | 6604.9 | 8124.5 | 81.3 | PASS | 70-125 |
| N034708-006B | SAMP | 1 | 7134 | 8124.5 | 87.81 | PASS | 70-125 |
| N034708-007B | SAMP | 1 | 7335.2 | 8124.5 | 90.28 | PASS | 70-125 |
| N034708-008B | SAMP | 1 | 7109.5 | 8124.5 | 87.51 | PASS | 70-125 |
| N034708-009B | SAMP | 1 | 7116.2 | 8124.5 | 87.59 | PASS | 70-125 |
| N034708-010B | SAMP | 1 | 7427.5 | 8124.5 | 91.42 | PASS | 70-125 |
| N034708-011B | SAMP | 1 | 8364.6 | 8124.5 | 102.96 | PASS | 70-125 |
| N034708-012B | SAMP | 1 | 6578.2 | 8124.5 | 80.97 | PASS | 70-125 |

**INTERNAL STANDARD: 190404A**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| N034708-013B | SAMP | 1 | 7387.5 | 8124.5 | 90.93 | PASS | 70-125 |
| CCV4 | CCV | 1 | 8066.7 | 8124.5 | 99.29 | PASS | 70-125 |
| CCB4 | CCB | 1 | 6642.7 | 8124.5 | 81.76 | PASS | 70-125 |
| N034708-001B | SAMP | 1 | 6369.2 | 8124.5 | 78.39 | PASS | 70-125 |
| CCV5 | CCV | 1 | 7769.9 | 8124.5 | 95.64 | PASS | 70-125 |
| CCB5 | CCB | 1 | 6527.1 | 8124.5 | 80.34 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 7818.8 | 8124.5 | 96.24 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 7785.4 | 8124.5 | 95.83 | PASS | 70-125 |

**INTERNAL STANDARD: 190409B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| Cal Blank | IBLK | 1 | 21758.4 | 21758.4 | 100 | PASS | 70-125 |
| Std1-0.1/1 ppb | ICAL | 1 | 22835.4 | 21758.4 | 104.95 | PASS | 70-125 |
| Std2-0.5/5 ppb | ICAL | 1 | 22978.9 | 21758.4 | 105.61 | PASS | 70-125 |
| Std3-5/50 ppb | ICAL | 1 | 22830.9 | 21758.4 | 104.93 | PASS | 70-125 |
| Std4-10/100 ppb | ICAL | 1 | 22611.8 | 21758.4 | 103.92 | PASS | 70-125 |
| Std5-20/200 ppb | ICAL | 1 | 22565 | 21758.4 | 103.71 | PASS | 70-125 |
| Std6-40/400 ppb | ICAL | 1 | 22273.5 | 21758.4 | 102.37 | PASS | 70-125 |
| Std7-100/1000 ppb | ICAL | 1 | 21364.5 | 21758.4 | 98.19 | PASS | 70-125 |
| Std8-200/2000 ppb | ICAL | 1 | 21673.8 | 21758.4 | 99.61 | PASS | 70-125 |
| ICV | ICV | 1 | 20827.1 | 21758.4 | 95.72 | PASS | 70-125 |
| ICB | ICB | 1 | 20524.5 | 21758.4 | 94.33 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 21007.4 | 21758.4 | 96.55 | PASS | 70-125 |
| ICSA1 | ICSA | 1 | 21074.1 | 21758.4 | 96.86 | PASS | 70-125 |
| ICSAB1 | ICSAB | 1 | 21525.8 | 21758.4 | 98.93 | PASS | 70-125 |
| LLICV | CCV1 | 1 | 22652.9 | 21758.4 | 104.11 | PASS | 70-125 |
| CCV1 | CCV | 1 | 22611.8 | 21758.4 | 103.92 | PASS | 70-125 |
| CCB1 | CCB | 1 | 21479.1 | 21758.4 | 98.72 | PASS | 70-125 |
| CCV2 | CCV | 1 | 20849.4 | 21758.4 | 95.82 | PASS | 70-125 |
| CCB2 | CCB | 1 | 20611.3 | 21758.4 | 94.73 | PASS | 70-125 |
| CCV3 | CCV | 1 | 20813.8 | 21758.4 | 95.66 | PASS | 70-125 |
| CCB3 | CCB | 1 | 20110.7 | 21758.4 | 92.43 | PASS | 70-125 |
| CCV4 | CCV | 1 | 21463.5 | 21758.4 | 98.64 | PASS | 70-125 |
| CCB4 | CCB | 1 | 20887.2 | 21758.4 | 96 | PASS | 70-125 |
| ICSA2 | ICSA | 1 | 21075.2 | 21758.4 | 96.86 | PASS | 70-125 |
| ICSAB2 | ICSAB | 1 | 21724.9 | 21758.4 | 99.85 | PASS | 70-125 |
| CCV5 | CCV | 1 | 20530 | 21758.4 | 94.35 | PASS | 70-125 |
| CCB5 | CCB | 1 | 19333 | 21758.4 | 88.85 | PASS | 70-125 |
| N034708-002B | SAMP | 1 | 21076.4 | 21758.4 | 96.87 | PASS | 70-125 |
| N034708-003B | SAMP | 1 | 22532.8 | 21758.4 | 103.56 | PASS | 70-125 |
| CCV6 | CCV | 1 | 22276.8 | 21758.4 | 102.38 | PASS | 70-125 |
| CCB6 | CCB | 1 | 21746.1 | 21758.4 | 99.94 | PASS | 70-125 |
| N034708-005B | SAMP | 1 | 21501.4 | 21758.4 | 98.82 | PASS | 70-125 |
| N034708-006B | SAMP | 1 | 21184.3 | 21758.4 | 97.36 | PASS | 70-125 |
| N034708-008B | SAMP | 1 | 20872.7 | 21758.4 | 95.93 | PASS | 70-125 |
| N034708-009B | SAMP | 1 | 20396.6 | 21758.4 | 93.74 | PASS | 70-125 |
| N034708-010B | SAMP | 1 | 20791.5 | 21758.4 | 95.56 | PASS | 70-125 |
| N034708-012B | SAMP | 1 | 19432.1 | 21758.4 | 89.31 | PASS | 70-125 |
| N034708-013B | SAMP | 1 | 19748 | 21758.4 | 90.76 | PASS | 70-125 |
| N034708-006B | SAMP | 1 | 18651.1 | 21758.4 | 85.72 | PASS | 70-125 |
| N034708-010B | SAMP | 1 | 18456.4 | 21758.4 | 84.82 | PASS | 70-125 |
| N034708-012B | SAMP | 1 | 18270.7 | 21758.4 | 83.97 | PASS | 70-125 |

**INTERNAL STANDARD: 190409B**

**Instrument ID: ICPMS-02**

| Sample Name | Type | DF | 72 Ge ( ISTD ) [ 1 ] | | | | |
|---|---|---|---|---|---|---|---|
| | | | CPS | REF | %REC | Comment | Criteria |
| CCV7 | CCV | 1 | 17170.6 | 21758.4 | 78.91 | PASS | 70-125 |
| CCB7 | CCB | 1 | 19038.3 | 21758.4 | 87.5 | PASS | 70-125 |
| N034708-010B | SAMP | 1 | 18851.4 | 21758.4 | 86.64 | PASS | 70-125 |
| N034708-010B | SAMP | 1 | 18735.7 | 21758.4 | 86.11 | PASS | 70-125 |
| N034708-012B | SAMP | 1 | 18288.5 | 21758.4 | 84.053 | PASS | 70-125 |
| N034708-012B | SAMP | 1 | 18486.5 | 21758.4 | 84.96 | PASS | 70-125 |
| CCV8 | CCV | 1 | 19927.1 | 21758.4 | 91.58 | PASS | 70-125 |
| CCB8 | CCB | 1 | 19091.7 | 21758.4 | 87.74 | PASS | 70-125 |
| ICSA3 | ICSA | 1 | 18644.4 | 21758.4 | 85.69 | PASS | 70-125 |
| ICSAB3 | ICSAB | 1 | 19083.8 | 21758.4 | 87.71 | PASS | 70-125 |
| CCV9 | CCV | 1 | 21211 | 21758.4 | 97.48 | PASS | 70-125 |
| CCB9 | CCB | 1 | 19875.9 | 21758.4 | 91.35 | PASS | 70-125 |
| CCV10 | CCV | 1 | 22252.4 | 21758.4 | 102.27 | PASS | 70-125 |
| CCB10 | CCB | 1 | 21074.2 | 21758.4 | 96.86 | PASS | 70-125 |
| CCV11 | CCV | 1 | 22174.4 | 21758.4 | 101.91 | PASS | 70-125 |
| CCB11 | CCB | 1 | 21415.6 | 21758.4 | 98.42 | PASS | 70-125 |
| ICSA4 | ICSA | 1 | 16386.5 | 21758.4 | 75.31 | PASS | 70-125 |
| ICSAB4 | ICSAB | 1 | 18337.4 | 21758.4 | 84.28 | PASS | 70-125 |
| CCV12 | CCV | 1 | 17598.8 | 21758.4 | 80.88 | PASS | 70-125 |
| CCB12 | CCB | 1 | 16997 | 21758.4 | 78.12 | PASS | 70-125 |
| CCV13 | CCV | 1 | 17784.6 | 21758.4 | 81.74 | PASS | 70-125 |
| CCB13 | CCB | 1 | 16954.8 | 21758.4 | 77.92 | PASS | 70-125 |
| ICSA5 | ICSA | 1 | 14949.5 | 21758.4 | 68.71 | NR! | 70-125 |
| ICSAB5 | ICSAB | 1 | 17855.8 | 21758.4 | 82.064 | PASS | 70-125 |

# SERIAL DILUTION/
# POST DIGESTION SPIKE

**ASSET Laboratories**

**ICP-MS-Metals in Water**

**Dilution Test Summary**

Work Order No.: N034708
Test Method: EPA 6020
Analysis Date: 04/03,04,09/2019

Matrix: Groundwater
Batch No.: 73032

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to several analytes. The calculated concentration is <25RL.

| Sample ID | Analyte | Symbol | Units | Calc Val | Oqual | SAMPRefVal | %DIFF | %DIFFlimit |
|---|---|---|---|---|---|---|---|---|
| N034708-001B DT 5x | Arsenic | As | µg/L | 2.72835 | NA | 2.450042 | 11.36% | 10 |
| N034708-001B DT 5x | Barium | Ba | µg/L | 109.62 | PASS | 107.8401 | 1.65% | 10 |
| N034708-001B DT 5x | Manganese | Mn | µg/L | 0 | NA | 0 | | 10 |
| N034708-001B DT 5x | Molybdenum | Mo | µg/L | 5.418279 | NA | 5.126246 | 5.70% | 10 |
| N034708-001B DT 5x | Chromium | Cr | µg/L | 0 | NA | 0 | | 10 |
| N034708-001B DT 5x | Selenium | Se | µg/L | 0 | NA | 1.905294 | 100.00% | 10 |

Note: NA - Not Applicable

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_DIS**

| Sample ID **N034708-001B-PS** | SampType: **PS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73032** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/4/2019** | SeqNo: **3340443** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 12.053 | 0.10 | 10.00 | 2.450 | 96.0 | 80 | 120 | | | | |
| Barium | 112.196 | 1.0 | 10.00 | 107.8 | 43.6 | 80 | 120 | | | | S |
| Manganese | 100.058 | 0.50 | 100.0 | 0 | 100 | 80 | 120 | | | | |
| Molybdenum | 15.515 | 0.50 | 10.00 | 5.126 | 104 | 80 | 120 | | | | |

| Sample ID **N034708-001B-PS** | SampType: **PS** | TestCode: **6020_DIS** | Units: **µg/L** | Prep Date: | RunNo: **133012** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **73032** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/4/2019** | SeqNo: **3341660** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 11.893 | 0.50 | 10.00 | 1.905 | 99.9 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

**CLIENT:** ARCADIS U.S., Inc. - California
**Work Order:** N034708
**Project:** PG&E Topock - RMP, RC000753.801D

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020DIS_CrPGE**

| Sample ID | **N034708-001B-PS** | SampType: **PS** | TestCode: **6020DIS_CrP** | Units: **µg/L** | Prep Date: | RunNo: **132982** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **73032** | TestNo: **EPA 6020** | **EPA 3010A** | Analysis Date: **4/4/2019** | SeqNo: **3340375** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.558 | 1.0 | 10.00 | 0 | 95.6 | 80 | 120 | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |

# MDL STUDY

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Amount of Sample:** 25 mL
**Units:** ug/L

| Analyte | AMT SPIKED, ppb | 1 | 2 | 3 | 4 | 5 | 6 | 7 | SD | MDL | LOD | PQL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANTIMONY | 0.50 | 0.525 | 0.514 | 0.473 | 0.500 | 0.492 | 0.486 | 0.530 | 0.0210 | 0.0660 | 0.100 | 0.50 |
| ARSENIC | 0.10 | 0.099 | 0.104 | 0.087 | 0.048 | 0.060 | 0.069 | 0.120 | 0.0259 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 1.00 | 1.041 | 1.059 | 1.052 | 1.011 | 0.967 | 0.957 | 1.023 | 0.0403 | 0.1264 | 0.250 | 1.00 |
| BERYLLIUM | 0.50 | 0.469 | 0.476 | 0.473 | 0.495 | 0.480 | 0.488 | 0.507 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.50 | 0.515 | 0.513 | 0.492 | 0.534 | 0.499 | 0.483 | 0.508 | 0.0168 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 1.00 | 0.979 | 0.986 | 0.940 | 0.990 | 0.946 | 0.978 | 0.977 | 0.0197 | 0.0618 | 0.250 | 1.00 |
| COBALT | 0.50 | 0.499 | 0.489 | 0.486 | 0.488 | 0.465 | 0.502 | 0.505 | 0.0135 | 0.0424 | 0.100 | 0.50 |
| COPPER | 1.00 | 1.110 | 0.667 | 1.039 | 1.060 | 1.006 | 1.099 | 1.075 | 0.1544 | 0.4850 | 0.500 | 1.00 |
| IRON | 10.00 | 10.873 | 10.802 | 10.142 | 9.991 | 9.846 | 9.852 | 10.596 | 0.4463 | 1.4014 | 2.500 | 10.00 |
| LEAD | 1.00 | 0.928 | 0.931 | 0.899 | 0.996 | 0.990 | 0.987 | 0.997 | 0.0406 | 0.1274 | 0.250 | 1.00 |
| MANGANESE | 0.50 | 0.577 | 0.588 | 0.561 | 0.566 | 0.517 | 0.541 | 0.520 | 0.0276 | 0.0866 | 0.100 | 0.50 |
| MOLYBDENUM | 0.50 | 0.514 | 0.504 | 0.467 | 0.478 | 0.456 | 0.433 | 0.527 | 0.0338 | 0.1061 | 0.250 | 0.50 |
| NICKEL | 1.00 | 0.961 | 0.965 | 0.977 | 0.907 | 0.914 | 0.962 | 1.075 | 0.0551 | 0.1731 | 0.250 | 1.00 |
| SELENIUM | 0.50 | 0.450 | 0.478 | 0.419 | 0.693 | 0.707 | 0.495 | 0.555 | 0.1155 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.50 | 0.558 | 0.511 | 0.490 | 0.542 | 0.458 | 0.490 | 0.684 | 0.0745 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.50 | 0.437 | 0.428 | 0.408 | 0.538 | 0.446 | 0.438 | 0.525 | 0.0504 | 0.1583 | 0.250 | 0.50 |
| URANIUM | 0.50 | 0.478 | 0.467 | 0.461 | 0.517 | 0.510 | 0.521 | 0.521 | 0.0267 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 1.00 | 0.950 | 0.969 | 0.900 | 0.844 | 0.829 | 0.848 | 1.053 | 0.0820 | 0.2574 | 0.500 | 1.00 |
| ZINC | 10.00 | 11.259 | 11.279 | 10.915 | 9.620 | 9.849 | 9.745 | 10.241 | 0.7235 | 2.2717 | 2.500 | 10.00 |

**Method Detection Limit**

**Analytical Method:** EPA 6020 / 200.8
**Digestion Method:** EPA 3010A
**Date of Analysis:** 9/25,10/2,11/3/17
**Digestion Date:** 9/21, 9/28,10/9/17
**Instrument Name:** ICPMS2
**Analysts:** MEI

**Matrix:** Water
**Units:** ug/L

| Analyte | MDLs | MDLb | MDL | LOD | PQL |
|---|---|---|---|---|---|
| ANTIMONY | 0.0660 | 0.1564 | 0.1564 | 0.300 | 0.50 |
| ARSENIC | 0.0813 | 0.0387 | 0.0813 | 0.080 | 0.10 |
| BARIUM | 0.1264 | 0.1497 | 0.1497 | 0.300 | 1.00 |
| BERYLLIUM | 0.0424 | 0.0153 | 0.0424 | 0.100 | 0.50 |
| CADMIUM | 0.0527 | 0.0060 | 0.0527 | 0.100 | 0.50 |
| CHROMIUM | 0.0618 | 0.1298 | 0.1298 | 0.300 | 1.00 |
| COBALT | 0.0424 | 0.0339 | 0.0424 | 0.100 | 0.50 |
| COPPER | 0.4850 | 0.5459 | 0.5459 | 0.600 | 1.00 |
| IRON | 1.4014 | 4.3484 | 4.3484 | 5.000 | 10.00 |
| LEAD | 0.1274 | 0.1008 | 0.1274 | 0.300 | 1.00 |
| MANGANESE | 0.0866 | 0.2552 | 0.2552 | 0.300 | 0.50 |
| MOLYBDENUM | 0.1061 | 0.2149 | 0.2149 | 0.300 | 0.50 |
| NICKEL | 0.1731 | 0.2606 | 0.2606 | 0.300 | 1.00 |
| SELENIUM | 0.3628 | 0.0953 | 0.3628 | 0.400 | 0.50 |
| SILVER | 0.2340 | 0.2023 | 0.2340 | 0.250 | 0.50 |
| THALLIUM | 0.1583 | 0.1924 | 0.1924 | 0.300 | 0.50 |
| URANIUM | 0.0838 | 0.0020 | 0.0838 | 0.100 | 0.50 |
| VANADIUM | 0.2574 | 0.2768 | 0.2768 | 0.600 | 1.00 |
| ZINC | 2.2717 | 0.4511 | 2.2717 | 3.000 | 10.00 |